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The Magazine of the American Horticultural Society

July / August 2013

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Heritage Fruit
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Six Minerals for
Gardening Success

Hostas *by*
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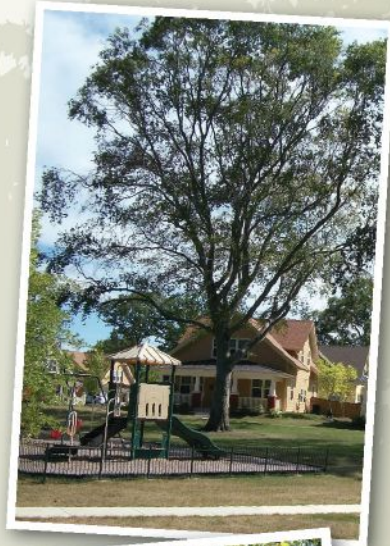
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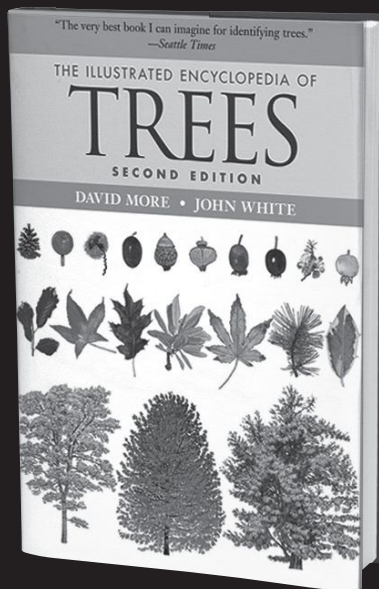
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NOTES FROM RIVER FARM

AWARDS AND recognition have played a big role in the American Horticultural Society's activities this spring. While our own long-running national awards program regularly allows us to honor outstanding individuals and organizations for their achievements, I'm pleased to report that this year we were also on the receiving end.

In mid-May, the National Garden Clubs (NGC) presented its prestigious Award of Excellence to the American Horticultural Society at its annual convention in Seattle, Washington. Each year the NGC recognizes a handful of individuals and organizations for their dedication to the clubs' ideals of promoting gardening, civic beautification, and environmental stewardship. This distinction served as a tangible validation of the importance of our work and has energized our Board, staff, and volunteers. (For more on the NGC award, turn to page 8.)

In June, the gardens at our River Farm headquarters were once again the setting for our annual Great American Gardeners and Book Awards ceremony. Even a rainy evening that shortened exploration of the gardens didn't dampen the sense of pride and accomplishment among this year's award winners, who came from all over the country. While the primary goal of any awards program is to provide a public and well-deserved pat on the back, there is an additional and perhaps even more meaningful result—one of setting the bar higher for others and serving as inspiration for those who also strive to make a difference in their regions, states, and communities.

I'd like to take this opportunity to remind you that as an AHS member you have an opportunity to help us identify deserving candidates for our awards program. Nominations are currently open for our 2014 Great American Gardeners Awards—you can find a nomination form and other information about the awards on our website (www.ahs.org).

Last but not least, I have to share with you a photograph of an extraordinary blooming plant that I came across on a side trip during my visit to Seattle. It was growing in the Bellevue Botanical Garden in Bellevue, Washington, a wonderful urban refuge that I was exploring with local AHS members Terry Hayes and Marcia Zech (Marcia is also on our Board of Directors). If you can identify the flower in the photo, please send the name (common or botanical) to me at tunderwood@ahs.org. We'll enter all the correct responses in a drawing for a copy of *The Gardener and the Grill*, which was featured among the books reviewed in the May/June issue of *The American Gardener*.



If you can identify this plant, you might win a gardening cookbook!

Happy gardening!
Tom Underwood, Executive Director

P.S. AHS Board Chair Harry Risetto is taking a break exploring the gardens of northern Italy on one of the AHS Travel Study tours. He'll be collaborating on this column again in the next issue.

The American GARDENER

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MEMBERS' FORUM

APPRECIATION FOR CREASY

Hooray for Rosalind Creasy and edible gardening. Thanks for publishing Anne Raver's excellent article on her in the May/June issue of *The American Gardener*.

Alice Bojanowski
West Palm Beach, Florida

ZINNIA CORRECTIONS

I enjoyed Rand Lee's article on zinnias (May/June 2013), but it presents an oft-repeated notion that Johann Zinn described the first zinnia. That honor goes to Linnaeus, who first described *Chrysogonum peruvianum* in 1753, but transferred the species to his new genus *Zinnia* in 1759. Zinn described a species of *Rudbeckia* in 1757 and provided an excellent drawing of it. Linnaeus realized that Zinn's species and his own were identical and placed it as a synonym of what then became *Zinnia peruviana* Linnaeus. Because Linnaeus named the species before Zinn, it had priority regardless of the genus in which it was originally described.

Aside from the Linnaeus/Zinn issue, a couple of species names in the article

were incorrect: *Z. linearis* was given as a synonym for *Z. haageana*, but it is actually a synonym of *Z. angustifolia*, which is a valid named species in its own right, not a synonym of *Z. peruviana* as stated. Not that any of this detracts from—nor matters to—the flamboyant zinnia itself!

Eric Grissell
Sonoita, Arizona

Editor's note: We appreciate Eric Grissell's corrections, which are based on research he is doing for a book. Grissell is an entomologist, formerly with the U.S. Department of Agriculture, and author of two gardening books, including *Insects and Gardens: In Pursuit of a Garden Ecology* (Timber Press, 2001), which received an AHS Book Award in 2002.

INDEBTED TO SEED SAVERS

In the article on heirloom tomatoes ("A Spectrum of Heirloom Tomatoes," March/April 2013) the author references owing a "debt of thanks" to seed companies who sell seeds despite the "risk of

customers saving seeds for themselves." I believe the seed companies owe a "debt of thanks" to the many farmers who, over the years, have collected, treasured, and passed down for generations these lovely seeds, which otherwise would have been lost.

If it were not for these devoted seed savers there would be no companies, large or small, selling treasured heirloom seeds.

Sharon S. Dockter
Alachua, Florida

Editor's note: We couldn't agree more. In fact, many of the small-scale seed companies and exchanges that author Craig LeHoullier was referring to were started by farmers and backyard gardeners who wanted to preserve the heirlooms their neighbors and friends were growing. 🌱

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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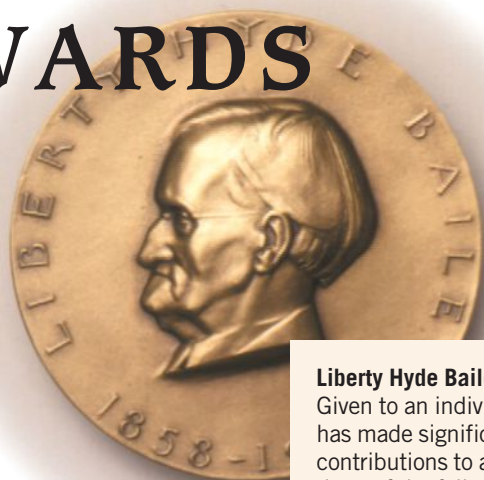
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Call for Nominations

AMERICAN HORTICULTURAL SOCIETY 2014 GREAT AMERICAN GARDENERS AWARDS



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For a nomination form and additional information, visit www.abs.org or call (703) 768-5700 ext. 121.

Nominations must be submitted by September 30, 2013.



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HERRERA-CAMPBELL PHOTOGRAPHY

2013 B.Y. Morrison Communication Award
Melinda Myers

Liberty Hyde Bailey Award

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Given to an individual whose work has demonstrated and promoted the value of sound horticultural practices in the field of landscape architecture.

2014 AWARDS

Meritorious Service Award

Recognizes a past Board member or friend of the American Horticultural Society for outstanding service in support of the Society's goals, mission, and activities.

B. Y. Morrison Communication Award

Recognizes effective and inspirational communication—through print, radio, television, and/or online media—that advances public interest and participation in horticulture.

Frances Jones Poetker Award

Recognizes significant contributions to floral design in publications, on the platform, and to the public.

Professional Award

Given to a public garden administrator whose achievements during the

course of his or her career have cultivated widespread interest in horticulture.

Catherine H. Sweeney Award

Recognizes extraordinary and dedicated philanthropic support of the field of horticulture.

Jane L. Taylor Award

Given to an individual, organization, or program that has inspired and nurtured future horticulturists through efforts in children's and youth gardening.

Teaching Award

Given to an individual whose ability to share his or her horticultural knowledge with others has contributed to a better public understanding of the plant world and its important influence on society.

Urban Beautification Award

Given to an individual, institution, or company for significant contributions to urban horticulture and the beautification of American cities.



CONTACTS FOR AHS PROGRAMS, MEMBERSHIP BENEFITS & DEPARTMENTS

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INTERNSHIP PROGRAM The AHS offers internships in communications, horticulture, and youth programs. For information, send an e-mail to education@ahs.org. Information and application forms can also be found in the Gardening Programs area of www.ahs.org.

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

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 in the Gardening Programs area of www.ahs.org. 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. 132, send an e-mail to jsawczuk@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

July / August 2013

PROGRAMS • EVENTS • ANNOUNCEMENTS

AHS RECEIVES AWARD OF EXCELLENCE

THE AMERICAN HORTICULTURAL SOCIETY (AHS) has received a 2013 Award of Excellence, one of three given this year by the National Garden Clubs Inc. (NGC), the largest volunteer gardening organization in the world. AHS Executive Director **Tom Underwood** accepted the award on behalf of the Society at the NGC's annual convention on May 25 in Seattle, Washington.



"We are so honored to receive this prestigious award in recognition of the Society's important contributions to American gardening and horticulture over the last 90 years," says Underwood.

NGC presents the Award of Excellence to an individual, organization, or institution that has made a significant contribution toward the advancement of the NGC's goals and mission. The AHS was selected for its national outreach initiatives and education programs, such as its groundbreaking annual National Children & Youth Garden Symposium.

AHS Executive Director Tom Underwood accepts the 2013 Award of Excellence at the NGC convention in May.

In addition to the AHS, the NGC also presented its highest award this year to **William Cullina**, executive director of Coastal Maine Botanical Garden in Boothbay, and **William McNamara**, executive director of Quarryhill Botanical Garden in Glen Ellen, California. For more information about this award program, visit www.gardenclub.org.

CELEBRATING GREAT AMERICAN GARDENERS

ON JUNE 6, the AHS's board members and staff welcomed this year's Great American Gardeners Award and Book Award recipients to River Farm to honor their achievements. These awards recognize outstanding contributions to horticulture in multiple disciplines such as research, garden communication, and youth gardening.

The AHS's top honor, the Liberty Hyde Bailey Award, was presented to **Paul E.**



AHS Board member Mary Pat Matheson, Paul Capiello, and AHS Executive Director Tom Underwood.

Capiello, executive director of Yew Dell Botanical Gardens in Crestwood, Kentucky, in recognition of his leadership and contributions to the field of horticulture through research, education, plant breeding, and writing. Eleven other Great American Gardeners Awards were presented, including the Landscape Design Award to **Sandra Youssef Clinton** of Hyattsville, Maryland; and the Jane L. Taylor Award to the **Edible Schoolyard Project** in Berkeley, California, for promoting gardening for youth.



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THE AMERICAN HORTICULTURAL SOCIETY TRAVEL STUDY PROGRAM TOURS



TOUR SPOTLIGHT



Gardens, Wine & Wilderness: A Tour of New Zealand

January 11–26, 2014

New Zealand is a land of spectacular coastlines, dramatic mountain peaks and glacier-carved fjords, ancient temperate rainforests, breathtaking waterfalls, fruitful vineyards, and exceptional public and private gardens. AHS Board member Jane Diamantis and her husband, George, will host this trip. Richard Lyon of Garden Adventures, Ltd., will serve as tour leader.

A brochure describing the itinerary can be downloaded on the AHS website. Accommodations for this program are limited; please make reservations early.

OTHER UPCOMING TRAVEL DESTINATIONS

The Heritage and Gardens of Andalusia with Madrid

October 21–November 1, 2013

Gardens of Normandy

September 9–19, 2014

For more information about the AHS Travel Study Program or to be added to our mailing list, please contact Joanne Sawczuk at jsawczuk@ahs.org, call (703) 768-5700 ext. 132, or visit www.ahs.org.

Participation in the Travel Study Program benefits the work of the American Horticultural Society and furthers our vision of *Making America a Nation of Gardeners, A Land of Gardens.*



AHS 2013–2014 NATIONAL EVENTS 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.

AUG. 16–18. **The Homestead's "In the Garden" Weekend.** Hot Springs, Virginia.

SEPT. 19–21. **America in Bloom Symposium and Awards Program.** Orlando, Florida.

SEPT. 21. **AHS Annual Gala.** River Farm, Alexandria, Virginia.

OCT. 21–NOV. 1. **The Heritage and Gardens of Andalusia with Madrid.** AHS Travel Study Tour. Spain.

DEC. 2–20. **Holiday Trees Display.** River Farm, Alexandria, Virginia.

JAN. 11–26, 2014. **Gardens, Wine & Wilderness: A Tour of New Zealand.** AHS Travel Study Tour. New Zealand.

Six AHS Book Awards also were presented to exemplary gardening books published in 2012. For the full description of awards and recipients, see the "AHS News Special" in the March/April issue of *The American Gardener*, or visit the AHS website at www.ahs.org.

HOMESTEAD "IN THE GARDEN" SYMPOSIUM

ENJOY AN educational, yet relaxing weekend at the 15th annual "In the Garden" symposium at the Homestead Resort in the beautiful mountains of Hot Springs, Virginia. The weekend getaway, for which the AHS is a sponsor, will be held from August 16 to 18. Participants will be able to attend seminars by gardening experts, tour the Homestead's gardens, and enjoy a wine tasting.



The Homestead Resort in Hot Springs, Virginia

The keynote speaker for the weekend is **Andre Viette**, noted horticulturist and host of the "In the Garden" radio show. He will be speaking about what's new in gardening this year and offering "The Best Garden Tips from Three Generations of Viettes." Other speakers will address topics such as landscape design and woodland plants.

For more information about the "In the Garden" weekend and to register, visit www.thehomestead.com.

AMERICA IN BLOOM SYMPOSIUM AND AWARDS CEREMONY

"CREATE THE MAGIC" is the theme of the 12th annual America in Bloom (AIB) Symposium and Awards, which will be held in Orlando, Florida, from September 19 to 21. This event is a celebration of community beautification efforts across the country as well as an educational opportunity for anyone interested in becoming involved.

Each year, America in Bloom sends specially trained judges to visit and evaluate the communities entered in the AIB's Outstanding Achievement Awards competition. The symposium will kick off with a banquet during which award winners will be announced in six specific categories, including floral displays, landscaped areas, and environmental efforts. As a longtime partner of the AIB in its mission to promote nationwide beautification, the AHS sponsors the Community Involvement Award, given in recognition of extraordinary teamwork.

The following days will be filled with lectures on city beautification, a visit to the Henry P. Leu Gardens, an early morning before-the-park-opens tour of Epcot's World Showcase, The Landscape Show, and the opportunity to get some tips from horticulturists from Epcot, Walt Disney World, and Sea World. The event will conclude with a banquet and presentation of awards for communities based on population. For more information or to register, call (614) 487-1117 or visit www.americainbloom.org.

Start Saving Seeds to Share

It's only the middle of summer, but it's already time to think about collecting seeds for the annual AHS Seed Exchange to send in this fall. This program allows members to share



seeds from their gardens with each other. Over the years, members have sent in hundreds of species and varieties, many of which are unique or rare. Several seed companies also supplement the selection with interesting seeds of their own. And remember, those who donate

seeds get first pick of the entire collection and some of the seeds are in short supply. Look for a seed donation form in the next issue of *The American Gardener*.

SAVE THE DATE: AHS ANNUAL GALA

THE THEME for the AHS's 19th annual gala, which will be held on September 21 at its River Farm headquarters in Alexandria, Virginia, is "Moonlight in the Garden." This black-tie event will include a formal dinner, live music, and beautiful gardens overlooking the Potomac River. There will also be a silent auction and online auction of items donated by local businesses, artisans, and other supporters. All proceeds from the gala support the stewardship of River Farm and the Society's outreach and educational programs. **Mark Warner**, current U.S. Senator and former governor of Virginia, will be the honorary chair of this event. For more information or to reserve tickets, call (703) 768-5700.



The American Horticultural Society
20th Annual Gala
Moonlight in the Garden

Saturday, September 21, 2013
6 p.m.–10 p.m.
at River Farm, Alexandria, Virginia

The American Horticultural Society's Board of Directors invites you to our 20th Annual Gala, "Moonlight in the Garden." With 25 acres of lawn, meadows, woodlands, formal gardens, and scenic views of the Potomac River, River Farm is a place of natural year-round beauty and will be especially enchanting for this event under the moon and stars.

The Honorable Mark Warner, United States Senator from Virginia, is our Honorary Gala Chair.

This festive evening will include an elegant formal dinner and silent auction. Attire is black-tie. Advance reservations only: Tables for 10 and individual tickets are available.

Sponsorship opportunities are also available.

Online Auction

In conjunction with the annual Gala, the American Horticultural Society is proud to announce its fifth annual online auction, featuring an array of exclusive experiences and special offerings. The auction is your chance to bid on once-in-a-lifetime opportunities to spend time as guests of a prominent American horticulturist, botanic garden director, or landscape designer.

■ Visit www.bluetreemarketing.com/ahs for more about the auction.

For more information about the Gala, or to purchase tickets:

Please contact Joanne Sawczuk at (703) 768-5700 ext. 132 or e-mail jsawczuk@ahs.org.

All proceeds from the Gala and Online Auction benefit the stewardship of River Farm and the American Horticultural Society's outreach and educational programs.

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 May 1, 2013, and June 30, 2013.

\$1,000+ Gifts

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If you would like to support the American Horticultural Society as part of your estate planning, as a tribute to a loved one, or as part of your annual charitable giving plan, please contact Scott Lyons at slyons@ahs.org or call (703) 768-5700 ext. 127.

WATERCOLORS AT RIVER FARM

THROUGH SEPTEMBER 25, an art exhibit by **Salon 8** will adorn the walls of the estate house at the American Horticultural Society's River Farm headquarters. It will include watercolors of landscapes, plants and florals, views of River Farm, and also a special collection of magnolia blossom paintings by eight



This watercolor painting of River Farm's Estate House by Donna Sturm is on display as part of the Salon 8 art exhibit at River Farm.

local artists. Exhibiting their work regionally and nationally, the Salon 8 artists are known for their "passion for the natural world and love of capturing it through the challenging medium of watercolor." All artwork is for purchase (on site only), and a portion of the proceeds will go to support River Farm and the AHS's outreach programs.

FALL TRIP TO SOUTHERN SPAIN

THIS YEAR'S AHS Travel Study Program will conclude with an exciting trip to southern Spain to experience the "Heritage and Gardens of Andalusia with Madrid" from October 21 to November 1. **John Floyd**, former editor-in-chief and vice president of *Southern Living* magazine, will be the AHS host for this adventure. Floyd is a past AHS Board of Directors member and a seasoned traveler with a wealth of horticultural knowledge. The trip's itinerary includes visits to some of the region's most impressive public sites,



John Floyd will host the Spain trip.

such as the Alhambra, as well as private gardens opened especially for this tour. Participants will also visit several important cultural and historical attractions and enjoy Spanish cuisine at its finest. To make a reservation, contact **Joanne Sawczuk** at jsawczuk@ahs.org or (703) 768-5700 ext. 132.

News written by Editorial Intern Missy Katner.

How will you invest your social capital?



Social capital is the money each of us has to contribute to the betterment of our world.

If you have no interest in how it is invested, you can leave decisions to state and federal taxing authorities.

But that is not your only option. You may choose to allocate your social capital to the American Horticultural Society, creating a greener, healthier, more beautiful America, while oftentimes earning a tax deduction simultaneously. Here are some options to consider:

- Remember the Society in your will, designating a specific amount (e.g. \$250,000), a percentage (e.g. 25%), or the remainder after provisions for your loved ones.
- Name the Society as the beneficiary of a life insurance policy, a retirement fund, or a bank account.
- Make a gift of long-term appreciated stock and avoid capital gains tax.
- Make a gift of your residence, farm, or vacation home and retain the right to live in the property.
- Establish a trust or charitable gift annuity that provides you income during your lifetime and establishes a legacy at the Society upon your passing—while earning a charitable gift deduction in the process.



We will be pleased to discuss any options that interest you.
Contact Scott Lyons, Director of Institutional Advancement
at slyons@ahs.org or (703) 768-5700 ext. 127.



Rare Fruits at Filoli

The restoration of an heirloom orchard at a northern California estate offers visitors a taste of the past and hope for the future.

ARTICLE AND PHOTOGRAPHS BY NAN STERMAN

THE ENTRANCE to Filoli is up a long, winding drive from the main road, past fields of hay for livestock. In the parking lot, visitors park beneath mature olive trees, remnants of a grove planted nearly 100 years ago. Glancing up through the olives, there's a view of a large, Georgian Revival-style home; its brick with white columns is an unusual sight in earthquake-prone California. Downhill is a tall chain-link fence. Beyond the fence are hundreds of fruit trees.

On this beautiful September day, the annual "Autumn at Filoli Festival" is in full swing. Some visitors have come to decorate pumpkins, others to visit Filoli's famous formal gardens in their fall splendor. Others, like me, have come to see the recently restored historic



During the "Autumn at Filoli Festival," visitors can view displays of the heirloom apples, top, and other fruits grown in Filoli's recently restored Gentlemen's Orchard, above, as well as sample many of the varieties.

Gentlemen's Orchard and taste the heritage fruits grown there.

In the crowd gathering for the fruit tasting in a large meeting room are people of all ages. Once inside, we are greeted by enormous displays of grapes, apples, quinces, and pears, all from Filoli's orchards and all labeled by variety.

Twenty or so volunteers sit behind the tables in the center of the room, each equipped with paper plates, toothpicks, a paring knife, and crates of apples—red, yellow, blush, and russet—along with green pears, red pears,

Asian pears, green grapes, red grapes, purple grapes, and golden quinces.

The room buzzes as people comment, often with surprise, on the diversity of tastes and textures of fruits they are sam-



Tasting different heirloom fruits is one of the highlights of Filoli's autumn festival.

pling. Many are amazed to discover how much variety there is, since their local supermarket offerings are so limited.

Variety is exactly the point of Filoli's heritage orchard, so when visitors are done tasting, they are invited to tour the orchard and see the trees and vines that produce the fruits for the day's event.

GOLD RUSH LEGACY

While a few large estates have been preserved in close to their original states in the eastern United States—Thomas Jefferson's Monticello and George Washington's Mount Vernon, for instance—they are extremely rare in the West. Filoli stands alone, certainly in California, and its Gentlemen's Orchard is unique for the region.

Filoli is located in Woodside, California, about 30 miles south of San Francisco. Between 1915 and 1917, about 16 acres of the 654-acre property were developed by William Bowers Bourn II and his wife, Agnes, who created a country home and gardens there.

Filoli was built at a time when San Francisco had largely recovered from the devastation of the 1906 earthquake. Families of fortune were in the second or third generation following the era of gold miners and railroad tycoons, many having benefitted from the bravery—or in some cases bravado—of parents or grandparents who came west to find their fortunes in the Golden State.

William Bowers Bourn II was one of those offspring. Bourn's father, William Bowers Bourn I came to California from

Massachusetts in 1850. Bourn senior was an entrepreneur who owned and operated the Empire Mine, one of California's oldest, largest, and most productive mines (today it is the Empire Mine State Historic Park). After his father died, the younger Bourn took control of the family business. Over his lifetime, he expanded his holdings to include, among other things, Greystone Winery in the now-famous Napa Valley and the Spring Valley Water Company, which the City of San Francisco purchased for \$40 million in 1930 to supply its growing population.

Before Filoli, Bourn, his wife, and daughter lived in San Francisco, the financial heart of the state. When they could, they and their contemporaries escaped San Francisco's chill and fog for country estates in the south, where summers are warm and skies are blue.

It was fall of 1917 when the Bourn family

from Italian Renaissance design as he laid out garden rooms that include an allée and a sunken garden. Worn took the lead selecting plants and creating colorful plantings.

Country properties like Filoli were essentially small towns with owners and resident staff to support, so agricultural self-sufficiency was a necessity. In the case of the Bourns, what they grew at Filoli also had to supply the Empire Mine, their winery in Napa Valley, and their home in San Francisco. A large kitchen garden with espaliered fruit trees, vegetable gardens, and a cutting garden—along with chickens, cows, and sheep—produced food for all their properties.

Alex Fernandez, Filoli's manager of horticultural operations, says the concept behind the Filoli's overall design was common for country estates. "You entered through



Designed by San Francisco architect Willis Polk in the style of a Georgian English country home, Filoli's house now exhibits a collection of 17th- and 18th-century English antiques.

moved into their new, 36,000-square-foot country home not far from Stanford University. Artist and landscape designer Bruce Porter and horticulturist Isabella Worn were hired to help develop the gardens and surrounding property. Porter took his cues

agricultural fields," Fernandez says, "which gave way to orchards, which gave way to formal landscapes. That's the typical design—start wild, then become more cultivated as you approach the house."

EVOLUTION OF THE ORCHARD

Somewhere between wild and formal stood the orchards. Olives were planted in the upper orchard where rockier, warmer, better-draining soils suited their Mediterranean origins. Deciduous fruit trees, mostly apples and pears, were

What's in a Name? Filoli is a contraction of William Bourn II's credo: "Fight for a just cause; Love your fellow man; Live a good life."

planted in the lower orchard where the cooler air settles. Cooler air translates to higher chill factor, which greatly increases the production of deciduous fruits in mild climates like Woodside's.

"The orchard's original plot plan," says Fernandez, "covered 10 acres. Trees were planted on a 20-by-20-foot grid so there was room for about 1,000 trees."

Along with Fernandez, a key player in the Filoli orchard story is Lucy Tolmach, who started as head gardener at Filoli in 1977. Over the course of her 35-year career at Filoli, Tolmach, who retired last year as director of horticulture, became a living part of the estate's history. The concept of a "Gentlemen's Orchard," she says, was introduced to the United States by Thomas Jefferson, who developed a fruit collection at Monticello. "It was an Old World idea, to collect the best fruits...to grow fruit, which is one of the hardest things to grow," Tolmach says.



"It's one of the things you can't get—then or now—as good as when you grow it yourself. It was a thing that men did once they had the land, the money, and the power."

According to Tolmach, Bourn scoured fruit catalogs looking for new varieties. "Bourn would read about a particular variety and want it for its flavor or its value in history, but he didn't really know whether it would grow well in his location." He chose varieties based on when they would ripen, their flavor, their size, their beauty. It was a process of trial and error to discover the best selections.

Growing lots of varieties translates to an extended harvest period because some varieties ripen early, some mid-season, and some late in the season. To preserve the harvest, Bourn had a fruit cellar—open for tours during the autumn festival—built into a hillside adjacent to the orchard. While his gardeners laboriously wrapped each piece of fruit in tissue paper before packing it carefully into the fruit cellar, it turned out



Lucy Tolmach, left, worked at Filoli for 35 years and was one of the driving forces behind the restoration of the historic Gentlemen's Orchard. Above: Manager of Horticultural Operations Alex Fernandez harvests apples in the Gentlemen's Orchard.

the cellar was not always cool enough to prevent the fruit from spoiling.

The Bourns both died in 1936, and the estate was sold to William P. and Lurline Matson Roth, who owned Matson Navigation Company, a huge shipping line. Lurline Roth again turned to Isabella Worn for help adding collections of plants to the formal

gardens. The Roths also continued the tradition of planting fruit trees in the orchard.

SLOW PATH TO RESTORATION

Unfortunately, neither Bourn nor Roth kept track of the fruit varieties that performed well or poorly. So, when the National Trust for Historic Preservation took

Visiting Filoli

Filoli, 86 Cañada Road, Woodside, CA 94062. (650) 364-8300. www.filoli.org.

Filoli is open Tuesdays through Saturdays from 10 a.m. to 3:30 p.m., and Sundays 11 a.m. to 3:30 p.m. It is closed on major holidays (check website for schedule) and closes for the season October 27. Admission fees are: Adults \$15; seniors \$12 (65 years and older); students \$5; children 4 years and younger free. Admission is free for Filoli members.

Note: This year's "Autumn at Filoli Festival" will be held September 28.

over the property in 1975, records were scarce, as were the resources to support the gardens. Much to the dismay of Lucy Tolmach and other Filoli staffers, the decision was made to abandon areas the public was less likely to see, including the fruit orchard, which was soon separated from the main grounds by the parking lot that replaced most of the olive trees.

For years afterwards, Tolmach dreamed of rehabilitating and restoring the orchard as a significant feature of Filoli's historic

varieties of apples, pears, grapes, figs, and stone fruits such as peaches, plums, and apricots—in his orchard in Santa Clara County, a bit southeast of Filoli.

By the mid-1990s, the collection was outgrowing Kennedy's space, so he had to make some hard decisions. His stone fruit collection went to the USDA's National Clonal Germplasm Repository for Fruit and Nut Crops at the University of California–Davis, one of dozens of federally coordinated gene banks that preserve genetic material from



Among the unusual fruits in Filoli's orchard are medlars (*Mespilus germanica*), which have a history of cultivation in Europe dating back thousands of years. The ripe fruit of this hawthorn relative has mushy, brownish flesh that is reputed to taste similar to baked apples.

interpretation. Finding a source of heritage fruit trees, however, was a major impediment. In the mid-1990s, opportunity knocked in the form of Todd Kennedy, an agricultural attorney who inherited an interest in fruit trees from both his parents. "On my mother's side," Kennedy says, "there was a citrus and avocado ranch in Orange County going back to 1911. On my father's side were apricots and prunes in Santa Clara going back to 1920. The weekends of my youth were spent at the family ranch in Los Gatos working on fruits. On longer vacations I was sent south to the Orange County ranch to help out."

From his childhood experience, Kennedy developed an extensive knowledge of fruit varieties and how to grow them. Over the years he also amassed a sizeable collection of fruit trees—including seldom-seen

edible plants as part of the U.S. National Genetic Resources Program. Germplasm repositories are intended to ensure crop diversity for future generations and to support agricultural research.

For decades, Kennedy had also been active with the California Rare Fruit Growers (see "Sources," page 18), a group of fruit enthusiasts dedicated to the preservation, education about, and propagation of non-commercial fruits. The chapter in his region had an opportunity to establish a collection of apples and pears in Mendocino, well north of San Francisco. In preparation for that project, Kennedy propagated hundreds of trees from his collection. When the project fell through, his trees needed a home, so he offered them to Tolmach.

Tolmach viewed the orchard's restoration not only as an addition to the gar-

TIPS FOR SELECTING FRUITING PLANTS

A 1,000-tree orchard gave the Bourns and the Roths plenty of room to experiment to see which varieties would thrive in Filoli's orchard. Choosing the best varieties is especially challenging here in the western United States, where the varied topography makes for countless combinations of soils and microclimates.

Today few homeowners have the luxury of space, but we have a far larger base of knowledge as to which varieties do best under what conditions. We also have a far larger selection of trees bred and/or grafted to suit different circumstances. So, whether you are buying apples or apricots, grapes or blueberries, here are the factors to keep in mind when you shop for fruiting trees, shrubs, and vines. When in doubt, ask your vendor for advice on selections appropriate for your region.

Fruit flavor Choose a variety of fruit whose taste and texture appeal to you.

Ripening time Harvesting times for fruits can differ by selection—some ripen early, some mid-season, and others later. If you are careful to select fruits with a variety of ripening times, you could have something ripe almost year round.

Rootstock Many types of fruits are grafted onto rootstocks chosen for a specific set of characteristics such as dwarfing, disease resistance, soil suitability, etc. It is as important to choose the best rootstock as it is the best fruit.

Chill hours Look at the chill requirements for each fruit. A chill hour is any hour when temperatures are below 45 degrees Fahrenheit. The accumulated chill is critical to fruit production. Select varieties whose chill hour requirement is *no higher* than the chill hours in your garden. In the western U.S., for example, chill hours for coastal regions might be 200 or fewer, while inland valleys might receive 400 chill hours, and at higher elevations chill hours could be 800 or more.

—N.S.

den's interpretation, but as an opportunity to attract a new audience to Filoli—young families. "While the rest of garden is classical and beautiful, it's not the same kind of draw that a culinary garden is," Tolmach explains. The orchard, she believed, would expand visitorship by adding a place to show firsthand where fruit comes from and teach a variety of related topics.

Already, Filoli hosted a small autumn festival that included fruits from the declining orchard for tasting, homemade ciders and jams for sale, tours and more. It was one of Filoli's most popular events, especially for families with small children, a fact Tolmach highlighted in her proposal to Filoli's board to rejuvenate and expand the orchard.

REPLANTING THE ORCHARD

The board approved a small amount of money to get the project started, though the logistics were daunting. By fall of 1997, the orchard had been neglected for close to two decades. It was filled with poison oak and coyote brush. Browsing deer had limbed up the branches so the surviving trees, only a hundred or so, were all umbrella-shaped. "If you stood in the parking lot," recalls garden manager Alex Fernandez, "you wouldn't even know the orchard was there."



Kristen Williams, a Filoli intern, shows off a bunch of grapes in the Gentlemen's Orchard.

Sources

Here are sources for some of the heritage fruit selections grown at Filoli. Most nurseries ship fruiting plants only while they are dormant in winter and early spring.

The Arboreum Company, Philo, CA.
www.arboreum.biz. (Todd Kennedy's online offering of fruit trees.)

California Rare Fruit Growers,
www.crfg.org. (The largest amateur fruit-growing organization in the world.)

Dave Wilson Nurseries, Hickman, CA.
www.davewilson.com/home-gardens. (Primarily wholesale but provides list of retail nurseries that carry their fruiting plants.)

Trees of Antiquity, Paso Robles, CA.
(805) 467-9909. www.treesofantiquity.com. (Retail and wholesale nursery specializing in organically grown heirloom fruits.)

Tolmach acted as project administrator and Fernandez was charged with implementation. "Step one was stabilizing the orchard so when we added new trees, they'd survive," Fernandez says. It took weeks to clear the orchard and define the fence line for a tall deer fence.

Once the area was cleared, they could see the orchard's layout and topography, where it was sunny and where it was shady, and variations in the soil from area to area. Grading came next, then the deer fence.

The crew dug a new mainline for irrigation from the far side of the upper orchard, but it wasn't until later that there was enough money to actually install the irrigation system.

In the meantime, Kennedy was hard at work identifying the surviving trees, propagating them, grafting them onto new rootstocks, and then replanting them in the orchard. He also propagated other varieties appropriate for an estate orchard of that time period and location.

Fernandez and Kennedy planted the very first tree in the winter of 1999. It was a 'Rescue' pear, according to Fernandez, the first of 225 trees they planted that season. Fernandez chuckles at the memory, "It was unimpressive, honestly. After 18 months of work, the trees were *so* small."

Trees were hand-watered with hoses for the first year or two until the irrigation system was installed. Today, there are nine irrigation zones, each of which waters about 100 trees.

Between 2000 and 2006, 60 to 100 trees were added each year. Some room still remains, according to Fernandez, but now, his crew plants just 20 or 30 trees each year, mostly to replace those lost to age or disease, or to refine the collection.

ADDING NEW FRUITS

Since neither Bourn nor Roth kept records of what they grew, Tolmach and Fernandez added other deciduous fruits appropriate to the era and area, including English walnuts (grafted onto Cali-



A tall fence protects the trees in the Gentlemen's Orchard from deer and other animals, above. Filoli staff horticulturist Kate Nowell, left, displays chestnuts harvested from the orchard.



Growing those non-commercial varieties is important as well for maintaining the genetic heritage of America's apples. According to Kennedy, the national germplasm repository for apples in Geneva, New York, is currently overcommitted. "It can't receive any more varieties," Kennedy says, "It's lacking about 1,000 accessions [different apple selections] in the U.S. that should be preserved but unfortunately are not." It's up to private citizens, he notes, to maintain those varieties if they are to be saved at all. Some of these are growing in Filoli's orchard.

If there is hope, it may lie in igniting the passion of the young people who visit Filoli's orchard during the autumn festival and for the educational sessions throughout the growing season. Judging by the smiling young faces I saw at the fruit tasting, that event at least is doing its part to captivate the interest of the younger generation. 🍂

Nan Sterman is a garden communicator, consultant, and designer based in Encinitas, California. For more about Sterman, visit www.plantsoup.com.

fornia walnut rootstock), persimmons, grapes, peaches, plums, along with less commonly grown fruits such as quinces, Asian pears, mayhaws, crabapples, chestnuts, hawthorns, hazelnuts, and medlars. "Wealthy estate owners like Bourn traveled to Europe regularly," says Fernandez "so it's reasonable to think he could have brought fruits like these back."

The primary focus is still on apples, though Fernandez, Tolmach, and Kenne-

dy are all quick to point out that the apple collection is intended to represent Bourn's collection rather than to be comprehensive. The orchard's larger function is to educate the public about the existence and value of heritage fruits. "So many people are out of touch these days as to where their fruit comes from," Fernandez says, then adds "there are many varieties that may not be suited to commercial production but they do well in backyards."

Six Minerals *for gardening success*

BY JEFF LOWENFELS

Apply fertilizers and other soil amendments smarter by understanding how these essential plant nutrients work.

NO MATTER where a plant grows, no matter how complex its flowers or fruits, no matter what its seeds look like or what kind of leaves it grows, all it takes for that plant to survive and reproduce are a mere 17 of the Earth's 90 naturally occurring elements, known as essential nutrients. When you think about it, this is astounding. You can't even play a decent card game with 17 cards, but you can build plants by combining 17 elements!

The list of essential plant nutrients is not a very long one. If you're going to be a really good gardener, though, you need to understand more about them.

MACRO- AND MICRONUTRIENTS

The macronutrients are the ones required in the greatest quantities. Three of



Blossom-end rot, indicated by sunken callouses on tomatoes, often signifies calcium deficiency.

these are always represented on fertilizer packages as the N-P-K trilogy: nitrogen (N), phosphorus (P), and potassium (K). (The letter K is used for potassium not because the letter P was already taken by phosphorus, but because it comes from the Latin name *kalium*.)

Beyond this trilogy, the other six macronutrients are sulfur, calcium, magnesium, carbon, hydrogen, and oxygen. The last three account for a whopping 96 percent of the mass of a plant. However, these elements are non-mineral nutrients, not fertilizers, so are not the focus of this article.

Micronutrients are just as important as macronutrients, but only tiny amounts are required. These include iron, manga-

nese, zinc, copper, molybdenum, boron, chlorine, and nickel. Because the micronutrients are present in most soils and don't have to be added very often unless there is something way off balance, they are not discussed in this article.

THE MAJOR MINERAL NUTRIENTS

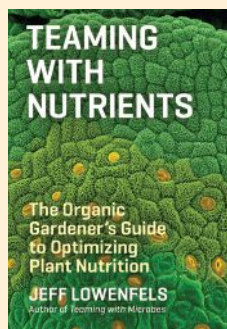
The macronutrients obtained in mineral form are nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur. Some are familiar to gardeners in general terms, and some are even familiar in specific ways. Most gardeners, for example, associate a yellowing lawn with a lack of nitrogen. Understanding what each of these nutrients does in cellular terms,

This article is an adapted and abridged excerpt from **Teaming with Nutrients**

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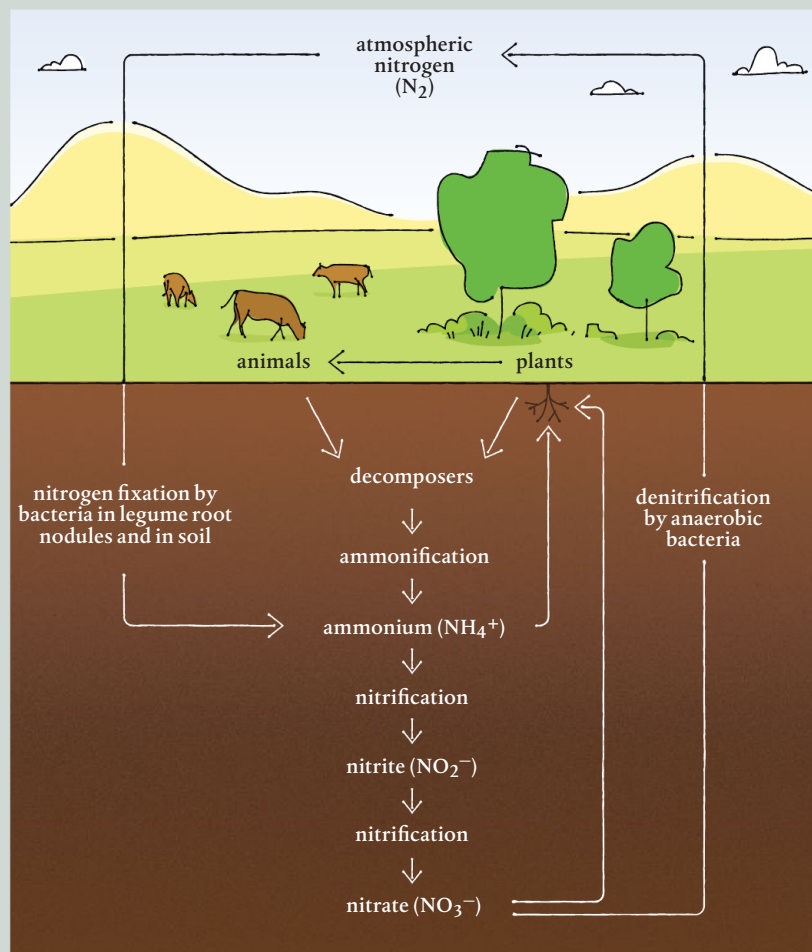
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THE NITROGEN CYCLE

Atmospheric nitrogen (N_2) is so tightly bound that it is unavailable for use in most biological systems. A tiny fraction is made available by electrical and snow storms, but until the advent of artificial manures in the early 1900s it was the job of specialized



In the nitrogen cycle, nitrogen from the air is transformed into compounds that can be used by plants and is then released back into the atmosphere.

microorganisms to break these bonds and make nitrogen available to plants. Some of these nitrogen-fixing bacteria live in a symbiotic relationship with plants in root nodules—*Rhizobia* nodules on legumes, for example. Others, such as *Azotobacter*, are free-living soil organisms. Both have the ability to break the tight bond that holds the two nitrogen atoms together. Today, the Haber-Bosch process—developed by German chemist Fritz Haber and German industrial engineer Carl Bosch in the early 20th century—allows for artificial nitrogen fixation.

Fixed nitrogen in the form of ammonium (NH_4^+) and nitrate (NO_3^-) is taken up and assimilated into various compounds within plants. When plants die, they decompose. The decay by bacteria and fungi results in ammonification, the production of NH_4^+ . Some of this is taken up by other plants, and the rest is converted by bacteria to nitrite (NO_2^-), which is then converted by various soil microbes into nitrate. Some nitrate is absorbed by plants and assimilated, some remains in the soil, and the rest washes out of the soil and is suspended in water.

When soil or water that contains nitrogen becomes anaerobic (that is, lacking oxygen), nitrates are converted back to atmospheric nitrogen, as some anaerobic microbes use nitrogen compounds as their energy source. This nitrification is a big loss for the gardener, but it does complete the nitrogen cycle.

—J.L.

however, is the best way to be able to assess and address problems in plants, should they arise.

■ NITROGEN

Nitrogen forms the backbone of amino acids, the building blocks of proteins. Special proteins, called enzymes, are required for all activities in a cell. When something doesn't happen, it's usually because an enzyme is missing. Photosynthesis and respiration absolutely require nitrogen and the enzymes necessary to drive these processes. Nitrogen is also an essential part of the chlorophyll molecule, which makes photosynthesis possible. Therein, incidentally, lies the answer to the yellowing

lawn: a lack of nitrogen means there is less of chlorophyll's green pigment. Another important role of nitrogen is as the base element for nucleotide molecules—the building blocks of DNA and RNA, the blueprints and translators, respectively, of the genetic code.

Nitrogen remains mobile once inside a plant, meaning it can be transported to where it is needed. This mobility is also why the first signs of yellowing from a lack of nitrogen occur in older leaves. Nitrogen is so critical to new growth that the plant will rob nitrogen from older cells in order to grow new ones.

Outside of the plant itself, nitrogen also has a great influence on the pH of the soil,

which has a direct influence on the uptake of all nutrients. Making nitrogen useable by plants is called nitrogen fixation, and the microbes responsible for this provide the enzymes necessary to break apart the atmospheric nitrogen. For more details, see "The Nitrogen Cycle," above. Aside from biologically fixed nitrogen, there are relatively few natural sources of nitrogen. Those that exist are primarily deposits of nitrogen-based minerals and guano (the excrement of seabirds and bats).

■ PHOSPHORUS

Like nitrogen, phosphorus is also a component of DNA and RNA. A more unique role for phosphorus, however,

is as a base for the adenosine triphosphate (ATP) molecule. Plant cells have enzymes that split off phosphorus from ATP molecules and rebind them into adenosine diphosphate (ADP). Breaking these phosphorus bonds produces energy, and making these bonds stores it.

It is no wonder, then, that stunted growth is a sign of phosphorus deficiency. Without phosphorus, there isn't energy to sustain growth. If the deficiency occurs when the plant is older and most growth is finished, then blooming and continued root growth are affected.

Phosphorus is also needed for plants to utilize the sugars they produce. When supplies of phosphorus are low, plant leaves turn bluish green. This is caused by an accumulation of sugars, which can't be used because of a lack of energy. As with nitrogen deficiency, symptoms appear first in older leaves, indicating that phosphorus is also mobile in plants and is moved to where it is needed most.

Additionally, phosphorus is a major component of the cell membrane. It is absolutely necessary to build and maintain the integrity (not to mention the contents) of a plant cell.

Phosphorus ultimately comes from the weathering of apatite, a type of mineral. Like nitrogen, phosphorus also cycles through the environment in various forms. Because of its tight adsorption to soil particles, it does not move much in soil. This requires that roots grow so they can maintain continuous and new contact with phosphorus.

■ POTASSIUM

Potassium's role is as a regulating chemical. It is key to the movement of water into and out of a plant's cells. And those all-important guard cells—or stomata—on leaf surfaces open and close as a result of different potassium concentrations. This is how a plant regulates carbon dioxide and water levels. Potassium also regulates more than 60 key enzymatic reactions. Its presence is crucial for the formation of starch, which is used to store the sugar made during photosynthesis, and for the movement of sugars themselves.

Potassium is mobile in plants, and older leaves show the signs of deficiency, first in the form of dead spots due to dead cells. If the mineral or water balance cannot be



The dead spots on this European fan palm are caused by insufficient potassium levels.

regulated, cells will die. Plants low in potassium will often wilt because too much water escapes their cells.

Because it is not adsorbed tightly in soil, potassium is readily available for uptake by plants. It is the eighth most abundant element, and is found in all sorts of minerals.

■ CALCIUM

Calcium is a key structural component of cell walls, which form around every plant cell. Calcium is also a part of many enzymes. Under normal cell conditions, the cytosol [the fluid inside a cell] has a

very low calcium concentration. Increasing concentrations of calcium activate enzymes in the cytosol, speeding up reactions and causing things to happen. Calcium is also used to transport other substances across the cellular membrane.

Because it is also important to cell division, it is not surprising that calcium is found in large concentrations in young cells that are dividing. This is why calcium deficiencies appear first in the growing areas of roots, shoots, and young leaves, and the result of the deficiency is that they become malformed.



A lack of adequate magnesium results in the loss of chlorophyll in foliage, causing yellowing.

Calcium is not mobile once assimilated into a cell. It is extremely abundant in the environment, and it comes from weathered minerals, such as limestone and chalk.

■ MAGNESIUM

The key function of magnesium is its role as the center of the chlorophyll molecule; thus it is essential to photosynthesis. Magnesium is also an activator of enzymes involved in the production and use of ATP, so it plays a key role in respiration as well. Finally, magnesium is needed for the creation of DNA and RNA.

When plants develop a magnesium deficiency, chlorophyll can't be synthesized and photosynthesis ceases. Leaves start to lose their green color in between the leaf veins, which are nearest the remaining sources of sugars, whereas the veins remain green, a condition known as interveinal chlorosis. Older leaves show the signs of magnesium deficiency first, meaning that magnesium is mobile in plants.

Magnesium is a very abundant mineral on Earth, and it weathers out of many minerals. The most familiar form is dolomite, a sedimentary rock similar to limestone.

■ SULFUR

Sulfur is a component of two important amino acids, cysteine and methionine. Methionine is found in structural components of a cell, and cysteine is important for metabolic activities. Cysteine is necessary to transfer electrons during photosynthesis and respiration.

Sulfur is not mobile in plants, meaning that once it is synthesized into something, it essentially remains where it is. The yellowing that is a symptom of sulfur deficiency first appears in younger leaves. This is how you can distinguish a lack of sulfur from a nitrogen deficiency (although there are other causes of the same symptom).

Sulfur is released from organic material by microbial activity and it is weathered from rock containing gypsum.

FIGURING OUT FERTILIZER

In the majority of cases, gardeners simply toss fertilizer (organic as well as artificial) on plantings as a prophylactic measure. This practice is wasteful, and it can result in environmentally damaging runoff. The take-home message here is to test your soils before applying anything. Knowing

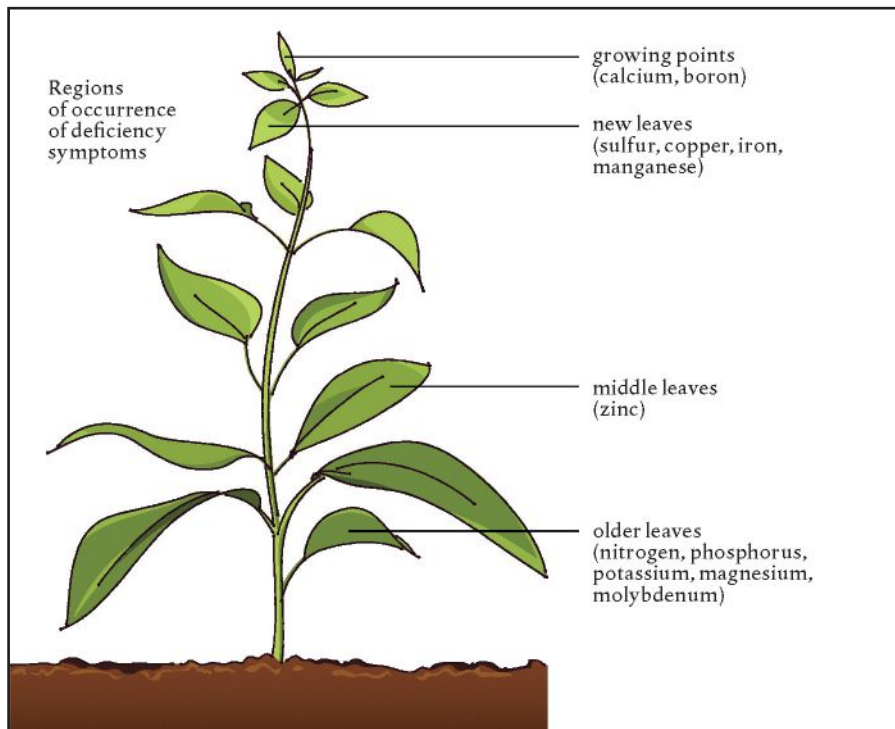
which nutrients are in the soil and which are missing is the only logical way to know what needs to be replenished.

There are lots of factors that influence the availability of nutrients, including chemical, biological, and environmental factors, and they create a complex matrix. This complexity is one more reason why gardeners should be getting soils tested. The testing facility considers all of these complicating factors in coming up with recommendations. Following them will

others are more complete mixtures. Natural fertilizers add organic bulk to the soils, so everything is of benefit. Chemical fertilizers don't contain organic matter but rather fillers. The fillers may or may not be of benefit to soils—but are never as beneficial as organic matter.

PUTTING IT ALL TOGETHER

By understanding how nutrients contribute to plant growth (and better flowers, tastier vegetables, healthier trees) and how fertilizers



Deficiencies of essential elements show up in different locations of a plant due, in part, to their mobility. Symptoms in older leaves are usually associated with mobile nutrients, whereas those caused by less mobile nutrients usually occur in newer parts of a plant. This is not an exact science, and other environmental factors have much to do with plant symptoms as well.

make you a better gardener and gardening a better experience by getting your soils and these factors in balance.

It may be difficult to get a perfect fit between what your soil needs and what is available in a commercial mix on the shelf. Because nitrogen is the nutrient most used by plants and the one that is most often inadequate in supply, soil testing laboratories usually suggest the gardener apply an N-P-K formula that first meets the nitrogen needs of the soil.

As for what type of fertilizer to choose, these days there are as many organic mixes on the market as there are chemical ones. Some are single-nutrient fertilizers, and

work, you have the information to make educated choices, rather than just blindly following some label on a box. Consider yourself your plants' gourmet chef. No more generic fast foods that ruin the soil food web, change the pH, introduce competing nutrients, or chemically tie them up. After a soil test, of course, and based on the resulting recommendations, you can prepare meals that are perfectly suited to your plants. 🌱

Jeff Lowenfels is a garden columnist for the Anchorage Daily News, hosts a weekly garden radio show, and is also co-author of Teaming with Microbes (Timber Press, 2010). He lives in Anchorage, Alaska.

Hostas by Design

These versatile herbaceous perennials assume a variety of roles in the landscape.

BY KRIS WETHERBEE

IN THE Pacific Northwest, where I live, hostas (*Hosta* spp.) are as common in spring and summer gardens as rain falling from our winter skies. Easy to grow and long-lived, they are among the most adaptable of perennials, growing best in part to full shade in just about any soil and thriving in USDA Hardiness Zones 3 to 9 and AHS Heat Zones 9 to 1. Given this, it's no surprise that gardeners in much of North America have embraced hostas for their beauty and versatility.

With 40 or so recognized hosta species and thousands of cultivars, gardeners have an abundance of choices in size, form, and other attributes (see "An Explosion of Cultivars," opposite page). Hostas are primarily grown for their foliage, which comes in an array of shades and sizes, from petite to colossal. Leaf shapes range from strap-, egg-, or heart-shaped to round, and their textures run the gamut from puckered, ruffled, or ribbed to smooth. A number of varieties also bear lovely, sometimes fragrant, blooms. With such diversity, hostas can fill a number of design roles in the landscape. You can use hostas as groundcovers or edging plants; they can be nestled in the background of a border, or planted individually as bold specimens.

HOSTAS IN THE LANDSCAPE

The key to a cohesive design is creating contrast in the right balance. Whether combining different hosta varieties or mixing hostas with other plants, some

contrast is important; too many similar colors, textures, leaf shapes, and plant forms makes for a dull design. On the other hand, partnering plants that have too many dissimilar characteristics is a recipe for chaos in the landscape. The solution is to find a unifying thread that ties everything together.

For example, a similar characteristic might be leaf color. But you can add interest with contrasting leaf textures,

shapes, or sizes. And while similar leaf shapes may be the tie that binds, interest is added when you incorporate dissimilar leaf patterns or colors.

SIZE UP THE SCALE

Hostas are generally classified by height into one of five categories: mini—less than six inches tall; small—six to 12 inches tall; medium—12 to 18 inches tall; large—18 to 28 inches tall; and giant—more



Even in a small garden, a single hosta such as 'Great Expectations' can be attractive in a container.



AN EXPLOSION OF CULTIVARS

Hostas originated in eastern Asia, where they were first cultivated sometime between the 8th and 12th centuries. But it wasn't until the mid-1800s that hostas arrived in the United States, and the selection at that time was limited to a very few species and varieties.

This situation changed beginning in the 1940s, with the onset of breeding programs that sought improved yellow, gold, and blue leaves; new leaf shapes and patterns of variegation; and a broader range of sizes. In the late 1970s, propagation of hostas using tissue culture techniques significantly expanded the availability of the new varieties.

Introduction of new species collected from Asia and further breeding advances continue to expand the number of selections of this genus. Today there are more than 3,000 registered and named selections. Sought-after breeding traits include slug resistance (through thicker foliage), heat and drought resistance, red- and black-colored leaf stalks, and combinations of fragrant flowers and attractive foliage.

For descriptions of hosta selections recommended by hosta experts in different regions of the country, click on the web special linked to this article on the AHS website (www.ahs.org).

—K.W.

Hosta selections 'Blue Cadet' and 'Shade Fanfare' do double duty on this sloping site, serving as groundcovers and softening the edges of the stone stairway.

than 28 inches tall. Some hostas, however, may grow a bit larger or smaller from one garden environment to another.

A hosta's size and shape doesn't necessarily determine its role in the landscape as long as its mature size will not overwhelm the allotted space. For example, I've seen clumps of small hostas used to create a beautiful edging for a garden, sidewalk, or driveway. But given sufficient space, medium and larger hostas also make stunning edgings, but with more substance.

"Miniature hostas can be grown in troughs, containers, and even used in fairy gardens," says Tom Micheletti, owner of the Hosta Patch in Deer Park, Illinois, and

immediate past president of the American Hosta Society (see "Resources," page 28). Small hostas are effectively planted *en masse* as a groundcover, to create drifts of continuity, or, as already mentioned, to edge a pathway or bed.

Hostas of medium size are quite versatile in most any landscape application. Plant them in large clusters, as mid-players in a border, or in the foreground of a bed. Large hostas are effective as a striking backdrop or as a foreground planting to soften evergreen shrubs. Very large and giant hostas have design appeal similar to flowering shrubs, but they also work as structural and striking focal points. Whatever size you se-

lect, be sure to provide sufficient room for the mature plant.

Playing to the assets of a hosta's form results in an appealing design. For example, a hosta with a cascading form, such as 'Neptune' or 'Green Fountain', is stunning when planted *en masse* on a slope or near a pond or stream. Use vase-shaped cultivars—'Sunny Delight' and 'Regal Supreme' are good examples—to accent a tall statue, arbor, tree, or other vertical element within the landscape. And feature hostas with petite forms or fabulous flowers near a bench or in containers by a front entry or other area where they can best be appreciated up close.

For romantic appeal, try hostas with heart-shaped leaves such as heavenly 'Cathedral Windows', or creamy-edged 'Fair

Maiden'. Elicit a notion of motion with the lancelike undulating leaves of bright yellow 'Kabitan', or 'Geisha', with its twisting chartreuse leaves. Stately varieties such as 'King Michael', 'Northern Exposure', and 'Empress Wu'—most likely the largest of hostas—add majestic appeal with massive clumps from five to 10 feet across.

USE COLOR TO CREATE A MOOD

Hostas are available in an astounding array of shades including soft blues, vibrant yellows, chartreuse, and rich creams, as well as greens from seafoam to deep forest green. And any of these colors can appear in a pattern resulting in amazing variegated selections.

Blue- or green-leaved hostas impart an ambience that is cool, refreshing, or soothing. Both make the garden feel more lush, but their subdued and quiet presence creates a depth of field that supports other plants. Green hostas provide the perfect complement for variegated hostas, especially green-and-white-variegated selections. And the blues become even more striking when accented by other more colorful plants, such as those with pink and purple flowers.

Gold-colored cultivars are very warm, cheerful, and radiant. Their color appears more intense when displayed near plants with contrasting colors such as a purple-leaved alumroot (*Heuchera* spp.) or a geranium with purple blooms. The same effect is achieved by partnering with a plant that echoes a small splash of gold, such as a gold-tipped conifer or \times *Heucherella* 'Golden Zebra'. But too much gold or chartreuse can come across as chaotic when sprinkled throughout the garden. If gold fever has left you with many gold or yellow plants, cluster them in drifts for a more harmonious feel.

Leaf stalks and flower scapes can be another source of color: the petioles of 'Mango Salsa' are red; 'Curly Fries' bears its lavender flowers on deep purple scapes; and 'Raspberry Sundae' sports both speckled red petioles and deep red scapes.

Depending on the colors, variegated hostas can create a mood that is subtle and soothing with an element of surprise, or one that is very stimulating. But they will compete for attention if different colored variegations are planted side by side; combining a variegated variety with a solid green or soothing blue hosta will bring balance to the design. Another tip



Dueling shades of chartreuse may be too intense for some gardeners, but there's no doubt the color echo in this combination of Hakone grass and *Hosta* 'Yin' is eye catching.

is to choose a plant partner, hosta or otherwise, with foliage that echoes a color in the variegated hosta. For example, a solid gold hosta or *Bergenia* 'Lunar Glow' will complement a gold-variegated hosta.

Hosta grower Rob Mortko and his wife, Sheri, own Made in the Shade Gardens, a nursery in Olathe, Kansas. Mortko is a self-confessed hostaholic who has discovered a design technique to help disguise his collector tendencies. "By using members of

a hosta sport family in a grouping of plants, you can take advantage of a central color theme," he says. "The individual plants still stand on their own merit, but look like they belong together, because they do!"

Case in point: 'Halcyon' is the most popular of the medium-blue hostas. 'June', which is a sport of 'Halcyon', retains the same blue color of its parent on the leaf margin but adds a creamy yellow center. Another 'Halcyon' sport is 'First Frost',



When designing with hostas, selections can be chosen for the texture or color of their foliage, such as 'Halcyon', top, or for a combination of foliage and flowers, as in 'Northern Exposure', above.

which retains the blue center while adding a creamy yellow margin. "Grouping these three cultivars together will naturally draw on the blue color theme of the parent 'Halcyon'," explains Mortko. "The result is harmonious and the effect is greater than the sum of the individual parts."

TEXTURAL CONTRAST

All hostas contribute an exciting element of texture to a garden, and when you choose a variety with leaves that are corrugated, crinkled, or puckered, you add a second level of texture. But the concept of how that texture plays out between light and shade depends on whether the leaf's surface is dull or glossy.

For example, the aqua-blue leaves of 'Aquamarine' are more matte in appearance, whereas the lime-green leaves of 'Sunlight Sister' are glossy, and 'Earth Angel' has large leaves with a frosty glow.

Hostas with glossy leaves reflect light, while leaves that are matte or dull in appearance will absorb light. It's a difference that is very apparent, especially within the same color category. For example, the foliage of 'Big Daddy', 'Pewterware', and 'Blue Angel' are blue and heavily textured. Yet the blue-gray leaves of 'Big Daddy' appear matte, the leaves of 'Pewterware' are waxy, and the blue-green leaves of 'Blue Angel' seem to shine. You can use this textural contrast to create your own intricately patterned light show that can intensify or subdue the way your garden expresses light and color.

HOSTAS WITH ATTRACTIVE FLOWERS

All hostas produce flowers borne on erect stems known as scapes, but not all are considered a major asset. Some varieties, however, put on quite a show, bearing lily-shaped flowers as large as six inches long compared with the more typical one- to two-inch blooms of most hostas. And a select few are fragrant.

Hosta flowers range in color from white to lavender to purple, with some offering a teasing hint of pink or blue. The early- to midsummer flowers of 'Great Expectations' are large and white. 'Hollywood Lights' bears eye-catching pale lavender flowers on two-foot scapes in midsummer, while the mini cultivar 'Cherry Tomato' bears deep purple flowers on red scapes from mid- to late summer. The white late-summer blooms of 'Fried Bananas' are large and fragrant. And

'Fluted Fountain' is dressed to impress with beautiful white midsummer flowers accented by bracts with rose-red centers.

Hosta flowers with fragrance are typically summer-blooming, large, and showy. Many of the double-flowered forms, such as 'Aphrodite' and 'Venus,' are truly stunning. The fragrance factor varies from sweetly sublime to bold and beautiful, with the tall-scaped white flowers of 'Royal Standard' among the most fragrant. And while many fragrant varieties boast pure white flowers, some bear blooms of a different color: 'Guacamole' has lavender flowers, *Hosta ventricosa* produces deep purple blooms, and 'Fragrant Blue' features flowers that open white and turn blue.

Whether large and showy, fragrant, or both, the beauty of hostas in bloom is best appreciated when planted *en masse* along pathways or lining the borders of a bed. Plant hostas with fragrant flowers where you can enjoy the delightful scent up close—around a garden bench, near the front entry, beside a patio, porch, or deck, or beneath a window.

HOSTAS AND COMPANIONS

Mixed in the perennial border or planted beneath the canopy of a woodland garden, hostas can impart a unifying element to the design. They make a lush seasonal groundcover when planted beneath tall shrubs such as witch hazels, azaleas, filberts, and viburnums.

In a garden dominated by hostas, well chosen companion plants prevent monotony by providing contrast. "Adding companion plants breaks up the lines in the hosta garden and stimulates the eye," says Richard Merritt, owner of New Hampshire Hostas in South Hampton, New Hampshire. Of course, you'll want to be sure all the plants share the same cultural requirements. Micheletti suggests plants with narrow leaves, such as shade-tolerant grasses and sedges, or herbaceous perennials with dissected leaves like bugbanes (*Actaea* spp.), astilbes, and goat's beards (*Aruncus* spp.) to provide contrast that complements the bold foliage of hostas.

Ferns also make great companions for hostas. "You can mass the tall [ferns] in the background or you can use smaller ones like Japanese painted ferns in among the hostas," suggests Merritt.



In cool British Columbia, hostas and other perennials that normally prefer shade—including bleeding heart (*Dicentra* spp.) and alumroot (*Heuchera* spp.)—combine in this sunny mixed border.

"Any hosta is great with Southern maidenhair fern," says Tony Avent, owner of Plant Delights Nursery in Raleigh, North Carolina, who also likes pairing hostas with different sedge (*Carex* spp.) cultivars. "I love most any blue hosta surrounded by a *Carex* like 'Everest,'" says Avent. "*Carex laxiculmis* 'Hobb' is

great around large variegated hostas like 'Liberty,'" he adds.

"Hostas generally come up late compared to most other perennials, so consider planting spring ephemerals around them," suggests Sue Anderson, owner of Mason Hollow Nursery in Mason, New Hampshire, and president of the New England Hosta

Sources

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- Hosta House Utah**, Salt Lake City, UT. (801) 414-4222. www.hostahouseutah.com.
- The Hosta Patch**, Deer Park, IL. (847) 540-8051. www.hostapatch.com. (Open by appointment only.)
- Made in the Shade Gardens**, Olathe, KS. (913) 206-6939. www.HostaGuy.com.
- Mason Hollow Nursery**, Mason, NH. (603) 878-4347. www.masonhollow.com.
- Plant Delights Nursery, Inc.**, Raleigh, NC. (919) 772-4794. www.plantdelights.com.
- Sebright Gardens**, Brooks, OR. (503) 463-9615. www.sebrightgardens.com.

Resources

- American Hosta Society**, www.americanhostasociety.org.
- The Book of Little Hostas** by Kathy Guest Shadrack and Michael Shadrack. Timber Press, Portland, Oregon, 2010.
- The Hostapedia: An Encyclopedia of Hostas** by Mark R. Zilis. Q & Z Nursery, Inc., Rochelle, Illinois, 2009.
- The New Encyclopedia of Hostas** by Diana Grenfell and Michael Shadrack. Timber Press, Portland, Oregon, 2010.

Society. The ephemerals “bloom and begin to wither away while the hostas emerge and take their place,” says Anderson. She recommends incorporating Virginia bluebells (*Mertensia virginica*), fumewort (*Corydalis solida*), wood anemone (*Anemone nemorosa*), and bloodroot (*Sanguinaria canadensis*) into hosta plantings.

Among the spring- and summer-flowering perennials that make lovely hosta companions are columbines (*Aquile-*

even benefit from slightly greater amounts of light, such as full morning sun and avoiding the hot afternoon sun,” explains Micheletti. “Growing hostas beneath dappled shade from overhead trees is also beneficial.”

Leaf coloration is somewhat determined by the amount of light. Certain varieties need some direct sun for their color to fully develop. Gold-leaved hostas increase in intensity with full morning sun as it provides the light needed without

Hostas are not readily plagued by disease, but they are a favored food for deer, voles, and slugs. Exclusion fencing or regular application of repellent sprays are the best way to keep deer away. There are a number of nontoxic slug controls available, including copper barriers, diatomaceous earth, and iron-phosphate-based products such as Sluggo and Escar-Go. Where voles are a problem, the best solution is planting hostas in soil mixed with



Golden wood millet (*Milium effusum* ‘Aureum’) glows in the shade amid a variety of hostas, including *Hosta aureomarginata* and ‘Hadspen Blue’.

gia spp.), astilbes—particularly *Astilbe chinensis*, which extends the flowering season—variegated Solomon’s seal (*Polygonatum odoratum* ‘Variegatum’), and foamflowers (*Tiarella* spp.).

CULTIVATING HOSTAS

For the most part, hostas will tolerate all but the most extreme conditions: a hot desert, months of soggy soil, or prolonged dryness, for instance. And while they are content to grow just about anywhere, light and moisture play an important part in their ultimate performance and appearance.

“Hostas have a reputation as being shade-loving plants, but they actually need and

scorching their leaves. Blue varieties get their color from a soft, waxy coating called ‘bloom’, which can melt in direct sun or intense heat, leaving the leaves green. Growing the blues in shady areas with no afternoon sun will heighten their color.

Of course hostas tolerate more sun the further north you garden. Varieties with thicker leaves and those with fragrant flowers tend to adapt better to more sun. Tolerance to sun can be increased somewhat by amending the soil with a lot of organic matter and watering regularly. Generally, most hostas enjoy bright shade or dappled light with no direct sun during the hottest part of the day.

sharp-edged rock products, often termed expanded aggregates, such as Permatill.

GARDEN MAINSTAYS

It’s hard for me to imagine my garden without hostas. These long-lived, incredibly diverse, easy-care plants just seem to look better and better as they age. If you haven’t already been bitten by the hosta bug, I hope the design ideas I’ve outlined here will pique your curiosity enough to give them a try in your garden.

Freelance writer Kris Wetherbee gardens in Oakland, Oregon, and is a frequent contributor to The American Gardener.

THERE ARE A lot of great jobs in American horticulture, but being plant curator of a small but highly respected public garden—one with admission limited enough that people scramble to gain one of the coveted slots each year—in the Pacific Northwest is definitely high on the wish list. That’s the enviable position Richie Steffen finds himself in at the Elisabeth Carey Miller Botanical Garden in Seattle, Washington.



Considered a horticultural gem, the Miller Garden, as it is usually called, was once the private home of Pendleton and Elisabeth Miller, a couple known for their philanthropy and “Betty” Miller’s love of gardening. The three-acre garden is tucked into a gated community in Seattle’s northern suburbs, so visitation is limited to 500 people a year. (For more on the garden, see the sidebar on the opposite page.)

Thanks to his work at the Miller Garden, including the development and promotion of the garden’s Great Plant Picks (GPP) program, and his active involvement in many regional and national plant societies, Steffen has become quite influential in the Pacific Northwest’s horticultural community and beyond.

“He has this enthusiasm and passion that is sweeping new gardeners up along the way,” says Colston Burrell, an award-winning book author, garden designer, and con-

Richie Steffen

Currently the plant curator of the Elisabeth Carey Miller Botanical Garden in Seattle, Washington, Richie Steffen is influencing horticultural trends in the Pacific Northwest. BY MARTY WINGATE

Richie Steffen, above right, is plant curator at the Elisabeth Carey Miller Botanical Garden. Primroses (*Primula pulverulenta*) and a selection of hedge maple (*Acer campestre* ‘Pulverulentum’) grow along one of the garden’s pathways, above left.

sultant in Free Union, Virginia. “Through his work and generosity, he’s influencing a younger generation and bringing new dedicated horticulturists along.”

Maurice Horn, owner of Joy Creek Nursery in Scappoose, Oregon, says one of Steffen’s most admirable qualities is an “almost childlike exuberance toward the natural world.” A friend of Steffen’s and participant in the GPP, Horn describes Steffen as a bridge builder in the horticultural community. “He’s got this unbridled enthusiasm and loves to bring people together in whatever he’s involved with.”

GETTING STARTED

Steffen’s journey to the Miller Garden began decades earlier and thousands of miles away in Maryland, where he got involved with horticulture at the vocational high school he attended. His initial interest was in the greenhouse business. There was something appealing, Steffen says, in working with the rotating crops of bedding plants, chrysanthemums, and poinsettias—“They’re so even, so uniform.” An early mentor for Steffen was Kevin Maxwell, one of his instructors. “He allowed me to experiment with plants and try goofy ideas, such as four-foot-tall standard red zonal geraniums—they were a horticultural travesty that I was terribly proud of at the time,” he recalls.

After graduation, Steffen entered the Institute of Applied Agriculture at the University of Maryland in College Park with the intention of continuing his studies in greenhouse production. But once in college, his interests changed radically. “The whole world of woody plants opened up to me,” he says. Classes in plant identification inspired him so much that he still recalls details of some of his earliest favorites. “I will always have fond memories of the fragrant fall flowers of thorny *elaegnus* (*Elaeagnus pungens*),” he says. A plantsman was born.

WESTERN EXPANSION

Throughout college, Steffen worked in a local garden center and as a horticultural consultant with the University of Maryland’s Extension office in Prince George’s County. Both provided practical experience in working with the public, a skill that would be central to his later career.

ELISABETH CAREY MILLER BOTANICAL GARDEN

The Elisabeth Carey Miller Botanical Garden lies just north of the Seattle city limits in the Highlands, a gated community laid out by the Olmsted Brothers firm in the early part of the 20th century. The three-acre botanical garden—two additional acres are not cultivated—was formerly the home of Pendleton and Elisabeth “Betty” Miller. The couple was well known for philanthropic works, and Betty Miller in particular was also recognized for her great love of plants and gardens. As designated in her will, the property was converted into a botanical garden in the years following her death in 1994.



Beds of alpine plants adjoin this stone staircase in the Miller Garden’s lower rockery.

The property includes the garden and the house, which now serves as offices for the administrative staff. The conditions of the landscape vary widely, from the upper woodland dominated by native conifers—typical in the Pacific Northwest—to the sunny aspect of the dry bank and lower rockery, to the shade created by a deciduous canopy. Throughout the variations, the landscape reflects Betty Miller’s style and many original plantings are still there. The garden is not static, however, and it is universally understood that Betty Miller would not have wanted it to be so. Under Richard Hartlage, the garden’s first director, changes were made that included pushing the garden farther out toward the bluff that overlooks Puget Sound.

Today, the garden continues to evolve under the guidance of Director Richard Brown, Steffen, and Head Gardener Holly Zipp—plus a group of dedicated volunteers and interns—overseen by the garden’s board members.

Due to the location of the garden in a neighborhood among private homes, it is not suitable for large groups, so the total number of visitors for each year is capped at 500. The garden fulfills its outreach and educational mission by administering the Great Plant Picks program, which is funded by the Millers’ Charitable Foundation. The foundation also sponsors the annual Elisabeth C. Miller Memorial Lecture, which brings world-renowned plant and garden experts to Seattle at no cost to the public. This year’s lecture, set for September 19, will feature Tony Avent, owner of Plant Delights Nursery in Raleigh, North Carolina.

For more information on visiting the Miller Garden—appointments for 2014 are available starting September 20—visit www.millergarden.org. The garden’s plant collection and a map can be viewed online.

—M.W.



Thanks to the region's mild climate, the Miller Garden is a haven for unusual plants from all over the world. Steffen shows visitors a container planted with *Iris confusa*, a Chinese species, above. The grevillea (*Grevillea* × *gaudichaudii*), left, is a hybrid of Australian species that forms a spreading groundcover.

At the garden center, one of his duties fed into his original love of crops: he sowed the seeds for the nursery's top-selling vegetable—collards. He also learned what life was like during the busy season. "In spring, it was total chaos and mayhem," he says. His Extension work involved fielding all sorts of gardening questions from the pub-

lic, which proved to be quite educational for him as well. "It taught me that it was okay to say 'I don't know,'" he recalls with a laugh. The Extension job lasted until 1989, when he moved to the Seattle area.

"Growing up, I had always wanted to see the West Coast," says Steffen. "After college, I traveled cross country for eight

weeks and loved the Pacific Northwest and the northern half of California. After returning home, I decided to move West. It was a toss-up between Seattle and San Francisco, but I chose Seattle because I did not think I would have to learn as many new plants. I was *completely* wrong, but have never regretted it!"

His first job was at Sky Nursery in Shoreline, just north of Seattle, beginning in sales and ending his six-year-stint as a manager/buyer. The more he learned, the more he wanted to know, and the climate of the Pacific Northwest, with its mild, wet winters and cool, dryish summers, was another eye-opener in his never-ending education about plants.

"When I first moved to Seattle, I joined the Arboretum Foundation and North-

GREAT PLANT PICKS PROGRAM

In 2001, the Great Plant Picks (GPP) program was launched by the Miller Garden to help gardeners in the Pacific Northwest select the best plants for any situation. The first list of recommended plants included the paperbark maple (*Acer griseum*)



Center Glow, a selection of ninebark (*Physocarpus opulifolius*), was a 2011 Great Plant Pick.

and black mondo grass (*Ophiopogon planiscapus* 'Nigrescens'). As of 2013, the total number of GPP selections has reached 950. The program champions both common, but reliable, garden plants, such as dwarf boxwood (*Buxus sempervirens* 'Suffruticosa') and variegated Japanese aucuba (*Aucuba japonica* 'Goldstrike'), and the more esoteric, such as *Beesia deltophylla*, an evergreen woodland groundcover native to China. Each year the garden's staff plant large containers to decorate the GPP educational booth at flower shows, and often some of the oldest selections are the go-to plants. Black mondo grass, Steffen notes, goes with everything.

The geographic range of the program—from Vancouver, British Columbia, in the north to Eugene, Oregon, in the south—singles it out as one of the most useful and reliable regional plant lists around. It focuses on plants suited to the Mediterranean-style climate of wet winters and dry summers. Three times a year, committees of horticultural professionals gather to discuss the merits of an array of plants and choose which to highlight from the categories: trees and conifers, shrubs and vines, perennials and bulbs. Advisory groups for large plant groups, such as rhododendrons and roses, assist the committees with selection.

The GPP's selections are influenced by a wide range of people representing all walks of horticultural life—including professional gardeners and designers, nursery workers, university and community college faculty, and staff members from botanical gardens and arboreta from throughout the designated geographic region. "The thing that makes it so doggone usable," Steffen says about GPP, "is that the people making the decisions are experts and relying on their experience. When

they all agree on a plant, you know it's a good one." To view the list to date, visit www.greatplantpicks.org.

—M.W.

west Horticultural Society," Steffen says. "It was one of my few splurges." It was also the beginning of his total immersion into the horticultural community. Now, in addition to sitting on the board of the Northwest Horticultural Society, he belongs to a host of gardening organizations including the Hardy Fern Foundation (he is a past president), the Primrose Society, the Rock Garden Society, the International Plant Propagators Society, the American Horticultural Society, and the British Pteridological Society.

A LITTLE GARDEN WITH BIG IDEAS

In 1994, he took a job at the Rhododendron Species Botanical Garden in Federal Way, Washington, south of Seattle, as nursery manager and propagator. This move away from the retail sector helped him gain knowledge of how a public garden is run, and provided valuable experience for what was to come next.

In 2000, he signed up to go on a plant-hunting trip to Turkey with fellow plantsman Dan Hinkley, founder of the original Heronswood nursery in Kingston, Washington. A week before he left, he learned of a job opening at the Miller Garden via a casual comment from Richard Hartlage, who was the garden's director at the time: "If you know anyone who might be interested in the job of coordinator of horticulture ..." Steffen knew someone all right. He applied for the job and was hired soon afterwards.

Over time, Steffen's role in the garden increased and he was promoted to curator. His primary responsibility is to develop, document, and oversee the collections, which range from rare plants such as several Wollemi pines—a previously unknown coniferous tree species discovered in an inaccessible wilderness area in Australia in 1994—to a wide variety of woodland groundcovers, a category of plants that

was a particular favorite of the garden's creator, Betty Miller.

In spring, these include a carpet of creeping forget-me-nots (*Omphalodes verna*) in front of the house, and in summer a "waterfall" of variegated Japanese forest grass (*Hakonechloa macra* 'Aureola'). There are more than 200 different selections of barrenwort (*Epimedium* spp.) in the garden. Other collections include many natives growing under the Douglas fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), and western hemlocks (*Tsuga heterophylla*), such as evergreen huckleberry (*Vaccinium ovatum*) and inside-out flower (*Vancouveria hexandra*), but also selections from more uncommon genera such as *Paris*.

Horn says that within the constraints of the garden's size and original layout, Steffen "has brought a different but complementary sense of design." For example, while the garden is primarily shady,

Horn says Steffen has “found ways to develop more areas with sunlight, where possible, by taking down trees that are damaged or diseased.”

Steffen also takes a lead role in the Miller Garden’s public education program. As coordinator of the Great Plant Picks (GPP) program, which helps gardeners in the Pacific Northwest choose plants adapted to the region, he has assembled a who’s who of gardeners to select the plants (For more about the GPP, see the sidebar on page 33.) He is the primary spokesperson for the program, disseminating the information to gardeners throughout the region by writing articles and speaking to garden clubs, Master Gardener groups, nurseries, and at flower shows.

His photography appears on the garden’s and the GPP website as well as accompanying fliers, and posters; it’s another way that he fulfills his role as curator in documenting the collection.

CATHOLIC PLANT TASTES

As with most horticulturists and gardeners, Steffen’s personal plant tastes evolved over the years. For a while, Steffen was enamored of *Agapanthus* ‘Storm Cloud’, and it took many attempts before he gave up trying to grow it successfully. But a host of other plants have risen to the call. These days, ferns are among the many plant groups that have captivated Steffen. He collects them, he propagates them, and he travels to see them.

Recently he started an introduction program at the Miller Garden for Victorian-era fern cultivars from the United Kingdom that are not currently available in the United States. “I wanted to find a way to preserve and distribute these rare gems,” he says. Based on his experience with ferns, he’s now collaborating with fellow Pacific Northwest fern expert Sue Olsen on a book that is due out in spring 2015 from Timber Press.

Burrell shares Steffen’s love of ferns and has taken him on a fern tour through the woodlands near Burrell’s Virginia home. “There’s an otherworldly sense to woods dominated by ferns—it’s a magical feeling,” Burrell says, trying to put their mutual fascination into words. “And ferns offer an infinite variation on a theme,” Burrell adds. “They follow a simple pattern, yet there are endless permutations of that pattern.”

But if it is not ferns, it could be rhododendrons, peonies, epimediums, or

hepaticas. The Miller Garden includes an extensive collection of delicate woodland hepaticas, both named varieties and crosses made at the garden. “It’s worth a visit to the garden in spring just to see the hepatica collection,” says Horn.

Visitors to the garden often leave with small plants to trial—although most like-

and he and Peterson brought in sections of logs up to two feet across to create reinforced terraces for the garden. The plantings reflect the couple’s collecting interests, leaning toward rhododendrons, species irises, epimediums, alpines, and, of course, ferns of all shapes and sizes. Recently Steffen has been creating fern ta-



In spring, visitors to the Miller Garden are captivated by the gemlike flowers of the garden’s acclaimed hepatica collection, which includes an unnamed but fragrant form of *Hepatica nobilis* var. *japonica*, top, *H. nobilis* ‘Brun’, above left, and *H.* ‘Tamamushi’, above, right.

ly not a hepatica. “Richie wants to make sure that good plants are not lost in cultivation,” says Burrell. “His generosity is reminiscent of [the late North Carolina horticulturist] J.C. Raulston.”

Steffen and his partner, Rick Peterson, who is the manager of the Great Plant Picks program, currently live in Federal Way, south of Seattle. Their quarter-acre home garden is set on the side of a hill,

bles, which are vignettes of ferns, mosses, and other woodland plants growing on top of two-foot-square concrete blocks.

TEACHING AND TRAVEL

Steffen’s plant and gardening horizons continue to broaden. He has taught classes at Edmonds Community College in Lynnwood, Washington, on subjects such as rhododendrons and azaleas,



plant identification, and diseases. In addition to visiting Turkey with Hinkley, his plant exploration travels have taken him to New Zealand, Chile, Costa Rica, Germany, and the United Kingdom. Hinkley, who has accompanied Steffen on several trips, describes him as an amiable traveling companion—except when he’s hungry—with a well-trained eye for interesting plants.

Steffen is a firm believer in the importance of seeing plants and gardens in different parts of the world. “Going away influences us here,” he says. “It opens our eyes to new possibilities.” He still marvels at seeing a boxwood forest in Turkey. “It’s interesting to see how other cultures use plants. And everything we see, we can bring back and incorporate into our own landscapes.”

Steffen’s delight in sharing his knowledge and passion shines through everything he does. “Richie is a plantsman’s plantsman, and always ready to add a bit of levity and wit to his serious obsession



In Steffen’s and Peterson’s home garden, alpine plants grow in a bed formed from terracotta chimney liners, above. Steffen’s fern tables, left, feature tableaux of miniature woodland plants such as ferns and Krauss’s spikemoss (*Selaginella kraussiana*).

with plants,” says Hinkley. “He has an enviably astute ability to use them to the their best effects in the gardens he has created.” And it is just that serious obsession and astute ability that continues to grow his reputation both among fellow horticultural professionals and the gardening public, notes Lucy Hardiman, a garden designer, consultant, and writer based in Portland, Oregon. “Richie’s influence,” says Hardiman, “is moving beyond the regional level as his talents as a speaker, writer, and advocate for plants and gardening are lauded from coast to coast.”

When she’s not leading tours of gardens overseas, Marty Wingate is a Seattle-based writer on gardening and travel.

raising your Standards



This distinctive form of topiary adds a classic element to the landscape.

BY RITA PELCZAR

ALAN AND LINDA BETRICK



Opposite page: Abutilon, also known as flowering maple, blooms non-stop during the summer months. These container-grown standards are putting on their show at eye level as they flank a low wall at Chanticleer, a small public garden in Wayne, Pennsylvania.

Left: With their small leaves and compact growth habit, boxwoods are favorite subjects for topiary of all kinds, including standards. Standard boxwoods grow well in a variety of container sizes.



Above: This heliotrope standard rises above lower-growing shrubs and perennials to add a vertical accent to the garden. A fringe benefit to training it as a standard is that no bending over is required to deadhead it, which will ensure continuous production of its fragrant blooms throughout summer. Except in frost-free climates, the plant should be moved indoors to overwinter.

PRUNING PLANTS into ornamental shapes is as old as the Roman Empire, when the technique known as topiary is thought to have originated. Topiaries may be formed in any shape, from cubes and cones to dogs and giraffes. Through the ages, topiary has gone in and out of fashion, perhaps peaking in popularity in Europe during the late 17th and early 18th centuries. Today, the art of topiary is practiced all around the world, in gardens large and small.

One type of topiary that has enjoyed consistent popularity through the years is the standard. The standard form is a highly stylized version of a tree, consisting of a straight stem topped with a ball or mop of foliage and, in some cases, flowers. In *The Pruning Book*, author Lee Reich writes, “I count myself among standardophiles, and, if I may speak for the group, we like standards for their neatness and because they

have the lollipop shape of storybook trees.”

The standard’s relative simplicity makes it an ideal form to begin experimenting with your own topiary creations. Standards can be small-scale—a containerized tabletop centerpiece, for example—or more substantial forms punctuating a border in the landscape.

SELECTING A SUBJECT

The first task in creating a standard is to select a good subject. Some common plants trained as standards include roses, boxwoods, and certain herbs such as rosemary. However, as Daphne Fraser, horticulture assistant at Buchart Gardens in Brentwood Bay, British Columbia, says, “You can make a standard out of almost anything.”

Both tropical and hardy, evergreen and deciduous, woody and herbaceous plants can be trained as standards, as long as they



Twin 'Iceberg' rose standards create a lovely welcome at the entrance to this flagstone patio. The fragrant flowers, which are borne in large clusters over a long period, are mostly pure white, although they may be tinged with pink.

are able to produce a straight, sturdy stem or can be grafted onto an understock that provides the upright stem.

Those who grow standards tend to have favorites. "I particularly enjoy working with willows, either for their seasonal foliar effect, or off-season vibrant stem color," says Dan Benarcik, horticulturist at Chanticleer, a public garden in Wayne, Pennsylvania. Two that he likes for their foliage are: rosemary willow (*Salix elaeagnos*), and silver willow (*S. alba* var. *sericea*); for stem color he likes *S. alba* 'Britzensis'.

"My personal favorite is the wisteria standard," says Alex Fernandez, manager of horticultural operations at Filoli, an estate garden in Woodside, California. "They require significant support and almost constant pruning in the summer, but a gnarly, old wisteria standard is a sight to behold!"

Diana Smith, owner of Topiary Gardens in Marcellus, New York, likes

standards made from dwarf evergreens—spruces or pines—grafted onto an understock that is 24 inches or taller "depending on the effect that is desired," she says.

At Biltmore Estate in Asheville, North Carolina, abutilon, coleus, and roses are the preferred plants for standards according to Director of Horticulture Parker Andes. For more plants that lend themselves to training as standards, see the list on page 41.

Resources

AHS Pruning and Training by Christopher Brickell and David Joyce. DK Publishing, New York, New York, 2011.

The Pruning Book by Lee Reich. Taunton Press, Newtown, Connecticut, 2010.

CREATING STANDARDS

Although hardy plants trained as standards can be grown directly in the ground, most standards are grown in containers. Container-grown standards have several advantages: They can be trained before they are moved into the garden, they can be moved out of the garden as their seasonal interest fades, and they can be moved to protected areas, if necessary, over winter.

To grow a standard, select an appropriate plant with a straight stem that has not been pinched. Insert a stake into the pot or ground close to the stem; the above-ground height of the stake should equal the desired height of the stem. Secure the stem to the stake with twine or plant ties.

"For any standard-to-be, it is important to provide excellent growing conditions for vigorous growth in developing the main stem," advises Reich in his book. As the plant grows taller,



Left: Trained against a bare wall, this wisteria provides a striking architectural element as it rises above a clipped boxwood hedge. Flowers of nearby ornamental onion and Spanish lavender echo the color of the wisteria blooms. In addition to its spring flowers, the wisteria's gnarled trunk provides dramatic winter interest.

Above: Because it is fast-growing and easily trained, coleus is a great plant for learning to develop a standard. While any variety of coleus can be used, here 'Bronze Pagoda' has been trained to its stake, lower shoots have been removed, and the top has been pinched to begin the process of forming a ball of foliage.



Left: Not all standard plants are grown on their own roots. Here a spreading ‘Blue Chip’ juniper has been grafted onto an upright understock to produce a mop of deep blue-green foliage that contrasts elegantly with the gold leaves and pink flowers of the spireas below.

Above: Many woody shrubs can be pruned as standards. This purple smoke bush (*Cotinus coggygria* ‘Royal Purple’) at the American Horticultural Society’s River Farm headquarters in Alexandria, Virginia, has been trained to a single trunk, focusing the floral display at eye level and allowing annuals and perennials to be planted beneath.

judiciously remove the lower shoots and leaves. For younger or weaker plants that need all the energy they can get, “you might allow a couple of inches of growth on shoots sprouting low on the main stem,” suggests Reich. On more robust plants, “pinch these shoots back to a single leaf or pair of leaves,” he adds.

When the stem reaches the desired height, pinch back the tip of the main stem to promote branching at that point. “Let the side shoots grow a bit and then

pinch the first set of leaves,” says Fraser. As these shoots grow and continue branching, “keep pinching back until you have the shape you want,” she says. Once you have an established “mop” on your plant, completely remove any shoots lower down on the main stem.

LANDSCAPE USES

The standard lends itself to a formal design, so may not be suited to every garden, but when well placed, it can really

make a statement. Places to try them could be by the front door, accenting a patio, or complementing a water feature.

In smaller gardens, standards allow you to pack in even more plants. Their tall, bare stems take advantage of vertical space while allowing other plants to thrive beneath them. As Benarcik puts it, “They offer maximum impact with a minimal footprint.”

At Filoli, standards “add to the formality of the garden when planted in



SUITABLE PLANTS FOR STANDARDS

A wide variety of plants can be trained into standards. Here are some that work particularly well.

Allamanda spp.
 Angels trumpets (*Brugmansia* spp.)
 Azaleas (*Rhododendron* spp.)
Bougainvillea spp.
 Boxwood (*Buxus* spp.)
 Calamondin orange (*Citrofortunella microcarpa*)
 Citrus trees (*Citrus* spp.)
 Coleus (*Solenostemon* spp.)
Fuchsia spp.
 Geranium (*Pelargonium hortorum*)
 Heliotrope (*Heliotropium arborescens*)
Hibiscus spp.
 Hollies (*Ilex* spp.)
Hydrangea spp.
 Kumquats (*Fortunella* spp.)
 Lantana (*Lantana camara*)
 Lavenders (*Lavandula* spp.)
 Tree or shrub mallows (*Lavatera* spp.)
 Lawson's false cypress (*Chamaecyparis lawsoniana*)
 Oleander (*Nerium oleander*)
Plectranthus spp.
 Roses (*Rosa* spp.)
 Rosemary (*Rosmarinus officinalis*)
 Sweet bay (*Laurus nobilis*)
 Wax mallow (*Malvaciscus arboreus*)
Wisteria spp.
 Yews (*Taxus* spp.)

Developing a fuchsia standard can take two or more years, but the effect is well worth the effort. This elegant 'Lord Beaconsfield' fuchsia, with its colorful pendant blooms, provides a big impact in a small space.

lines or a symmetrical pattern," explains Fernandez. Plants grown as standards are also used at Filoli to add height to planting beds while lower-growing annuals and perennials fill in the space beneath, a technique that can be applied to many home landscapes.

Tyler Diehl, head of horticulture at Ladew Topiary Gardens in Monkton, Maryland, likes standards because they provide an architectural element in the garden. They "break up different heights

in a small space or act as a step from one height to another," says Diehl.

Although standards are most commonly used as focal points or to add symmetry to a design, Benarcik treats them a bit differently. "I use them as touchstones on a journey through a garden or along a path, and to create or define space in a garden," he says. And while standards tend to have a formal feel to them, they can also add an element of whimsy. "I employ them occa-

sionally as if they were guests in a garden space," says Benarcik, "quietly studying the borders and combinations while the rest of us are absent."

If you're ready to try your hand at this ancient art, a little time and effort will yield big results. Simple yet versatile, standards offer endless ways to add impressive accents to your garden.

Rita Pelczar is a contributing editor for *The American Gardener*.

The Scourge of Powdery Mildew

by Scott Aker

AS SUMMER progresses and plants reach maturity, a fungal disease known as powdery mildew often makes its appearance in the garden. Powdery mildews are very host specific. So, the powdery mildew that afflicts lilacs does not cause disease in crapemyrtles, and the powdery mildew on a dogwood won't infect your peonies, even though the symptoms of the disease seem identical. In recent years, new powdery mildew strains have appeared on plants that were formerly untroubled by this disease. And flowering dogwoods and herbaceous peonies have recently been host to new strains of powdery mildew that are more aggressive.

THE NATURE OF POWDERY MILDEW

Although it is a common ailment of many different plants, powdery mildew has unorthodox habits that set it apart from other diseases. Most plant diseases affect plant tissues by exuding enzymes that digest cell walls and membranes, creating dead areas in leaves and other plant parts. In contrast, powdery mildew grows on the surface of leaves and does not kill large numbers of cells. The fungus produces pegs called haustoria that penetrate the leaf surface to maintain its attachment to the plant and draw nutrients from it.

Most fungal spores need a film of water on the leaf surface for a minimum time period to cause infection. But powdery mildew spores are killed by exposure to a water film if it is present for too long. Ideal conditions for spore germination are high humidity and moderate temperatures. That explains why many species of powdery mildew are at their worst in late summer, when nighttime temperatures begin to cool and humidity is high nearly every day in early morning as the temperature drops close to the dew point. Longer, cooler nights also mean



Powdery mildew infects a variety of edible and ornamental plants, including squash, top, and zinnias, above. The mildew strains are very host-specific, however, so the mildew on a squash, for example, will not affect a zinnia—and vice versa.

that temperatures are more likely to be in the 68 to 80 degree Fahrenheit range that is perfect for spore germination.

Powdery mildew is at its worst when skies are overcast but there's little rain, which keeps humidity high. In a very short time, the fungus may cover most of the leaves of a plant and cause distortion of developing leaves as it draws out so much of the liquid contents of the plant that cells cannot maintain turgidity. In severe cases, it can stop growth completely. Powdery mildew also magnifies the impact of drought. The fungal strands lose water to evaporation and cause an increase in the net loss of water from the plant. The additional drought stress may result in the decline and eventual death of some trees and shrubs, including dogwoods and roses.

CHOOSE RESISTANT VARIETIES

Planting resistant varieties is the best approach to combating powdery mil-



Roses in the Flower Carpet™ series (the one shown is 'Amber') demonstrate good resistance to powdery mildew.

dew. Garden phlox (*Phlox paniculata*), for instance, is prone to powdery mildew, but the cultivars 'David', 'Robert Poore', and 'Speed Limit 45' exhibit fair resistance. (For a list of resistant varieties from several kinds of plants, view the web special linked to this article on the AHS website at www.ahs.org.)

Keep in mind that resistance does not mean that the plant will *never* become a host to the disease; the disease may be

present but generally does not damage or disfigure the plant as much as it would a susceptible plant.

PREVENTIVE CARE

For plants that are not resistant, the key to powdery mildew control is to begin treatment on a regular basis prior to appearance of the disease. The disease's key vulnerability lies in the fact that most of the fungal body is on the outside of the leaves. Horticultural oil provides very good control by smothering the fungus, killing it. Pesticides based on potassium bicarbonate also work well to prevent infections, primarily by desiccating the spores and fungal threads. Sulfur and copper-based fungicides are also effective. In fact, rose growers have long applied sulfur to heating pipes in their greenhouses to provide a constant supply of sulfur vapors to eliminate powdery mildew. Curing an existing infection is more difficult than preventing one, but treatment is still worthwhile to prevent spread and to limit the impact of the disease.

There are other things that you can do to limit the effects of powdery mildew. Avoid excessive fertilizer application. The soft growth that results favors the development of the disease. Avoid planting susceptible plants in overly sheltered locations where humidity is likely to remain high even when drying winds are present. For the same reason, water plants prone to powdery mildew infrequently and at ground level.

Thorough cleanup in the garden will help to prevent or reduce problems the following year. For instance, if the leaves of melons or squash become heavily infected with powdery mildew near the end of the season, harvest any fully developed fruit and remove the vines rather than waiting until the vines are killed by frost. Once the disease has done its damage, the undeveloped fruit are not likely to ripen because they can no longer produce as many carbohydrates. Unless you maintain a "hot" compost pile that will kill the fungus, it's best to dispose of infected material in your yard waste recycling or trash.

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

Gardening Q&A with Scott Aker

CONTROLLING BAMBOO

My neighbor's bamboo has begun to spread into my yard. I've asked her to remove it or contain it to her yard, but she refuses. How can I keep it from spreading?

The easiest thing to do is to remove the new shoots as they emerge in spring. You can cut any of them growing in your yard down to the ground and remove the rhizomes (rootlike underground stems) back to the property line. The shoots grow rapidly, so you will need to remove them early to prevent growth. Don't spray the bamboo with a systemic herbicide because it may kill the bamboo on your neighbor's side of the fence, potentially making you liable for damage.

MALFORMED SQUASH

I planted yellow summer squash this spring and it initially grew well, producing lots of perfect, golden fruits, but now the fruits have green, recessed streaks on them. Is this a nutrient deficiency?

No, your squash are infected with cucumber mosaic virus. In addition to the malformed fruits, the plants will become stunted and less productive. Though unsightly, the fruits are still edible. To prevent problems for future plantings, control weeds growing nearby, since they are often a reservoir for the virus, which is transmitted by many species of aphids. You might be able to grow a new crop that will be ready for harvest before frost; use a row cover to exclude the aphids. Open the row cover when the plants begin to bloom so pollinators can get in to do their job. Your late crop may be less likely to be infected because aphid populations generally decline with warm, dry weather in summer. —S.A.

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

Delightfully Piquant Dill

by Gladys J. Richter



THE AVERAGE American consumes an estimated eight-and-a-half to nine pounds of pickles each year, and the majority of those are seasoned with dill. Beyond pickles, dill imparts its distinct piquant flavor to a variety of relishes, dips, and rubs. Its leaves are the perfect complement for fresh cucumber salad; freshly chopped or frozen, they enliven many other vegetable, seafood, and egg dishes. Recipes from pickles and dressings to bread call for the more strongly flavored dill seeds. To top it off, the flowerheads make attractive garnishes. Fortunately, dill is one of the easiest herbs to grow.

Dill (*Anethum graveolens*) is now cultivated worldwide, but its origins were in the Mediterranean region, where its use is documented in ancient horticultural and medicinal texts. A member of the parsley family (Apiaceae), it produces the family's characteristic umbel inflorescence. Along with its yellow, umbrellalike flowerheads, dill's

feathery foliage and tall, upright form make it a standout in the garden. In addition to vegetable and herb gardens, this ornamental edible is an outstanding choice for annual flower beds and mixed containers.

GROWING GUIDELINES

Dill is a relatively short-lived annual that can be grown across a wide range of climates. It grows best in full sun in moist, well-drained, neutral to slightly acidic soil. Prepare the soil by incorporating some well-rotted compost or manure prior to planting; dill performs

temperature, germination occurs in seven to 21 days. Once seedlings are a couple inches tall, thin them six to 10 inches apart.

Dill thrives in mild weather, and plants can bolt, or set seed, quickly in the heat of summer. Ensure a steady crop of fresh plants by making several sowings, two to three weeks apart. Dill self-sows readily, so you can also let a few flowers go to seed for a continuous supply without the need to reseed.

Due to its height, dill is susceptible to wind damage and will benefit from



Above: Both the flowers and leaves of dill are edible. **Top left:** Dill seedheads flavor a jar of pickles.

best in soil that is not overly rich, so no additional fertilizer is necessary.

In cooler climates, plant dill after the last frost of spring; in regions with little or no frost, it can be sown throughout the year. Dill does not transplant well, so it is best to sow seeds directly in the garden. Cover the seeds lightly with soil and keep the seedbed moist and weeded. Depending on the soil

some shelter, such as growing it next to a fence or wall. While most dill grows two to two-and-a-half feet tall, some varieties, such as 'Mammoth' and 'Herkules', can reach nearly four feet tall and will need staking. Another method used to keep plants upright is to grow several plants together so that they support each other.

As with many other members of the parsley family, dill attracts a number of beneficial insects such as green lacewings, lady beetles, hoverflies, and tachinid flies. By encouraging these natural predators, dill benefits any garden in which it is grown.

PESTS AND DISEASES

Dill, like many other aromatic herbs, is seldom affected by insects or other garden pests. It does, however, attract black parsley swallowtail butterflies, which lay their eggs on the plants so that their larvae may feed upon the leaves. These caterpillars may be handpicked from the plants if they get numerous enough to threaten the entire dill crop. Occasionally, hornworms will also feast upon the leaves; these may also be removed by hand.

Dill is occasionally affected by leaf blight and powdery mildew, particularly in wet conditions, but otherwise few diseases trouble it. Be sure that the soil is free-draining and avoid overwatering.

RECOMMENDED VARIETIES

‘Dukat’ If you are looking for a variety with the classic smell and a sweeter flavor of dill, then ‘Dukat’ is for you. It produces more foliage than most varieties before its 10-inch seedheads appear. Harvest begins in approximately 60 to 70 days.

‘Fernleaf’ For the ultimate small-space variety, choose ‘Fernleaf’, which produces rich dill flavor in a minimum of space, growing to a height of 18 to 26 inches with a compact habit. This variety is very slow to bolt, and leaves are ready to harvest in as few as 40 days.

‘Herkules’ (also ‘Hercules’) This slow-to-bolt variety grows 40 or more inches tall and produces lots of flavorful mid to dark green leaves. Leaves are ready to harvest in 40 to 55 days. This variety is very uniform and productive.

‘Mammoth’ This is a robust variety that grows 36 or more inches tall, with dark green leaves that are ready to harvest in 40 to 60 days. It is also a good seed producer.

‘Vierling’ This is an early-blooming variety that produces flowers in 85 to 100 days, although its leaves can be used much sooner. Both flavorful foliage and seed are excellent for culinary use. The chartreuse flowerheads and gray-blue foliage make it an outstanding choice for an ornamental garden.

Sources

The Cook's Garden, Warminster, PA. (800) 457-9703.

www.cooksgarden.com.

Johnny's Selected Seeds, Winslow, ME. (877) 564-6697.

www.johnnyseeds.com.

Sandy Mush Herb Nursery, Leicester, NC. (828) 683-2014.

www.sandymushherbs.com.

ENJOYING THE HARVEST

All aboveground parts of dill plants are highly aromatic, including the leaves, flowerheads, and seeds. Snip young leaves—or use thinnings—anytime after they appear to add fresh flavor to dishes—even leftover vegetables come to life when sprinkled with fresh dill. The cool morning hours are best for harvest to prevent wilting.



For cooked dishes, dill is best added at the very end to retain more of its delicate flavor. Mixing chopped leaves with butter creates a simple condiment that is wonderful with fish, potatoes, eggplant, peas, and many other vegetables. Dill-flavored cream cheese may be spread on bread and crackers or used as a dip for assorted fresh vegetables in an antipasto tray.

Dill seeds have a much more assertive flavor than the leaves and are often used in recipes for pickled vegetables and herb breads. To harvest seeds, cut the mature flowerheads after they turn brown. Carefully place them upside down in a paper bag—the ripe seeds fall easily from the umbels when disturbed. Allow the seedheads to dry for several days, then shake the bag and sift out the seeds. If you store the seeds in an airtight container in a cool dark place, they will last several years.



Left: Fresh dill leaves can be cut or pinched to add delicate seasoning to a variety of dishes. **Above:** The pungent-flavored seeds are commonly used for flavoring pickles.

Because dill leaves quickly lose much of their flavor—and bright color—when dried, freezing is the best method to preserve them for later use. To freeze, simply rinse the harvested leaves, pat them dry with paper towels, then seal them in an airtight plastic freezer bag and freeze. When you are ready to use them, just break or cut off what you need and add the leaves to your dish without thawing. Frozen dill stays flavorful for up to six months.

Dill's large yellow flowerheads may be harvested and added to bottles of vinegar or cooking oil to add flavor, used to garnish bowls of soup or cheese or vegetable platters, or even incorporated into fresh flower arrangements to provide a delicate, lacy effect. With such versatility, it's no surprise that dill is among the most popular garden herbs.

Gladys J. Richter is a freelance writer who resides near Richland, Missouri.

Hildene: Preserving the Lincoln Legacy

by Missy Katner

ONCE HOME to three generations of President Abraham Lincoln's descendants, the Georgian Revival mansion and gardens at Hildene entice visitors with their unique perspective on the Lincoln family legacy combined with magnificent horticultural displays.

Established in 1905 by Lincoln's only surviving son, Robert Todd Lincoln, the 412-acre estate—which includes a small-scale working farm—lies in the gentle green foothills of Manchester, Vermont. Robert and his wife, Mary Harlan Lincoln, chose to build the elegant summer home on the highest point of the property, and the view—overlooking a wide meadow, stream, and wetlands 300 feet below in the Battenkill Valley and with the Taconic and Green Mountain ranges visible on either side—is spectacular.

One of the most notable features of the grounds is the formal Hoyt Garden, famous for its "Celebration of Peonies" from late May to mid-June, when thousands of the flamboyant flowers bloom and fill the garden with color. "The garden offers a full summer season of color," says Andrea Luchini, Hildene's horticulturist. "A wide range of perennials bloom through October including phlox, asters, crocosmia, hibiscus, perennial lobelia, sea holly, and monkshood."

The Lincolns' daughter, Jessie, designed the Hoyt Garden in 1907 as a gift to her mother. During visits to Europe, Jessie was inspired by the large stained-glass windows in European cathedrals and French parterre gardens. She blended the two features in her design for the Hoyt Garden, choosing multicolored perennials to represent the glass panes and sheared



Top: The view of the Georgian Revival house and formal garden at Hildene. The 'Hildene' peony, above, left, is descended from peonies originally planted by Jessie Lincoln, shown in the peony garden in an early 20th-century photograph, above, right.

Additional Information

Hildene, 1005 Hildene Road, Manchester, VT 05254. (802) 362-1788. www.hildene.org.

- Open daily year round except major holidays: 9:30 a.m. to 4:30 p.m.
- Admission: Adults \$16, children under six \$5. As a participant in the AHS's Reciprocal Admissions Program, Hildene offers AHS members free admission. Contact Hildene for details.

Other nearby sites worth visiting:

The Bennington Museum, 75 Main Street, Bennington, VT 05201. (802) 447-1571.

www.benningtonmuseum.org.

Mount Equinox, Green Mountain National Forest, 1 A Saint Bruno Drive, Manchester, VT 05255. (802) 442-5441. www.fs.fed.us/r9/gmfl.

Southern Vermont Arts Center, 930 Southern Vermont Arts Center Drive, Manchester, VT 05254. (802) 362-1405. www.svac.org.

privet hedges to serve as the leading between them.

PRESERVING THE LINCOLN LEGACY

Hildene's gardens gradually deteriorated beginning in the 1940s during the tenure of Peggy Lincoln Beckwith, Jessie's daughter, the last direct Lincoln descendant to live there. According to Luchini, Peggy had a more "naturalized" approach to gardening than her mother, believing if a seed dropped to the ground and sprouted, it had the right to live no matter where it grew. Following Peggy's death in 1975, the Friends of Hildene, a non-profit organization, acquired the property with the goal of preserving its historic value and restoring the grounds. Luchini characterizes the organization's approach to the restoration as creating a new layer on top of the existing garden. "We're adding to what's already there rather than restoring it to its original condition," she says.

For example, many of the plants in the Hoyt Garden are similar to those originally planted by Jessie Lincoln, but Luchini and her predecessors have added newer varieties that require less

maintenance and perform better in the current garden.

Luchini believes that when the Friends of Hildene took over, a lot of the peonies still in the garden were either original heirlooms from Jessie's planting or naturally occurring crosses between those heirlooms. But because few records were kept, Hildene's horticulturists have spent years trying to identify them. Over time, two new peonies—"Jessie Lincoln" and "Hildene"—have been identified and named.

THE INFORMAL GARDENS

Although the Hoyt Garden is spectacular, Paula Maynard, Hildene's press director, says that the Lincoln family actually spent

areas connect the gardens to the Hildene Farm, which houses a herd of goats and a cheesemaking demonstration facility.

HISTORIC ARTIFACTS

Visits to Hildene begin and end in the Welcome Center, where guests can watch a short video about the Lincolns and their home before walking up to the mansion. Guests can experience the mansion on their own or take a guided tour and learn about the Lincoln family's life at Hildene. The current exhibit in the house focuses on Abraham Lincoln's Second Inaugural and includes his stovepipe hat, one of only three in existence. Another highlight is a 1,000-pipe organ, one of the oldest functioning residential



The informal kitchen and cutting gardens at Hildene were restored in the 1990s.

more time in Hildene's informal garden areas. For instance, the cutting and kitchen gardens, restored in the 1990s, supplied the Lincoln household with produce and fresh-cut flowers. Today, volunteers help tend the plants and harvest the produce, which is donated to a local food bank.

In the newly added soft-fruit cage, guests can sample currants, blueberries, raspberries, cherries, and grapes in season. The butterfly garden, a haven for a variety of insects and other wildlife, is used extensively in youth education programs. Walking trails through wooded

pipe organs in the country, installed in the entrance hall.

Hildene's gardens can be appreciated on a number of levels, ranging from their horticultural and aesthetic merit to their historical connection with the Lincoln family. But perhaps the most inspiring takeaway for gardeners is how those who now care for the property have allowed it to change with the times while retaining its original roots.

Missy Katner is an editorial intern for The American Gardener.

Recommendations for Your Gardening Library

The Gardener's Guide to Common-Sense Pest Control

William Olkowski, Sheila Daar, and Helga Olkowski. Taunton Press, Newtown, Connecticut, 2013. 391 pages. Publisher's price, softcover: \$24.95.

IN THIS AGE of sound bites, it's refreshing to read a book that provides the whole story in a fascinating and accurate way. That's exactly what you will find in the newly revised and updated *The Gardener's Guide to Common-Sense Pest Control*. For those who prefer information in bite-sized servings, this book also provides concise sidebars throughout the book highlighting the most important ideas and tips.

In the first part of the book, all types of pest control measures are covered in great detail, with an unbiased assessment of the risks and advantages of each. Crisp illustrations and images provide visuals that are every bit as clear as the text. The discussion faithfully sticks to the facts, allowing the reader to choose a course of action. The high point of the book for me is the richly illustrated chapter on beneficial insects. If you aren't already a backyard entomologist, you might become one after reading this section. The first part of the book ends with an equally thorough discussion of low-toxicity pesticides of all types and how they work.

Part two applies the information presented in part one. Many garden books that feature pests and diseases provide an encyclopedic listing of them with oversimplified recipes for control. This book goes much further, providing the life history of each pest and disease organism, the rationale behind control methods, and practical advice for monitoring and detecting problems before they cause serious damage. Chapters on weed control and lawns round out the book.

While the book does not cover every possible pest or disease found in every region of the country—that would require a series of encyclopedia-size tomes—it provides a comprehensive run-down on the most prevalent ones. Most importantly, it gives gardeners a logical framework for dealing with any problem that might be encountered.

If you, like me, are a gardener that must know the why as well as the how, *The Gardener's Guide to Common-Sense Pest Control* will go far in satisfying your inquisitive nature. It also will give you solid information to help you deal with pests and diseases that you will inevitably encounter in your garden.

—Scott Aker

Scott Aker is a horticulturist based in Washington, D.C.

Derek Fell's Grow This!

Derek Fell. Rodale Books, Emmaus, Pennsylvania, 2013. 416 pages. Publisher's price, softcover: \$23.99.

MOST OF US have one season a year to “get it right” in the garden, in limited space at that. We have but one chance at a bumper tomato crop each year, and maybe room for only one kind of pumpkin. Perhaps we'd like to pack in a rainbow of flowering plants, too. One way gardeners can make the most of each year is to select the best-performing varieties for their area.

To that end, author Derek Fell has tested more than 120 categories of edible and ornamental plants and almost 650 varieties. In this book, he presents his observations—sort of a gardener's crib sheet to getting a bumper crop of edibles or ornamentals.

For each plant, Fell provides a brief description, a discussion of the available varieties, and the reasons why you should grow a particular cultivar. He points out the varieties and types of vegetables that produce the most and have the finest flavor. For instance, “a single plant of a pole snap bean will produce 10 times the yield in the same space as a bush snap bean. More importantly, pole snap beans produce the best flavor.” He goes on to recommend both ‘Lazy Wife’ and ‘Musica.’

In addition to his recommended varieties, Fell includes “be aware” tips for each plant that explain the shortcomings of various cultivars: lack of hardiness, poor flavor, less than abundant blooms, no fragrance. I found myself highlighting the “must try” varieties and making note of the ones to skip.

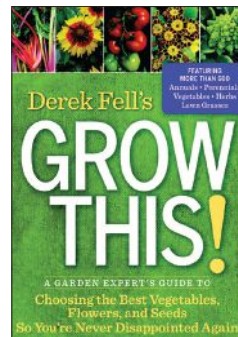
For each plant, the book provides the botanical name (useful for the plant geeks among us), the recommended hardiness zones, propagation methods, spacing instructions, what pests and diseases you might be facing and—best of all—the perfect partners for each plant.

One small caution to those who, like me, garden west of the Rocky Mountains: Fell mentions adding lime to the garden and making a compost tea that includes wood ashes. This advice is not applicable in the regions of the western United States where soils already are alkaline.

That aside, this book provided me with lots of ideas for plants to try in my garden, and my copy already looks well worn!

—Mary Ann Newcomer

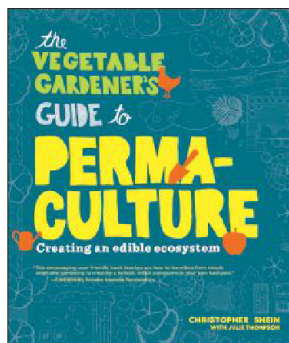
Mary Ann Newcomer writes the “Gardens of the Wild Wild West” blog and is the author of the Rocky Mountain Gardeners Handbook.



The Vegetable Gardener's Guide to Permaculture

Christopher Shein with Julie Thompson. Timber Press, Portland, Oregon, 2013. 272 pages. Publisher's price, softcover: \$24.95.

PERMACULTURE IS an approach to growing food with an emphasis on ecological design. It can be applied at the community,



farm, or individual garden scale. Permaculture gardening employs low-maintenance techniques, useful perennial crops, and a layout that takes best advantage of the sun, slopes, and soils of any given site. Often poultry, edible mushrooms, and fruits take equal place alongside familiar—or perhaps not so familiar—annual vegetable crops.

One can measure the increasing popularity of the permaculture gardening approach by the abundance of introductory guides that have been published in the last few years. Christopher Shein and Julie Thompson's *The Vegetable Gardener's Guide to Permaculture* stands out from the pack in several ways.

To begin with, it is written as an easy-to-understand and accessible entry point for gardeners of all sorts. Though the book's title at first led me to believe that this was a guide to applying permaculture techniques to vegetable production, it is actually about designing and caring for an ecological edible landscape that includes vegetables as part of an integrated whole. Shein and Thompson explain permaculture through a backyard vegetable grower's lens, but like the preface states, "any gardener can be a positive asset to the interconnected web of life."

Second, the book avoids making unsubstantiated claims about the productivity of permaculture systems. Instead it points out that permaculture can "help you create an abundance of food for your family and friends while saving you effort in the garden," then focuses on easy steps for doing just that. Chapters cover topics ranging from selecting suitable crops to methods for attracting beneficial insects, capturing rainwater, and building soil fertility.

Third, much of the impact of the book comes from the excellent case studies of real gardens. Shein's experience as a gardener and professional designer shows through here. The numerous prominent photographs of permaculture gardens invite readers to test the plants and techniques profiled.

Most of the case studies, and many of the species profiled, are specific to the benign climates of the West Coast. Tree tomatoes and olives may give some readers climate envy, but the book's approach will work in any part of the United States.

Gardeners who are interested in experimenting with the permaculture approach to growing edibles would do well to use this book as a guide.

—Eric Toensmeier

The author of Perennial Vegetables, which won the American Horticultural Society's 2008 Book Award, Eric Toensmeier is a permaculture writer and practitioner. His most recent book, Paradise Lot, was reviewed in the May/June issue of this magazine.

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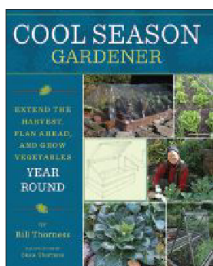
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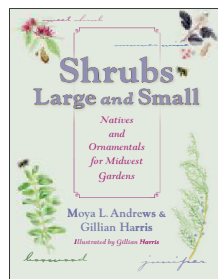
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Regional Gardening and Plant Guides

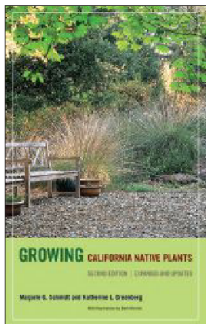
PLANT PALETTES vary widely across the United States, thanks to the country's various climates, soils, and other environmental conditions. What thrives in the Northwest may wither in the Southeast, or sometimes a favorite plant may be more adaptable than you might think. This selection of recently published books can help you zero in on the plants and techniques that work best for your particular region.



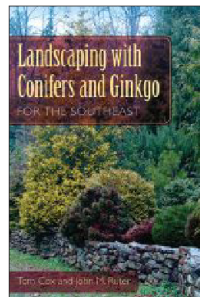
Cool Season Gardener (Skipstone, 2013, \$18.95) by Bill Thorness offers up practical ideas to “extend the harvest, plan ahead, and grow vegetables year round” in the Pacific Northwest. Discussing the challenges and solutions for everything from advection frosts to wind protection, this guide is a must-have reference for any vegetable gardener working in the region’s unique maritime climate. And although the illustrations are only in black-and-white, they clearly support the information presented in the text.



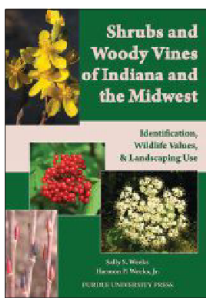
Shrubs Large and Small (Indiana University Press, 2013, \$28) by Moya L. Andrews & Gillian Harris showcases 20 of the authors’ favorite ornamental shrubs appropriate for growing in states bordering and east of the Mississippi River. It first discusses shrub selection in general, with an emphasis on design uses, attracting wildlife, and planning flower arrangements. Then, a “Plant Gallery” describes each of the 20 shrubs in detail, accompanied by Harris’s colorful botanical illustrations.



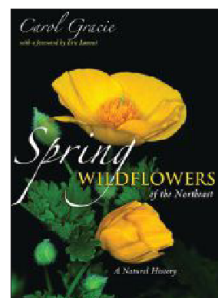
Updated and expanded from the 1980 original edition, **Growing California Native Plants** (University of California Press, 2012, \$26.95) by Marjorie G. Schmidt and Katherine L. Greenberg describes techniques for designing and maintaining a native plant garden in California. It also provides detailed descriptions of woody, perennial, and annual plants—nearly all accompanied with color photographs. Lists of plants for specific uses such as lawn alternatives and deer-resistant options are helpful for making appropriate selections.



Landscaping with Conifers and Ginkgo for the Southeast (University Press of Florida, 2013, \$29.95) by Tom Cox and John M. Ruter starts off with concise chapters on proper cultural practices and pests/diseases followed by extensive plant descriptions. Many entries include multiple species and cultivars with notable attributes such as disease resistance and sizes suitable for a range of landscape settings. For example, the *Ginkgo* entry includes 15 cultivars ranging from four to 60 feet tall—who knew ginkgos were so varied?



Comprehensive references dedicated to your region’s flora are invaluable for finding what will do best in your garden. For example, **Shrubs and Woody Vines of Indiana and the Midwest** (Purdue University Press, 2012, \$45) by Sally S. Weeks and Harmon P. Weeks, Jr. makes it easy to identify native and introduced woody plants found in the area. Each plant’s entry includes descriptions of form and use, a county-specific distribution map, and color photos depicting the plant’s habit, leaves, flowers, stems, and fruit.



Spring Wildflowers of the Northeast (Princeton University Press, 2012, \$29.95) combines facts and trivia with luscious photographs depicting some of the region’s showiest and most interesting spring-blooming native or naturalized wildflowers. Naturalist and photographer Carol Gracie’s conversational style makes this field guide not only useful but also an entertaining read as it describes these plants’ features, habit, history, uses, and ecosystem associations.

—Caroline Bristol, Editorial Assistant

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Horticultural News and Research Important to American Gardeners

HONEYBEE DEATHS REMAIN A MYSTERY

Despite the extensive report published by the U.S. Department of Agriculture (USDA) in May investigating colony collapse disorder (CCD), researchers are still baffled by the large-scale death of honeybees throughout the United States. Commercial beekeepers typically expect an annual loss of



Agricultural Research Service geneticist Tom Rinderer, right, and beekeeping cooperater Steve Bernard, inspect colonies of honeybees to better understand colony collapse disorder.

about 15 percent of honeybees, but for the past six years, that number has risen to an average of 30 percent. Because bees pollinate many agricultural crops, this loss could mean smaller harvests and a drastic increase in prices of fruits, nuts, and vegetables.

“Currently, the survivorship of honeybee colonies is too low for us to be confident in our ability to meet the pollination demands of U.S. agricultural crops,” the USDA report states.

The USDA investigated potential causes of CCD including viruses, pathogens, exposure to pesticides, and the overworking of commercial bees. But the diagnosis is not a simple one, since the disorder is most likely the result of a combination of stressors.

The report urges gardening as an effective means of supporting local honeybee populations. Kim Eierman, an environmental horticulturist who lectures about

beekeeping at public gardens in New York City, advises including a diversity of plants and using pesticides as little as possible. By adopting a few new gardening practices, Eierman says, “you can help bees on your own property while maintaining a beautiful landscape.”

For more information about CCD, visit www.thrall.org/bees.

CENTURY-OLD MONITORING PROGRAM YIELDS NEW PLANT ECOLOGY DISCOVERIES

In 1906, researchers at University of Arizona began recording the life cycles of individual plants in permanent research plots at Tumamoc Hill near Tucson. The original researchers had no intention of the project lasting longer than five years, but year after year, they came back to record another data set, as did their successors. Now, more than a century later, it is the world’s longest-running study that monitors plant communities.

Susana Rodriguez-Buritica, the lead coordinator of the research, says the monitoring program started because at the time, there were a lot of questions about

long-term behaviors of plant communities. “This data helped move ecology along,” Rodriguez-Buritica says.

In the mid-20th century, ecologists believed that if left untouched, plant communities progressed towards a perfectly balanced ecosystem. Observations at Tumamoc Hill showed that “the plots were not synchronized like you’d expect,” says Rodriguez-Buritica. “Each one was behaving in its own unpredictable way.” The recorded data have also revealed climate and other changes in the Sonoran Desert and allowed scientists to estimate life spans for long-living desert perennials.

Now, all the data has been digitized and made available online to plant ecologists interested in how desert plants are affected by 100 years of varying environmental conditions. This has also allowed the existing data to be analyzed more efficiently. Although there are no official findings yet, the data reveals great fluctuations in species diversity over the years due to environmental conditions, and recently, that species diversity has plummeted. Rodriguez-Buritica and her colleagues hope that



Research on the vegetation on Tumamoc Hill in Arizona has continued for more than 100 years, providing new insight into plant ecology in the American Southwest.

others will expand upon the data, noting, “Further use of data might shed light on long-term changes in plant communities attributable to global climate change.”

WHY SALT AND ROOTS DON'T MIX

Most gardeners know that plants don't appreciate too much salt in the soil. Plants react in a similar way that humans do to excessive sodium—dehydration—which is why high salinity can be fatal. However, exactly how salt affects a plant on a molecular level was unknown. Using the plant *Arabidopsis*, a relative of mustard, a team of researchers at the Carnegie Institution in Washington, D.C., has gained new insight into the mechanisms behind



Experiments on *Arabidopsis*, often used in laboratory plant research, showed that plants in high-salinity soil stop growing.

the stress response to salinity. High levels of salinity in soil is a concern in many parts of the world because it affects agricultural productivity.

The researchers discovered that although the primary root is not as affected by salty soil, the lateral roots—those that grow off the main root—are very sensitive. When they encounter salty soils, the inner layer of tissue in these branching roots activates a stress hormone which halts further root growth. “The plant stops growing,” researcher Jose Dinneny explains, “so that it doesn't take in too much sodium.” Understanding this stress response could lead to genetically engineered salt-tolerant plants.

“It's about making crops that are more resistant and efficient in using resources [such as land and water],” says Dinneny. “If you can design plants that can withstand stress, it would enable

people to grow more food.” Right now, the focus is on crop plants, but Dinneny believes research will move to grass and ornamentals in the future.

GLOWING PLANTS WITHIN REACH

Imagine glowing trees one day replacing electric streetlamps and gardens softly illuminated at night by the plants in them. It may sound like science fiction, but the Glowing Plant Project and the team of biotechnology “hobbyists” behind it aim to bring these ideas into the realm of possibility. They are close to successfully engineering glowing *Arabidopsis* plants, and have their sights set on popular ornamental plants. “We are just about to hit our stretch goal to fund the creation of a glowing rose,” says Antony Evans, one of the initiators of the Glowing Plant Project.

While scientists have created glowing plants in the past—such as tobacco in the 1980s—this project is unique because its funding is entirely crowd-sourced and the aim is to make the resulting plants available to the public. It also has reignited the controversy over genetically modified organisms. Before they can make glowing plants available to the public, Evans and his team will need approval from the U.S. Department of Agriculture. However, the agency only can regulate plants under a law covering plant pests. Since the glowing plants, created using synthesized genetic material rather than foreign genes from pathogens, do not pose a known plant risk, the hobbyists hope to release the plants under that exemption. The project leaders have promised to send seeds of the glowing *Arabidopsis* plant next year to the 8,000 people who have pledged to fund the project.



Glow-in-the-dark tobacco plants such as this one were first engineered in the 1980s

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PEOPLE and PLACES in the NEWS

Opening of Greenwood Gardens

Few of the grand estates that once graced Short Hills, New Jersey, still exist, but recently Greenwood Gardens—the former home of early-20th-century real estate auctioneer Joseph P. Day—was salvaged from decades of decay. Since it opened last April, the gardens have received a second life as a public park and culture center.




Originally a private estate, the newly renovated Greenwood Gardens in Short Hills, New Jersey, is now open as a public park and culture center.

The opening of the 25-acre estate, which is located about 45 minutes from Manhattan, marks the end of the first phase of reconstruction that began almost 10 years ago. Horticulturist Louis Bauer took on the project, transforming the overgrown site into a beautiful Arts and Crafts-style garden. The intriguing 1920s-era design of the estate's grounds was maintained through the reconstruction. From the back door of the Colonial Revival manor, the garden descends level by level, beginning with a formal, geometric lawn and stone terrace, sloping down to an Italianate garden. From there, each level gets progressively wilder and the paths start to bend and twist through the greenery.

Along with restoring the gardens to their original grandeur, an element of genteel decay was also preserved. Moss covers stone railings and fills in cracks. Odd features such as heavy deteriorating chess pieces and Chinese dragons rest where they have for the past 50 years. For more information, visit www.greenwoodgardens.org.

Allan Armitage Retires from UGA Trial Gardens

Allan Armitage, an award-winning teacher, writer, and researcher in horticulture, retired in June from the Trial Gardens at the University of Georgia (UGA) in Athens, but will continue to teach as a professor emeritus. Since co-founding the gardens in 1982, Armitage has overseen their development into a respected trial site for new plants from breeders around the world. He and his team evaluated these new varieties for tolerance to heat, resistance to disease, and a number of other characteristics. Some of the best performers are distributed through the “Athens Select” program. The gardens also have become a dynamic research and teaching tool for UGA students as well as a valuable resource for breeders, retailers, growers, landscapers, and gardeners. Armitage’s colleague John Ruter, a UGA horticulture professor and researcher, has been named the next director of the Trial Gardens.

Armitage will devote his time to overseeing his company, Garden Vistas, which organizes tours of “Great Gardens of the World” every year. He also will continue to give gardening lectures around the world and serve as a horticultural consultant. 

BLIGHT-RESISTANT AMERICAN CHESTNUTS MAKE COMEBACK IN REFORESTATION

Nearly wiped out by a fungus in the early 1900s, American chestnuts (*Castanea dentata*) are making a comeback as a component of reforestation efforts at environmentally damaged sites.

Blight-resistant chestnuts, resulting from 30 years of research and breeding by the American Chestnut Foundation, are playing a key role in the reforestation of the Palmerton Zinc Pile Superfund site in eastern Pennsylvania. The 70-acre site is located in an area that suffered extensive environmental damage caused by years of emissions from zinc smelting operations.

It is the largest remediation and re-vegetation project ever undertaken


by the Superfund program of the U.S. Environmental Protection Agency (EPA). “EPA is proud to be part of this tree planting venture that helps transform a previously barren and contaminated site into a beautiful ecological vista along the Appalachian Trail,” says EPA mid-Atlantic Regional Administrator Shawn M. Garvin.

The reforestation project is in its second year, and in that time more than 4,000 American chestnuts and 13,000 other trees have been planted at the site.

PLANTS UNCOVERED BY GLACIER REAWAKEN

Plant remains uncovered by a receding glacier in the Canadian Arctic Archipelago are coming back to life after centuries under the ice. University of Alberta

researcher Catherine La Farge and a team of scientists found subglacial moss populations in pristine condition, growing green and healthy after only a year of exposure to air and sunlight. Using radiocarbon dating, they confirmed that the plants ranged from 400 to 600 years old, entombed during the Little Ice Age that began around 1550.

Bryophytes, which include mosses and liverworts, have evolved a unique biology for optimal resilience, explains La Farge, allowing them to thrive where other plants don’t. However, no one expected them to survive for so long under the glacier. 

News written by Editorial Intern Missy Katner.

GREEN GARAGE® by Rita Pelczar

Contributing editor Rita Pelczar reports on products she has found useful or innovative in her garden, with an emphasis on earth-friendly products, tools, and supplies. Here she focuses on tools to tackle summer tasks.

EFFICIENT SOAKER HOSE

Dragging hoses can be, well, a drag. A soaker hose, which delivers water to the base of plants with little lost to evaporation, makes a lot of sense, particularly for vegetable gardens that need regular watering. The **Garden Row Snip-N-Drip Soaker System**



allows you to custom design an irrigation system to suit your garden's layout and dimensions, and it works equally well for in-ground

gardens and raised beds. The kit comes with 100 feet of half-inch recycled rubber soaker hose, 25 feet of half-inch garden hose, and a variety of couplers and end plugs. You simply cut the hoses to the lengths that suit your garden. Once the hoses are cut, the couplers and end plugs snap and screw into place easily creating neat, secure connections. A faucet adaptor allows you to connect the system to the closest faucet. www.gardeners.com.

PRODUCTION-BOOSTING TOMATO MULCH

My tomato plants have never looked better at this point in the season, and I am attributing at least part of their vigor to the **Red Tomato Mulch** that covers the ground beneath them. I'd read trial results from USDA's Agricultural Research Service



and Clemson University that showed improved growth and production of tomatoes and strawberries grown on the mulch—but had not tried it until this year. The operative principle is that the mulch reflects far-red light wavelengths upward to the plants, triggering the release of natural growth-stimulating plant

proteins. Once I had it spread and anchored—Earth Staples or landscaping pins work well—I cut X's through the mulch to plant my seedlings. The mulch is perforated with nearly invisible holes that allow water and air to pass through. Although it is not designed for weed suppression, it's doing a pretty good

job of it in my garden. Reportedly, it also improves flavor; as I write, I am awaiting my first vine-ripened fruit of the season to confirm that particular claim. www.gardeners.com.

HIGH-PERFORMANCE PRUNING TOOLS

Ever since I got my **Fiskars Quantum™ Pruning Tools**, I've been looking for more excuses to use them. Their hardened, precision-ground blades are extremely sharp, and they maintain their edge despite heavy use.



The Scandinavian design is full of thoughtful details: the rust-resistant, low-friction coating on the steel blades makes for easy cutting while it prevents sap and debris from sticking to them, and the handles are made of aluminum which keeps

the overall weight of the tools minimal. The natural cork handle pads provide a comfortable, no slip grip, and they give the pruners a sleek, stylish appearance. The series includes a hand-held bypass pruner, 23-inch hedge shears, and two sizes of bypass loppers—23-inch and 32-inch. All come with lifetime guarantees. www.fiskars.com.

SEED STORAGE MADE EASY

If you like saving your own seeds—from heirloom vegetables to flowers and shrubs—you'll be interested in the **Garden Marker Seed Saving Kit** from Gardener's Edge (www.gardenersedge.com).



It's a great way to keep your collected seeds organized, identified, and protected. The kit includes 10 glass-topped, airtight tins with labels, seed desiccant, collection bags, and a booklet on seed collecting, all contained in a compact aluminum case. Also included are glassine envelopes so you can share some of your collected seeds with friends—including other AHS members during our annual seed exchange.

A contributing editor for The American Gardener, Rita Pelczar lives in North Carolina.



REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

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

JULY 25–27. **Nantucket Garden Festival.** Pumpkin Pond Farm. Nantucket, Massachusetts. (508) 228-0427. www.nantucketgardenfestival.com.

RAP AUG. 4. **Plants are Free!** Propagation class. Brooklyn Botanic Garden. Brooklyn, New York. (718) 623-7200. www.bbg.org.

RAP AUG. 6. **Tending the Perennial Garden in August.** Lecture. Merryspring Nature Center. Camden, Maine. (207) 236-2239. www.merryspring.org.

RAP AUG. 10. **Hay Day Family Festival.** The Fells Estate and Gardens. Newbury, New Hampshire. (603) 763-4789. www.thefells.org.

RAP AUG. 10. **Mornings in the Vegetable Garden.** Tour and talk. Blithewold Mansion, Gardens and Arboretum. Bristol, Rhode Island. (401) 253-2707. www.blithewold.org.

AUG. 24. **Dahlia Show.** Connecticut Dahlia Society. Pond House at Elizabeth Park. Hartford, Connecticut. (860) 485-0326. www.ctdahlia.org.

Looking ahead
SEPT. 14. **Gathering of Gardeners.** Symposium. Rochester Museum & Science Center. Rochester, New York. (585) 271-4320. www.gatheringofgardeners.com.

MID-ATLANTIC

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

JULY 20. **New Jersey Native Orchids.** Lecture. Duke Farms. Hillsborough, New Jersey. (908) 722-3700. www.dukefarms.org.

RAP JULY 27. **All About Crapemyrtles.** Tour and talk. United States National Arboretum. Washington, D.C. (202) 245-2726. www.usna.usda.gov.

RAP JULY 27. **Richmond Designer's Guild Flower Show.** Lewis Ginter Botanical Garden. Richmond, Virginia. (804) 262-9887. www.lewisginter.org.

RAP AUG. 3. **The Art of Nature: Botanical Illustration.** Class. Bartram's Garden. Philadelphia, Pennsylvania. (215) 729-5281. www.bartramsgarden.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.

AUG. 3 & 4. **Annual Cactus and Succulent Show and Sale.** Brookside Gardens. Silver Spring, Maryland. (301) 962-1400. www.montgomeryparks.org/brookside.

RAP AUG. 10. **Dyeing with Indigo and Other Garden Plants.** Workshop. University of Delaware Botanic Gardens. Newark, Delaware. (302) 831-0153. <http://ag.udel.edu/udbg>.

RAP AUG. 24. **Tomato & Garlic TasteFest.** Glen Burnie Gardens at the Museum of the Shenandoah Valley. Winchester, Virginia. (540) 662-1473. www.themsv.org.

Looking ahead
SEPT. 6 & 7. **Heritage Harvest Festival.** Monticello. Charlottesville, Virginia. (434) 984-9880. www.heritageharvestfestival.com.

RAP SEPT. 14. **Garden Architecture and Water Features.** Garden walk. Winterthur Museum & Country Estate. Winterthur, Delaware. (800) 448-3883. www.winterthur.org.

SEPT. 16–21. **International Trials Conference.** Tours, demonstrations, lectures. Longwood Gardens. Kennett Square, Pennsylvania. (610) 388-1000. www.longwoodgardens.org.

SOUTHEAST

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

RAP JULY 20. **Horticulture Highlight Walk.** Daniel Stowe Botanical Garden. Belmont, North Carolina. (704) 829-1256. www.dsb.org.

RAP JULY 25. **Viva Florida 500 Best in Show Series.** Exhibition. Bonnet House Museums & Gardens. Fort Lauderdale, Florida. (954) 703-2614. www.bonnethouse.org.

AUG. 6. **Trial by Flower.** Lecture. Atlanta Botanical Garden. Atlanta, Georgia. (404) 876-5859. www.atlantabotanicalgarden.org.

RAP AUG. 11. **Tomato Festival.** The Arboretum, State Botanical Garden of Kentucky. Lexington, Kentucky. (859) 257-6955. www.ca.uky.edu/arboretum.

RAP AUG. 15. **Create a Butterfly Dining Station.** Workshop. Knoxville Botanical Garden. Knoxville, Tennessee. (865) 862-8717. www.knoxgarden.org.

RAP AUG. 17. **Protecting Plant Diversity in the Garden and in the Wild.** Class. The State Botanical Garden of Georgia. Athens, Georgia. (706) 542-6156. www.botgarden.uga.edu.

RAP AUG. 23 & 24. **Speaking of Gardening Symposium.** North Carolina Arboretum. Asheville, North Carolina. (828) 665-2492. www.ncarboretum.org.

RAP AUG. 24. **Seed Swap.** Harry P. Leu Gardens. Orlando, Florida. (407) 246-2620. www.leugardens.org.

NORTH CENTRAL

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

RAP JULY 19–21. **Seed Savers Exchange Conference and Campout.** Seed Savers Exchange Heritage Farm. Decorah, Iowa. (563) 382-5990. www.seedsavers.org.

AUG. 2. **Garden Day 2013.** Seminars, workshops, food, vendors. Michigan State University Horticulture Gardens. East Lansing, Michigan. (517) 355-5191. www.hrt.msu.edu.

RAP AUG. 10 & 11. **Gardeners of the North Shore Show and Sale.** Chicago Botanic Garden. Glencoe, Illinois. (847) 835-5440. www.chicagobotanic.org.

AUG. 10 & 11. **Minnesota State Gladiolus Show.** North American Gladiolus Council. Civic Center. New Ulm, Minnesota. (507) 426-6011. www.gladworld.org.

AUG. 17. **Artful Inspirations.** Landscaping workshop. Lauritzen Gardens. Omaha, Nebraska. (402) 346-4002. www.lauritzengardens.org.

RAP AUG. 31 & SEPT. 1. **National Dahlia Show.** Grand Valley Dahlia Society. Frederick Meijer Gardens and Sculpture Park. Grand Rapids, Michigan. (231) 798-2915. www.dahliaShows.com.

Looking ahead

RAP SEPT. 14 & 15. **Fall in Love with Orchids.** Orchid show. Wisconsin Orchid Society. Mitchell Park Conservatory. Milwaukee, Wisconsin. (262) 327-9373. www.wisconsinorchidsociety.com.

RAP SEPT. 22 & 23. **Cleveland's Ripe! Fest.** Cleveland Botanical Garden. Cleveland, Ohio. (216) 721-1600. www.cbgbgarden.org.

SOUTH CENTRAL

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

RAP THROUGH AUG. 4. **Plants and People of the Western U.S. Deserts.** Floral show. Missouri Botanical Garden. St. Louis, Missouri. (314) 577-5100. www.missouribotanicalgarden.org.

RAP JULY 27. **Summer Color Conference.** Presentations and plant sale. Mercer Arboretum and Botanic Gardens. Humble, Texas. (281) 443-8731. www.hcp4.net/mercer.

RAP AUG. 2. **Carnivorous Plants of the Arboretum.** Lecture. Crosby Arboretum. Picayune, Mississippi. (601) 799-2311. www.crosbyarboretum.msstate.edu.

AUG. 15-17. **Nursery Landscape Expo.** Texas Nursery & Landscape Association. George R. Brown Convention Center. Houston, Texas. (800) 880-0343. www.nurserylandscapeexpo.org.

Looking ahead

RAP SEPT. 5-8. **Flora Kansas: The State's Largest Native Plant Sale.** Dyck Arboretum of the Plains. Hesston, Kansas. (620) 327-8127. www.dyckarboretum.org.

RAP SEPT. 7 & 8. **Gateway West Gesneriad Society Show and Sale.** Missouri Botanical Garden. St. Louis, Missouri. (314) 577-5100. www.missouribotanicalgarden.org.

SOUTHWEST

AZ, CO, NM, UT

RAP JULY 19-21. **Grand Opening Celebration Weekend.** Santa Fe Botanical Garden. Santa Fe, New Mexico. (505) 471-9103. www.santafebotanicalgarden.org.

RAP JULY 20. **Introduction to Permaculture.** Class. Denver Botanic Gardens. Denver, Colorado. (720) 865-3552. www.botanicgardens.org.

JULY 20. **Lavender Fields Forever.** Festival. Tagawa Gardens. Centennial, Colorado. (303) 690-4722. www.tagawagardens.com.

JULY 27. **Plant Breeding in Your Backyard.** Class. Tucson Botanical Gardens. Tucson, Arizona. (520) 326-9686. www.tucsonbotanical.org.

Larger-than-Life Plants in Atlanta

FROM SUMMER THROUGH early fall, the Atlanta Botanical Garden (ABG) in Georgia is hosting the "Imaginary Worlds: Plants Larger than Life" exhibit, a collection of "mosaiculture" sculptures constructed entirely of living plants. The magical menagerie of creatures—including towering cobras, dancing fairies, an empty-headed ogre large enough for children to run through, and an enchanting unicorn made of fragrant flowers—was created by the nonprofit Mosaiculture of Montreal.

"It is a massive, stunning exhibition of mosaiculture," says Mary Pat Matheson, ABG president. "It is larger than life and very creative—like a storybook."



The Earth Goddess living plant sculpture will become a permanent exhibit at the Atlanta Botanical Garden.

The 19 sculptures range in size from small rabbits peppered throughout the garden to the exhibit's crowning jewel—Earth Goddess. Made of 40,000 plants, this 25-foot verdant figure resides over a pool with a small waterfall cascading from her hand. The beautiful sculpture is a soon-to-be permanent fixture in Atlanta and "will become an icon for the garden," Matheson says.

Mosaiculture is a technique developed in Europe centuries ago, although then

it was usually in the form of a two-dimensional tapestry planted on hillsides. Over time, the art has evolved into giant topiarylike sculptures formed from steel frames covered with a special fabric that has planting pockets for thousands of tiny annuals.

This internationally-known exhibit has been to Montreal, Japan, and China, but Atlanta is the first American city to host the "Imaginary Worlds" collection. "It is possible that this will be the only time the exhibit will be in this country," Matheson says. The exhibit closes on October 31; for more information, visit www.atlantabotanicalgarden.org.

Cummer Museum's Olmsted Garden Restored

THE CUMMER MUSEUM of Art & Gardens boasts some of the most beautiful gardens in northeastern Florida. This spring, the museum, located in Jacksonville, opened its historic riverfront Olmsted Garden after major renovations that began in September 2012. One of three main gardens on the property, it has never before been open to the public.

Listed on the National Register of Historic Places, the Olmsted Garden was designed by the renowned landscape architect Frederick Law Olmsted's firm in the early 1930s when the property was the private estate of art collector Ninah Cummer and her husband, Arthur. When the museum was founded in 1961, the Olmsted Garden was partly destroyed to make way for the new building. The remaining part was abandoned, and after decades became more jungle than garden.

Visitors can now stroll through the tropical gardens on brick pathways and enjoy exceptional vistas of the adjacent St. Johns River. "This important addition to our campus provides an opportunity for our visitors and community to experience the St. Johns River and the rest of our historic landscapes in a new way," says Chief Curator Holly Keris. For more information about the museum and gardens, visit www.cummer.org.

—Missy Katner, Editorial Intern

Heronswood Open Garden and Plant Sale

HERONSWOOD, site of an iconic garden and former nursery in Kingston, Washington, reopened this spring after several years of closure and neglect. On September 7, the garden will host an "Open Garden and Plant Sale," and the public is invited to celebrate the rejuvenation of this horticultural treasure.

In 2012, the Heronswood property was purchased by the Port Gamble S'klallam Tribe, a group committed to restoring the garden to its former glory. Dan Hinkley, one of the original Heronswood nursery co-founders, and a dedicated



Visitors will be able to tour Heronswood's restored gardens during its "Open Garden and Plant Sale" in September.

group of volunteers are making progress, filling in the garden with the special selection of plants that were once on sale at the nursery. The plant sale in September will feature a wide selection of plants provided by local nurseries in the Puget Sound area. Attendees can take a tour of the world-famous gardens. In the afternoon, the event will feature a series of lectures relating to the history and horticulture of Heronswood. There will also be art from tribal artists for sale, food vendors, and music performances. Admission to the plant sale and lectures is free. Tours of the garden will cost \$10; all the proceeds will be used for further restoration and maintenance of the garden.

For more information, visit www.heronswood.com.

—Missy Katner, Editorial Intern

AUG. 9. Southwestern Horticulture Annual Day of Education (SHADE). Arizona Nursery Association. The Renaissance Glendale. Glendale, Arizona. (480) 966-1610. www.azna.org.

RAP AUG. 26. **The Whys of Gardening's Best Practices.** Lecture. Red Butte Garden. Salt Lake City, Utah. (801) 585-0556. www.redbuttegarden.org.

WEST COAST CA, HI, NV

JULY 20. Ferns to Flowers Tour. Foster Botanical Garden. Honolulu, Hawaii. (808) 522-7066. www1.honolulu.gov/parks/hbg/fbg.htm.

RAP JULY 27. **Orchids 101.** Workshop. University of California Botanical Garden at Berkeley. Berkeley, California. (510) 643-2755. www.botanicalgarden.berkeley.edu.

AUG. 2-4. Designing Edible Food Forests. Class. Occidental Arts and Ecology Center. Occidental, California. (707) 874-1557. www.oaec.org.

RAP AUG. 3. **Summer Gardening Fair.** Plant

show and sale. San Francisco Botanical Garden. San Francisco, California. (415) 664-1316. www.sfbotanicalgarden.org.

RAP AUG. 10 & 11. **Gardens Workshop: Dining in the Desert.** Las Vegas Botanical Gardens at the Springs Preserve. Las Vegas, Nevada. (702) 822-7700. www.springspreserve.org.

RAP AUG. 20. **Water-Wise Gardening.** Lecture. Descanso Gardens. La Cañada Flintridge, California. (818) 949-4290. www.descansogardens.org.

AUG. 30-SEPT. 2. Begonia Festival. American Begonia Society. Capitola, California. (831) 475-6522. www.begoniafestival.com.

Looking ahead
SEPT. 15. Breadfruit Festival. Allerton Garden. Po'ipu, Hawaii. (808) 742-2623. www.ntbg.org/gardens/allerton.php.

NORTHWEST AK, ID, MT, OR, WA, WY

JULY 25. Plant Nerd Night & Sale. Northwest

Horticultural Society. University of Washington Botanic Gardens. Seattle, Washington. (206) 780-8172. www.northwesthort.org.

RAP AUG. 3. **Forage in the Forest.** Dinner, show, forest hike. Hoyt Arboretum. Portland, Oregon. (503) 865-8733. www.hoytarboretum.org.

AUG. 8-11. American Community Gardening Association Annual Conference. University of Washington. Seattle, Washington. E-mail: seattleacga2013@gmail.com. www.communitygarden.org/conference.

AUG. 22-24. Farwest Trade Show. Oregon Association of Nurseries. Oregon Convention Center. Portland, Oregon. (800) 342-6401. www.farwestshow.com.

AUG. 31 & SEPT. 1. Dahlia Show. Portland Dahlia Society. Clackamas County Fairgrounds. Canby, Oregon. (503) 655-6951. www.portlanddahlia.com.

Looking ahead

SEPT. 7-14. International Master Gardener's Conference 2013—Alaskan Cruise. Seminars, garden tours. Seattle, Washington. (253) 446-7546. www.uaex.edu/imgc2013.

CANADA

THROUGH SEPT. 29. Mosaicultures Internationals. Plant sculpture exhibit. Montreal Botanical Garden. Montreal, Canada. (514) 872-1400. www.espacepouirlavie.ca.

JULY 20 & 21. Rose Show. John Cabot Rose Society. Memorial University of Newfoundland Botanical Garden. St. John's, Newfoundland. (709) 864-8590. www.mun.ca/botgarden.

JULY 27 & 28. BC Fuchsia & Begonia Society Annual Show & Competition. VanDusen Botanical Garden. Vancouver, British Columbia. (604) 591-3262. www.vandusengarden.org.

AUG. 16-19. Garden Writers Association Symposium 2013. Quebec City Hilton. Quebec City, Quebec. (806) 832-1870. www.gardenwriters.org.

AUG. 18 & 19. Western International and Canadian National Gladioli Show. Nanaimo's Gladioli and Dahlia Society. Country Club Centre. Nanaimo, British Columbia. (250) 755-1412. E-mail: d-acres@shaw.ca.

Looking ahead

RAP SEPT. 14 & 15. **Fall Plant Sale.** The Gardens at Horticulture Centre of the Pacific. Victoria, British Columbia. (250) 479-6162. www.hcp.ca.



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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.

Acer campestre AY-ser kam-PES-tree (USDA Hardiness Zones 6–8, AHS Heat Zones 8–4)

A. griseum A. GRIS-ee-um (4–8, 8–1)

Anemone nemorosa uh-NEM-o-nee neh-mor-O-suh (4–8, 8–1)

Anethum graveolens uh-NEE-thum gruh-VEE-o-lenz (0–0, 12–1)

Asclepias incarnata as-KLEE-pee-us in-kar-NAY-tuh (3–9, 9–2)

Astilbe chinensis uh-STIL-bee chy-NEN-sis (4–8, 8–2)

Aucuba japonica aw-KYEW-buh jah-PON-ih-kuh (7–10, 12–6)

Besia deltophylla BEEZ-ee-uh del-tuh-FIL-luh (8–6, 6–8)

Calamagrostis xacutiflora kah-luh-mah-GROS-tiss ak-yew-tih-FLOR-uh (5–9, 9–5)

Carex laxiculmis KAIR-eks lax-ih-KULL-miss (4–9, 9–5)

Chamaecyparis lawsoniana kam-ee-SIP-uh-riss law-son-ee-AN-uh (5–9, 9–5)

Citrofortunella microcarpa sih-tro-for-tew-NEL-uh my-kro-KAR-puh (9–11, 12–9)

Corydalis solida kuh-RID-uh-liss SOL-ih-duh (5–7, 7–3)

Cotinus coggygria ko-TY-nus ko-JEE-gree-uh (5–9, 9–3)

Elaeagnus pungens el-ee-AG-nus PUN-genz (7–9, 9–7)

Hakonechloa macra ha-kon-eh-KLO-uh MAK-ruh (5–9, 9–2)

Heliotropium arborescens hee-lee-o-TROP-ee-um ar-bo-RES-enz (11–11, 12–1)

Hosta aureomarginata HAHS-tuh aw-ree-o-mar-jih-NAY-tuh (3–9, 9–3)

H. ventricosa H. ven-trih-KO-suh (3–9, 9–1)

Iris confusa EYE-ris kon-FEW-suh (4–10, 12–9)

Lantana camara lan-TAN-uh KAH-mah-ruh (11–11, 12–1)

Laurus nobilis LAW-rus NO-bil-is (8–11, 12–1)

Malvaviscus arboreus mal-vuh-VISS-kus ar-BO-ree-us (7–11, 12–6)

Mertensia virginica mur-TEN-see-uh vir-JIN-ih-kuh (3–7, 7–1)

Milium effusum mih-LEE-um eh-FEW-sum (5–9, 9–4)

Monarda fistulosa moh-NAR-duh fis-tyew-LO-suh (3–9, 9–1)

Nerium oleander NEE-rih-um o-lee-AN-der (9–11, 12–1)

Omphalodes verna om-fuh-LO-deez VUR-nuh (6–9, 9–6)

Ophiopogon planiscapus o-fee-o-PO-gon plan-iss-KAY-pus (6–11, 12–1)

Panicum virgatum PAN-ih-kum veer-GAY-tum (5–9, 9–1)

Parthenium integrifolium par-THEE-nee-um in-teg-rih-FO-lee-um (4–8, 8–3)

Pelargonium hortorum peh-lar-GO-nee-um HOR-tor-um (11–11, 12–1)

Physocarpus opulifolius fie-so-KAR-pus op-yew-lih-FO-lee-us (3–7, 7–1)

Polygonatum odoratum pah-lih-GO-nay-tum o-doh-RAY-tum (3–8, 9–1)

Primula pulverulenta PRIM-yew-luh pul-vur-yew-LEN-tuh (4–8, 8–1)

Pseudotsuga menziesii soo-doh-SOO-guh men-ZEES-ee-eye (5–7, 7–5)

Rosmarinus officinalis roze-muh-RY-nus oh-fiss-ih-NAL-iss (7–9, 10–1)

Rudbeckia maxima rood-BEK-ee-uh MAKS-ih-muh (4–8, 8–1)

Salix alba var. sericea SAY-lik AL-buh var. seh-RISS-ee-uh (4–9, 9–1)

S. elaeagnos S. el-ee-AG-nos (4–7, 7–1)

Sanguinaria canadensis san-gwi-NAIR-ee-uh kan-uh-DEN-siss (3–9, 9–1)

Thuja plicata THEW-yuh ply-KAY-tuh (6–8, 8–6)

Tsuga heterophylla SOO-gah het-ur-ah-FIL-luh (6–8, 8–6)

Vaccinium ovatum vak-SIN-ee-um o-VAY-tum (6–8, 8–6)

Vancouveria hexandra van-koo-VEER-ee-uh hek-SAN-druh (5–8, 8–5)

Viburnum tinus vy-BUR-num TY-nus (8–10, 10–8)

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Statuesque Beauty: Great Coneflower

by David J. Ellis

GREAT CONEFLOWER (*Rudbeckia maxima*, USDA Hardiness Zones 5–9, AHS Heat Zones 9–4) seems to be one of those plants that arouses contradictory feelings among gardeners—some love it and others loathe it. Although I’m sometimes hard-pressed to explain why, there’s something that appeals to me about this gangly, heat-loving perennial. I think it’s partly that it looks prehistoric or almost otherworldly, even though it’s native to the south-central United States.

A TALL ORDER

Also called giant coneflower or cabbage-leaf coneflower, it starts out by forming a two- to three-foot-wide clump of large blue-green or silvery-green leaves that do look somewhat like those of cabbages or collards. From this basal rosette, a single lanky stem shoots up four to seven feet straight as an arrow. Additional leaves cloak the stem at intervals, declining in size to mere nubs near the top. In southern gardens, great coneflower’s basal rosette of leaves often remains evergreen through the winter, but in temperate regions they die in late fall and re-emerge in spring.

The daisylike flowers, with yellow ray petals drooping around a tall, dark brown



Left: Great coneflower’s distinguishing feature is its height, which makes it stand well above its companions in this mixed bed. **Above:** Its flowers form prominent dark cones that are hard to miss.

cone of disk flowers, bloom in midsummer and attract butterflies. The individual flowers aren’t long lasting, but the cumulative effect of several plants blooming at the same time is architecturally striking. This effect remains long after the petals have dropped off and the cone turns black. The ripening seeds then attract hungry birds, and whatever isn’t eaten may self-sow.

MAXIMIZING THE IMPACT

Great coneflower grows most successfully in a sunny site with average to moist, neutral to slightly acidic soil. Because of its height, it is best placed near the back of a border, but since its growth habit is so vertical, it can also be integrated among perennials or grasses

with a slightly lower stature. To get the best effect from the stems and flowers, plant great coneflowers in groups of five or more and avoid fronting them with anything that grows to the same height. In groupings, space plants one to two feet apart.

Good companions include low-growing selections of switch grass (*Panicum virgatum*), feather reed grass (*Calamagrostis xacutiflora*), coneflowers (*Echinacea* spp.), swamp milkweed (*Asclepias incarnata*), wild bergamot (*Monarda fistulosa*), and wild quinine (*Parthenium integrifolium*).

While great coneflower may not be for everyone, it certainly has its virtues. All I can say is that when it’s planted in a large grouping with suitable companions, I find it quite spectacular.

Editor of The American Gardener, David J. Ellis grows many native plants in his Maryland garden.

Sources

Pine Ridge Gardens, London, AR.
(479) 293-4359.

www.pineridgegardens.com.

Prairie Moon Nursery,
Winona, MN. (866) 417-8156.
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