

The background of the cover is a close-up photograph of several monarch butterflies (Danaus plexippus) perched on a cluster of small, light purple flowers. The butterflies have orange and black wings with white spots along the edges. The background is a soft-focus green and yellow, suggesting a garden setting.

The American GARDENER®

The Magazine of the American Horticultural Society

March / April 2014

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ON THE COVER: A group of monarch butterflies sips nectar from Rocky Mountain blazing star (*Liatris ligulistylis*) in a Wisconsin garden. Photograph by Donna Krischan

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NOTES FROM RIVER FARM

SOME TIME ago, Tom and I visited George Ball Jr., CEO of the Burpee Company and a former president of the American Horticultural Society, at Burpee's Fordhook Farm in Pennsylvania. While we were there, we were particularly struck by the large collection of hellebores and their great diversity of bloom color. Hellebores also are well represented at our River Farm headquarters in Virginia. Even as the mid-Atlantic region experienced one of its coldest and snowiest winters, these tough plants remained unfazed while providing some of the earliest indications of spring. It's no wonder that the catalogs this year offer numerous new hellebore selections that will undoubtedly be snapped up by aficionados.



Gardeners seem to gravitate to certain favorite plants or plant groups, whether it's hellebores, daffodils, dahlias, or rock garden species. Many plants have attracted devotees who formed an organization dedicated to sharing members' common interest. Joining such a group is a great way to meet other like-minded gardeners, increase your growing know-how, and even acquire rare or unusual specimens of your favored plants.

Three years ago, leaders of a number of national plant societies suggested gathering to discuss opportunities and challenges in a culture where there are so many activities competing for people's time and attention. The first meeting, hosted in 2012 by the American Rose Society in Shreveport, Louisiana, resulted in the formal creation of the Coalition of American Plant Societies (CAPS). Last spring, CAPS met at the headquarters of the American Camellia Society in Fort Valley, Georgia.

This year, the AHS is pleased to host this convening of national plant society leaders here at our River Farm headquarters in Virginia in May (see page 8 for more details). The AHS has a long history of supporting specialty plant societies, because these groups deepen and enrich the relationship between gardeners and the plants they grow. Supporting this important event is one more way we can contribute to their continued vitality.

Then, in early June, River Farm will host a second event of national significance as we celebrate the recipients of the AHS's 2014 Great American Gardeners Awards and Book Awards. The awards ceremony is always a highlight of our year as we recognize individuals and groups who make invaluable contributions to American horticulture. You can find descriptions of this year's award-winners starting on page 14.

Also in this issue, learn about alarming research that reveals the population decline of one of America's most iconic butterflies—the monarch—and how gardeners can help. Supporting pollinators of all kinds by including plants that they need in your garden is an easy and important thing to do. *Ceanothus* and *Digitalis*, two very different plant groups with much to offer in this regard, are the focus of two other features in this issue. And if you're looking for inspirational examples of gardeners who have made a difference, you'll enjoy our profile of Ruth Bancroft, a centenarian who created a world-famous garden in California. We hope you will enjoy these and all of the other articles in this issue of *The American Gardener*.

Happy Gardening!

Harry Risetto, Chair, AHS Board of Directors
Tom Underwood, Executive Director

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MEMBERS' FORUM

TRIFOLIATE ORANGE REGIONALLY INVASIVE

In response to the letter that appeared in the January/February 2014 issue supporting the wider use of trifoliate orange (*Poncirus trifoliata*) as a barrier plant, I want to point out that it is listed as a Class 2 invasive in North Carolina. Where it has gone wild, it's not only unpleasant to run into, but very difficult to eradicate.

*Lisa Tompkins
North Carolina Native Plant Society
Waxhaw, North Carolina*

MORE ON OSAGE ORANGES

I really enjoyed Guy Sternberg's article on Osage-orange trees (November/December 2013), as well as the list of grand specimens you provided. One of my friends, Rex Bastian, who is an arborist with The Care of Trees, sent me this image of a 66-inch-diameter specimen



from Cobden, Illinois, which I wanted to share with you [shown above].

*Dave Coulter
Oak Park, Illinois*

RED WIGGLERS, NOT EARTHWORMS

In your article on vermicomposting (January/February 2014), the subhead reads "... putting earthworms to work." Earthworms should *not* be used for vermicomposting, so that term is misleading. Fortunately, the article and captions noted that red wigglers (*Eisenia fetida*) are the ideal species for vermicomposting. I started my worm bin with surplus red wigglers from a friend.

*Margot McCormack
Westland, Michigan*

CORRECTION

Author Geoff Hodge's name was rendered incorrectly in the byline for "The Sensory Lives of Plants" (January/February 2014). 🌿

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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.

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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

March / April 2014

PROGRAMS • EVENTS • ANNOUNCEMENTS

PLANT SOCIETIES MEETING AT RIVER FARM IN MAY

THE AMERICAN HORTICULTURAL SOCIETY is hosting the third annual meeting of the American Coalition of Plant Societies (CAPS), which will be held May 14 to 16 at the Society's River Farm headquarters in Alexandria, Virginia. Previous meetings of this group, which is comprised of leaders of national plant societies, were held in Shreveport, Louisiana, and Fort Valley, Georgia (for more on this, see page 5).

This year's event begins Wednesday, May 14 with an evening welcome reception. On Thursday, the main program opens with two keynote speakers: **Holly Shimizu**,



Kelly Norris will be a keynote speaker.

the executive director of the U.S. Botanic Garden (USBG) in Washington, D.C., and **Kelly Norris**, horticulture manager for the Greater Des Moines Botanical Garden in Iowa and an active member of the American Iris Society. Following a tour of River Farm, the afternoon session will feature a series of "Best Practices" workshops. Rounding out the day will be dinner and a tour at Mount Vernon, George Washington's historic estate, located a few miles from River Farm.

On Friday, an optional field trip into Washington, D.C., will include tours of the USBG, the Smithsonian's Enid A. Haupt and Ripley gardens, the native landscape around the National Museum of the American Indian, and the U.S. National Arboretum.

In the interest of being able to accommodate as many societies as possible, attendance at the CAPS meeting is by invitation and is limited to the leaders of national plant societies or their designated delegates. There is no fee to attend the meeting, but there is a nominal fee for participation in the field trips. For more information about the meeting, please contact **Sue Galvin** at CAPS2014@ahs.org or call (703) 768-5700, ext. 111.

SPRING GARDEN MARKET

THE AMERICAN HORTICULTURAL SOCIETY is getting geared up for its annual Spring Garden Market at River Farm from April 10 to 12. The opening day, Thursday from 3 p.m. to 7 p.m., is reserved for AHS members only, but the remainder of the market, Friday from 9 a.m. to 6 p.m. and Saturday from 9 a.m. to 4 p.m., will be open to the general public.



Displays from the National Capital Area District II Garden Club Flower Show will be in the Estate House.

Dozens of regional vendors will be selling a wide variety of plants and seeds, along with garden accessories, books, and horticulture-themed art. Master Gardeners also will be onsite throughout the event to answer gardening questions. Back by popular demand is Doug the Food Dude, a local gourmet food vendor that will offer a variety of food and beverages.

Running concurrently with the Spring Garden Market is the Small Standard Flower Show hosted by the National Capital Area District II Garden Club in the Estate House. Visitors to River Farm are welcome to view the exhibits and displays. Also in the Estate House is an art exhibit featuring botanical paintings by Salon 8, a group of local artists.

AHS members park free with valid membership card; parking for non-members is \$5 per car. Guests are encouraged to bring carts to tote their purchases, but a few carts and wheelbarrows will be available onsite. For more information about the event, call (703) 768-5700 or visit www.ahs.org.

HISTORIC GARDEN WEEK IN APRIL

AS IN PREVIOUS years, the AHS's River Farm headquarters is participating in Historic Garden Week, hosted by the Garden Club of Virginia. Running from April 26 through May 3, "America's Largest Open House" features 250 private homes and gardens across the state of Virginia showcased in 31 separate tours. The event traces its roots back to 1927, when Garden Club of Virginia members raised money to save trees at Monticello that had been planted by Thomas Jefferson himself.

In addition to the gardens, more than 30 garden club chapters throughout the state participate in the event by creating floral arrangements for the homes featured on the tour. Tours will



Floral arrangements by the Brunswick Garden Club will be on display at the Mecklenburg County Courthouse in Boydton, Virginia.

occur rain or shine and various ticketing options are available for those wishing to attend multiple tours around the state. For more details about tours and ticket prices, call (804) 644-7776 ext. 22, or visit www.vagardenweek.org.

2014 NATIONAL CHILDREN & YOUTH GARDEN SYMPOSIUM IN OHIO

THE AHS'S 22nd annual National Children & Youth Garden Symposium (NCYGS) will be held July 17 to 19 in Columbus, Ohio. An influential national event now in its second decade, the NCYGS brings together teachers, youth group leaders, and public garden administrators for three days of discussion, workshops, and networking related to children's gardening programs and plant-based education initiatives.

Hosted by the Franklin Park Conservatory and Botanical Gardens, the symposium will include more than 50 workshops, and lectures, guided garden tours, a visit to a vibrant local farmers market, and a keynote address by **Hope Taft**, the former First Lady of Ohio, who will recount her gardening experiences in the state. For more information about the symposium, visit www.ahs.org/ncygs or call (703) 768-5700 ext. 137.

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AHS 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.

- APRIL 4 & 5. **Great Gardens and Landscaping Symposium.** Manchester, Vermont.
- APRIL 5-7. **Colonial Williamsburg Garden Symposium.** Williamsburg, Virginia.
- APRIL 10-12. **Spring Garden Market.** (10th is AHS members-only preview sale.) River Farm, Alexandria, Virginia.
- APRIL 26-MAY 3. **Historic Garden Week in Virginia.**
- MAY 14-16. **Coalition of American Plant Societies Meeting.** River Farm, Alexandria, Virginia.
- MAY 16-24. **Gardens of Gloucestershire & the Chelsea Flower Show.** England. AHS Travel Study Tour.
- JUNE 5. **AHS Great American Gardeners Awards Ceremony and Banquet.** River Farm, Alexandria, Virginia.
- JULY 17-19. **AHS National Children & Youth Garden Symposium.** Columbus, Ohio.
- AUGUST 15-17. **Homestead Resort's In the Garden Weekend.** Hot Springs, Virginia.

AHS PRESIDENTS COUNCIL TRIP

THE 2014 AHS President's Council Trip will be held in Seattle, Washington, from July 23 to 27. The trip will be hosted by President's Council member **Marcia Zech**, a Mercer Island,



Marcia Zech's garden will be among those on the trip's itinerary.

Washington, resident who also serves on the Society's Board of Directors. She will be joined by **John Wott**, former AHS Board Member and retired director of the Washington Park Arboretum.

The trip will include behind-the-scenes tours of public gardens—including the Elisabeth C. Miller Botanical Garden, the Bloedel Reserve, and the Washington Park Arboretum—as well as visits to nurseries such as Dragonfly Farms

Nursery, which specializes in rare and unusual plants.

For more information about this event or the President's Council, call **Joanne Sawczuk** at (703) 768-5700 ext. 132 or e-mail jsawczuk@ahs.org. Preference will be given to reservations made by April 18. 🌱

News written by Editorial Intern Hunter Stanford.

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- Spend an evening at the vibrant North Market, featuring more than 30 vendors of fresh and local food, flowers, baked goods, and more.
- See innovative models of programming and design at local school, community, and children's gardens during optional pre-symposium trips.
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Hosted by Franklin Park Conservatory and Botanical Gardens
with Sessions Held at OSU Ohio Union Building

For more than two decades, the American Horticultural Society has brought together educators, landscape architects, and garden advocates of all kinds during the National Children & Youth Garden Symposium. Join us for three dynamic days devoted to advancing the movement to connect children to plants and the natural world.

Hosted by Franklin Park Conservatory and Botanical Gardens, the 2014 Symposium will be held in Columbus, Ohio. With its blossoming local foods movement and exceptional youth gardens, this city boasts numerous inspiring examples of how green spaces can facilitate better nutrition and health. Attendees also will gain insight into the unique Metro Parks System, a state-wide program that works to conserve land for recreational and educational purposes.

Join us in July for this one-of-a-kind national event, and return home from the NCYGS with new ideas, curricula, program management techniques, and an ever-growing network of like-minded colleagues from across the country.





THE AMERICAN HORTICULTURAL SOCIETY TRAVEL STUDY PROGRAM UPCOMING TOURS



~ TOUR SPOTLIGHT ~ Gardens of Normandy with Paris September 9–19, 2014

This fall, experience the romance and beauty of France as we explore the gardens, castles, and chateaus of the Normandy region and Paris. Admire the historic treasures of the Renaissance, sleep in magnificent chateaus built in the Middle Ages, and savor world-class cuisine. Come enjoy this unforgettable trip with AHS Host Katy Moss Warner and Tour Leader Susie Orso of Specialtours.

Accommodations are limited; please make reservations early.

AHS President's Council Exclusive Trip

NORTHWEST WASHINGTON AND SEATTLE
July 23–27, 2014

Our summer tour will take us to beautiful Seattle in the Pacific Northwest, home to a wealth of outstanding gardens. For more information about the AHS President's Council, please contact Scott Lyons at (703) 768-5700 ext. 127.

For AHS President's Council Members only

~ Other 2014 & 2015 Travel Destinations ~

Gardens of Gloucestershire & the Chelsea Flower Show

May 16–24, 2014 **SPACE STILL AVAILABLE**

Gardens, Wine, and Wilderness: A Tour of New Zealand

January 10–February 1, 2015

Glorious Fall Foliage Along the Hudson River Voyage aboard the *Yorktown*

October 9–16, 2015

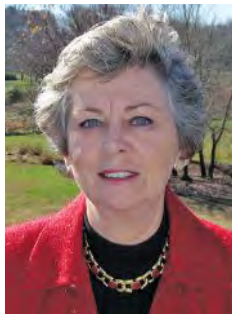
Participation in the Travel Study Program supports the American Horticultural Society and its vision of Making America a Nation of Gardeners, A Land of Gardens.

For more information about the AHS Travel Study Program, visit www.ahs.org or contact Joanne Sawczuk at jsawczuk@ahs.org; (703) 768-5700 ext. 132.

AHS MEMBERS MAKING A DIFFERENCE: Carole Teja

by Hunter Stanford

GARDENING HAS been a way of life for Carole Teja, from her childhood in the English countryside, to becoming an active Master Gardener in her retirement. At her home in Atlanta, Georgia, she and her husband enjoy three acres of gardening space where they grow blueberries, pecan trees, and lots of native plants, “despite a good-sized deer population.” She also



Carole Teja

applies her green thumb to numerous community projects through a variety of gardening organizations.

CONTINUING EDUCATION THROUGH COMMUNITY INVOLVEMENT

Upon retiring from her career in nonprofit education in 2001, Teja decided to get back to her roots and expand her gardening knowledge. She became involved with the Georgia Master Gardeners Association (GMGA), sharing her gardening enthusiasm with fellow Master Gardeners as well as the community through a variety of programs, projects, and other activities.

Teja served as the GMGA president from 2012 to 2013 and is particularly proud of the fact that the organization was able to contribute \$25,000 last year to the University of Georgia for a horticulture scholarship. She now sits on the GMGA board as the vice president of education, a role that will allow her to play a large part in planning the continuing education offerings for the organization’s annual conference coming up in October.

In addition to the GMGA, Teja is also active in the Georgia Native Plant Society (GNPS). She is currently on the planning committee for its 20th anniversary events, and in previous years she served as its volunteer coordinator. She often participates in



Carole Teja, center, enjoys sharing gardening experiences with others, such as this group of Red Hat Society members who toured her personal garden in Atlanta, Georgia.

the organization’s plant rescue digs, during which volunteers rescue native plants—with permission—from property that is scheduled for redevelopment. “The rescued plants go into our gardens or are potted up and made available at the GNPS annual plant sale,” says Teja, who adds that this event “raised over \$40,000 last year and the funds are ploughed back into community projects, grants, and scholarships.”

Over the years, she also found time to participate in the Georgia Perennial Plant Society, as well as other plant-focused organizations and garden clubs. And she joined the American Horticultural Society in 2010 as a way to connect to other gardeners on a national level. In addition to the magazine, the AHS membership benefits she particularly enjoys include the annual members-only seed exchange and the Reciprocal Admissions Program, which grants free entry into gardens nationwide. “I use my AHS membership card to visit the Atlanta Botanical Garden regularly,” Teja says. “It is a very convenient place to meet friends to walk and talk.”

COMMON GROUND

Teja’s experiences with so many different gardening and plant groups have given her a healthy appreciation for how gardening can bring communities together. Teja notes that within her own circle of Master Gardeners, for example, “we have GMGA members who specialize and are active in each plant organization in Georgia, so we encourage each group to share its continuing education and program marketing as it benefits us all.” In return, the GMGA helps promote the “wide diversity of gardening programs” available in the state through its website. Collaborating makes sense, says Teja, because all of these groups ultimately share the same goal: to increase horticultural awareness.

On a personal level, Teja is “enthusiastic to pass along the love of good dirt” to her grandchildren, who all live close by. Based on the fond childhood memories of gardening with her family, she knows that introducing younger generations to gardening can bring a lifetime of rewards. 🌱

Hunter Stanford is an editorial intern for The American Gardener.

AHS 2014 Great American Gardeners National Award Winners

The American Horticultural Society is proud to announce the distinguished recipients of the Society's 2014 Great American Gardeners Awards. Individuals, organizations, and businesses who receive these national awards represent the best in American gardening. Each has contributed significantly to fields such as plant research, garden communication, landscape design, youth gardening, teaching, and urban beautification. We applaud their passionate commitment to American gardening and their outstanding achievements within their respective areas of expertise.

The 2014 awards will be presented on the evening of June 5 during the Great American Gardeners Awards Ceremony and Banquet at River Farm, the AHS's headquarters in Alexandria, Virginia. For more information, or to register to attend the ceremony, visit www.ahs.org/awards or call (703) 768-5700.

LIBERTY HYDE BAILEY AWARD

Given to an individual who has made significant lifetime contributions to at least three of the following horticultural fields: teaching, research, communications, plant exploration, administration, art, business, and leadership.



THE RECIPIENT of this year's Liberty Hyde Bailey Award is **Paul W. Meyer**, the F. Otto Haas Executive Director of the Morris Arboretum of the University of Pennsylvania in Philadelphia since 1991. Meyer, who came to the Arboretum as curator of living collections in 1976, has played a significant role in its transformation from a dilapidated, little-known former private estate into a world-class public garden that welcomes about 125,000 visitors each year.



The Morris Arboretum is also a research and educational institution that maintains a database of the native and naturalized flora of Pennsylvania and supports plant-hunting expeditions abroad.

Meyer helped found the NACPEC (North America-China Plant Exploration Consortium) in 1991 and has traveled extensively to China as well as other parts of the world in search of new plants to evaluate for introduction to American gardens. Through the NACPEC, the Morris Arboretum and several other prominent participating North American public gardens have developed a strong relationship with Chinese botanical gardens to share information aimed at improving plant conservation efforts and widening the genetic pool of species commonly used in horticultural breeding programs.

Meyer has a bachelor's degree in landscape horticulture from the Ohio State University, a master's degree in plant sciences from the University of Delaware, and Diploma in biology and plant taxonomy from the University of Edinburgh in Scotland. His studies in Europe included training at Sir Harold Hillier Gardens in Winchester, England.

Many horticultural organizations have recognized Meyer's achievements over the years. The Garden Club of America awarded Meyer a Special Citation in 1997 and made him an honorary member in 2007. He received the Pennsylvania Horticultural Society's Distinguished Achievement Medal in 1999. Most recently, he was presented the Award of Merit from the American Public Gardens Association in 2013. Meyer also teaches urban horticulture at the University of Pennsylvania's Landscape Architecture Department.

H. MARC CATHEY AWARD

Recognizes outstanding scientific research that has enriched the field of horticulture.

Among the areas of research that **Jules Janick**, director for the Center for New Crops



and Plant Products at Purdue University in Lafayette, Indiana, has focused on during his long career at the institution includes fireblight resistance, genetics

of sex determination, and the production of synthetic seed. Janick has also contributed to several crop improvement programs, including scab-resistant apples, delayed-bolting arugula, and crack-resistant tomatoes. He has received numerous plant patents and utility patents and has served as an editor for several major horticulture journals, including *HortScience* and *Plant Breeding Reviews*.

PAUL ECKE JR. COMMERCIAL AWARD

Given to an individual or company whose commitment to the highest standards of excellence in the field of commercial horticulture contributes to the betterment of gardening practices everywhere.



Dale L. Bachman is president of Bachman's, a Twin-Cities/St. Cloud, Minnesota, chain of floral, gift, home, and garden centers. Founded in 1885, Bachman's is now in its fifth generation as a family-run business. Dale Bachman, who started with the company in 1972, has led its growth in an ever-changing marketplace by opening several new garden centers in the Minneapolis metropolitan region, adding services, and

diversifying product lines. He assisted in creating a wholesale nursery division, instituting indoor and outdoor landscaping services, and establishing greenhouses and a 600-plus-acre growing range for producing much of what is sold at Bachman's retail stores.

LANDSCAPE DESIGN AWARD

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

Currently an architecture professor at the University of Pennsylvania, **Laurie Olin**



is also a co-founder of OLIN, an urban-design and landscape architecture firm founded in Philadelphia in 1976. Among the public spaces designed by OLIN are the grounds of

the Washington Monument in Washington, D.C., Bryant Park in New York City, and the J. Paul Getty Center in Los Angeles. In 2013, Olin received the National Medal of Arts from the National Endowment for the Arts, which was presented to him by President Barack Obama. Olin has authored several books on landscape architecture, including *Transforming the Common Place*, and was a co-author of *Vizcaya: An American Villa and Its Makers*.

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.

John Floyd Jr. has served the American Horticultural Society (AHS) in a



number of capacities, including three terms on the Board of Directors, co-chairing membership for the National Committee and serving on the Editorial Advisory Council for

The American Gardener. Floyd continues to be involved in AHS activities, including hosting the 2013 AHS Travel Study Program in Spain with his wife, Pam. Floyd was editor-in-chief of Birmingham-based *Southern Living* magazine for 18 years and also served as vice president before retiring in 2008. He sits on the board of trustees of Huffman Methodist Church and is a member of the Board of Directors for the Community Foundation of Greater Birmingham.

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.

Considered a pioneer in the edible landscape movement, **Rosalind Creasy** is the



author of 18 books on gardening and cooking. Her first book, *The Complete Book of Edible Landscaping*, published in 1982, helped popularize the term "edible landscaping" in

American horticultural vocabulary. An updated and revised edition of the book was published in 2010 and is now in its 4th printing. Creasy, based in Los Altos, California, is also a landscape designer, who helped create an edible landscape at the San Jose headquarters of software giant Adobe Systems, and designed 80 acres of the Seed Savers Exchange main campus in Decorah, Iowa. Creasy lectures across the country on gardening, cooking, and edible landscaping and also maintains a blog at www.rosalindcreasy.com.

Nominations for 2015

Help us give recognition to deserving "horticultural heroes" by nominating someone you know for one of the 2015 Great American Gardeners Awards. To do so, visit www.ahs.org/awards for more information.

FRANCIS JONES POETKER AWARD

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

Houston, Texas, resident **Gay Estes** teaches and lectures on the art of flower



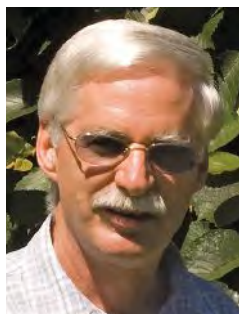
arranging and show competitions. She authored a book, *The Church Ladies' Guide to Divine Flower Arranging*, in 2008. Estes is active in the Garden Club of

America, serving as a frequent judge for its Flower Show in addition to hosting club lectures under the name, "The Lone Arranger." From 2008 to 2011, Estes also served on the Board of Directors of the American Horticultural Society. Over the years, Estes has won numerous awards for her floral arrangements, including the Garden Club of America's Margaret Clover Symonds Medal and Harriet DeWaele Puckett Creativity Award.

PROFESSIONAL AWARD

Given to a public garden administrator whose achievements during the course of his or her career have cultivated widespread interest in horticulture.

Richard A. Brown serves as the executive director of the Elisabeth C. Miller Botanical Garden Trust in Seattle, Washington. From 1976 until he retired in 2009, Brown was the first director of the Bloedel Reserve on Bainbridge Island,



Washington. Prior to this position, Brown was director of the Plant Records Center that was being formed at the AHS's River Farm headquarters in the early 1970s, a job that suited his interest in combining modern statistical methods with the study of plant research and horticulture while concurrently a stu-

dent at the University of Delaware. Now semi-retired, Brown is a past president of the Northwest Horticultural Society and past board member of the American Public Gardens Association.

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.

An Extension Associate of the 4-H and Youth Programs at Oklahoma State Uni-



versity (OSU), **Shelley Mitchell** created Camp T.U.R.F. (Tomorrow's Undergraduates Realizing their Future) at OSU in 2010 to offer kids starting high school an

overview of horticultural career options. The same year, she also founded Camp Junior Master Gardener, a week-long day camp for 9- to 12-year-olds that emphasizes nature-themed art and crafts and exploration of the OSU Botanic Garden. Mitchell, a former high school teacher, has also worked with the Women in Science Conference and led a Girl Scouts Badge workshop for gardening and horticulture.

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.

Marcia Eames-Sheavly is a senior lecturer and senior extension associate in



horticulture at Cornell University in Ithaca, New York. Eames-Sheavly coordinated the installation of landscape art projects such as sod couches and sod statues on campus as well as a bulb labyrinth at the university's Bluegrass Lane Turf and Landscape Research Center. She also developed the course "Experiential Garden-Based Learning in Belize," in which she and a group of students travel to Belize to work with an elementary school and non-profit organization. A regular participant in the AHS's annual National Children & Youth Garden Symposium, Eames-Sheavly was a keynote speaker at last year's event in Denver, Colorado.

URBAN BEAUTIFICATION AWARD

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



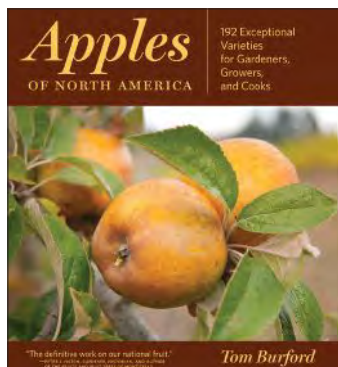
Located on 19 acres in downtown Birmingham, Alabama, **Railroad Park** is commonly referred to as "Birmingham's Living Room." The site features landscaped areas, a bio-filtration wetland, and many paths and trails. Built as a joint project between the City of Birmingham, Alabama, and the Railroad Park Foundation, Railroad Park provides local residents a place to exercise, relax, and enjoy outdoor performances. The park, which opened to the public in 2010, is built on what was once a freight depot for the Burlington-Northern railroad company. The benches and walls in the park use up-cycled materials unearthed from the site during the park's construction.



2014 AHS Book Award Winners

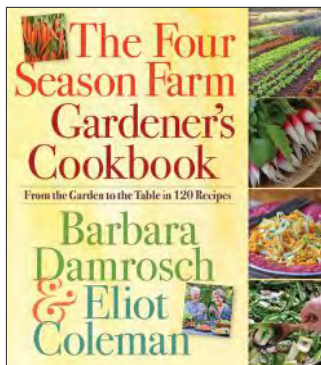
Each year, the American Horticultural Society recognizes outstanding gardening books published in North America with its annual Book Award. Nominated books are judged by the AHS Book Award Committee on qualities such as writing style, authority, accuracy, and physical quality. This year's recipients, selected from books published in 2013, are listed below.

The 2014 Book Award Committee was chaired by **Kathy LaLiberte**, a Vermont-based marketing consultant and garden writer previously with Gardener's Supply. Other committee members were **Jeff Cox**, a garden communicator and designer in Sonoma County, California; **Rita Hassert**, a botanical librarian at the Morton Arboretum in Lisle, Illinois; **Rand B. Lee**, a freelance writer and editor specializing in Southwestern gardening; **Jim Long**, garden communicator and owner of Long Creek Nursery in Blue Eye, Missouri; **W. Gary Smith**, a landscape architect and author currently based out of New York City; and **Marty Wingate**, a garden writer and speaker based in Seattle, Washington.



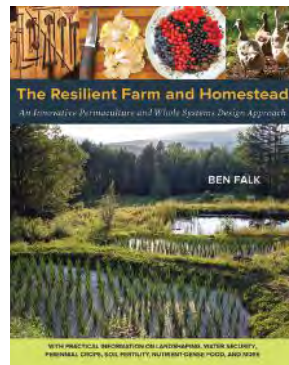
Apples of North America by Tom Burford. Timber Press, Portland, Oregon.

This beautifully produced book by one of the country's most knowledgeable apple experts provides invaluable insight into this fruit's rich North American heritage. Reading it is like discovering lost treasure; it may inspire you to "run right out and scour the countryside for forgotten apple cultivars," says Rand Lee. Fascinating historical information and colorful descriptions for 192 varieties are "clearly and concisely presented," notes Rita Hassert, who was also impressed by the authoritative "Orchard Primer" section that discusses "design and management as well as products that can be created from a successful harvest." The photographs of each fruit are so crisp, you can almost taste them.




The Four Season Farm Gardener's Cookbook by Barbara Damrosch and Eliot Coleman. Workman Publishing, New York, New York.

Books about edible gardening have proliferated in recent years, but this one stood out for a number of reasons including its inviting design and layout, instructive illustrations, comprehensiveness, and down-to-earth tone. "This book is jam-packed with practical gardening know-how, based on 40 years of experience growing organic produce," notes Kathy LaLiberte. "But the authors know that growing the food is only half the story so they have also provided 120 recipes that look so good, you may find yourself doubling the size of your vegetable garden!" Jim Long calls it one of the "best gardening guides of our time."



The Resilient Farm and Homestead by Ben Falk. Chelsea Green Publishing, White River Junction, Vermont.

"From hydrology and erosion control to firewood, ducks, and permaculture," says LaLiberte, this book is full of "exciting ways to more fully engage with the land you call home." Along with providing plenty of practical, nuts-and-bolts information, it also "eloquently advocates for taking a holistic approach to self-sufficiency that can have broad applications beyond the farm," notes Gary Smith. Ultimately, it's about empowering readers to "facilitate abundance" by building a relationship with the larger ecosystem to which plants belong. "It's a thought-provoking and comprehensive resource," says Lee, "unlike anything else out there on the subject of sustainable living." 🌿



Gardeners and scientists are working together to preserve and create habitat that will benefit monarchs as well as other important pollinating insects.

Plight *of the* Butterfly

BY GABRIEL POPKIN

FOR MANY American gardeners, seeing the flicker of orange-and-black wings that signals the arrival of the first monarch butterflies of the year is one of the eagerly anticipated benchmarks of the summer garden season. Monarchs (*Danaus plexippus*) overwinter in a forested region of the Sierra Madre in Mexico. In spring they return north to a wide swath of the United States and Canada as part of a fascinating and complex life cycle that is deeply interwoven with a genus of plants known as milkweeds (*Asclepias* spp.).

STARTLING DECLINE

Now it appears that not only is our love affair with the monarch threatened, but the health of the American ecosystems in which the butterfly has played a key role over the centuries is also at risk. Over the last decade, ecologists who study monarchs have reported dramatic declines in the butterfly's overall population. "Last winter was the lowest ever overwinter-

A monarch caterpillar feeds on a milkweed—the only plant that the caterpillars consume.

ing population of monarchs," says Karen Oberhauser, a monarch researcher at the University of Minnesota in St. Paul. Data released in late January by the World Wildlife Fund and the Mexican government confirmed that the area of forest inhabited by this year's overwintering monarch population is even smaller, down to 1.65 acres from a peak of some 45 acres in the mid-1990s.

Oberhauser and other scientists who study monarchs are quick to point out the greater significance of these findings: the



Herbicides often used in the large-scale production of soybeans, above, and corn, have drastically reduced wild stands of milkweed, which is a critical component of the monarch's life cycle.

monarch is just one of millions of native insects, and what benefits one of them tends to benefit all of them. "I see them as a flagship species," she says. "By preserving monarch habitat that includes nectar sources and milkweed, we're going to be helping a lot of other organisms as well."

Yet monarchs are not the only flagship insect scientists are worried about. Honeybees, while not native to North America, have been devastated by a still mysterious phenomenon scientists call colony cluster disorder (CCD). And a study published in the journal *Nature* in February indicates that wild bumblebees are now also showing susceptibility to CCD. Both honeybees and wild bumblebees are important pollinators of a wide range of plants, including many food crops.

CAUSES FOR DECLINE

The monarch's many woes are well-documented. The butterfly overwinters in small patches of forest in Mexico; much of this habitat has been cut for timber. Although the Mexican government has protected what's left, illegal logging and tourism continue to be problems. Bad weather has also taken a toll; several consecutive spring droughts have dried out monarch eggs and reduced the numbers that hatch.

But most scientists agree the butterfly's number-one plight is the dwindling wild milkweed population. Large-scale corn and soybean farming facilitated by the pervasive

use of herbicides and herbicide resistant crop varieties has decimated the common milkweed plant, once ubiquitous in prairies and fields. Milkweeds are the only plants monarch caterpillars can eat; without them, the insect cannot complete its life cycle.

This is where gardeners come in. As milkweed has disappeared in nature, the plant has sprouted in thousands of home gardens as well as those of schools, librar-

ies, parks, and nature centers. Throughout the United States, gardeners are building a network of monarch-safe patches to help the butterfly navigate the inhospitable modern landscape. More than 10,000 have already joined the cause, and the numbers are growing. "There's really no excuse for not doing it," says Denise Gibbs, a Maryland-based naturalist and citizen scientist who has been involved in dozens of monarch habitat plantings.

AN AWE-INSPIRING JOURNEY

The key to creating monarch habitat is understanding the butterfly's life cycle. Like all butterflies, the monarch begins life as an egg that hatches into the larval stage commonly called a caterpillar. Unlike most caterpillars, however, the monarch can feed only on milkweed plants. Milkweeds contain chemicals called glycosides that monarchs concentrate in their bodies. These substances give the caterpillars and butterflies a bitter taste, and are toxic to many birds and mammals. The orange markings that so thrill us warn predators: "Stay away—I'm poisonous."

In two weeks of feasting on milkweed, the monarch caterpillar grows over a thousand times larger, and is ready to move on to adulthood. It builds a chrysalis on the underside of a milkweed leaf and dangles



Adult monarchs are nectar feeders; the Mexican sunflower (*Tithonia rotundifolia*) above is one of many nectar sources for the butterflies that gardeners can easily include in their landscapes.

there for two weeks. Then, triggered by a complex chemical process, the adult emerges, stretching damp orange-and-black wings that soon dry, allowing it to fly.

As adults, monarchs need nectar, not leaves. They can get this sustenance from many different plants, including but no longer limited to milkweeds. Adults feed for up to eight weeks, in the process mating and—if female—laying new eggs, thus starting the cycle anew.

This life cycle is superimposed on a mind-bogglingly long and complex annual migration. Every spring, monarchs fly north from their overwintering grounds in southern Mexico, eventually arriving in Texas, where they seek out milkweeds on which to lay their eggs. Over the next two generations, the butterflies fan out eastward to the Atlantic Ocean, westward to the Rocky Mountains, and as far north as Toronto, Canada. In the fall, the monarchs turn south, but this time the same individuals that start the journey also finish it, eventually coming to rest back in Mexico. The three generations that together complete the migration are often called a “supergeneration.” Smaller populations winter in California, Florida, and the Caribbean, and shuttle up and down the west and east coasts of the United States.

The monarch butterfly migration is a magnificent event, inspiring nature lovers and artists alike. In her 1974 book *Pilgrim at Tinker Creek*, Annie Dillard describes the butterflies passing by her window in the Appalachian foothills of Virginia. “It looked as though the leaves of the autumn forest had taken flight, and were pouring down the valley like a waterfall, like a tidal wave, all the leaves of hardwoods from here to Hudson’s Bay.”

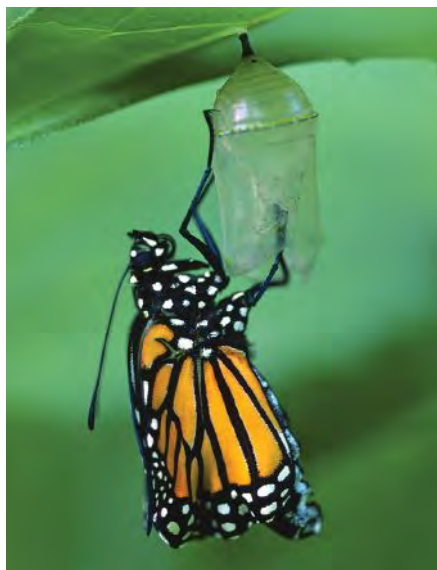
The migration has inspired scientists as well. Canadian biologist Fred Urquhart spent decades searching for the monarchs’ winter resting place, finally tracking it down—with the help of his wife, Norah, and assistants in Mexico—to fir and pine forests in the states of Mexico and Michoacán. To this day, nobody has figured out how individual butterflies know where to go, since it was not they who left the forests the previous winter, but rather their great-grandparents.

Then there’s the butterfly itself, perhaps its own best advertisement. “This is one of our largest and most conspicuous insects, it’s very colorful, it’s slow mov-



During migration, monarch butterflies rest at night in groups called roosts. Here a roost congregates on a eucalyptus tree in Pacific Grove, California.

ing,” says Chip Taylor, professor of ecology and evolutionary biology and long time monarch researcher at the University of Kansas. “Almost anybody who has lived in the area it breeds in has had some experience with the caterpillars and the chrys-



After two weeks in its chrysalis, the adult monarch butterfly emerges.

alis and the life stages it goes through.” Combined with the monarch’s remarkable migration, Taylor says, “This is an extraordinary biological phenomenon.”

MONITORING THE DECLINE

About a decade ago, Taylor realized this extraordinary phenomenon could be coming to an end. Several studies were documenting sharp declines in milkweed populations in the Midwest, through which the bulk of the monarch migration passes. But the clincher came from Oberhauser’s Monarch Larval Monitoring Project. She and her colleagues went out to fields in the Midwest and counted monarch larvae. They found the numbers fell precipitously throughout the 2000s, and the drop was strongly correlated with milkweed decline. In a paper published in 2012, the researchers say the loss of milkweed accounts for almost half of the decline in the Midwest monarch population, which is the one that makes the famous migration.

Common milkweed (*Asclepias syriaca*) is not some botanical weakling. Its native range

extends from northern Mexico to southern Canada, and given a chance it will spread by underground rhizomes, as any gardener who has planted it can attest. But even milkweed cannot stand up to repeated sprayings of glyphosate, the chemical herbicide best known by its trade name, Roundup. In 1994, Monsanto, a chemical and agriculture biotechnology company based in Missouri, introduced 'Roundup-Ready' soybeans, which are genetically modified to survive spraying with glyphosate. Widely adopted by farmers, this variety now covers millions of acres in the United States, along with 'Roundup Ready' varieties of several other major crop plants such as corn. Because these varieties tolerate the herbicide, it can be broadly sprayed on entire fields to control weeds. Plants without resistance to the herbicide, including milkweed, are being completely eliminated from this vast acreage.

Few farmers probably mourned the loss of a plant whose name, after all, includes the word "weed." But until recently, many Midwest farms still included milkweed in field margins and areas left intentionally unplanted under the USDA's Conservation Reserve Program (CRP). Thanks to ethanol mandates and other factors, however, corn prices have risen so high that farmers have taken millions of acres out of the CRP. A paper published in the *Proceed-*



Common milkweed (*Asclepias syriaca*) is one of several species of milkweed upon which monarch caterpillars feed.

ings of the National Academy of Sciences last March reported that the rate was comparable to that of deforestation in the tropics.

At the rate the overwintering monarch population is shrinking, it will soon reach zero. This does not mean the monarch

itself is going extinct—yet—but when populations of a species get too low, individuals have trouble finding each other to mate, which can lead to further declines. At a recent conference, James Hansen, former head of NASA's Goddard Institute for Space Studies and one of the world's best known climate scientists, described watching a lone male monarch in his garden skittering around in vain for a mate. Monarch researchers have had the bitter experience of observing in acute detail the loss of an insect they love, says Oberhauser.

GARDENING FOR MONARCHS

In 2005, alarmed by what he and his colleagues were learning, Taylor launched the Monarch Waystation program. The concept is simple: gardeners agree to grow at least 10 milkweed plants and four varieties of nectar plants. They also make sure to provide the monarch shelter, some exposure to sunlight, and space. A monarch waystation doesn't have to be large; according to the program's website, a 100-square-foot area can suffice.

Monarch Watch, the group that oversees the waystation program and of which Taylor is the director, sells monarch habitat seed kits, as do many other organizations. Gardeners preferring to strike out on their own have more than 70 milkweed species

CREATING A MONARCH HABITAT FOR CERTIFICATION

Here are some guidelines for creating a monarch habitat in your garden, adapted from Monarch Watch's Monarch Waystation Certification Requirements (www.monarchwatch.org/waystations).

Size: A space of at least 100 square feet is recommended.

Exposure: At least six hours of sun a day.

Drainage and Soil Type: Milkweeds and nectar plants do best in low-clay soils with good drainage.

Shelter: Plants should be close together but not overcrowded.

Milkweed Plants: Plant at least 10 individuals, preferably representing multiple species to increase the length of time nectar will be available.

Nectar Plants: At least four species whose bloom times are distributed throughout the migration season.

Management: Even native plantings need to be maintained. Water during prolonged droughts and weed regularly. Mulch with compost or shredded leaves in spring.

Other Certification Programs

■ **Xerces Society's "Bring Back The Pollinators" program** asks gardeners to plant nectar plants, provide homes for pollinators, avoid harmful pesticides, and engage in pollinator outreach. www.xerces.org/bringbackthepollinators.

■ **North American Butterfly Association's Butterfly Garden Certification Program** requires three native food plants for caterpillars and three native nectar plants for adults. www.nababutterfly.com/cert_index.html.

■ **Wild Ones' Native Plant Butterfly Garden Recognition Program** certifies gardens that provide monarch habitat using native plants. www.wildones.org/learn/wild-for-monarchs/butterfly-garden-recognition.

to choose from, although not all are available commercially. Common milkweed is the monarch's staple food in the wild, and it is the foundation of many monarch habitat plantings. But for gardeners daunted by common milkweed's aggressive growth habit, smaller, more manageable species like butterfly milkweed (*Asclepias tuberosa*) and swamp milkweed (*A. incarnata*) are good alternatives. (For more about garden-worthy milkweed species, see the web special, "Milkweeds for the Garden.")

Tropical milkweed (*A. curassavica*) is a non-native species that is popular for its brilliant orange-and-yellow blooms that open from tiny red buds; the plant makes a beautiful showpiece in a garden, and monarchs love it. In northern gardens it is treated as an annual, but it survives mild winters in parts of the South, and some scientists are concerned that this survival could actually inhibit monarch migration. Their reasoning is that if the tropical milkweed is allowed to flower through the mild southern winters, the butterfly may continue to breed on it rather than complete its journey to Mexico. And if allowed to grow unchecked, some fear that plants may come to harbor a parasite harmful to monarchs. Experts advise that southern gardeners who grow tropical milkweed can avoid these problems by cutting it back twice a year, once in fall and again in spring.

Options for nectar plants are considerably wider; the goal is to provide consistent sustenance throughout the monarch's migratory season. Besides milkweeds, Donna Van Buecken, director of the native plant landscaping organization Wild Ones, says gardeners can plant serviceberries (*Amelanchier* spp.) and violets (*Viola* spp.) for nectar in the spring, sumacs (*Rhus* spp.) and blazing stars (*Liatriis* spp.) for the summer, and asters (*Symphyotrichum* spp.) and witch-hazels (*Hamamelis* spp.) for the fall—all species native to North America.

Although there is undeniable logic to growing native plants to support a native insect, plants do not need be native to sustain monarchs. "The zinnia's not a native plant, but it's a good plant, and it's attractive not only to butterflies but to gardeners," Taylor says. Other garden-worthy plants that serve as nectar sources include: buddleias, lilacs (*Syringa* spp.), sweet alyssum (*Lobularia maritima*), impatiens, scabiosa, and marigolds (*Tagetes* spp.), to name just a few.



The perennial swamp milkweed (*Asclepias incarnata*) is both a monarch caterpillar host and an attractive garden plant; its flowers appear from midsummer to early fall.

ENCOURAGING HABITAT GARDENS

Thanks largely to Taylor's efforts with Monarch Watch, the number of registered monarch waystations now tops 7,000. Those who register their gardens can receive a sign advertising their garden's monarch-friendliness; the name and city of each waystation owner is also listed on the program's website.

Local efforts have amplified the program's reach. The program is thriving in Pennsylvania, Michigan, and Texas, says Taylor. Denise Gibbs has planted or instigated dozens of monarch-friendly plantings in the Washington, D.C., suburbs. Lexington, Kentucky has 25 waystations. The Garden Club of Kentucky, not traditionally a conservation organization, has made expanding the program one of its

core projects. "We can't change farming practices," says Joanna Kirby, the club's president. "But we can help educate and work with gardeners" to create waystations.

Other conservation organizations not exclusively focused on the monarch butterfly have recognized the insect's potential to highlight their causes. The North American Butterfly Association has a certification program that covers habitat for all butterflies, and Wild Ones just launched a monarch-specific certification program for gardens planted with species native to North America. The Xerces Society, which focuses on invertebrate conservation, has certified more than two thousand gardens as "pollinator habitat." (For tips on creating monarch habitat, see the sidebar on page 21.)



This butterfly waystation at Shaker Village in Harrodsburg, Kentucky, includes milkweeds as well as a variety of nectar plants.

Between all the certification programs, well over 10,000 American gardeners have made a public statement about their wish to support the monarch butterfly. Countless others provide crucial habitat without registering their gardens. The vision shared by all who do so is that if enough gardens, distributed around the country, contain monarch habitat, the butterfly will be able to hopscotch over farm fields—which are food deserts as far as the monarch is concerned—and find the sustenance it needs to continue its migratory cycle.

Resources

Monarch Joint Venture, <http://monarchjointventure.org>.

Monarch Larva Monitoring Project, www.mlmp.org.

Monarch Watch, www.monarch-watch.org.

Wild Ones Wild for Monarchs, www.wildones.org/learn/wild-for-monarchs.

Xerces Society, www.xerces.org/monarchs.

HOW MANY GARDENS ARE ENOUGH?

“That’s really the \$100,000 question,” says Oberhauser. The amount of prairie and grassland that has disappeared from the Midwest is hard to fathom. In a recent *New York Times* article, Taylor estimated it at 120 to 150 million acres, an area larger than California. Ten thousand gardens, even if they were each an acre—a generous size—would make up for less than one percent of one percent of the loss.

Oberhauser guesses that hundreds of thousands of plantings are needed before there is any chance of making a difference for the butterfly. Even then, the migration won’t be the same as it once was. “One of the things I’m talking about a lot now is a new normal,” she says. “I think it’s very unlikely that we’ll see the monarch numbers that we saw a decade ago. We can’t make up for all the habitat that was lost.”

Betty Hall, a gardener in Lexington, Kentucky, created the city’s first waystation in her backyard in 2012. She has since led workshops that inspired dozens of others to follow suit. Though she

loves monarchs, Hall agrees it’s not just about them. It’s also about the zebra swallowtails, pipevine swallowtails, and fritillaries. It’s about the bees, too, and the wasps, and all the other insects that buzz around a summer garden. “I see monarchs as a gateway,” she says. “If you can get people to plant a monarch waystation, you’ve created a great place for lots of other butterflies and pollinators.”

Opening that gateway may be the monarch waystations’ greatest gift to gardeners. At any moment in even a small patch of yard, hundreds of species are present and interacting.

Once people made gardens to create order out of wildness. Now gardens may be wildness’s last refuge. How well gardeners succeed in recreating patches of wilderness in suburbs and cities may be the monarch’s best hope. And that’s something anyone with even a small piece of land can do. As Hall puts it, “Anybody can create a piece of nature in their backyard.”

Gabriel Popkin is a freelance science writer based in Mount Rainier, Maryland.



California Inspiration

Ruth Bancroft's Garden

BY SURUCHI MOHAN

Ruth Bancroft's legacy is not only her visionary garden but the organization launched to preserve it.

THE OLD ENTRANCE through the dark sea-green Folly takes visitors past a rare Torrey pine (*Pinus torreyana*) that looks much older than its 40 years. Though winter temperatures often drop below freezing and the soil is heavy clay—not dry and sandy like in its native San Diego—this tree is thriving, owing to the steely determination of Ruth Bancroft, who originally planted it in her eponymous garden in Walnut Creek, California.

From the new entrance by the visitor center at the other end, guests can see

Top: Shape, texture, and color are artfully blended in these mixed borders of cacti and succulents that line a pathway in the Ruth Bancroft Garden in Walnut Creek, California.

agaves, some with 30-foot inflorescences, that dominate the beds mixed in a symphony of colors and shapes. Further down, toward the Folly, are cacti—columnar, barrel-shaped, or branching—that break the monotony of the prevailing upright rosette habit of the succulents, as intended. “When I started to plan this garden and I had all the succulents back here, I thought I needed

cacti for contrast, so I started buying them,” she told researchers recording an oral history in the early 1990s (see note below). “You know, all the succulents seemed to be all the same one or two shapes.”

Bancroft, who turned 105 last September, is no longer able to do any gardening. However, pushing the boundaries of plants that can grow in this Mediterranean climate region, with its spikes of high and low temperatures, has earned Bancroft a permanent place in the annals of American horticulture. Hers is not the typical American garden, with boxwood hedges, azaleas, and

Editor's note: Because Ruth Bancroft is no longer conducting extensive interviews, many of the quotes attributed to her in this article are derived with permission from “The Ruth Bancroft Garden in Walnut Creek, California: Creation in 1971, and Conservation,” an oral history conducted in 1991 and 1992 by Suzanne Riess, Regional Oral History Office, The Bancroft Library, University of California, Berkeley, 1993. http://digitalassets.lib.berkeley.edu/roho/ucb/text/bancroft_ruth.pdf.

lush green lawn. Rather, through her exploration of the forms and textures and sun-and-shade requirements of xerophytes, she has introduced to the gardens of Northern California plants that were not previously considered typical ornamental fixtures.

“The whole garden is a surprise in that the major components are dryland plants—not conventional garden plants, although [they are] now becoming much more popular, thanks in part to Ruth’s influence,” says Antonia Adezio, a founding director of the Garden Conservancy, a national nonprofit dedicated to preserving important American gardens, and now a consultant in organizational development in Sonoma, California. “This was a huge departure at the time from what was more commonly seen, even in California.”

It is not just the dry garden for which Bancroft is known. In the 1950s, she began the cultivation of irises that still grow outside the main house. Even today, her irises generate interest because many of these cultivars are no longer available in nurseries (see sidebar, page 26).



Garden creator Ruth Bancroft, shown here in 1992, traced her love of nature to childhood.

“Ruth approached gardening with intellectual curiosity,” says horticulturist Richard Turner, a former director of the Ruth Bancroft Garden, Inc., and former editor of *Pacific Horticulture* magazine,

who has known Bancroft since 1978. “She was thinking, experimenting with what could grow on the property...and flourish in Walnut Creek.”

Bancroft can also take indirect credit for inspiring the establishment of the Garden Conservancy, which this spring is celebrating its 25th anniversary (see sidebar below). As a result of this effort to preserve private gardens for posterity, the Ruth Bancroft Garden was opened to the public in 1992. Today, it boasts a visitor center and offers educational programs, plant sales, and docent-led tours.

EARLY LIFE

Bancroft’s early years offer insight into the arc of her life. As a child, Ruth Petersson often collected polliwogs. After they sprouted a pair of legs, she put them in one container and in another when all four appeared. When they became frogs, she released them into nature.

This childhood curiosity about the natural world drove many of her activities. The daughter of a professor of Latin at the University of California in Berkeley and a for-

THE GARDEN CONSERVANCY’S FIRST PROJECT

In February 1988, on a trip to California, the late noted plantsman Frank Cabot visited the Ruth Bancroft Garden. As Cabot drove away, he commented to his wife, Anne, that he had to find a way to preserve such magnificent private gardens. “Anne replied facetiously, ‘Why don’t you start a Garden Conservancy?’” Cabot related in the introduction to Bancroft’s oral history.



Ruth Bancroft’s garden inspired the creation of the Garden Conservancy.

The following year, on March 4, 1989, the first Ruth Bancroft Garden Committee meeting was held under the auspices of the Garden Conservancy. With that began the legal process of moving the garden from private to nonprofit status and photo-documenting the beds. The year 1994 saw the completion of the transfer of the property to a new nonprofit entity, the Ruth Bancroft Garden, Inc., which became the owner of the garden. The Conservancy received an easement, ensuring that the land will never be put to other use. Bancroft retained lifetime ownership of the seven-and-a-half acres on which stand her house and gardens. Since taking on the Bancroft Garden project, the Conservancy has helped an additional hundred gardens throughout the country and celebrates its 25th anniversary this year.

—S.M.

AN ENGLISH GARDEN OF EXTRAORDINARY IRISES

Ruth Bancroft learned about irises from the best. As a teenager, she hung out with Sydney B. Mitchell, an iris breeder and author of *Iris for Every Garden*, in his garden at Berkeley, she recounted in her oral history. He hybridized his plants aggressively and sometimes gave Bancroft surplus irises to grow on herself.

When Bancroft and her husband moved into her current home in 1954, she planted a rose, herb, iris, and border garden, creating an English garden with annuals and perennials with gradations in height and different flowering seasons. She planted



Bancroft's 200-foot border of bearded irises contains heirloom cultivars no longer available elsewhere.

torch lilies (*Kniphofia* spp.) of dissimilar heights and colors, which bloom in the winter, when the garden is dull. *Echium*, with its tower of red flowers, golden bamboo (*Phyllostachys aurea*), and Mexican weeping bamboo (*Otatea acuminata*) were planted around or a little distance from the kidney-shaped lawn. Near the garage, a few years later, she created a patch of succulents. But it was the 200-foot-long iris border along the old driveway, with pineapple-guava trees and a lone, gigantic, prolific persimmon tree sharing some of the beds on the other side, that stunned visitors. When all of these bearded irises were in bloom, they looked like a Vincent van Gogh painting.

"She organized her iris border according to what satisfied her eye," says Richard Turner. "She had an image of how iris should be grown and followed the recommendations of the best iris growers."

According to curator Brian Kemble, every year she dug out a third of the irises in September, the end of the growing season. She turned the beds, added manure, compost, and bone meal, cut the green leaves back to four inches long, and divided the rhizomes. A few weeks later, she planted them in groups of three plus one extra—should one not survive—putting them back in the same place to preserve the color scheme. Her gardener now follows the same routine. Any leftovers are considered surplus and sold.

The Historic Iris Preservation Society loves to buy them. "The Ruth Bancroft irises are very rare," says Laetitia Munro, commercial source chairperson, in Newfoundland, New Jersey. "They are primarily the older varieties, some are from noteworthy hybridizers, and they all are quite beautiful." —S.M.

mer school teacher, Bancroft "spent a lot of time wandering around, just looking at wild flowers," she said in the oral history. "Then I'd bring pieces home to plant and try them. Some grew, some didn't. Later I found that there are such things as annuals and no wonder they didn't survive."

In 1926, at a time when less than 10 percent of women went to college, Bancroft entered UC Berkeley to study architecture, one of only two women in her class. She had wanted to major in landscape architecture, but it was a new department and her parents were opposed to it. Then, in 1929, came the Great Depression and she left the university. "It was a bad time," she recounts. "The boys couldn't get a job, so I couldn't." Later, she went back and graduated with a teacher's certificate in 1932.

On a blind date, she met Philip Bancroft, Jr., a Harvard art and philosophy major, who was helping his father run the family's 400-acre walnut-and-pear orchard in Walnut Creek. In 1938, the two married and moved into the smaller of two houses



Bancroft is shown here in the early 1970s with nursery owner Lester Hawkins, who helped design her gardens.

on the property, known as the Swiss Chalet. Philip was the grandson of publisher Hubert Howe Bancroft, who donated his substantial collection of the history of the western United States to the library at UC Berkeley that bears his name.

Although Bancroft moved only 16 miles away from her childhood home in Berkeley, it was a world away in climate and soil. Walnut Creek was warmer, colder, and drier than Berkeley, with heavy, poorly draining soil. As she developed into a gardener, Bancroft always kept those differences in mind.

In the beginning, she planted only annuals and perennials. In 1954, owing to her mother-in-law's health problems, she and Philip Bancroft moved with their three children into the larger house. The ornamental gardens around the main house were laid out at this time (see sidebar, above).

CREATING THE GARDEN

In the 1960s, the winds of change were blowing around the Bancroft orchards.

The City of Walnut Creek rezoned the land from agriculture to residential, leading to higher taxes. By 1971, the Bancrofts were forced to sell all but 11 acres of the land. The Bancroft houses and gardens occupied seven-and-a-half acres. Philip Bancroft gave the remaining three-and-a-half acres to his wife to grow whatever she fancied. She set to work planting a dry garden.

Never having laid out a garden herself, Bancroft sought out Lester Hawkins, who was co-owner of the Western Hills Rare Plant Nursery in Occidental, California, to design her flat acreage. He designed the beds, the paths, the lily pond, where the shade house would go. Bancroft had rock and gravel brought in from nearby Mt. Diablo. The paths in the garden were so narrow that material had to be wheelbarrowed in. It took months. She amended the soil and planted furiously, working from sunrise to sundown.

"Everything I planted, I'd look up and try to get an eventual size. It wasn't always correct, but I'd always look it up to try to leave enough space and then fill in with the small things," she said.

Her meticulous research coupled with her training in architecture are visible everywhere in the garden. With the foxtail agave (*Agave attenuata*) and century plant (*Agave americana*) providing stunning architectural elements, she wove in *Echeveria gibbiflora*, aeoniums, sedums—low tapestries of densely planted color that bloom at different times of the year.



A deep freeze in December 1972 caused Bancroft's lily pond to freeze over and killed many of the garden's succulents. Bancroft had special covers designed to protect tender plants in future.

"She understood the development of space," says Turner, "how to plant so spaces, views, vistas would materialize. She had learned the design process, which could be applied to any medium."

Ever the intellectual risk taker, she experimented with the ecology of the garden as well as the shape and color of plants. By design, many of the aloes that have brilliant orange and red flowers—such as *Aloe ferox*, *A. arborescens*, and *A. mudenensis*—bloom in the winter, when the overall landscape is dull, keeping hummingbirds in the garden.

Bancroft was concerned with foliage and form, with flowers merely providing "frost-

ing on the cake," says Turner. Additionally, "so many succulents have leaf arrangements of spiral or rosette. That rosette pattern is repeated throughout the garden and gives it a sense of unity. This was revolutionary."

Color and structure aren't the only components that unify the garden. Charlotte Blome, who was garden manager at the Ruth Bancroft Garden in 2010, says the use of the Mt. Diablo rock tied the garden together. "There was no distinct line between bed and path; there was an organic, naturalistic feeling about it."

The rules and expression are Bancroft's own, resulting in a garden that reveals her personality, say those who have known her. She followed her own predilections, arranging plants in ways that pleased her, regardless of prevalent trends of the times.

PUSHING THE LIMITS OF CLIMATE

By September of 1972, the planting was complete. In December, temperatures fell into the 20s and stayed there for several days. Much of the newly planted garden was destroyed and the lily pond froze over. Disappointed but undaunted, Bancroft set about replanting the following spring. But having learned from the experience, she decided to cover the plants to protect them from frost. Thus began a long, painstaking process of covering delicate plants with plastic sheeting mounted on wooden frames. Over the years, as plants grew, so did the size of the covers, with some becoming extremely large.

Visiting the Garden



Lush borders surround Bancroft's home.

Ruth Bancroft Garden 1552 Bancroft Road, Walnut Creek, CA 94598. (925) 944-9352.
www.ruthbancroftgarden.org.

The garden is open Tuesday through Saturday 10 a.m. to 4 p.m. Admission: Adults \$10, seniors (65+) and students (with ID) \$7, children (under 12) free (\$5 for group tour). As a participant in the American Horticultural Society Reciprocal Admissions Program, AHS members with a current AHS card receive free admission.



Brilliant red-flowered *Aloe x spinosissima* and the more demure white flowers of a manzanita (*Arctostaphylos* sp.) grace the winter garden.

The garden flourished over the next two decades. Trees stretched into the sky, cacti produced blossoms on spiny stems, yuccas pierced the air with their sword-like leaves, and the flat garden, where everything used to be visible from one end to the other, was thrown into relief. Sometimes the growth produced too much shade, leading Bancroft to move plants around as her garden matured. With her penchant for pushing the limits of the climate and soil the flora could endure, Bancroft had planted the tropical Australian bottle tree (*Brachychiton rupestris*), the trumpet vine tree (*Tabebuia impetiginosa*), and the silk floss tree (*Ceiba speciosa*) in California's Mediterranean climate. These last two yielded an abundance of pink flowers year after year, despite a change in habitat.

In 1990, along came another winter with temperatures dipping into the 20s. Many aeoniums and aloes died. Brian Kemble, curator of the Ruth Bancroft Garden, estimates that they lost about two tons of aloes, some despite their cov-

ers. "But do we want to stick only to safe choices and cut out the many wonderful things?" Kemble says. "No, we don't. Our mission is to introduce choices that are a bit more tropical than would grow here."

FAR-REACHING INFLUENCE

In 1990, John Fairey, creator of the Peckercreek Garden in Hempstead, Texas, was introduced to Bancroft. As she took him around the garden, he "commented on several of her agaves and she offered to dig them for trialing in my Texas garden," he says. "These plants have grown, produced numerous pups, then bloomed and died."

But Bancroft has influenced even dabblers, who may never have heard her name. Although at the time she was creating her garden, climate change with its attendant drought conditions was not on any agenda, her plant choices seem visionary now. Much of the country has experienced drought in the past few years, with conditions especially troubling in California. Drought is now seen not as an aberration but as a given. Consequently, desert

plants are all the rage in gardens around the state. As water becomes increasingly scarce, homeowners are reducing the size of their lawns and replacing them with plants that need less water to thrive, just as Bancroft did decades before.

STILL CREATIVE AT 105

Because of ambulatory problems, Bancroft now hardly ever goes out into her beloved garden. But ever one for using time well and engaging her creativity, she has embarked on a new project. She's organizing her incredibly large shell collection—drawer upon drawer of every imaginable shape arrayed on the long table and buffet in her dining room—that she gathered from Bolinas, California. She arranges them in shadow boxes—sea stars with conch shapes and sea cucumbers and mussels. As with her garden, this collection will serve as a legacy of her long and fruitful life.

Suruchi Mohan is a freelance writer based in Los Altos, California.

Foxgloves *for* American Gardens

BY GRAHAM RICE



THE BEST KNOWN member of the genus *Digitalis* is the purple foxglove, one of those quintessentially English plants that we all admire in the glossy books packed with images of lush and verdant country gardens. But although those classic garden scenes can be difficult to replicate in American climates, foxgloves are tough, easy-to-grow plants that are broadly adaptable in North America. With both biennial and

Classic and new selections of this cottage garden favorite add vibrant color to summer gardens.

perennial species, plus some exciting new hybrids, the genus offers an unusually varied and colorful group of traditional and modern plants worth growing.

THE CLASSIC FOXGLOVE

Foxgloves are part of the figwort family (Scrophulariaceae) and there are some 20 species in the genus *Digitalis*, but only a handful of them are commonly cultivated.

The most familiar and readily available of these is purple foxglove (*D. purpurea*, USDA Hardiness Zone 4–8, AHS Heat Zone 8–1), a biennial or short-lived perennial. It produces an overwintering rosette of rough, green, more or less oval foliage that is grayish underneath, from which upright, one-sided spikes of tubular, flared, purple flowers appear in early summer. The lower part of each flower carries a scattered row of crimson spots, the largest usually towards

The Excelsior foxglove series features flowers that radiate all around the stem.

the front, with each spot haloed in white. In height, plants vary from two to five feet, depending on growing conditions.

Adaptable in its wild European haunts, where it is found from Norway south to Spain, purple foxglove grows in woodland clearings, forest edges, on moors, and among mountain rocks. It colonizes in newly cleared woodland areas and turns up in abandoned lots and uncultivated corners. Although usually preferring slightly acidic soils in the wild, in gardens it seems to be less demanding and it often self-sows.

In North America, purple foxglove's performance in—and out—of the garden depends somewhat on the region. In the Northeast, they are hardy enough for most areas and tend to be lanky, while in the dry Southwest they tend to form shorter, bushier plants similar to their appearance on scree in the European mountains.

Horticulturist and garden coach Cynthia Milner of Asheville, North Carolina, loves purple foxglove's self-sowing nature. "It reseeds like mad, and I dig up new seedlings and transplant them where I want." And although they tend to be biennial, "once they get going, seasonal bloom is not an issue," says Milner.

Purple foxglove's vigor may be endearing in North Carolina, but in parts of the West Coast it has crossed the line into thuggishness, earning the plant a spot on invasive plant lists for natural areas of California and the Pacific Northwest. Seattle-based garden writer Marty Wingate says it has naturalized throughout her region. "I cannot think of a single designer who would include them in a landscape on purpose," she says.

SUPERIOR SELECTIONS

The pure wild species, with its one-sided racemes arching at the tips, has a simple elegance that fits perfectly into informal, natural-looking gardens. Also captivating are its two white-flowered forms—one with spots, one without. Plants listed as *D. purpurea* var. *alba* or *D. purpurea* forma *albiflora* may refer to either.

Many more lovely selections are available. 'Pam's Choice', which is white with a large, bold crimson splash in the throat, is a favorite of garden writer and lecturer Stephanie Cohen, of Collegeville, Pennsylvania, who says, "It blends so readily with most pastel perennial colors. The white flowers with maroon-purple spots are quite

DESIGNING WITH FOXGLOVES

Forms that are close to the wild species, with one-sided racemes, are best for natural plantings and informal situations, where they can be allowed to self-sow and spring up where they will. "I use them for their excellent vertical form and the cottage style they evoke," says designer and author Tracy DiSabato-Aust, who gardens in central Ohio.

In western North Carolina, garden coach Cynthia Milner says, "I suggest my clients incorporate them in places where we need some punch, but don't have

a lot of space." Milner likes to combine them in borders with mountain bluet (*Centaurea montana*), Shasta daisy, Siberian iris, spiderwort, hardy geraniums, and wild bleeding heart (*Dicentra eximia*). In her Pennsylvania garden, garden writer Stephanie Cohen pairs her favorite cultivars of *Digitalis purpurea* with *Amsonia* 'Blue Ice' and heucheras for a "contrast of flower and foliage textures."

The Excelsior, Dalmatian, and Candy Mountain series, in particular, are better suited for formal borders where color is more important than style. The shorter Foxy series and the Dalmatian series work especially well in large containers.

One caveat: foxgloves are poisonous (see sidebar, page 32); if you have young children, don't plant foxgloves where the children are likely to come into contact with them. —G.R.



The white blooms of *Digitalis purpurea* 'Pam's Choice', foreground, are boldly accented by a splash of crimson.

showy." 'Pam's Split'—sometimes sold as 'Pantaloons'—is similar except that the flower is split into four narrow petals.

One of the most striking developments in purple foxgloves has been spikes that carry flowers all around the stem rather than on one side, as exemplified by the multicolored Excelsior and Foxy hybrids. Excelsior is a favorite of Tracy DiSabato-Aust, author of *The Well-Designed Mixed Garden*. It can reach six feet tall and is very dramatic, but "single staking is required of tall forms," warns DiSabato-Aust, who lives in central Ohio. Foxy hybrids are half the size or less, and may flower in its first year from a spring sowing.

I can recommend two recently introduced series that feature flowers all around the stems: the Camelot series and the Dal-

matian series. The Camelot series, in rose pink, lavender, cream, and white, all spotted, is the latest in the quest for a foxglove that flowers dependably in the first year from a spring sowing. The Dalmatian series, in purple, rose, cream, white, and the delicately spotted 'Dalmatian Peach', produce more robust, more densely packed spikes ideal for a display where punchy color is needed; they are best treated as biennials and sown in summer to flower the following year.

The Candy Mountain series features upward-facing flowers in peach, white, and vivid pink all around the stem. I find that they look ragged after rain has collected in the flowers, but they certainly are colorful. It is worth remembering that all these foxgloves may hybridize with each other, so when they self-sow the results can be unpredictable.



Rusty foxglove features four-foot-tall spires of ruddy yellow midsummer flowers.

MORE BIENNIALS

Two other biennial or short-lived perennial species that sport very different styles are well worth considering. Ideal where a strong vertical accent is needed, the rusty foxglove (*D. ferruginea*, Zones 4–8, 8–1) from southeastern Europe and Turkey, features tall, slender, pointed racemes to four feet. Crowded all around the stem are small pouchlike flowers in rusty and yellowish shades, prettily speckled on the inside. It prefers more sun than purple foxglove and will also self-sow when happy—so much so, in fact, that in some parts of Kansas it is considered invasive.

The loose, open spikes of yellow foxglove (*D. grandiflora*, sometimes incorrectly listed as *D. ambigua*, Zones 3–8, 8–1) reach two to three feet, and bear pale yellow flowers with attractive rusty-brown veins. The flowers are larger than those of other yellow-flowered species but hardly huge. The blooms are held on open spikes with arching tips. This European and Asian native is the most widely grown of the yellow-flowered species and has naturalized in parts of the Northeast. Although usually short-lived, it is more persistent than purple foxglove.

Gene Bush, owner of Munchkin Nursery and Gardens in DePauw, Indiana,

Sources

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www.anniesannuals.com.

Arrowhead Alpines, Fowlerville, MI. (517) 223-3581.

www.arrowheadalpines.com.

Bluestone Perennials, Madison, OH. (800) 852-5243.

www.bluestoneperennials.com.

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

Swallowtail Garden Seeds, Santa Rosa, CA. (877) 489-7333.

www.swallowtailgardenseeds.com.

Thompson & Morgan, Jackson, NJ. (800) 274-7333. www.tmseeds.com.

Resources

The American Horticultural Encyclopedia of Perennials by Graham Rice (editor-in-chief). DK Publishing, New York, NY, 2006.

Herbaceous Perennial Plants (3rd ed.) by Allan M. Armitage. Stipes Publishing, Champaign, IL, 2008.

considers *D. grandiflora* among the most reliable perennials in his garden. “In my garden along hillside paths in heavy clay and stones, they have performed reliably for about 10 years now. They also seed into rocky areas if not deadheaded. They are not fussy plants as long as [their soil] is well drained.” (For more about how to use foxgloves in the garden, see the sidebar, “Designing with Foxgloves,” on the opposite page.)

PERENNIAL FOXGLOVES

Two fairly hardy species that often behave as good perennials are also worth considering. The hardiest of all foxgloves is straw foxglove (*D. lutea*, Zones 3–7, 7–1); it is also one of the most elegant, with long slender spikes on self-supporting three- to four-foot-tall plants. The small pale yellow flowers fill the one-sided spikes densely. It tolerates part shade, especially in regions with warm summers.

Digitalis parviflora (Zones 4–7, 7–4) is a love-it-or-hate-it plant for well-drained situations and is perhaps the most long-lived of all foxgloves. The 18- to 24-inch-long, stiffly upright spikes are crowded, sometimes

tightly, with small flowers in dark rusty orange, rusty brown, or dark chocolate shades, sometimes with purple veins, and with paler coloring inside. Not everyone appreciates the coloring; it can sink into the background when viewed from a distance. ‘Milk Chocolate’ is a dependably dark shade. “Mine are along the edge of a path lined in stone, in small clumps that take care of themselves,” says Bush, who notes that their flowering sequence, opening from the bottom up, assures a long-lasting floral display.

SHRUBBY SPECIES

Perhaps surprisingly, there are also two *Digitalis* species from hot and dry climates that are partly shrubby and do especially well in the Southwest. From the island of Tenerife, located off the northwestern coast of Africa, comes Canary Island foxglove (*D. canariensis*, Zones 9–11, 12–9), which was formerly known as *Isoplexis canariensis*.

A striking, boldly branched plant sometimes as much as five to six feet tall, its racemes of vivid honey-orange flowers are held above glossy green foliage. This is a conservatory plant in much of the country or for well-drained, partly shaded conditions where it is hardy. It does well in warm California gardens. Although growing in laurel woods in the wild, in gardens where it is hardy, this is a plant for open situations, but nowhere is it long-lived.

Like a daintier, coppery red version of *D. canariensis* with smaller flowers, the Spanish foxglove (*D. obscura*, Zones 5–8,



The three- to four-foot flower stems of the straw foxglove rarely require staking.

8–4) can reach four feet in the wild, but is seldom more than 15 inches in gardens. It is “one of my favorites of the non-natives I grow,” says author and landscape designer Lauren Springer Ogden of Fort Collins, Colorado. Among the attributes she cites are “much finer texture and smaller stature than most foxgloves, leathery dark olive-green whorled foliage [that is] more drought-resistant and can take strong sun, and really stunning coppery flowers in chubby spikes the first half of the summer, for about a month or so.” She has grown it in two former gardens and in her current garden she has

a plant that is over 10 years old. It grows best in a gritty or rocky soil with very good drainage.

COLORFUL HYBRIDS

Although they have been grown for many years, hybrid foxgloves are appearing in increasing numbers in nurseries and catalogs, with a truly dramatic new hybrid arriving this year.

Among the first to appear was *Digitalis* × *mertonensis* (Zones 3–8, 8–1), which, unlike most foxglove hybrids, is fertile and can be grown from seed. It was developed in Britain in 1926. Sometimes known as the strawberry foxglove for the rich red-colored flowers, *D. ×mertonensis* is the result of a cross between *D. purpurea* and *D. grandiflora*. It has glossy dark green leaves, reaches about 30 inches tall, and although it looks robust it is usually short-lived. It is self-fertile and does not often cross with other foxgloves, so seedlings tend to come true.

The Polkadot series is interesting because, although easily raised from seed, the plants don’t self-sow. Available in five colors, it bears a resemblance to *D. ×mertonensis* but its full parentage remains unknown. Growing to about two feet tall, the plants are bold enough for borders and compact enough for containers. The spikes are crowded with flowers, and in most areas the plants are good perennials, hardy to USDA Zone 4.

FOLKLORE AND MEDICINAL USES

The origin of the name foxglove is a little mysterious. The name was originally applied to a very different plant now known as deadly nightshade (*Atropa belladonna*), and contrary to the notion that it is derived from words meaning “folk’s glove,” its pre-12th century English origin is definitely “fox’s glove.” It also has magical associations. It is said that the Irish fairies gave the flowers of the plant to the fox and wearing the flowers on its paws it could creep in magical silence to steal poultry. It is also said to be the only plant that can bring back children that have been taken by fairies.

Early British physicians found that foxglove was used by country people to treat dropsy (edema associated with heart failure), fevers, and colds. Research published in 1785 proved that it was a diuretic and also acted on the heart, reducing heart rate and ensuring the heart pumped more efficiently. It was also shown to aid the work of the kidneys. Digoxin, a drug derived from *D. lanata*, is still used as treatment for heart problems.

However, all parts of all *Digitalis* species are widely considered poisonous owing to the presence of digoxin, digitoxin, and digitalin. These compounds are used medicinally but if eaten accidentally can be deadly.

—G.R.

Also hardy to Zone 4, Goldcrest ('Waldigone') is a very attractive sterile hybrid that draws hummingbirds. A hybrid between *D. obscura* and *D. grandiflora*, the flowers are peachy yellow with fiery streaks on the outside and red spots in the throat, held on upright 18-inch stems in summer and fall. Especially lovely in sunny, well-drained containers, the plants are strong and well-branched.

Finally, the most startling new hybrids are the Illumination series. These spectacular plants were developed over eight years by crossing the flamboyant, shrubby *D. canariensis*, which is only hardy to Zone 9, with the very hardy biennial *D. purpurea*. The first of the series, Illumination Flame ('Harkstead Flame'), was released this year.

Vigorous, sterile, and vividly colored, the three-foot spikes are crowded with flared flowers that bring together the colors of both parents—purple pink on the outside and pale orange on the inside. Flowering for a long season in summer and early fall, individual flowers are very long lasting—each spike retains its color impressively. When the flowers finally fade, new flowering shoots develop at the base.

This is one of the best bee plants I have ever seen; it also attracts butterflies and hummingbirds. It is hardy to Zone 8, and well-drained soil promotes longevity. It makes a superb container specimen in colder gardens and can even be taken into a conservatory to extend its flowering season. Expect more colors over the next few years.

Just one thing to note: Illumination Flame is being sold under the trademarked generic name "Digiplexis." This marketing term is not the correct generic name for the plant, which is *Digitalis*.

CULTURAL ADVICE

For most foxgloves, sow seeds in summer for flowers the following year. Sow seeds in a seedbed outside, thin the seedlings to about six inches apart, then move the plants to their flowering sites in the fall. Germination is usually best accomplished at 60 to 65 degrees Fahrenheit and takes place in two or three weeks, perhaps less.

In general, the hotter the climate the more moisture foxgloves need to flower well. In cooler summer climates they grow best in full sun. In areas with hotter summers, part or dappled shade is better. In either case, free-draining, moderately fertile soil is the ideal growing medium. Growing foxgloves in very rich soil tends to encourage the development of soft rosettes, which are less resilient to winter stress. Plants may also need protection from slugs in winter.

Many *Digitalis* species are biennials or short-lived perennials, but there are ways of extending their life. In damp climates, plant in well-drained soil so that waterlogging does not cause the roots to rot in winter or with snowmelt in spring. Cut flower spikes at the base as soon as the last flowers fade to encourage the development of more flower spikes and stimulate stronger rosette growth, which leads to better performance the following year. Removing the fading flowers also ensures that no self-sown seedlings appear, a factor that's especially important in regions where foxgloves have shown a tendency to naturalize.

So these are exciting times in the world of foxgloves. New forms of the wild species are still being developed, old hybrids are regaining favor, and dramatic new hybrids are being introduced with more to come in the years ahead. But in spite of the creation of impressive new hybrids and selections, the true wild species with its elegant racemes and natural look is still a firm favorite.

Graham Rice splits his time between gardens in Pennsylvania and the United Kingdom. He blogs at TransatlanticGardener.com.



The Illumination series blooms from summer to fall, attracting bees, butterflies, and hummingbirds.



Heavenly Ceanothus

BY NAN STERMAN

There's a friendly rivalry between gardeners on the East and West coasts, but when it comes to the beautiful flowering shrubs in the genus *Ceanothus*, the West Coast wins hands down.

CALIFORNIA IS well known for its annual show of wildflowers, including California poppies (*Eschscholzia californica*) and farewell to spring (*Clarkia amoena*). But last spring, hillsides from the Pacific Coast to the Sierra Nevada were painted bright white, pale blue, indigo, and almost purple by the flowers of dozens of species of evergreen shrubs in the genus *Ceanothus*.

One might expect a big bloom to follow a generous rainy season. Yet, up and down the state, rainfall was far below normal. In my community just north of San Diego, for example, three inches of rain fell; that's a third of normal. San Francisco rainfall was 30 percent below normal, Los Angeles rainfall was 61 percent below normal. Yet statewide, the *Ceanothus* bloom was the best in recent memory. For Cali-

fornia gardeners suffering through a prolonged drought, the bloom provided an opportunity to appreciate these beautiful native shrubs anew.

A GENUS DIVIDED

The genus *Ceanothus* belongs to the buckthorn family (Rhamnaceae). The name *Ceanothus* derives from the Greek word *keanthos*, which means "spiny

JOSH MCCULLOUGH



Above: A selection of the hybrid *C. x pallidus*, 'Marie Simon' is prized for its frothy pink flower clusters. **Opposite:** A large shrub popular in California coastal gardens, 'Dark Star' has rosy pink flower buds that open into cerulean blue flowerheads.

plant” or “thistle.” However, not all members of the genus are spiny. They are commonly called ceanothus, which can be both singular or plural. Some references also list California lilac or wild lilac as common names, but this is misleading because they are not at all related to true lilacs (*Syringa* spp.).

There are roughly 50 to 60 species in the genus, all native to North America, ranging from Canada to Florida, west to California and south into Guatemala. The center of ceanothus diversity, however, is the California Floristic Province, which covers a span of about 1,000 miles from Baja California, Mexico, in the south up to south-western Oregon. Some 41 species are native in this region, which is noted for its Mediterranean climate: hot, dry summers; and precipitation—rain or snow—only from fall through spring. As a rule, ceanothus are adapted to soils with minimal organic matter and low fertility—another characteristic typical of Mediterranean climates.

Although Western gardeners enjoy the lion’s share of *Ceanothus* species, there are

a few temperate climate species and cultivars adapted to other regions. Prominent among these is New Jersey tea (*Ceanothus americanus*)—native to 36 states and



While broadly adapted to eastern gardens, New Jersey tea has limited ornamental appeal.

Ontario, Canada—which is the most widespread and adaptable member of the genus. There are also a number of hybrids developed by European breeders.

A major difference between the temperate-climate species and the Mediterranean-climate species is that the latter are evergreen. Woody branches are covered with leaves from three inches long and half as wide, to tiny rounded leaves no bigger than the head of an eraser. Many species have tough, leathery leaves typical of plants from areas where infrequent precipitation makes water conservation a necessity. Some leaves are deeply grooved, some smooth, others slightly hairy.

All ceanothus produce clusters of tiny buds that erupt into rounded inflorescences. These range in size from as small as a quarter to almost a ping-pong ball, depending on the species or cultivar. Their fragrance and colors attract more than gardeners and nature lovers; they also draw birds, along with bees, butterflies, and other beneficial insects.

Another thing they all have in common is the surprising ability to fix nitrogen. Nitro-

gen fixing—isolating nitrogen gas from the air and converting it to a form that plants use—is well known in leguminous plants, and is also seen in alders (*Alnus* spp.) and bayberries (*Myrica* spp.). As with those plants, ceanothus have sophisticated relationships with bacteria that live in nodules on the plants' roots. The bacteria “fix” nitrogen and supply it to their host plant.

BREEDING AND SELECTION

Ceanothus are promiscuous plants according to California nursery owner David Fross, who along with Dieter Wilkin literally wrote the book on *Ceanothus* (see “Resources,” page 37). The first efforts to breed new varieties began with the introduction of New Jersey tea to British gardens in the late 1700s. Shortly thereafter, white flowering inland Jersey tea (*C. herbaceus*) from the center of North America, and brilliant blue-flowering Mexican *C. caeruleus* followed.

French and Belgian plant breeders valued New Jersey tea and inland Jersey tea for their hardiness and large leaf sizes. From *C. caeruleus* they tweezed out flowers in shades of violet, blue, and pink. Some of these hybrids—*Ceanothus* × *delilianus* ‘Gloire de Versailles’ and pink-flowering *C. × pallidus* ‘Marie Simon’, for instance, are still available today.

In more recent times, ceanothus haven’t had much attention from plant breeders, at least not in the United States. Instead, new cultivars tend to be selections from the wild, or arise as nursery and garden hybrids. In these cases, individual plants with more brightly colored flowers, stronger fragrance, or other characteristics that distinguish them from the standard species are selected and tested for garden worthiness.

Given this rich history of breeding and selection, we have a wealth of ceanothus to choose from today. The true key to success with these plants is to choose selections for your garden that are native to areas with similar growing conditions and climate. Here are some recommendations for ones that do well in California, the Pacific Northwest, the Rocky Mountains, and temperate regions.

CHOICES FOR CALIFORNIA

Nearly every habitat and microclimate in this crazy quilt of western terra firma is home to ceanothus in a wide variety of sizes and habits. The following easy-to-



Ceanothus come in a range of habits, from shrubby or treelike ‘Concha’, top, to the groundcovering ‘Yankee Point’, above, shown in a hillside garden designed by Suzanne Porter.

TOP: JERRY PAVIA. BOTTOM: SAXON HOLT

find ones showcase the genus's diversity.

Among the tree-sized ceanothus is *C. 'Ray Hartman'*, an upright shrub that grows to 20 feet tall and wide. Leaves are three or four inches long and deep green. From late winter into early spring, it drips with clusters of deep blue flowers. In my garden, I know 'Ray Hartman' is blooming when I can hear bees humming from my kitchen window. It prefers full sun and is hardy to 10 to 15 degrees Fahrenheit (F).

Another good tree-sized selection is *C. thyrsiflorus* var. *thyrsiflorus* 'Snow Flurry' from California's Big Sur coast. This vig-

Ceanothus 'Dark Star' is a popular cultivar that is hardy to 15 degrees F. Fast-growing and upright, this shrub reaches four to eight feet tall by eight to 12 feet wide with small, dark green leaves, making it perfect for an informal hedge or screen. In early spring, it erupts in buds the color of grape bubblegum, followed by vibrant blue flowers. Grow it in full sun.

Parry's ceanothus (*Ceanothus parryi*) is native to chaparral, evergreen forests, and redwood forests on coastal mountains from Northern California into west-central Oregon. Deep blue flowers appear in



Growing to only a foot tall, 'Diamond Heights'—shown here paired with blue-flowering nemesia—forms a dense groundcover with chartreuse and green variegated leaves.

orous grower tops out around 15 to 20 feet tall and 12 to 35 feet wide. In early spring, puffs of white flowers cover the branches and contrast beautifully with shiny green leaves. This selection takes pruning well and tolerates foggy coastal conditions, part shade, heavy soils, and temperatures down to 15 degrees F.

The slightly arched branches of sun-loving *C. 'Concha'* rise six to eight feet tall by six to 12 feet wide and are densely covered in narrow, deep green leaves. It has rounded clusters of deep blue flowers in spring. It is fairly tolerant of both heavy soils and overwatering, and is hardy to 10 degrees F.

April on shrubs that grow eight to 12 feet tall. It is hardy to 20 degrees F.

To light up a shady spot, try *C. thyrsiflorus* var. *thyrsiflorus* El Dorado ('Perado'). Its leaves have chartreuse margins with deep green center markings and provide a stunning background for its bright blue flowers. It grows to eight feet tall and wide and is hardy to 10 degrees F.

Much like El Dorado, *C. thyrsiflorus* var. *griseus* 'Diamond Heights' (syn. *C. griseus* var. *horizontalis* 'Diamond Heights') has bright chartreuse leaves with deep green centers, but plants are a foot tall by six feet wide. Grow it in light shade along the coast,

Sources

Cistus Nursery, Portland, OR. (503) 621-2233. www.cistus.com.

Forestfarm, Williams, OR. (541) 846-7269. www.forestfarm.com.

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

Theodore Payne Nursery Store, Sun Valley, CA. (818) 768-1802. www.theodorepayne.org.

Tree of Life Nursery, San Juan Capistrano, CA. (949) 728-0685. www.californianativeplants.com. (Nursery pickup only.)

Woodlanders, Inc., Aiken, SC. (804) 648-7522. www.woodlanders.net.

Resources

California Native Plants for the Garden by Carol Bornstein, David Fross, and Bart O'Brien. Cachuma Press, Los Olivos, CA, 2005.

Ceanothus by David Fross and Dieter Wilken. Timber Press, Portland, OR, 2006.

The New Sunset Western Garden Book (9th edition) edited by Kathleen Norris Brenzel. Sunset Publishing, Menlo Park, CA, 2012.

or in more shade further inland. If it's in too much sun, the leaves fade to a ghastly yellow. It is hardy to 20 degrees F.

Another groundcover selection is *C. thyrsiflorus* var. *griseus* 'Yankee Point', which grows three feet tall with a 10 or 12 foot spread. Leaves are deep green, and its early spring flowers are medium blue. It is hardy to 10 degrees F.

CHOICES FOR THE PACIFIC NORTHWEST

In the Pacific Northwest, Oregon native ceanothus and many popular California cultivars do well, even up into the mild areas of Puget Sound in Washington. "A lot of the standard California varieties are grown in Oregon west of the Cascades," says Paul Bonine of Xera Plants wholesale nursery in Sherwood, Oregon, "Our longer rain season extends the growing season so plants grow larger here."

Sean Hogan from Cistus Nursery in Portland echoes Bonine's experience: "It's all about the cool and dampish winter and dry summer." The challenge for Oregon

gardeners is winter cold. Along the coast, gardens tend to be USDA Zone 9 or 10, Hogan says, and ceanothus do fine. Further inland, where cool air flows down from Canada and temperatures can drop below 20 degrees F, the plants freeze.

Recommended performers in this region include *C. thyrsiflorus* 'Oregon Mist', which is hardy to zero degrees F. Planted as a street tree throughout Portland, this upright selection grows 18 feet tall and nine feet wide. The bark is greenish; flowers are turquoise or sky blue. 'Victoria' (hardy to 5 degrees F), another *C. thyrsiflorus* selection, grows nine feet tall. In May, they are covered with intensely dark blue flowers.

Also suggested is 'Puget Blue' (hardy to 10 degrees), a selection introduced by the Washington Park Arboretum in Seattle, Washington. Long, narrow leaves cover arching branches, forming a plant eight feet tall and 10 feet wide or larger. The flowers are an incredible, intense blue.

CHOICES FOR THE ROCKY MOUNTAINS

In Colorado, Panayoti Kelaidis, senior curator and director of outreach at the Denver Botanic Gardens, says the Mediterranean climate ceanothus have yet to be grown successfully. Instead, he recommends inland Jersey tea (*C. herbaceus*, Zones 5–9, 9–3), a three-foot mounding shrub native from Canada to Texas, and east as far as North Carolina. Its white flowers bloom spring through summer, against bright green leaves.



A proven performer in the Pacific Northwest, 'Puget Blue' is a largish shrub with bright blue flowers.

Kelaidis describes snow brush (*C. velutinus*, Zones 7–10, 10–2) as “gorgeous,” but this mountain native is well suited only to the cool, higher elevations of western North America where, depending on its location, it can grow anywhere from three feet tall by six feet wide to 18 feet tall and wide. Its leaves, which smell like cinna-

mon when crushed, are glossy green with tiny hairs on the undersides.

CHOICES FOR TEMPERATE GARDENS

West Coast ceanothus have been tested in temperate climates according to Fross, but most of the results, he says, “have been disastrous. What takes them out is the mosaic

PLANTING AND CULTURAL GUIDELINES

When planting West Coast ceanothus, it's a good idea to set plants so the soil level is an inch or two higher than it was in the nursery container. They will settle a bit over time, but starting them slightly above grade ensures that water drains away from the crown.

Plant into unamended, native soil and don't add any fertilizer, which “makes ceanothus grow too fast and fall over in the wind,” according to Paul Bonine of Xera Plants. That said, if your soil is very heavy, consider planting into large mounds of better draining soil to avoid those wet conditions that encourage deadly soil fungi.

Water deeply at planting, then deeply but infrequently through the first summer or two until plants are established. After that, stop watering but do keep a layer of well-aged woody mulch around your plants to help keep moisture deep in the soil where you want roots to grow. It's unnecessary to add fertilizer because the nitrogen-fixing bacteria in their root nodules supply all the nitrogen they need.

Established specimens will tolerate judicious trimming or pruning of new growth, directly after flowering, if needed “to maintain a more compact form and improve the appearance of most species,” write Fross and Wilken in *Ceanothus*.

West Coast ceanothus are prone to a number of pests ranging from boring insects to stem galls and deer. Monitor plants regularly for signs of borers, and follow watering and other cultural guidelines to reduce susceptibility to some of the other insect pests. Use cages or fencing to protect young plants from deer browse in areas where the animals are prevalent.

Temperate region ceanothus are not as fussy about soil type and watering regimes as their evergreen counterparts, but they should still need little or no supplemental water or fertilizer once they are established. Plant them so their crowns are at ground level. —N.S.



The rangy habit of *C. ×delilianus* 'Gloire de Versailles' is used to good effect along this stairway, providing access to its fragrant blue flowers.

of fungal organisms.” When you combine moisture with heat, Fross adds, the plants become extremely vulnerable to soil fungi.

Tony Avent, who is known for pushing horticultural boundaries at his Plant Delights Nursery in Raleigh, North Carolina, admits to a long list of Mediterranean climate ceanothus species he has killed before abandoning his quest. Too much moisture is the issue here, too. “Those ceanothus would be fine here,” he says, “except for our summer rains.”

Instead, temperate climate gardeners have found more success with the historic, three-way European hybrids such as *C. ×delilianus* 'Gloire de Versailles' (Zones 7–9, 8–4), a deciduous ceanothus that grows six to 12 feet tall and wide with fragrant, pale blue flowers from summer to fall; and *C. ×pallidus* 'Marie Simon' (Zones 6–9, 8–5), which has red stems and show-stopping musky pink flowers from summer into fall. Also deciduous, this vigorous shrub grows to five or six feet tall with a similar spread.

As the first species in the genus to be named and cultivated, New Jersey tea (*C. americanus*) has some claim to fame. It also has the broadest native range of any ceanothus and is relatively adaptable to a

range of sites from loamy woodland edges to sandy or rocky soils, and from full sun to part shade. In the garden, however, it has limited appeal. In *Native Trees, Shrubs, and Vines* (Houghton Mifflin, 1998), William Cullina writes that it “goes unnoticed for all but a few weeks in summer, when the branch tips are abuzz with all manner of insects attracted by its plumes of fine white honey-scented flowers.” Texas horticulturist Scott Ogden concurs, noting that its mid- to late summer flowers are attractive, but the plant is “hardly worth a mention otherwise.” Growing to three feet tall and spreading up to five feet in diameter, this suckering shrub is best suited to a naturalistic or wildlife garden.

DIVERSE AND DROUGHT-TOLERANT

Clearly, this genus offers an almost overwhelming number of beautiful shrubs for a variety of climates. However, outside of California, ceanothus have a reputation for being short-lived and suited only to well drained soils. While this may be true for some of them, more often than not it's improper growing conditions that are to blame.

That's what horticulturist Neil Bell of Oregon State University concluded after a four-year trial of 49 *Ceanothus* taxa at the

Oregon Garden in Silverton. Bell found good success with nearly all the ones he tested, which he grew in clay soil and left unirrigated after establishment. Based on these results, Bell advises that “the best use for ceanothus is combining them in unirrigated landscapes with other plants that require the same treatment. This includes some drought-tolerant native plants like oceanspray (*Holodiscus discolor*), snowberry (*Symphoricarpos alba*), or flowering currant (*Ribes sanguineum*). It will also include complimentary Mediterranean-climate plants from California and other areas of the world, assuming these are hardy in [your] area.”

Bonine of Xera Plants agrees that most ceanothus will do fine even in clay soils, as long as they aren't irrigated. “I tell people not to water them at all,” he says. When ceanothus are grown with a healthy respect for their “low water diet,” they prove to be beautiful shrubs that offer many rewards to our gardens.

Nan Sterman is a garden communicator, consultant, and designer based in Encinitas, California. She hosts the public television show, “A Growing Passion.” For more about Sterman, visit www.plantsoup.com.

Pre-emptive Pruning

BY CAROLE OTTESEN

WHEN IT COMES to herbaceous perennials and grasses, most people lump “grooming,” “deadheading,” and “cutting back” into the catchword “pruning,” but there are differences in each of the tasks.

Pruning is a necessity in a perennial garden and almost always performed after the fact—after the winter, after the flowers have come and gone, after the growing season. Grooming removes winter-damaged leaves that detract from an evergreen plant’s appearance. Deadheading removes

Cutting back certain herbaceous perennials and grasses at the right time will yield shapelier, more floriferous plants.

spent flowers in the hopes of more to come. Cutting back eliminates tired foliage and restores the perennial’s neat and youthful basal clump. If you combine this kind of necessary housekeeping with a little weeding, a nutritious top dressing, and mulch, it’s the equivalent of treating your plants to a day at the spa with the works—haircut, massage, manicure, pedicure. It allows perennials to be their best selves, to stay healthy, and to contribute even more beauty to a garden.

But there’s another kind of pruning that is less commonly practiced in the perennial garden, except perhaps among those who still compulsively pinch their old-fashioned chrysanthemums until July 4. You might call it pre-emptive pruning because it takes place *before* anything happens—before a perennial achieves its full potential growth, before bloom. It isn’t strictly necessary, and that is part of its appeal. Pre-emptive pruning transcends



Garden phlox can be kept more compact by cutting them back in late spring or early summer.

mere maintenance and becomes a creative act. It is pruning as art, an adventure that allows certain perennials to grow into their better-than-normal selves. Think of it as the equivalent of taking your plants to a talented plastic surgeon.

That would be *you*. If that thought intimates you, listen to Tracy DiSabato-Aust,

author of *The Well-Tended Perennial Garden*, which is a must-have manual for anyone who grows perennials. Renowned for performing cosmetic surgery on perennials, she says, “perennials are quite forgiving. The worst thing they’ll do if you prune too much is not bloom for a year.” And they never sue!

WHAT TO PRUNE

Remember last summer's Joe-Pye weed (*Eutrochium* spp.) with those eight-foot-tall flowers that required a ladder to see? A pre-emptive height-reduction operation would have brought those flowers down to eye level or below. And that killer New England aster (*Symphotrichum novae-angliae*) that flopped and smothered everything around it? It would have been an ideal candidate for some well-timed intervention. Some nips and tucks in midsummer would have kept it at a more manageable size and turned it into a better citizen. The same holds true for many ornamental grasses, such as switchgrass (*Panicum virgatum*).

While naturally tall and multi-stemmed plants are the most likely choices for cutting back, DiSabato-Aust has achieved showy results with smaller, more compact plants such as balloon flower (*Platycodon grandiflorus*) and Autumn Joy sedum (*Hylotelephium* 'Herbstfreude'). The latter is not typically cut back because it has a naturally neat, uniform habit. However, pruning this sedum produces a remarkable effect. After pre-emptive pruning, it seems to flow over the ground like a tide of copper flowers.



Many tall herbaceous perennials that flower in late summer and early fall, such as the New England aster (*Symphotrichum novae-angliae*) shown here, can be cut back in early to midsummer, when they are about two feet tall, above. By fall, the pruned plants, right, have grown back shorter, with a more sculpted appearance and abundant purple flowers.

Resources

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The Perennial Care Manual by Nancy J. Ondra. Storey Publishing, North Adams, MA, 2009.

Understanding Perennials by William Cullina. Houghton Mifflin Harcourt Publishing Co., New York, NY, 2009.

The Well-Tended Perennial Garden (expanded edition) by Tracy DiSabato-Aust. Timber Press, Portland, OR, 2006.

Garden phlox (*Phlox paniculata*) is another plant that DiSabato-Aust enjoys pruning. "You can pinch early or cut it back by one half. Or cut it back by four to six inches when it's in bud. It's a really fun plant to experiment on."

Salvias might also seem to be unexpected candidates for pre-emptive pruning, yet California gardener Betsy Clebsch, author of *The New Book of Salvias*, practices what she calls "creative pruning" on certain species. In addition

to deadheading, she says that to keep the heavy flowering going with a few salvias, "some heavy pruning must be done yearly." According to Clebsch, tender salvias such as *Salvia microphylla*, *S. greggii*, and *S. ×jamensis* and their many cultivars "need the protection of old growth until there is no danger of frost. Then they should have heavy wood removed and the whole plant should be cut back to a reasonable size." She cuts *S. microphylla* back to two inches and the others a little less.

Scott Aker, head of horticulture at the U.S. National Arboretum in Washington, D.C., finds that cutting back certain perennials also benefits the gardener. "I like to shear asters, chrysanthemums, dianthus, and rudbeckias in my home garden so that I don't need to spend a lot of time staking them later," he says.

Not all perennials can be pre-emptively pruned, however. For example, crocosmias, torch lilies (*Kniphofia* spp.), and astilbes don't take kindly to it. Nevertheless, most others come out from under the knife with better form, a later and, possibly, longer bloom period, and a shorter, more compact habit.



TRY YOUR PRUNERS ON THESE PLANTS

The following mid- to late-summer bloomers shape up well after being cut back:

Botanical name

Artemisia ludoviciana
Aster tataricus
Asteromoea mongolica
 (also listed as *Kalimeris mongolica*)
Boltonia spp.
Dendranthemum xgrandiflora
Echinacea purpurea
Eutrochium fistulosum
Eutrochium maculatum
Helianthus spp.
Miscanthus sinensis
Monarda spp.
Phlox maculata
Phlox paniculata
Rudbeckia nitida
Solidago spp.
Symphotrichum novae-angliae
Symphotrichum novi-belgii
Tricyrtis spp.

Common name

white sage
 Tartarian aster
 Mongolian aster
 boltonia
 hardy garden chrysanthemum
 purple coneflower
 Joe-Pye weed
 spotted Joe-Pye weed
 perennial sunflower
 miscanthus
 beebalm
 wild sweet William
 garden phlox
 shiny coneflower
 goldenrod
 New England aster
 New York aster
 toad lily



'Lemon Queen' perennial sunflower



'Lightning Strike' toad lily

Pre-emptive pruning does much more than simply limit size. Perennials such as asters can be sculpted into elegant mounds of flowers by cutting the plants shorter around the edges and leaving the center a little taller. Or, for a mass of perennials that all bloom facing in one direction, cutting those in front very short and graduating the plants' heights as you move back will result in a slope of flowers with all plants in view.

To manipulate bloom time, you can cut back portions of a planting to stagger and lengthen overall bloom times by



Autumn Joy sedum, which is generally a tidy plant even without pruning, becomes extraordinarily compact with it.

weeks. Just be careful not to overdo the delaying tactic or you risk losing a year's worth of flowers.

However, "don't be afraid to experiment," advises Aker. "You'll find what works through trial and error."

So as you head out to neaten up the garden this spring and summer, think beyond your usual maintenance chores. You can use your pruners like a scalpel to enhance your plants' natural beauty. And as you snip, chant the mantra "less is more, lessismore, lessizmore."

Carole Ottesen is a contributing writer for The American Gardener. This is an updated version of an article originally published in the March/April 2004 issue of this magazine.

WHEN TO PRUNE

Knowing when to prune plants is crucial for the best results. "In general, plants in your region that normally bloom after the summer solstice are the ones that can be pruned until early July," says Aker. "Don't cut back plants like peonies, that flower in early summer, because they will have already formed flower buds."

Because climate, location, and weather conditions make for enormous differences

in growth and bloom time, DiSabato-Aust gauges the time to cut back late summer- and fall-blooming perennials by size rather than by date. "When a plant reaches roughly 16 to 24 inches," she says, "it can be cut back. Normally it's cut back by half, but sometimes it can be two-thirds of the plant." The more vigorous the plant, the more can be trimmed away. In her experience, the foliage will usually regrow within 10 to 14 days, depending upon the weather.



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Controlling Slugs in the Garden

by Scott Aker

ASK A GARDENER if he or she has mollusk problems and you'll probably get a funny look—at least until you explain that slugs are mollusks. While only a few species of slugs are pests in gardens, their impact is substantial because they are active for almost the entire growing season, can build large populations in the right conditions, and are notoriously insensitive to pesticides.

Slugs are best managed using a multifaceted strategy. Start with prevention by modifying conditions in your garden to make it less hospitable to slugs and more hospitable to their predators. Incorporate some physical control by trapping them, and use barriers in special circumstances. Use chemical controls only as a last resort, selecting the least toxic options.

OF MOISTURE AND MUCOUS

Unlike most pests, including their snail kin, slugs don't have a shell or exoskeleton to protect their bodies. They rely on copious production of slimy mucous to prevent water loss and repel predators. Since the slug's greatest vulnerability lies in its sensitivity to moisture loss, the key to preventing slug proliferation lies in controlling moisture in your garden. That may seem impossible if you live where rain is frequent, but most areas have periods of dry weather that can be used to your advantage to reduce the slug population.

With the onset of dry weather, refrain from irrigation, and clean up the garden. Weed thoroughly and cut plants back to expose the soil surface to the drying effects of sunlight. Even a week of dryness will kill many slugs, and may cause slug eggs laid in cracks in the soil to dry up before they can hatch. In most parts of the country, autumn is a good time to take these measures.

Slugs love mulch. It causes the soil surface to stay damp, and provides nooks and crannies for them to hide in when



Many species of slugs are commonly found in gardens. This is a dusky slug.

they are not feeding on plants. They also thrive where frequent overhead irrigation keeps leaves wet. Keep mulch away from the crown of perennials to discourage them, and limit watering to once every two weeks, even in dry weather.



For protecting small areas, copper strip edging can be an effective slug deterrent.

I use very little mulch in my perennial beds, relying instead on complete foliage cover to suppress weeds.

If conditions in your garden are naturally moist for long periods, you may want to consider encouraging slug predators. Frogs and toads are very effective in reducing slug populations, and when I had a small pond in my garden, I rarely encountered slugs. The larvae of fireflies feed on slugs, and may provide control if their population is encouraged by restricting the use of pesticides in your garden and lawn.

DEATH BY IRRITATION

A number of home remedies are purported to kill or deter slugs, but in my experience these tend to be much less effective than controlling moisture and encouraging predators. Many—including egg shells, wood ashes, and diatomaceous earth—are based on materials designed to irritate or scratch the slug's body. These materials can be effective, but they only work if applied extensively enough to overwhelm the slug's ability to produce protective slime, and they

Gardening Q&A with Scott Aker

POOR-BLOOMING TULIPS

Last spring, my tulips had much smaller flowers than they did the previous spring, their first spring in my garden. They've started to come up, but some appear to just have a single leaf and I'm concerned there might not be any flowers from them this year. Is there anything that I can do to resuscitate bloom in these bulbs?

Most modern hybrid tulips don't return because they need a long cool growing season to develop a large bulb that can support the following year's flowers. You can extend their life by planting them a foot deep, where the soil temperature stays slightly cooler, and applying a liquid fertilizer when the leaves start expanding to maximize leaf surface and photosynthesis. Keep them moist if spring weather is dry, but quit watering as soon as the leaves begin to yellow. For more reliable repeat blooming, select species tulips such as *Tulipa humilis*, which may flower for five or more years. Selections in the Darwin Hybrid group, such as 'Gudoshnik', are particularly long-lived. I know one planting that is still going strong after 10 years.

ASIAN PAPERBUSH DROPPING FLOWER BUDS

In my New Jersey garden, I have an Asian paperbush (*Edgeworthia chrysantha*) growing in part shade in a raised border with azaleas and hollies. As in past years, in fall it produced lots of the characteristic silver flower buds that normally persist until early spring before opening. But in late fall, the buds shattered and fell off the stems. It's on the south side of the house, so it is protected from extreme cold. What do you think caused the bud drop?

I suspect that unusually dry fall weather was to blame. Although the summer was rather wet in your area, dry weather in the fall may have caused the flower buds to drop. It may have encountered more heat in its south-facing exposure than it would really prefer. Although Asian paperbush is relatively pest-free, it doesn't tolerate lack of moisture for long periods. Water deeply but infrequently during dry interludes in future, and it is likely to bloom reliably. —S.A.

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

don't work at all under very moist conditions. Strips of copper are effective, but only if they are used to create an unbroken barrier around individual plants that you are trying to protect. Keep in mind that any foliage touching the ground outside the barrier will provide an overpass for slugs to gain access to the area inside the copper. Copper strips are best used for isolated plants that are high in value and especially prone to slug damage, or in raised beds that can be isolated from surrounding slug-infested areas.

TRAPPING

You can trap slugs to keep their numbers down. This is most effective when you check traps daily, because slugs reproduce rapidly in the right conditions and new ones will readily replace those you have eliminated.

Saturate small pieces of wood in a bucket of water for a week or more, then place the damp pieces of wood on the soil surface in your garden. In the middle of the day, when slugs have sought refuge from heat and dryness, pick up each piece and scrape the slugs into a bucket of soapy water to drown them. Place traps on three-foot centers in a grid pattern so the slugs don't have to travel more than 18 inches to a trap. Several weeks of sustained trapping will drastically reduce the population and prevent serious damage to your plants.

You can also make your own traps consisting of shallow dishes of beer or sugar water with a bit of yeast added to attract slugs. The same rules apply—you must place traps no more than three feet apart and check them daily.

COMMERCIAL PESTICIDES

There are a few pesticides available for slug control. All consist of baits with a deadly component included in pellets of material that the slugs feed on. Mesurool and metaldehyde were the prevalent baits



Iron phosphate baits are widely available.

many years ago, but they have been largely replaced by iron phosphate baits with interesting trade names like Sluggo® and Escar-Go!®. While iron phosphate itself is not considered very toxic to humans, pets, or wildlife, these baits include a chelating agent that causes

release of toxic amounts of soluble iron in the gut of slugs. The chelating agent may be problematic if ingested in large quantities by humans, pets, or wildlife, but overall these baits are considered safer than the earlier compounds.

HOMEMADE PESTICIDES

Many common household products can be used to control slugs. A solution of five to 10 percent ammonia is effective, but it must be applied directly to the slugs, so thorough coverage is important. It works best if applied on a humid evening following afternoon rain or irrigation that has brought the slugs out onto the foliage of plants.

Although table salt is deadly to slugs, its use is not recommended because it is also deadly to plants, and may damage soil structure and chemistry.

Interesting new research done by the U.S. Department of Agriculture has revealed that caffeine causes slugs to cease feeding, ultimately causing death. A one to two percent solution of caffeine in water was found to be effective, and is also repellent to slugs if applied to the soil surface. Perhaps your local barista can supply you with used coffee grounds to keep your garden slug free.

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

Edamame: The Vegetable Soybean

by Margene Whitler Hucek

FEATURED IN many Japanese and Chinese dishes, edamame, the vegetable soybean (*Glycine max*) is surprisingly easy to grow in the home garden. Edamame—pronounced “Ed-uh-MAH-may”—means “beans on branches” in Japanese, a reference to its well-branched, shrubby growth habit.

I grew up in Illinois, where field soybeans are widely grown as a source

GROWING GUIDELINES

Edamame can be grown in most regions of the United States. Site your patch in full sun, if possible, keeping in mind that edamame need at least six hours of sunlight to produce well. Plant seeds when the soil is warm, about 60 degrees Fahrenheit, and all danger of frost has passed. Do not pre-soak the beans and do not overwater, because the seeds tend

not need to be staked. You can extend your harvest season by making successive plantings every couple weeks until midsummer, or by planting several varieties that have different maturity dates.

Once plants are six inches tall, help control weeds and maintain even moisture by applying an organic mulch between rows.

PESTS AND DISEASES

These are pretty rugged plants with few pest or disease problems. There may be some foliage feeding by beetles, aphids, grasshoppers, and leafhoppers, but this generally does not affect yields. Keep an eye out for stinkbugs, however, because they will puncture the pods, causing the beans to shrivel. Remove stinkbugs by hand and drop them into a container of soapy water to kill them.

Where rabbits and deer are prevalent, a tall, sturdy fence is your best option for protecting your crop. You can also cover rows with tunnels of chicken wire that are secured to the ground.

RECOMMENDED VARIETIES

‘**Midori Giant**’ can be grown throughout the continental United States and is a heavy producer with yields of 55 to 60 pods per plant. It is recommended both for excellent flavor and ease of care. Matures in about 75 days.

‘**MoJo Green**’ also can be planted throughout the continental United States and is a top choice for planting at higher elevations. Matures in about 80 days.

‘**Hakuchō**’ is a widely adapted variety that grows only one foot tall, so it’s a good choice where space is limited. Its seeds are an attractive yellow-green. Matures in 75 days.

‘**Korean Black**’ is a late-season variety with black seeds that many consider the sweetest edamame. Because it requires 100 to 130 days to mature, it performs best in USDA Zones 8 to 10.



‘**Midori Giant**’ is one of the most popular edamame cultivars among American gardeners.

of protein for cattle feed and their oil is used in food products, soaps, cosmetics, and plastics. Edamame soybeans, however, are much sweeter and easier to digest than field soybeans. And unlike field soybeans, which are allowed to dry before harvest, edamame are harvested immature, while the beans are still green.

Edamame are highly nutritious. They are cholesterol-free and rich in fiber, calcium, phosphorus, and vitamins A and B. And a three-ounce serving is packed with 6.5 grams of protein.

to rot in cool, wet conditions.

To help beans “fix” nitrogen into a form usable to plants, apply a bacterial inoculant specific for soybeans before planting. Bacterial inoculants can be obtained from local garden centers or seed suppliers.

Edamame tolerates most soil types, but for best production, incorporate well-rotted manure or compost into the soil prior to planting. Sow seeds one inch deep and three to four inches apart in rows spaced 20 to 36 inches apart. Plants grow one to four feet tall depending on the variety, and do

Sources

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

www.cooksgarden.com.

Fedco Seeds, Waterville, ME.

(207) 426-9900.

www.fedcoseeds.com.

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

www.territorialseed.com.

PLANTING BASICS

Getting started Edamame needs full sun and thrives in rich, well-drained soil. Plant directly in the garden when the soil is warm and all danger of frost has passed. Do not pre-soak the seeds. To enhance nitrogen fixation, treat seeds with a soybean-specific inoculant before planting. To extend the harvest, sow seeds successively every two weeks.

Spacing Space edamame in rows 20 to 36 inches apart. Sow seeds one inch deep and three to four inches apart. Thin tall varieties to a six-inch spacing.

Days to maturity 75 to 130 days, depending on the cultivar. Check maturity frequently because the harvest period is short.

'Sayamusume' grows two feet tall and produces high yields of large green pods with two to four light green seeds per pod. It is a good choice for the Pacific Northwest, where cool nights make growing other varieties a challenge. Matures in 85 days.

'Sunrise' is an early-maturing variety (75 to 80 days) that grows 40 inches tall. It is a heavy producer of medium to large pods.

ENJOYING THE HARVEST


Harvest edamame when pods are plump and beans are almost touching each other. Harvest time is short—a week to

10 days—so check often, because once the pods turn yellow, the beans become starchy and lose their nutty flavor.

Edamame pods grow close to the main stem of the plant, which makes picking them difficult. I find it is easier to cut the entire plant at its base, leaving the roots to enrich the soil, then strip the green pods.

My family's favorite way to eat edamame is boiled in the pod with a half teaspoon of salt for five minutes or until tender. Leave the lid off to preserve the pods' bright green color. Lightly sprinkle the drained pods with salt. We enjoy our harvest Japanese style, popping them out

of their shells and into our mouths. The fibrous shells are inedible. Shelled edamame can also be substituted for peas in any recipe.

Fresh edamame can be stored briefly in the refrigerator, but the best way to preserve their flavor is to cook and freeze them. Simply boil the shelled beans in water for five minutes, then drain and let them cool before placing them in freezer bags. That way, you can enjoy a taste of summer any time of the year. 

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



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Recommendations for Your Gardening Library

Contemporary Designers' Own Gardens

Barbara Baker. Garden Art Press, imprint of the Antique Collectors Club, New York, New York, 2013. 240 pages. Publisher's price, hardcover: \$65.

THE LANDSCAPES that professional designers create for themselves at their residences are something of a holy grail among garden writers and aficionados. Perhaps surprisingly, many designers don't garden for themselves. And if they do, it is often a marketing effort—inspired by potential clients rather than personal preference. In *Contemporary Designers' Own Gardens*, Barbara Baker recognizes this important distinction and selects her subjects accordingly.

A chapter is devoted to each of 20 international design stars and describes not only his or her own garden but also landscapes designed for public and private clients. Exploring the differences and similarities between designers' personal spaces and their commissioned work is an ambitious goal. With so much ground to cover, both literally and figuratively, the book doesn't fully deliver on the promise of its title; in my opinion, the personal gardens are given short shrift both visually and descriptively to accommodate the professional work.

Doubling the size of the book or halving the number of subjects may have allowed Baker to achieve her true objective: To compare and contrast the public and private landscapes of some of the best designers working today. An able and thoughtful writer, Baker's keen observations warrant expansion.

I would have liked more discussion, for example, on why materials have trumped plants as “the essential tools of many contemporary landscape designers.” Moreover, if “new materials and technologies” are as plentiful and inspirational as Baker claims, why does corten steel—in use since the 1960s—appear so often in these gardens and elsewhere that it borders on banal?

If you approach it as a visual design catalog, this book certainly contains a wealth of images and variety of ideas. And despite its cursory, albeit thought-provoking, review of the selected landscapes, the book provides a whirlwind tour of contemporary design trends around the world. Because of this, it offers more value and insight than many other lavishly illustrated garden design books I have seen.

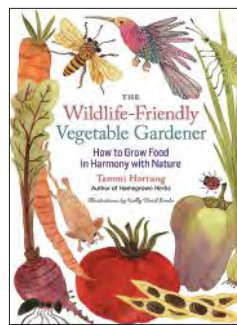
—Susan Hines

Susan Hines is a former staff writer for Landscape Architecture magazine. She lives and gardens in Hyattsville, Maryland.

The Wildlife-Friendly Vegetable Gardener

Tammi Hartung. Storey Publishing, North Adams, Massachusetts, 2013. 144 pages. Publisher's price, softcover: \$16.95.

DO YOU struggle with keeping bugs, rabbits, deer, and other critters out of your vegetable garden? In this book, Tammi Hartung proposes the radical idea that you don't always have to.



Through specific examples based on her own and other gardeners' experiences, she explains that wildlife can be on our side, and when they're not, there are many ecologically-friendly ways to deal with them.

Gardens cannot exist without the help of beneficial wildlife such as microorganisms in the soil and pollinators. Many predators can be useful, too, such as birds that eat slugs or foxes that reduce the rabbit population. Hartung describes how to make allies of these creatures by creating a welcoming habitat.

Of course, co-existence isn't always an option. The Colorado potato beetle's voracious appetite, for example, is squarely at odds with a gardener's desire to harvest potatoes. For these situations, the book discusses various tactics such as using barriers, repellents, decoys, and traps that will have minimal impact on the beneficial wildlife in your garden.

Along with broad strategies, Hartung gives concrete solutions to try. Some tips include planting lavender and rosemary around the perimeter of your garden because deer hate the smell; sprinkling your greens with cinnamon to repel ants; and planting radishes between broccoli plants because flea beetles will eat them instead.

More than anything, Hartung advises you to slow down, find a spot to sit down in your garden, and just watch what is happening around you—pay attention to which bugs are on which plants and keep tabs on the birds that come to visit and what they do in your garden. Getting to know the wildlife in your garden better will make it easier to decide if and how much you may need to intervene.

The Wildlife-Friendly Vegetable Gardener is part how-to book, and part philosophical treatise on life, imploring us to “embrace imperfection and impermanence, and maybe even a bit of chaos at times, as part of working with natural processes.” No matter what you're doing, this is sage advice.

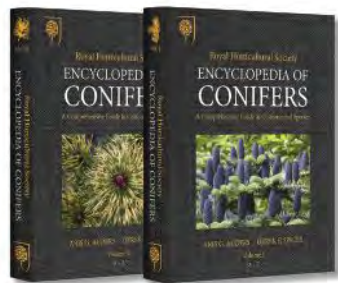
—Penny Guisinger

A vegetable gardener for the last 15 years, Penny Guisinger also enjoys the wildlife that visits her coastal Maine garden.

Royal Horticultural Society Encyclopedia of Conifers

Aris G. Auders and Derek P. Spicer. Kingsblue Publishing Limited, Nicosia, Cyprus, 2012. 1,508 pages. Publisher's price, hardcover: \$247.

LET ME BEGIN with the statistics on this two-volume set, which are impressive. This extraordinary encyclopedia covers



every conifer genus, all 615 conifer species, and around 8,000 cultivars. It is packed with more than 5,000 color photographs. If you put these two large-format books on a scale together, they weigh in at almost 19 pounds. Their price is hefty, too, at \$247, but I'm

going to explain why they are worth every penny.

Created over a period of seven years by the Latvian conifer collector Aris G. Auders and chair of the British Conifer Society Derek P. Spicer, this encyclopedia is mind-bogglingly comprehensive. For example, it includes—by my count—282 cultivars of the Eastern hemlock (*Tsuga canadensis*) and 413 cultivars of Lawson's cypress (*Chamaecyparis lawsoniana*). And of course it is right up to date in terms of the names and classification of conifer taxa.

All of this is very impressive, but does not reveal the many other stellar features these volumes boast. For instance, I attribute the excitement I felt when simply flipping through the pages to the clear layout, excellent typography, and beautiful photography. The A-to-Z arrangement of genera, species, and cultivars is easy to follow, and in addition to cross-referencing synonyms, the authors thoughtfully cross-reference common misspellings of names to alleviate confusion.

The unusually large format of these books is especially advantageous for showing off the numerous full-page images—from close-ups of cones to portraits of mature specimens. I also appreciated that many of the plants are depicted at different times of year, or that two or three features of the same plant are represented, providing a more complete picture of it than one typically finds in encyclopedias.

The text is written without too much botanical jargon, making it easy for anyone from conifer connoisseurs to casual gardeners to comprehend. The concise plant descriptions note characteristics such as growth habit, foliage colors, and growth rate—often very usefully including the height and spread at 10 years of age. The origins of many cultivars are noted, too.

Released a couple of years ago in Europe, it has just recently become available to North American audiences. This monumental yet attractive work is a must, not only for conifer enthusiasts, but for horticultural and botanical institutions everywhere. It will undoubtedly influence and inform gardeners, collectors, designers, researchers, and writers for decades to come.

—Graham Rice

Graham Rice is the editor-in-chief of the American Horticultural Society's Encyclopedia of Perennials. He grows conifers, perennials, and more in Pennsylvania and blogs about his experiences at TransatlanticGardener.com.



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Panicum virgatum 'Northwind' is an outstanding cultivar of native switchgrass.

STELLAR SWITCHGRASS

Since 1990, the Perennial Plant Association (PPA) has selected a "Perennial Plant of the Year" to showcase perennials with exceptional features such as a wide hardiness range, multi-season appeal, and high resistance to pests and diseases. This year's honored plant is the 'Northwind' selection of switchgrass (*Panicum virgatum*).

Native to a large swathe of North America, including the once widespread tallgrass prairie region, switchgrass grows in USDA Hardiness Zones 4 to 10 and AHS Heat Zones 9 to 1. It is adaptable to almost any kind of soil, will tolerate light shade and drought (once established), and has no serious disease or insect problems. Deer also leave it alone.

'Northwind' was introduced in the early 1990s by Roy Diblik, co-owner of Northwind Perennial Farm in Burlington, Wisconsin. It forms tidy clumps of blue-green foliage that grows wider and more upright than is typical of the species, reaching six or seven feet by the time its airy, tan-colored plumes appear in late sum-

mer. It turns a tawny gold color in fall.

For more about 'Northwind' switchgrass and the Perennial Plant of the Year program, visit www.perennialplant.org.

FUNGAL FOE GOES BANANAS

The 'Cavendish' banana is the sole variety available in most American grocery stores and accounts for about half of the total banana production worldwide. According to a report published in the science journal *Nature* in December, an unstoppable fungal disease could wipe it out, with catastrophic economic consequences.

The fungal pathogen, *Fusarium oxysporum* f.sp. *cubense*, known as Foc, causes the lethal Panama disease in bananas, and it is nearly impossible to control once it is present. In the 1950s, a strain of this microscopic organism brought to its knees when it decimated the 'Gros Michel' banana, the most widely grown variety at the time. The resistant 'Cavendish' replaced it, but now history appears

to be repeating itself as a more aggressive Foc strain spreads around the globe.

This Foc strain has already destroyed millions of dollars worth of bananas and drastically reduced production in parts of Asia and Australia since it first appeared in the 1990s. But it recently set off a fresh panic in the industry when it made a trans-continental leap to parts of Africa and the Middle East for the first time.

Commercially grown bananas are particularly vulnerable to epidemics because nearly all of them are clones, meaning they are genetically identical. "Ideally, new, resistant bananas would be developed," says Randy Ploetz, professor of plant pathology at the University of Florida in Gainesville. While researchers and breeders race to do so, "impeding its spread to new areas is the best tactic," adds Ploetz.

To learn more about this fungal problem, visit www.panamadisease.org.

ENGINEERING BETTER TOMATOES?

A tomato altered with snapdragon (*Antirrhinum* sp.) genes is making headlines as one of the first examples of genetic modification (GM) technology being used to increase health benefits in produce. "The snapdragon genes introduced into the tomato strain," explains Paul Diehl, a San Francisco Bay area biotech consultant, "activate a number of genes that produce anthocyanin in the plant." Tomatoes already owe their red coloring to this pigment, which has been shown to have cancer-fighting and anti-inflammatory properties. The GM variety produces even greater quantities of anthocyanin, so that the skin and flesh of its fruits are a deep purple color.

While dark-fleshed fruits such as blueberries and blackberries naturally produce high levels of anthocyanin, tomatoes offer potentially greater health benefits because they are consumed in larger quantities around the world. This spurred researchers at the John Innes



Panama disease can spread quickly in banana plantations like this one, causing yellowing of leaves and eventual death of the entire plant.



Tomatoes modified with snapdragon genes appear purple, thanks to increased levels of the plant pigment anthocyanin, which is an antioxidant also found in fruits such as blueberries.

Centre in Norwich, England, to engineer a tomato with similar levels of this antioxidant in 2008. Because of strict GM regulations in the United Kingdom, the first large-scale crop has just been harvested in Ontario, Canada, where GM regulations aren't as restrictive. The researchers will use the juice from these tomatoes to conduct further studies on the anticipated health benefits. A preliminary test on cancer-prone mice showed that those fed the GM tomatoes lived 30 percent longer than their counterparts. The higher levels of anthocyanin also appear to increase the shelf-life of the tomato fruits, a side effect that could prove a boon for the produce industry.

It will likely be several more years before the tomatoes reach consumers, given regulatory restrictions on—and public concern about—the introduction of genetically modified organisms into food in many countries. “Any new strains need to be evaluated to ensure they are safe,” says Diehl, “regardless of how they were generated.”

FREE PLANTS ENTICE STUDENTS TO PURSUE HORTICULTURE

At the North Carolina State University in Raleigh, free plants have proven an effective lure for recruiting students into horticultural programs. Initiated in the fall of 2012, the Floral Plant Give-Away Project (FPGAP) supplied approximate-

ly 700 ornamental plants to several student body groups, including undecided undergraduate students, members of the school's First Year College program, and students enrolled in introductory horticulture classes. Each plant bore a tag describing the variety and listing horticultural career options.

Students of the First Year College program were surveyed following the fall semester and the numbers speak for themselves. More than 40 students reported visiting the University Garden Center, 11 students signed up for a horticultural class in the semester following the giveaway, and nine students expressed an interest in becoming a horticultural science major.

These results were encouraging enough for the FPGAP to continue its plant giveaway in 2013, with results that appear equally successful to the first year. According to R. Lee Ivy, a lecturer in the Department of Horticultural Science at the university, “Students still reported benefits from having the plants and referred to our website, visited garden centers, and are considering taking a horticulture course or majoring in horticulture.”

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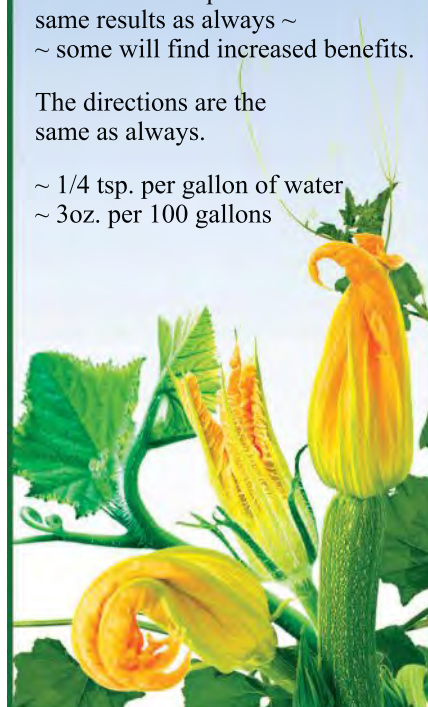
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PEOPLE and PLACES in the NEWS

Plantnapping at Kew Gardens

In early January, an extremely rare water lily known as *Nymphaea thermarum* disappeared from the Royal Botanical Gardens at Kew in the United Kingdom. The plant's tiny size may have facilitated its theft. The diminutive water lily's rosette



Thieves targeted this rare, miniature African water lily that is nearly extinct in its native habitat in Rwanda.

of leaves only reaches about eight inches in diameter, with each leaf measuring less than an inch in diameter. The flower is about the size of a thimble, with a yellow center surrounded by white petals.

This critically endangered water lily species was discovered in 1987 at a freshwater spring in Mashyuza, Rwanda, its only known location in the wild. Kew is one of only two places in the world that cultivates it; the Bonn Botanic Garden in Germany also maintains a small population. The plant requires specific environmental

conditions to survive, and even its seeds will germinate only in very specific temperatures as well as particular oxygen and carbon dioxide levels.

Because of the plant's rarity, Kew officials believe the plantnapper was a professional who planned the crime. The water lily was not within easy reach of the visiting public, but was in one of the few places in the conservatory not monitored by security cameras. The incident calls attention to the increasing problem of organized plant rustling; such rare plants can fetch impressive sums on the black market.

Recent Merger of Horticulture Industry Groups

After years of negotiation, the consolidation of two major American horticulture industry groups became official in January. The Association of Horticulture Professionals—better known as OFA—and the American Nursery and Landscape Association (ANLA) merged under a new name: AmericanHort. The new organization will have offices in both Columbus, Ohio, and Washington, D.C.

The consolidation of the two groups is viewed as a more efficient way to accomplish overlapping missions and programs for constituents, including nurseries, retail garden centers, florists, landscaping companies, and students. Laura Kunkle, director of membership & communications for AmericanHort, says the new organization will offer all the services of the former groups. “Coming together means taking the best of each organization’s programs and services to provide meaningful value to members and the industry,” says Kunkle.

The ANLA, with roots tracing back to the late 19th century, was a Washington, D.C.-based trade association representing green industry business professionals. The OFA, founded in 1929 by the Ohio State Florist Association, was an industry-focused educational organization that promoted commercial horticulture through various publications and conventions.

For more on the new organization, visit www.AmericanHort.org.

varieties with increased drought tolerance, higher yields, enhanced nutrition, and improved disease resistance. To better harness this potential, the U.S. Department of Agriculture’s (USDA) Agricultural Research Service (ARS) recently completed an inventory of the wild relatives of commercially important crops.

The inventory comprises 4,596 taxa that have either become naturalized following human introduction or are indigenous to North America, prioritized by their value to plant breeding. The research also helped identify “species that are vul-



Annual sunflowers are among crop plants improved by genes from wild relatives.

nerable because they are rare, endangered, or have not been collected and placed in gene banks,” says plant geneticist Stephanie Greene from ARS’s Plant Germplasm Introduction and Testing Research Unit worksite in Prosser, Washington. For example, Greene notes that species related to crop plants such as cotton, lettuce, plum, cranberry, and wild rice have only limited representation in U.S. gene banks.

In collaboration with other USDA agencies and international agricultural institutions, ARS will use the new inventory to focus collection and conservation efforts on the 250 species identified as high priority for preservation. For more information, visit www.ars.usda.gov.

News written by Editorial Intern Hunter Stanford with Associate Editor Viveka Neveln.



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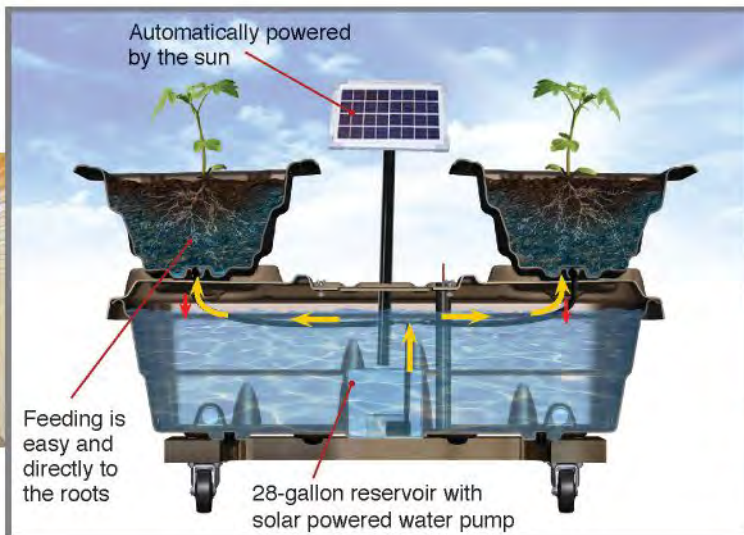
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Contributing editor Rita Pelczar reports on products she has found useful or innovative in her garden, with an emphasis on earth-friendly tools and supplies. Here she focuses on products for making spring garden chores easier.

Goodbye Winter—Hello Spring!

This winter has been intense, with several arctic-inspired storms that spanned the continent. But spring is on the way. Now's the time to make sure you've got the tools you will need to tackle the projects you've been planning all winter.

Some projects require extra height, and the **Hasegawa Tripod Ladder** can provide it—safely. Whether you are pruning trees or lofty hedges, constructing arbors and towering trellises,



or harvesting apples, cherries, or other tree fruit, you will appreciate this ladder's stability. It's an unusual design: a tripod with a wide, flared base. I'm not usually comfortable working on ladders, but the double-rung treads, the wide base, a broad platform, and clawed feet that grip the ground provide a comfortable security while working several feet off the ground.

The back leg is adjustable—it telescopes up to two feet to accommodate uneven terrain. Constructed of welded aluminum, it is very light—a 10-foot-tall ladder with a platform step weighs only 23 pounds. The ladder is available in heights from six to 12 feet from a number of farm and garden stores. For more information and a list of dealers, visit hasegawaladders.com.

If you haven't gotten into the composting habit, now is the time to start. Making compost from garden and kitchen wastes is recycling at its best. If you live in a rural environ-



ment, like I do, a large open compost bin makes sense; it holds a lot of material and can be placed where occasional critter guests will do no harm. If you live in an urban or suburban setting and you plan to compost kitchen scraps, a closed compost bin is a better bet because it keeps critters out. The **Dual-Batch Compost Tumbler** is a good option. It allows the waste in one bin to decompose as you fill the other bin with fresh material. The bins are made of recycled plastic and are supported by a steel frame. They can be easily turned to help mix the compost. Available from Gardener's Supply Company at www.gardeners.com.

There are lots of compost pails for collecting your kitchen scraps. I keep mine on the counter where it's most handy,



so an attractive appearance is important. The **Bamboo Compost Pail** (shown) from Planet Natural fills the bill, holding three liters of waste. It is equipped with a plastic liner that is easily removed to take scraps out to the bin and the lid holds a charcoal filter to reduce odor. Their **Stainless Steel Compost Pail** is slightly larger, holding a full gallon of waste. It too is equipped

with a charcoal filter—and comes with a spare—and it has a handle for easy carrying. Both pails are available from Planet Natural at www.planetnatural.com.

If you're a multitasker, you will appreciate the **Zippo 4-in-1 Woodsman**, a hatchet with a five-inch steel head and a sharp blade that cuts through roots and kindling with ease. A sheath is included to cover the blade when it's not in use. Reverse the hatchet and you have



a sturdy mallet, ready to hammer in stakes. Tucked away in the handle is a bow saw blade that can cut through four-inch logs. The hatchet sheath serves as a hand grip for the saw. Whether you are staking trees or camping out, this tool comes in very handy. www.zippo.com.



And if you just can't wait for spring and all those blooms that will grace your garden, add some instant color with some fanciful **Faucet Handle Flowers**. Hand painted in primary colors, they are sure to brighten your beds even if spring is late this year. Available from Gardener's Supply Company, www.gardeners.com.

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



REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

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

RAP THROUGH APR. 21. **The Orchid Show: Key West Contemporary.** The New York Botanical Garden. Bronx, New York. (718) 817-8700. www.nybg.org.

MAR. 27. **Fruit Tree Grafting.** Class. Garden Education Center of Greenwich. Cos Cob, Connecticut. (203) 869-9242. www.gecgreenwich.org.

APR. 3. **Organic Lawn Care.** Presentation. The Gardens at Elm Bank. Massachusetts Horticultural Society. Wellesley, Massachusetts. (617) 933-4973. www.masshort.org.

RAP APR. 16. **Propagating and Gardening with Mosses.** Workshop. Coastal Maine Botanical Gardens. Boothbay, Maine. (207) 633-4333. www.maine gardens.org.

APR. 29. **Daffodil Workshop.** North Hill Garden. Readsboro, Vermont. (802) 423-5444. www.northhillgarden.com.

Looking ahead

RAP MAY 10. **Plant Sale.** Merry Spring Nature Center. Camden, Maine. (207) 236-2239. www.merryspring.org.

MAY 17 & 18. **Great Plant Sale.** Buffalo Botanical Gardens. Buffalo, New York. (716) 827-1584. www.buffalogardens.com.

MID-ATLANTIC

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

RAP THROUGH APR. 27. **Orchid Symphony.** Exhibit. Smithsonian Gardens. Washington, DC. (202) 633-2220. www.gardens.si.edu.

RAP MAR. 26. **Grow it yourself (GIY) Workshop Series.** Class. Bartram's Garden. Philadelphia, Pennsylvania. (215) 729-5281. www.bartramsgarden.org.

APR. 10 & 11. **Battling Botanical Bullies.** Class. Maryland Native Plant Society. Silver Spring, Maryland. (301) 895-3686. www.mdflora.org.

APR. 12. **Garden & Landscape Symposium.** The Hillman Center for Performing Arts, Pittsburgh, Pennsylvania. (412) 968-3040. <http://extension.psu.edu/alleghe ny/events/landscape-symposium>.

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.

APR. 12. **Square Foot Organic Gardening.** Class. Duke Farms. Hillsborough Township, New Jersey. (908) 722-3700. www.dukefarms.org.

RAP APR. 25 & 26. **Garden Fair and Plant Sale.** U.S. National Arboretum. Washington, DC. (202) 544-8733. www.fona.org.

APR. 26–MAY 3. **Historic Garden Week.** State-wide Garden Tours. Garden Club of Virginia. Richmond, Virginia. (804) 644-7776. www.vagardenweek.org.

Looking ahead

MAY 17. **Unusual Tropicals and Plant Sale.** The Scott Arboretum of Swarthmore College. Swarthmore, Pennsylvania. (601) 328-8025. www.scottarboretum.org.

MAY 30–JUNE 1. **Triennial Garden Symposium.** Mount Vernon Estate and Garden. Mount Vernon, Virginia. (703) 780-2000. www.mountvernon.org.

SOUTHEAST

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

APR. 10 & 11. **Native Plant Show.** Osceola Heritage Park Exhibition Building. Florida Association of Native Nurseries. Kissimmee, Florida. (321) 917-1960. www.nativeplantshow.com.

RAP APR. 10–13. **Spring Plant Sale.** Birmingham Botanical Gardens. Birmingham, Alabama. (205) 414-3950. www.bbgardens.org.

APR. 12 & 13. **What's Out There Weekend.** Garden tours throughout Palm Beach and Miami Beach, Florida. (202) 483-0553. www.tclf.org/event/wotw-miami.

APR. 18 & 19. **Spring Plant Sale.** Charlotte Botanical Gardens. Charlotte, North Carolina. (704) 687-0720. www.gardens.uncc.edu.

RAP APR. 19 & 20. **Orchid and Bromeliad Show.** Flamingo Gardens. Davie, Florida. (954) 473-2955. www.flamingogardens.org.

RAP APR. 26–28. **Plant Sale & Garden Market.** Yew Dell Botanical Gardens. Crestwood, Kentucky. (502) 241-4788. www.yewdellgardens.org.

Looking ahead

RAP MAY 2 & 3. **Spring Plant Sale.** Aldridge Gardens. Hoover, Alabama. (205) 682-8019. www.aldridgegardens.com.

MAY 17. **Master Gardeners Plant Fair.** Lincoln Trail. Elizabethtown, Kentucky. (270) 765-4121. www.kyfestivals.com.

NORTH CENTRAL

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

RAP MAR. 27. **Creating a Garden of Four Season Interest.** Class. Boerner Botanical Gardens. Hales Corners, Wisconsin. (414) 525-5601. www.boernerbotanicalgardens.org.

RAP APR. 5. **Knock-out Roses.** Class. Tal-tree Arboretum & Gardens. Valparaiso, Indiana. (219) 462-0025. www.taltree.org.

APR. 19 & 20. **Daffodil Show.** Mill Creek Metro Parks. Canfield, Ohio. (330) 702-3000. www.millcreekmetroparks.org.

RAP APR. 26. **Edible Garden Workshop.** Class. The Morton Arboretum. Lisle, Illinois. (630) 968-0074. www.mortonarb.org.

RAP APR. 26. **Vegetable Gardening Basics.** Class. Chicago Botanic Garden. Glencoe, Illinois. (847) 835-5440. www.chicagobotanic.org.

Looking ahead

RAP MAY 3. **Spring Plant Sale.** Iowa Arboretum. Madrid, Iowa. (515) 795-3216. www.iowaarboretum.org.

RAP MAY 8–11. **Spring Garden Festival.** Greater Des Moines Botanical Garden. Des Moines, Iowa. (515) 323-6296. www.dmbotanicalgarden.com.

RAP MAY 10. **Michigan All-State Bonsai Show.** Frederik Meijer Gardens & Sculpture Park. Grand Rapids, Michigan. (888) 957-1579. www.meijergardens.org.

Swamp Creatures Invade San Francisco

“CHOMP 3: THEY CAME FROM THE SWAMP,” an exhibit featuring carnivorous plants from around the world, returns to the Conservatory of Flowers at Golden Gate Park in San Francisco, California, from April 11 to October 29. The popular show thrilled visitors of all ages in 2007 and 2010, and once again promises an exciting glimpse into how these fascinating plants attract, capture, and consume their prey. The hundreds of meat-eating plants on display will include pitcher plants, Venus flytraps, sundews, and butterworts. Larger models of



Venus flytraps will be among the plants on exhibit.

several species throughout the exhibit will also give visitors a bugs-eye-view of what these plants are capable of.

The Conservatory of Flowers participates in the American Horticultural Society's Reciprocal Admissions Program; visitors who live more than 90 miles from the conservatory showing a current AHS membership card receive free admission and parking. For more information, visit www.conservatoryofflowers.org or call (415) 831-2090.

Thanksgiving Point's 10th Annual Tulip Fest

THANKSGIVING POINT, a nonprofit farm, garden, and museum complex in Lehi, Utah, will hold its 10th annual Tulip Festival from April 18 to May 3. The only event of its kind in the intermountain region, this much-anticipated event boasts over a quarter-million tulips of nearly 100 different varieties, spread across 50 acres of themed gardens. The festival also includes gardening demonstrations, daily tours, a Dutch Day, live entertainment, and a tulip princess party.



Thousands of tulips herald spring at Thanksgiving Point.

The tulip displays, which are redesigned every year, take about seven months of planning and planting for the 16-day festival. The effort is worth it, drawing thousands of visitors from all over the world each spring. “Last year we had over 48,000 guests attend the event,” says Britnee Johnston, communications manager for Thanksgiving Point, noting that “our attendance grows by a few thousand each year.”

Visit www.thanksgivingpoint.org or call (801) 768-2300 for further details about the festival.

—Hunter Stanford, Editorial Intern

SOUTH CENTRAL

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

RAP MAR. 28–31. **Summer Bulb Sale.** Missouri Botanical Gardens. St. Louis, Missouri. (314) 577-5100. www.mobot.org.

RAP MAR. 29 & 30. **Spring Festival.** Event. Clark Gardens and Botanical Park. Weatherford, Texas. (940) 682-4856. www.clarkgardens.com.

APR. 2. **Spring Symposium.** New Orleans Botanical Gardens. New Orleans, Louisiana. (504) 483-9386. www.neworleanscitypark.com.

RAP APR. 5. **BIG BLOOM Plant Sale.** South Texas Botanical Gardens & Nature Center. Corpus Christi, Texas. (361) 852-2100. www.stxbot.org.

RAP APR. 10. **Louisiana Iris Day.** Celebration. Longue Vue House & Gardens. New Orleans, Louisiana. (504) 488-5488. www.longuevue.com.

RAP APR. 11 & 12. **Springfest Garden Market and Festival.** Tulsa Garden Center. Tulsa, Oklahoma. (918) 746-5125. www.tulsagardencenters.com.

RAP APR. 12 & 13. **Spring Plant Sale and Gardening Festival.** Lady Bird Johnson Wildflower Center. Austin, Texas. (512) 232-0200. www.wildflower.org.

APR. 15–20. **American Iris Society Convention.** Crowne Plaza Hotel and Resort. Dallas, Texas. (214) 352-2191. www.irises.org.

SOUTHWEST

AZ, NM, CO, UT

RAP APR. 5 & 6. **Spring Orchid Exhibit.** Red Butte Garden. Salt Lake City, Utah. (801) 585-0556. www.redbuttegarden.org.

APR. 12. **Ultimate Home and Garden Tour.** Tucson Botanical Gardens. Tucson, Arizona. (520) 326-9686. www.tucsonbotanical.org.

APR. 19. **How to Grow Healthy Fruit Trees.** Class. Conservation Garden Park. West Jordan, Utah. (801) 256-4400. www.conservationsgardenpark.org.

RAP APR. 23 & 30. **Vegetable Garden Design.** Class. Desert Botanical Garden. Phoenix, Arizona. (480) 941-1225. www.dbg.org.

Looking ahead

RAP MAY 9 & 10. **Plant Sale.** Denver Botanic Gardens. Denver, Colorado. (720) 865-3500. www.botanicgardens.org.

RAP MAY 10. **Spring Plant Sale.** Red Butte

Garden. Salt Lake City, Utah. (801) 585-0556. www.redbuttégarden.org.

RAP MAY. 10 & 11. **Spring Plant Sale.** The Gardens on Spring Creek. Fort Collins, Colorado. (907) 416-2486. www.fcgov.com/gardens.

RAP MAY 23 & 24. **Plant Sale.** Santa Fe Botanical Garden. Santa Fe, New Mexico. (505) 471-9103. www.santafebotanicalgarden.org.

NORTHWEST

AK, ID, MT, OR, WA, WY

MAR. 27. **Botanical Latin.** Class. Miller Botanical Garden. Northwest Horticultural Society. Seattle, Washington. (206) 780-8172. www.northwesthort.org.

APR. 8. **Species Rhododendrons.** Curator talk. University of Washington Botanic Gardens. Seattle, Washington. (206) 543-8616. <http://depts.washington.edu/uwb>.

RAP APR. 13. **Opening Day of the Nursery.** Event. Tizer Botanical Gardens & Arboretum. Jefferson City, Montana. (406) 933-8789. www.tizergardens.com.

APR. 18 & 19. **Spring Plant Sale.** Rhododendron Species Botanical Garden. Federal Way, Washington. (253) 838-4646. www.rhodygarden.org.

RAP APR. 19. **Leach Botanic Garden Plant Sale.** Floyd Light Middle School. Portland, Oregon. (503) 823-1671. www.leachgarden.org.

APR. 26 & 27. **Glide Wildflower Show.** Glide Community Center. Glide, Oregon. www.glidewildflowershow.org.

RAP MAY 2 & 3. **Spring Plant Sale.** Idaho Botanical Garden. Boise, Idaho. (208) 343-8649. www.idahobotanicalgarden.org.

Looking ahead

RAP MAY 20-JUNE 3. **Organic Food Gardening Course.** Class. Alaska Botanical Gardens. Anchorage, Alaska. (907) 770-3692. www.alaskabg.org.

WEST COAST

CA, NV, HI

RAP MAR. 29. **Tomatomania!** Seedling sale. Descanso Gardens. La Cañada Flintridge, California. (415) 949-4200. www.descansogardens.org.

APR. 5. **Native Plant Garden Tour.** Theodore Payne Foundation for Wild Flowers & Native Plants. Sun Valley, California. (818) 768-

1802. www.nativeplantgarden tour.org.

APR. 5. **Surf and Turf Garden Tour.** The San Diego Horticultural Society. San Diego, California. (619) 296-9215. www.sdhort.org.

APR. 5 & 6. **Spring Plant Sale.** Occidental Arts and Ecology Center. Occidental, California. (707) 874-1557. www.oaec.org.

RAP APR. 12 & 13. **Green Scene Plant and Garden Show.** Fullerton Arboretum. Fullerton, California. (657) 278-3407. www.fullertonarboretum.org.

RAP APR. 19. **Descanso Chrysanthemum Show and Plant Sale.** Los Angeles County Arboretum and Botanical Gardens. Los Angeles, California. (626) 821-3222. www.arboretum.org.

RAP APR. 25. **JRG Annual Bus Tour.** Japanese Friendship Garden. San Diego, California. (619) 232-2721. www.niwa.org.

RAP APR. 25. **Tree Pruning: The Art and Science Simplified.** Class. Lyon Arboretum. Honolulu, Hawaii. (808) 988-0456. www.hawaii.edu/lyonarboretum.

RAP APR. 26. **Día del Niño.** Event. Las Vegas Botanical Gardens at the Springs Preserve. Las Vegas, Nevada. (702) 822-7700. www.springspreserve.org.

RAP APR. 26. **Earth Day Plant Sale.** Quarry Hill Botanical Gardens. Glenn Ellen, California. (707) 996-3166. www.quarryhillbg.org.

Looking ahead

RAP MAY 2-JUNE 6. **Introduction to California's Plant Families.** Class. The Santa Barbara Botanical Gardens. Santa Barbara, California. (805) 682-4726. www.sbbg.org.

CANADA

RAP APR. 26. **Taming Wildflowers.** Hands-on lecture. Toronto Botanical Garden. Toronto, Ontario. (416) 397-1341. www.torontobotanicalgarden.ca.

APR. 27. **VanDusen Plant Sale.** VanDusen Botanical Garden. Vancouver, British Columbia. (604) 257-8668. www.vandusengarden.org.

Looking ahead

RAP MAY 7-11. **Auxiliary Plant Sale.** Royal Botanical Gardens. (905) 527-1158. Burlington, Ontario. www.rbg.ca.

RAP MAY 10. **Small Space Vegetable Gardening.** Class. Gardens at Horticulture Centre of the Pacific. Victoria, British Columbia. (250) 479-6162. www.hcp.ca.

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Bonnie Plants: Growing for Nearly a Century

by Hunter Stanford

AS CABIN FEVER reaches its peak around the country, gardeners are desperate for signs of spring. One that has become familiar to many gardeners is the appearance of the vegetable and herb plants sold in biodegradable pots under the distinctive green Tam o'Shanter logo of Bonnie Plants. The company sells more than 300 varieties of vegetables and herbs at 3,900 independent garden retailers and at most major retail chains across the United States.

The company is also the first to sponsor a national vegetable gardening initiative for kids. Through its Third Grade Cabbage Program, Bonnie Plants has delivered over 11 million cabbage plants to schools nationwide.

FROM HUMBLE ORIGINS

The company's founders, Bonnie and Livingston Paulk, were originally from southern Florida. Set back by an unusually hard freeze one year, they relocated to Union Springs, Alabama, where beginning in 1918 they found success growing and selling cabbages over the winter months. With each passing season, the company diversified its offerings and expanded its market. By the start of the 1940s, delivery routes encompassed 10 southern states.

GROWTH AND TRANSFORMATION

When current president Stan Cope, the grandson of Livingston and Bonnie Paulk, joined Bonnie Plants in 1967, most of the plants were still field grown. As a demand for



Top: Bonnie Plants president Stan Cope, right, examines seedlings with an employee. **Above:** 2013 Alabama Third Grade Cabbage Program winner Jackson Brown with his entry.



potted plants grew, the company began constructing greenhouses around the United States. As of 2012, more than 500 sales representatives deliver to all the lower 48 states and the Canadian provinces of Ontario and Quebec. Growing space at the company's original location in Alabama now occupies 42 acres, and at the peak of the growing season, Bonnie Plants employs about 3,000 employees at its locations nationwide.

Since 1997, the company's plants have been sold in signature biodegradable pots that can be planted directly into the

soil, reducing transplant shock. More important from the company's perspective, they eliminate the waste that stems from use of plastic pots, flats, and trays. Joan Casanova, a spokesperson for Bonnie Plants, estimates the company's use of biodegradable pots has kept millions of pounds of plastic out of landfills.

OF CABBAGES AND KIDS

The Bonnie Plants Third Grade Cabbage Program, which encourages children to grow their own plants, debuted in 1995 and is open to schools in the lower 48 states. Cabbage—specifically the O-S Cross hybrid—

was chosen because it was the plant that got Bonnie started in 1918. This variety produces giant heads that can weigh up to 50 pounds, making the process even more exciting for kids. "We're pleased and proud to provide our youth with this enjoyable and enriching opportunity to engage their interest in the art and joy of gardening," says Cope.

Each year, third-grade teachers can sign their classrooms up for the contest. Once students have nurtured their plants to maturity, each teacher picks a winner based on size and appearance, and submits a photo to Bonnie Plants. Each state's Agriculture Department then chooses a winner randomly from its entries to receive a \$1,000 scholarship from Bonnie Plants.

STILL GROWING GREEN

Always seeking ways to provide better service to customers, Bonnie Plants has recently established trial gardens in Alabama, New Hampshire, and Montana. By testing an array of plants in various climates and conditions, Bonnie is able to tailor the product line it offers to gardeners in different regions. 🌱

Hunter Stanford is an editorial intern with The American Gardener.

For more information about Bonnie Plants and how to enter the Third Grade Cabbage Program, visit www.bonnieplants.com.



Grow With Us



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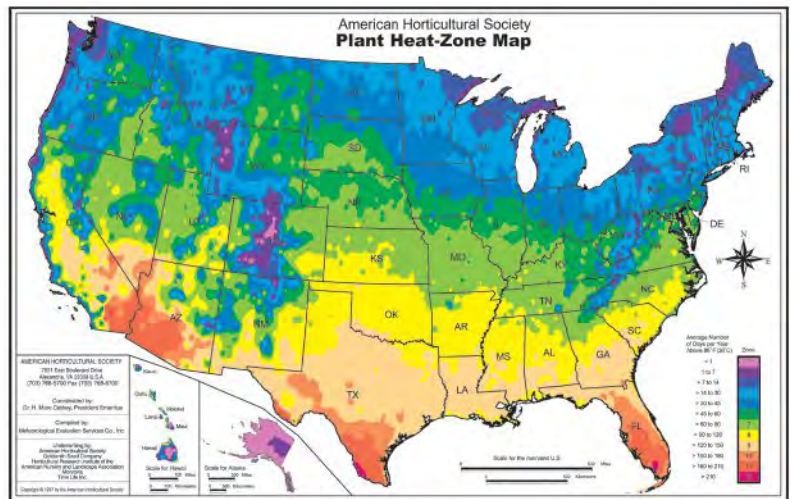
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PRONUNCIATIONS AND PLANTING ZONES

Most of the cultivated plants described in this issue are listed here with their pronunciations, USDA Plant Hardiness Zones, and AHS Plant Heat Zones. These zones suggest a range of locations where temperatures are appropriate—both in winter and summer—for growing each plant. USDA Zones listed are still aligned with the 1990 version of the USDA's map.

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



A–D

- Agave americana** uh-GAH-vee uh-mair-ih-KAN-uh (USDA Hardiness Zones 9–11, AHS Heat Zones 12–5)
- A. attenuata** A. uh-ten-yew-AY-tuh (9–11, 10–4)
- Aloe arborescens** AL-o ar-bo-RES-enz (8–10, 10–7)
- A. ferox** A. FEH-roks (7–10, 10–7)
- A. mudenensis** A. mew-DEN-en-sis (5–11, 9–5)
- A. × spinosissima** A. spih-no-SISS-ih-muh (9–11, 12–9)
- Artemisia ludoviciana** ar-teh-MEEZ-yuh loo-doh-vik-ee-AN-uh (4–9, 9–1)
- Asclepias curassavica** as-KLEE-pee-us kur-uh-SAV-ik-uh (9–11, 12–6)
- A. incarnata** A. in-kar-NAY-tuh (3–9, 9–2)
- A. lanceolata** A. lan-see-o-LAY-tuh (3–9, 9–1)
- A. syriaca** A. sih-rih-AY-kuh (3–8, 8–3)
- A. tuberosa** A. too-bur-O-suh (4–9, 9–2)
- Aster tataricus** ASS-tur tuh-TAR-rih-kus (3–9, 9–1)
- Asteromoea mongolica** ASS-tur-o-mee-ah mon-GOL-ik-ah (4–8, 8–1)
- Atropa belladonna** AT-ro-puh bel-luh-DON-uh (7–10, 10–6)
- Brachychiton rupestris** brak-ih-KITE-on roo-PES-triss (9–11, 10–8)
- Ceanothus americanus** see-uh-NO-thus uh-mair-ih-KAN-us (4–9, 8–4)
- C. caeruleus** C. see-ROO-lee-us (7–10, 9–2)
- C. × delilianus** C. deh-lih-lee-AN-us (7–9, 8–4)
- C. herbaceus** C. ur-BAY-see-us (5–9, 9–3)
- C. × pallidus** C. PAL-ih-dus (6–9, 8–5)
- C. parryi** C. PAIR-ee-eye (7–9, 9–6)
- C. thyrsiflorus var. griseus** C. theers-ih-FLOR-us var. GRIS-ee-us (8–10, 10–7)
- C. thyrsiflorus var. thyrsiflorus** C. theers-ih-FLOR-us var. theers-ih-FLOR-us (8–10, 10–7)
- C. velutinus** C. vel-oo-TEEN-us (7–10, 8–2)
- Ceiba speciosa** SHE-bah spee-see-O-suh (10–12, 11–8)
- Centaurea montana** sen-TAW-ree-uh mon-TAN-uh (3–9, 8–2)
- Clarkia amoena** KLARK-ee-uh a-MEE-nuh (0–0, 9–1)
- Dicentra eximia** dy-SEN-truh eks-ZIM-ee-uh (3–8, 9–1)
- Digitalis canariensis** dih-jih-TAL-iss kan-air-ee-EN-sis (9–11, 12–9)
- D. ferruginea** D. fair-oo-JIN-ee-uh (4–8, 8–1)
- D. grandiflora** D. gran-dih-FLOR-uh (3–8, 8–1)
- D. lutea** D. LEW-tee-uh (3–7, 7–1)
- D. × mertonensis** D. mur-ton-EN-sis (3–8, 8–1)
- D. obscura** D. ob-SKYUR-uh (5–8, 8–4)
- D. parviflora** D. par-vih-FLOR-uh (4–7, 7–4)
- D. purpurea** D. pur-PUR-ee-uh (4–8, 8–1)

E–Z

- Echeveria gibbiflora** etch-eh-VEER-ee-uh gib-eh-FLOR-uh (9–11, 10–8)
- Echinacea purpurea** ek-ih-NAY-see-uh pur-PUR-ee-uh (3–9, 9–1)
- Edgeworthia chrysantha** edj-WORTH-ee-uh krih-SAN-thuh (7–9, 9–6)
- Eschscholzia californica** es-SHOLTZ-zee-uh kal-ih-FORN-ih-kuh (0–0, 10–1)
- Eutrochium fistulosum** yoo-TROK-ee-um fis-tyew-LO-sum (3–9, 9–3)
- E. maculatum** E. mak-yew-LAY-tum (2–9, 9–3)
- Holodiscus discolor** hol-o-DIS-kus DIS-kul-ur (6–9, 7–2)
- Miscanthus sinensis** miz-KAN-thus sih-NEN-siss (5–9, 9–1)
- Panicum virgatum** PAN-ih-kum veer-GAY-tum (5–9, 9–1)
- Phyllostachys aurea** fil-lo-STAY-kiss AW-ree-uh (6–11, 12–6)
- Phlox maculata** FLOKS mak-yew-LAY-tuh (5–8, 8–1)
- P. paniculata** P. pan-ik-yew-LAY-tuh (4–8, 8–1)
- Pinus torreyana** PY-nus tor-ree-AN-uh (8–10, 9–6)
- Platycodon grandiflorus** plat-ee-KO-dun gran-dih-FLOR-us (4–9, 9–1)
- Otatea acuminata** o-TAY-tee-uh ak-yew-min-AY-tuh (9–11, 13–9)
- Ribes sanguineum** RY-beez san-GWIN-ee-um (6–8, 8–6)
- Rudbeckia nitida** rood-BEK-ee-uh NIT-ih-duh (3–7, 7–1)
- Salvia greggii** SAL-vee-uh GREG-ee-eye (7–9, 9–4)
- S. × jamensis** S. JAY-men-sis (7–9, 9–7)
- S. microphylla** S. my-kro-FIL-luh (9–11, 12–7)
- Saruma henryi** sar-OO-mah HEN-ree-eye (4–8, 8–3)
- Symphoricarpos alba** sim-fo-rih-KAR-poz AL-bah (3–7, 8–4)
- Symphotrichum novae-angliae** sim-fy-o-TRY-kum NO-vee-ANG-lee-ay (4–8, 8–1)
- S. novi-belgii** S. NO-vih-BEL-gee-eye (4–8, 8–1)
- Tabebuia impetiginosa** tah-be-BYEW-ee-uh im-peh-tih-jih-NO-suh (9–11, 12–9)
- Tulipa humilis** TOO-lip-uh HEW-mih-lis (4–8, 9–3)

Saruma henryi: The Intriguing History Behind its Name

by Paige Embry

THANKS TO 18th-century Swedish botanist Carl Linnaeus, all living organisms are precisely and uniquely identified with a two-part name composed of genus and species. Gardeners use these botanical names all the time, but we don't always find out the interesting history behind them.

HONORING A TAX COLLECTOR

Recently I learned the back story to the botanical name for upright wild ginger (*Saruma henryi*, USDA Hardiness Zones 4–8, AHS Heat Zones 8–3), a woodland plant in the arum family. It's closely related to the genus *Asarum*, although other than heart-shaped leaves, there's no great resemblance evident between plants in the two genera. But look closely at the two genus names and you'll notice that *Saruma* is an anagram formed by taking the "A" off the front of *Asarum* and adding it on the back end of the name.

The specific epithet, *henryi*, pays tribute to the plant's Western discoverer, Augustine Henry, an Irish medical officer for the Imperial Maritime Customs Service in China in the late 19th century.

The Service got its start in 1853 during the Taiping Rebellion, when local Chinese officials in Shanghai fled and, as a consequence, stopped collecting taxes. Treaties required the Europeans in Shanghai to pay taxes, so naturally they took over the job of collecting their own taxes, impressing the Chinese with their efficiency. When the rebellion ended in 1854, the Imperial Maritime Customs Service, a new branch of the Chinese government run primarily by the British, was created. Much of the early Western understanding of China came from those working in the Service, among them Augustine Henry.

As a medical officer, Henry was charged with collecting taxes on medicinal plants shipped down the Yangtze River. Entranced with the plants, Henry started



Upright wild ginger features light green leaves and pale yellow flowers starting in spring.

botanizing in his off hours and sending specimens back to the Royal Botanic Gardens at Kew in England. By the time Henry left China in 1900, he had sent nearly 16,000 herbarium specimens to Kew. Among them was *Saruma henryi*.

WOODLAND GEM

An herbaceous perennial, the shoots of upright wild ginger emerge a sumptuous velvety silver in spring, gradually opening

into large, heart-shaped leaves that glow pale green at maturity. The plant stands one to two feet tall and slowly forms a clump with an equal or slightly greater spread. Its small, three-petaled, medium-yellow flowers bloom just above the foliage starting in late spring and extending into summer. Where conditions are to its liking, it may self-sow.

In its native habitat in China, upright wild ginger grows in shady areas that receive regular moisture. In the cool, maritime Northwest where I live, it can take a surprising amount of drought, once established. But in regions with warmer summers, such as the Southeast, it prefers full shade and regular watering.

If you end up growing this little Asian jewel, remember the origin of its name and the strange story of how the British ended up running a Chinese agency in order to collect taxes on themselves.

Sources

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