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The Magazine of the American Horticultural Society

January / February 2017

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Photograph by Josh McCullough

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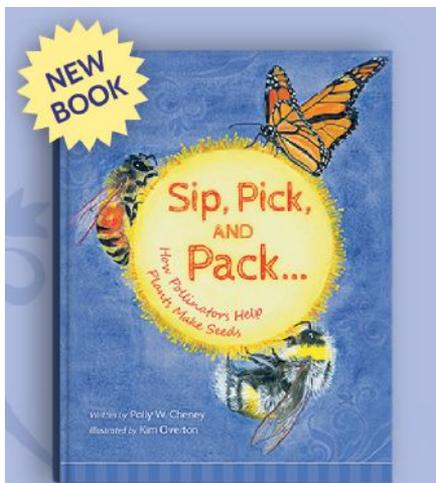
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NOTES FROM RIVER FARM

MANY THINGS signal that a new year is upon us. For me, one of the most tangible signs is replacing last year's calendar with a crisp new 2017 edition. I have a favorite calendar from the Virginia Outdoors Foundation that I seek out each year. Each month features a photo of a different property within the state that exemplifies the work the Foundation is doing to preserve open space. In addition to providing beautiful scenery, it reminds me of the important role that our River Farm headquarters plays in the protection and public enjoyment of scenic, green, open spaces. Incidentally, a portion of River Farm is, in fact, protected by an open space easement with the Virginia Outdoors Foundation that dates to the early years of the Society's ownership of the property in the 1970s.

I suspect that you may have a calendar of your own that has special meaning—perhaps serving as a reminder of something that is particularly important to you (like mine), perhaps evoking thoughts of other places or activities (maybe gardening or travel?) that you dream of, or even offering a bit of comic relief that brightens your day. Regardless of what sort of inspiration your calendar provides, it is hard to avoid opening the page to January without thinking of at least one New Year's resolution. With that in mind, I'm going to take this opportunity to offer a few suggestions for your consideration as you map out your goals and plans for 2017:



- If you don't already, make a commitment to volunteer your time and talent to a local gardening organization. You'll have the chance to meet some great people and you'll be making a real difference in your community.
- Make it a priority to cross some things off your garden "bucket list." Whether visiting an outstanding garden, attending an exceptional lecture or show, or taking the side trip to visit that specialty nursery you've always heard about, following your passion can bring immeasurable satisfaction.
- "Pay it forward" by taking the time to share your interest in plants and gardens with a young person. We hear countless stories of how people acquired their interest in gardening from a parent, grandparent, friend, or teacher. A few moments of your time can go a long way towards fostering values and interests that last a lifetime.
- Plant for pollinators, encourage good bugs, and reflect on all you do with an eye towards ratcheting up your commitment to sustainable environmental practices in your garden.
- Spend more time outside and in the garden. You'll not only get a lot done, but you'll feel better for having done it!

Whatever your resolutions may be, we'll do our best to help you stay on track with the information and inspiration you need. With that in mind, this issue of *The American Gardener* brims with features and stories to help kick start the new year. These include our annual roundup of new plants coming into the market in 2017, a special feature on the growing popularity of seed libraries, and some creative ideas on how to make big and bold perennials work for you.

Here's to a rewarding new gardening year!

Tom Underwood
Executive Director

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MEMBERS' FORUM

BANANAS GROW WELL IN VIRGINIA

I enjoyed the article about bananas in the July/August 2016 issue. I have been growing hardy bananas, including hardy Japanese fiber banana (*Musa basjoo*), for several years in my Chesapeake, Virginia, backyard. It even bloomed for me this



year, as you can see from the photo. I had also grown pink banana (*Musa velutina*) for about eight years until it succumbed during the especially bad winter of 2014.

*Lu Anne Copeland
Chesapeake, Virginia*

KUDOS

I've been a member of the AHS for several years now, and I want to compliment you on the improvements to the magazine. I like the information on public gardens, which I use when planning trips. I especially enjoyed the article on Riz Reyes (July/August 2016)—what a remarkable young man! And I like the “meaty” articles, which are written with the intent that plant geeks like me will truly use the information. In my home, *The American Gardener* is well read, thumbed through, and loaned out. Thank you for all the hard work and the wide scope of articles.

*Patricia McPheeters
Gothenburg, Nebraska*

MORE ON NATIVE PLANTS AND POLLINATORS, PLEASE

I would love for *The American Gardener* to include more articles about North American native plants and their relationships with native insects and pollina-

tors. Please resolve to have one article in each issue address native flora and their role in our gardens.

*Ellen Honeycutt
Woodstock, Georgia*

COMMON NAMES GET SUPPORT

Editor's note *We received several responses to the letter from Betty Stacey of McLean, Virginia, published in the November/December 2016 issue suggesting we no longer include common names of plants in the magazine.*

I read the letter questioning the value of using common names, and quite frankly it offended me. As a Master Gardener and an eternal student of all things natural and organic, I don't believe gardening should be restricted to an elitist group who only communicate using scientific nomenclature, but rather welcome people from all walks of life. I have encountered many people who have incredible horticultural expertise but who couldn't tell you the botanical names of the plants they grow. Knowing botanical names is great for classification and discussion in scholarly journals, but the bulk of gardeners use common names to refer to their favorites. Please keep giving us both.

*Steve Stephens
Beulah, Michigan*

The letter titled “No Common Names Please” broke my heart. It's difficult for me to understand the motivation for such a narrow attitude. For me, the name “pinks” instantly recalled my childhood. My aunt, who raised me, was a gardener, as was my father, and I could see pinks and smell their fragrance as I played in the side yard with my cat. While I always use scientific names to track down a particular plant from nurseries, common names are important to me, too. Common names often inform us about historical and cultural connections associated with plants and the people that grow them. It seems to me that getting too wrapped up in the scientific terminology can get in the way of the spirit of gardening.

*Kim Stephens
Knoxville, Tennessee*

I respect the letter writer's view on common names and agree that the botanical names of plants should always be included in gardening magazines. As someone interested in the many facets of gardening, however, I enjoy how common names sometimes reflect different uses of plants from one part of the country to another. While living in New Jersey for 20 years, I loved my mountain laurel (*Kalmia latifolia*)—as did the deer. Upon retirement and returning to Texas, I have discovered the unrelated but equally beautiful Texas mountain laurel (*Sophora secundiflora*), which I often see when traveling downstate. Few people here in Texas are familiar with the common name “pinks” for *Dianthus*, but I learned it in New Jersey and have fun using it here. From my perspective, more gardening fun and knowledge is always welcome.

*Bob Hatton
Amarillo, Texas*



CORRECTION

Several readers pointed out that in the November/December 2016 issue we misidentified the witchhazel in the photograph shown at the bottom of page 46 (and above). It is ‘Arnold's Promise’, a selection of *Hamamelis xintermedia*.

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



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

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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.ahsgardening.org.

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

WEBSITE: www.ahsgardening.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

January / February 2017

PROGRAMS • EVENTS • ANNOUNCEMENTS

NEW WEB ADDRESS FOR THE AHS

THE AMERICAN HORTICULTURAL SOCIETY (AHS) has begun transitioning to a new website address: www.ahsgardening.org. Until March 31, 2017, links to the old web address will redirect to this new one, but please change your bookmarks now.

This move is part of a long-term strategy to update and refresh the AHS's assets and branding leading up to the Society's 100th anniversary in 2022. "There are several organizations that have initials, or acronyms, similar to ours, so our new website address will help to differentiate us when people are searching online for gardening information," explains AHS Executive Director **Tom Underwood**. "Our new domain name is intended to more clearly indicate what we're all about."

Although the address has been changed, the AHS website itself remains the same, so visitors to www.ahsgardening.org will still find all the resources and other content available at the old address. AHS e-mail addresses are also changing accordingly.

AHS AND CORNELL REISSUE GUIDE TO KIDS' GARDENS

THE AHS AND the Garden-Based Learning Program at Cornell University in Ithaca, New York, have collaborated to update and make available a free online guide to starting gardening programs for children. Titled *Sowing the Seeds of Success: How to Start and Sustain a Kids' Gardening Project in Your Community*, the 160-page publication is designed to address "the increased interest in school and community garden projects and the troubling issues of food insecurity and nature deficit disorder," says **Fiona Doherty** of the School of Integrative Plant Science at Cornell.

Originally published in 1999, the guide has been updated and expanded with input from youth gardening experts around the country. As a downloadable online publication, it can be used by communities anywhere in North America and around the world. The guide includes sections designed for different audiences, along with relevant activities, program tools, and links to additional resources.

By promoting effective engagement through a variety of community programs, Doherty sees the guide as a resource for empowering youth with the confidence and "skills to become our next generation of environmental stewards."

To view or download the guide, visit www.gardening.cals.cornell.edu.

2017 MEMBER SEED EXCHANGE

AS LAST YEAR came to a close, packages filled with seeds of all shapes and sizes flooded in from AHS members for the 2017 AHS Seed Exchange.



Combined with the seeds donated by seed companies, there are more than 100 varieties of annuals, perennials, vines, shrubs, trees, vegetables, and herbs available this year. The list of these seeds and an order form is available on pages 57 to 59 of this issue; for full descriptions of the seeds and to order online, visit www.ahsgardening.org/seeds. A number of the seed varieties are available only in

limited quantities, so ordering early is recommended. Those who donated seeds to this year's exchange get first pick until February 18; the final deadline to order is March 4.

GET INVOLVED WITH AMERICA IN BLOOM

COMMUNITIES ACROSS the country have until February 28 to register for the 16th annual America in Bloom (AIB) competition. This friendly contest allows participants to showcase their beautification and environmental efforts for a national audience.



Flowers brighten a commercial area in AIB participating town of Ottawa, Illinois.

Two AIB judges visit each participating community to rate them in a variety of categories ranging from floral displays to heritage preservation, urban forestry, and environmental efforts. Awards are given in 10 categories based on population. Cities, towns, townships, universities, business districts, military bases, and city boroughs are eligible. An AIB startup kit helps guide participants who are just beginning to reinvision their landscapes. Previous registrants have praised AIB as the most cost-effective way to get in-depth, expert comments on their efforts, and for offering the rare opportunity to meet with dozens of other communities to exchange ideas. The AHS is a longtime supporter of the AIB program and sponsors the organization's Community Involvement Award.

For more information, go to www.americainbloom.org.

GREAT GARDENS AND LANDSCAPING SYMPOSIUM

THE AHS is once again co-sponsor of the Great Gardens and Landscaping Symposium, slated for April 22 at the Woodstock Inn & Resort in Woodstock, Vermont.



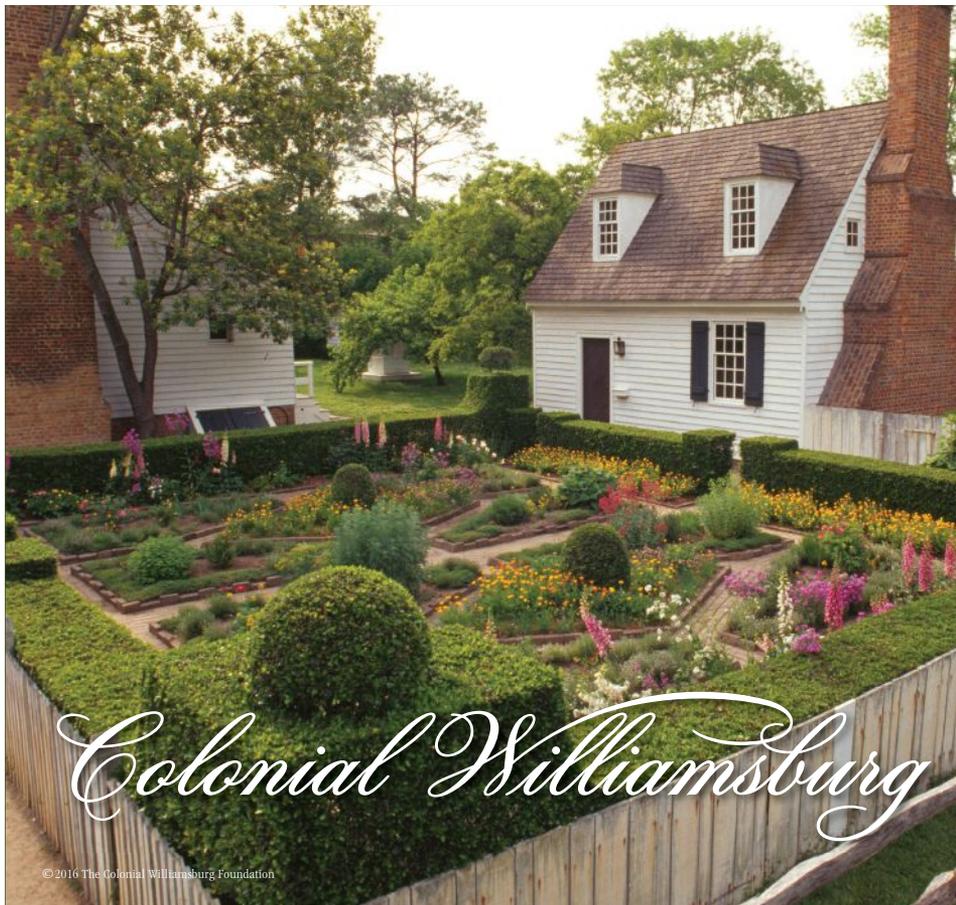
Speakers include garden designer and author **Kerry Ann Mendez**, foodscaping expert **Brienne Gluvna Arthur**, horticulturist

Featured speakers at the symposium include foodscaping expert Brienne Gluvna Arthur, top left, and garden designer Kerry Ann Mendez, bottom left.



Andy Brand, and **Laura Mumaw Palmer** of the Garden Conservancy. For those looking to make a weekend of it, an optional Flower Gardening Class hosted by Mendez will be held the afternoon of Friday, April 21. There's a separate fee for this three-hour class.

Early registration is encouraged. "The 2016 symposium sold out three months before its start date," says Mendez, who organizes the event. For more information about the symposium and flower gardening class, visit <http://pyours.com/symposium>.



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AHS NATIONAL EVENTS CALENDAR

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

APR. 4–17. **Springtime in Japan: Inspiring Gardens & Landscapes.** AHS Travel Study Program.

APR. 21 & 22. **Spring Garden Market.** River Farm, Alexandria, VA.

APR. 22. **Great Gardens and Landscaping Symposium.** Woodstock, VT. (AHS partner event.)

APR. 22–29. **Historic Garden Week in Virginia.** (AHS partner event.)

APR. 29 & 30. **Colonial Williamsburg Garden Symposium.** Williamsburg, VA. (AHS partner event.)

MAY 16–25. **Gardens of Southern Scotland.** AHS Travel Study Program.

JUNE 8. **Great American Gardeners and AHS Book Awards Ceremony.** River Farm, Alexandria, VA.

JUNE 26–30. **AHS President's Council Trip to Connecticut Gardens: Litchfield Hills and Points East.**



JULY 12–15. **National Children & Youth Garden Symposium.**

Portland, OR.

SEPT. 5–15. **Gardens of Genoa, the Italian Riviera & Florence.**

AHS Travel Study Program.

SEPT. 23. **AHS Annual Gala.** River Farm, Alexandria, VA.

OCT. 30–NOV. 8. **Gardens of Argentina: Buenos Aires, Mendoza & Salta** (with optional post-tour to Iguaza Falls, Nov. 8–10).

AHS Travel Study Program.

2018

JAN. *TBD*. **Gardens, Wine & Wilderness: A Tour of New Zealand.** AHS Travel Study Program.

Gifts of Note

In addition to vital support through membership dues, the American Horticultural Society relies on grants, bequests, and other gifts to support its programs. We would like to thank the following donors for gifts received between November 1 to December 23, 2016.

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Ms. Mary A. Lambert	Mr. and Mrs. Klaus Zech
Mr. and Mrs. Neil Morris	

In honor of Carley Brabant
Ms. Sally McGuire

In memory of Wanda Brechbubler
Ms. Kittie B. Clarke

In memory of Raymond Bunch
Ms. Elizabeth K. Smith

In memory of Fay Edwards
Dr. Robert Simmons

In memory of Henrietta Harrison
Ms. Anne Pistell
Mr. Gene Rintels
Mrs. Wendy Schelin

In memory of Howard Tucker
Mr. Michael Dunn
Mr. and Mrs. Donald Ledwig
Ms. Caroline H. Norman
Mr. and Mrs. Tom Underwood
Ms. Katy Moss Warner

If you would like to support the American Horticultural Society as part of your estate planning, as a tribute to a loved one, or as part of your annual charitable giving plan, please call Susan Klejst, Director of Development & Engagement, at (703) 768-5700 ext. 127.

SPRING GARDEN MARKET

IT MAY STILL be winter, but it's not too early to save the date for the AHS's annual Spring Garden Market, April 21 and 22. Held at the AHS's River Farm headquarters in Alexandria, Virginia, this event features vendors from across the mid-Atlantic region offering an array of plants and garden-related products.

Current AHS members will get first dibs on purchasing plants during the members-only preview on the morning of April 21 from 10 a.m. until noon. Then the event opens to the general public until 4 p.m. and again on the 22nd from 10 a.m. to 4 p.m. Parking is free for AHS members and \$5 for non-members. Visit www.ahsgardening.org for details.

COLONIAL WILLIAMSBURG GARDEN SYMPOSIUM

ANOTHER SPRING event the AHS is co-sponsoring is the 71st annual Colonial Williamsburg Garden Symposium, from April 28 to 30 in Williamsburg, Virginia. This year's symposium, titled "Small Spaces, Great Rewards," focuses on design for small garden areas.

The symposium overlaps with Historic Garden Week in Virginia (April 22–29), offering attendees an opportunity to tour private Williamsburg gardens that exemplify ideas from the symposium. AHS members are eligible for a discounted registration fee. Please visit www.history.org for more information.

Written by AHS staff.



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More information coming soon:

GARDENS, WINE & WILDERNESS: A TOUR OF NEW ZEALAND

January 2018

hosted by Panayoti Kelaidis

For more information about the AHS Travel Study Program

visit www.ahsgardening.org/travel, e-mail development@ahsgardening.org, or contact Susan Klejst at (703) 768-5700 ext. 127.

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."



A close-up photograph of several purple petunia flowers with white speckles, known as 'Night Sky' petunia. The flowers are in full bloom and surrounded by green foliage.

'Night Sky' petunia

New Plants for 2017

BY CHARLOTTE GERMANE

Representing a range of regions, those who shared their plant trial feedback include:

Mark Dwyer, Director of Horticulture at Rotary Botanical Gardens (Janesville, WI); **Denny Schrock**, lecturer and Master Gardener Coordinator at Iowa State University (Des Moines); **Susan Morrison**, garden designer and author (Concord, CA); **Irvin Etienne**, Horticultural Display Coordinator, Indianapolis Museum of Art, IN; **Kevin Vaughn**, retired USDA cell biologist, author and plant breeder (Salem, OR); **Kylee Baumle**, garden author (Haviland, OH); **Leslie Bennett** and **Holly Kuljian**, edible landscape designers (Oakland, CA); **Stephanie Cohen**, garden writer and horticulture professor (Collegeville, PA); **Rebecca Sweet**, garden designer and author (Los Altos, CA); **Shawna Coronado**, garden author (Warrenville, IL); **Nan Sterman**, garden writer and television host (Encinitas, CA); and **Susan Martin**, garden writer and speaker (Holland, MI).

Special thanks for their overview of the new plants to **Kelly Norris**, director of horticulture, Greater Des Moines Botanical Garden, and **Maria Zampini**, president of UpShoot, LLC.

NURSERIES AND plant companies pump out new introductions every year with much fanfare. Here's a look at the ones for 2017 that have garnered national awards or high praise from the horticulturists and garden communicators (see box, below left) who've had a chance to trial these plants in advance of their release.

This year many gardeners are especially motivated to create gardens not just for their own pleasure, but to support bees, butterflies, and other pollinators. Regionally native plants are sometimes the only food source for pollinators. New cultivars of these plants can also be reliable food sources if the flower structure is similar enough to the species. This year we're spotlighting some of the newest cultivars of native plants that will still support pollinators. These "nativars" have a special mark 🌸 to help them stand out.

There's something for every gardener here, whether you're replacing a lawn, seeking a better tomato, scouting the latest petunia, or looking for a shrub with wildlife value. You'll find photos of all these plants on our Pinterest board (*New Plants for 2017* www.pinterest.com/ambortsociety). Visit our Facebook page at www.facebook.com/americanhorticulturalsociety and tell us which plants most intrigue you.

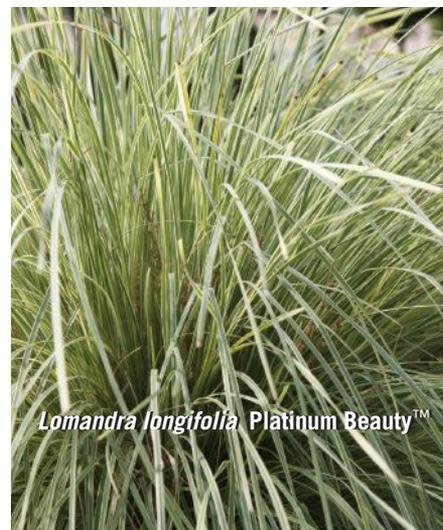
Charlotte Germane is digital communications manager for the American Horticultural Society.

ANNUALS & TENDER PERENNIALS

If your summers bring hot days and cool nights, consider the splashy new *Petunia* 'Night Sky' (above). The first petunia with a speckled pattern, each violet petal has a unique design of white "stars." Winner of the FleuroStar award, 'Night Sky' can reach one-and-a-half feet tall and three feet wide. In regions with hot summer nights, the petals may turn solid violet. USDA Hardiness Zones 0–0, AHS Heat Zones 10–1. Selecta.

Growing two to three feet tall and wide, *Lomandra longifolia* is a grasslike, clump-forming herbaceous perennial. **Platinum Beauty™** ('Roma13') is the first green-and-white selection in this genus that Nan Sterman describes as "evergreen, bulletproof, drought tolerant, sun tolerant,

and absolutely beautiful in arid gardens." Rebecca Sweet notes, "Like many variegated plants, Platinum Beauty appreciates a bit of afternoon shade." Zones 8–10, 10–7. Sunset Western Garden Collection, Southern Living Plant Collection.



All photos are courtesy of the sources listed with the plant descriptions.

Lovers of large tropicals will appreciate ***Colocasia 'Fierce Gigante'***, a taro with the added benefit of ornamental flowers. Irvin Etienne reports that of the 10 or so *Colocasia* cultivars he grew, this was his favorite.



While he was impressed by the gray-green foliage highlighted with purple petioles, he describes the large creamy flowers on purple stalks as “stunning beyond measure.” Zones 8–11, 12–1. Plants Nouveau.

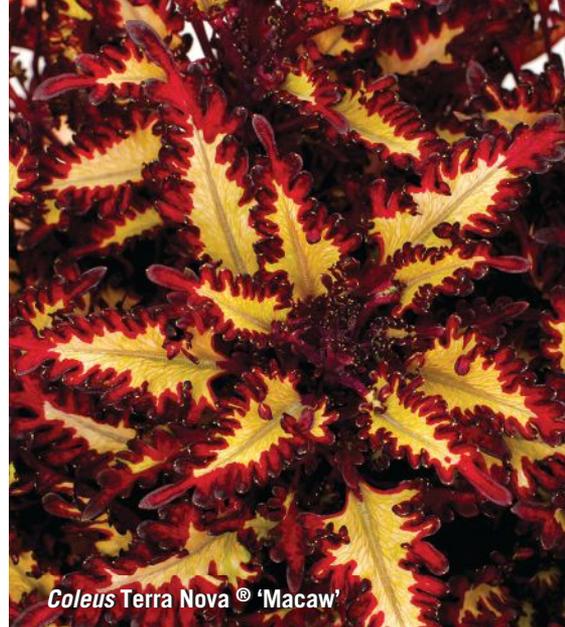
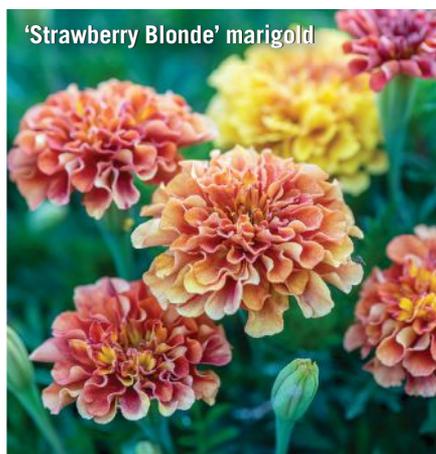
The rich red blooms of **'Ruby Velvet'**, a new selection of the Australian native kangaroo paw (*Anigozanthos* sp.) are drawing rave reviews. Leslie Bennett and Holly Kuljian “absolutely love this plant because the leaves are broad, so the foliage has enough structural form to hold the space even when the plant is not flowering.” This tender evergreen perennial forms clumps of swordlike foliage two feet tall and about as wide. It extends to four feet in summer



when the tubular red flowers open on spikes above the foliage. Susan Morrison suggests temperate zone gardeners try this fast-growing, prolific-bloomer in containers or as a summer bedding plant. Zones 9b–11, 12–1. Tuffy™ Plants.

Tagetes patula 'Strawberry Blonde' offers flowers in a surprising—for marigolds—mix of shades from pink to red. Mark Dwyer found this pollinator-attracting plant to be “heat tolerant and heavy flowering until frost” with a mounding habit up to 10 inches tall. He adds, “The flowers bud out dark red but open to shades of orange, apricot, and hints of pink.” The pink colors are more pronounced in regions with cooler climates. Zones 0–0, 10–1. W. Atlee Burpee & Co.

Coleus Terra Nova® 'Macaw' has narrow, lobed leaves that offer bold color contrast with dark maroon edges and cream-



colored centers on its narrow, lobed leaves. Growing no larger than a foot wide and tall, its compact, mounded habit makes 'Macaw' ideal for small containers in full or part shade. Zones 10–11, 11–1. Terra Nova Nurseries.

More annuals and tender perennials

■ The dwarf three- to four-foot-tall **Egyptian papyrus (*Cyperus papyrus*) Prince Tut™** is suited for tight spaces. Denny Schrock grew it in a container placed in his small water garden. “There’s no need to water it as long as the pond is filled, and its compact size was the perfect scale for my smaller water feature,” he says. Zones 10–11, 11–1. Proven Winners.

■ If you need a two-foot swathe of pink in your annual beds or hanging baskets, try the All-America Selections (AAS) national award winner ***Verbena peruviana* Endurascap™ 'Pink Bicolor'**. Mark Dwyer commended this new addition to the heat-, cold-, and drought-tolerant Endurascap series for “excellent flower coverage with superb heat tolerance and a long period of bloom.” Zones 7–10, 11–1. Ball Seed.

■ True, never-fading red was what captivated the judges who gave an AAS national award to ***Zinnia 'Profusion Red'***. Shawna Coronado was likewise impressed when she grew the 14-inch mounding zinnia at home. “It’s a spectacular showy plant all summer long,” she says. “Pollinator-attracting with edible petals, this zinnia has multiple uses and was truly disease resistant as well. It was a surprising delight in the garden.” Zones 0–0, 11–1. Sakata Ornamentals.

PERENNIALS

Gold Nugget™, the newest of the hens-and-chicks in the **Sempervivum Chick Charms®** series, features five-inch rosettes that light up the winter garden in gold with red edges, change to green in summer, and return to red in fall. Stephanie Cohen grew several in troughs and admired the colorful display. Noting the disappointing performance of previous gold or yellow succulent selections, Kevin Vaughn says Gold Nugget™ is “wonderful in the landscape and contrasts beautifully with purple cultivars.” Zones 3–9, 9–1. Garden Solutions.



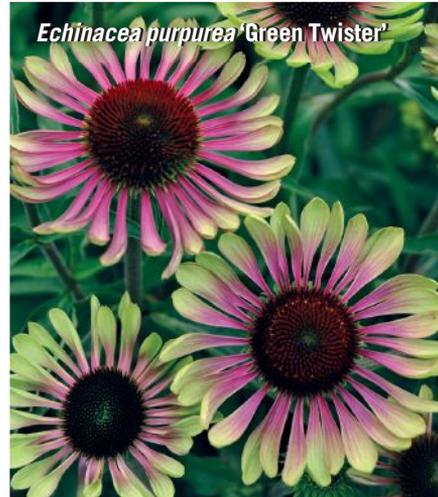
Sempervivum Gold Nugget™



Heuchera Primo™ 'Black Pearl'

Billed as the darkest-ever selection of coral bells, **Heuchera Primo™ 'Black Pearl'** also got kudos for heat tolerance. “Light ruffling on the leaves exposes a showy maroon underside as well,” says Mark Dwyer. It grows 20 inches tall and 30 inches wide, with pink flowers. “Its leaves stayed perfect right up through frost, and even then, it was obvious that it was going to take a hard freeze to stop the show,” says Kylee Baumle, who calls ‘Black Pearl’ the best black heuchera she has ever grown. Zones 4–9, 9–1. Proven Winners.

✿ **Echinacea purpurea 'Green Twister'** features ray petals that are pale green at the ends bleeding into carmine-red in the center around a bronze to brown cone. It grows to just over three feet tall on sturdy stems that sometimes have a burgundy hue. Although most green-flowered coneflowers have not lived up to expectations, the hybridizer reports ‘Green Twister’ has come through extensive trials. Zones 4–9, 9–1. Jelitto Perennial Seeds.



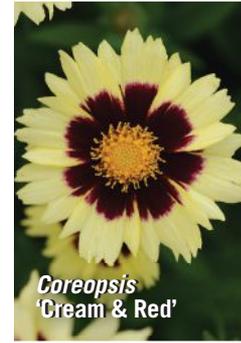
Echinacea purpurea 'Green Twister'

✿ **'Blackhawks'**, a dark-foliaged selection of **big bluestem (Andropogon gerardii)**, is exciting shooting out of a container or adding movement to a landscape. Mark Dwyer appreciated the “dark maroon fall coloration” on this upright grass, which grows two feet wide and up to six feet tall and is tolerant of moist and dry sites. Zones 4–10, 10–1. Intrinsic Perennial Gardens.



Andropogon gerardii 'Blackhawks'

✿ Bigger flowers and longer periods of bloom are hallmarks of the new **Coreopsis Uptick™** series. Mark Dwyer particularly liked the **'Cream & Red'** selection of this hybrid tickseed for its “nice, bicolor look as the dark maroon center transitions to creamy petals.” This plant has a mounding habit and grows at least a foot tall and wide. Zones 5–9, 9–1. Darwin Perennials.



Coreopsis 'Cream & Red'

More perennials

✿ **'Storm Cloud' bluestar (Amsonia tabernaemontana)** has dark stems covered in late spring with periwinkle-blue flowers. The narrow foliage turns yellow in fall. This tough, adaptable selection grows two to three feet tall with a slightly broader spread. It tolerates part shade and moist or dry sites. Zones 4–9, 9–3. Proven Winners.

✿ Winner of a regional prize from AAS (Heartland and Southeast), **Penstemon barbatus 'Twizzle Purple'** offers a novel deep purple flower color. The AAS judges praised the three-foot plant's upright habit and its continuous bloom from mid-to late summer, which attracted diverse pollinators. Zones 4–9, 9–2. Van Hemert & Co. Seeds.



'Patio Choice Yellow' cherry tomato

EDIBLES

'Patio Choice Yellow' cherry tomato (*Solanum lycopersicum*) earned a national award from the AAS. Lauded for its compact 18-inch vines, abundant yellow fruits, and sweet flavor, this F₁ hybrid is a good candidate for containers or hanging baskets. Zones 0–0, 10–1. Seeds By Design.

The four-inch heads of 'Katarina' cabbage (*Brassica oleracea*) are ready to harvest one to three weeks earlier than other cabbages. Denny Schrock says that when he harvested the heads properly, leaving the bottom



'Katarina' cabbage

leaves on the plants, "in all cases I got regrowth of three to four even smaller heads for a second round of harvest." The sweet flavor was another factor in this F₁ hybrid winning a national award from the AAS. Zones 0–0, 8–1. Bejo Seeds.

The first strawberry (*Fragaria xananassa*) to win an AAS national award, **Delizz**® is a good choice for containers. It's day neutral, which means it produces throughout the summer. "Although the fruits aren't huge, they are a nice size and quite flavorful," says Denny Schrock, who was still harvesting berries in his USDA Zone 5 Iowa garden in early December. Each plant can grow to two feet tall and wide. Zones 3–8, 8–1. ABZ Seeds.



Delizz® strawberry



'Ghost' apple

'Ghost', developed by the Zaiger family of California with traditional hybridizing methods, is a sweet, sub-acid apple that has completely white skin and flesh. To grow this semi-dwarf tree (which can be kept to 12 to 15 feet tall) you need a climate with 500 chill hours and a compatible apple tree as a mid-season pollinizer. 'Ghost' apples ripen rapidly for a very early harvest. Zones not yet available. Dave Wilson Nursery.

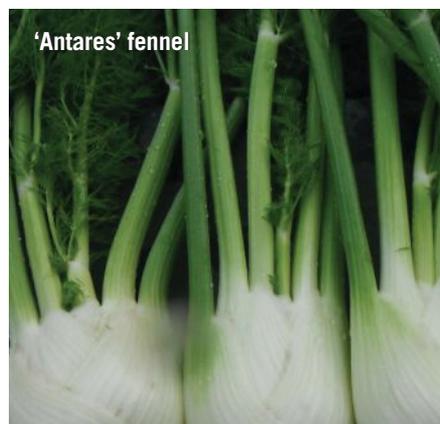
Baby Cakes™ blackberry (*Rubus* sp.) is a dwarf, thornless blackberry bush bred by the University of Arkansas. It was awarded the Farwest Best in Show prize. Growing no larger than three to four feet tall and



Baby Cakes blackberry

wide, it is suitable for a container or in a garden bed. Baby Cakes does require at least 400 chill hours, and two summer crops are possible in cool climates. Zones 4–8, 8–1. Bailey Nurseries, Inc.

Winner of an AAS national award, 'Antares' fennel (*Foeniculum vulgare*) grows to two feet tall, producing five inch bulbs that were judged to have a superior, noticeably sweet flavor. A biennial or short-lived perennial, this F₁ hybrid has ornamental and edible airy foliage and flowers, and is a food source for swallowtail caterpillars. Zones 4–9, 9–1. Bejo Seeds.



'Antares' fennel

More edibles

'Prizm' kale (*Brassica oleracea*) received a national AAS award for its combination of flavor and ornamental appeal. Kylee Baumle grew the F₁ hybrid as a container ornamental for its "ruffled foliage that took on a characteristic blue tint" and ended up enjoying the sweet flavor of this 15-inch-tall kale. Mark Dwyer agrees that 'Prizm' has "excellent color and texture" suitable for

a “wide range of culinary uses but also a true ornamental edible.” Zones 0–0, 8–1. Syngenta Vegetable Seeds.

If your tomatoes have suffered from late blight in recent years, try ‘**Damsel**’. This compact F₁ hybrid produces pink fruits similar in flavor to the heirloom ‘Brandywine’ and is reported to be resistant to late blight, verticillium wilt, and nematodes. Zones 0–0, 10–1. Johnny’s Selected Seeds.

The AAS judges hope that their national award to ‘**Konan**’ kohlrabi will encourage more gardeners to try this crisp, mild-tasting vegetable. The upright leaves of this F₁ hybrid resist insect damage. “It was early to bear, and held up well in the garden, never becoming woody as is so often the case with oversized kohlrabi,” observes Denny Schrock. Zones 0–0, 8–1. Bejo Seeds.

SHRUBS & TREES

‘**Marvel**’ mahonia (*Mahonia eurybracteata*) is a kinder, gentler selection with almost no spines on its compound, evergreen leaves. It grows up to six feet tall and four feet wide with an upright habit. Arching sprays of fragrant yellow flowers bloom in fall to



‘Marvel’ mahonia

early winter; these are succeeded in spring to early summer by attractive clusters of dark blue fruits that have a powdery white coating. Grow in part to full shade. Zones 6–9, 9–6. Southern Living Plant Collection, Sunset Western Garden Collection.

Fans of prickly Lady Violet may covet her namesake rose from the popular Downton Abbey® Garden Rose Collection. **Violet’s Pride™** (*Rosa floribunda*) boasts



Violet’s Pride™ rose

lavender flowers with magenta hearts and a spicy grapefruit fragrance on a rounded, medium-sized bush with dense foliage. Fungal disease resistance is reported to be very good. Zones 5–8, 8–1. Weeks Roses.

🌸 Mark Dwyer praises **Fiber Optics™** (‘Baioplastics’), a compact selection of the eastern native **buttonbush** (*Cephalanthus occidentalis*) for its “beautiful fragrant summer flowers,” which attract a variety of pollinators. Denny Schrock says its adaptability to both wet and dry soils makes it a good candidate for rain gardens. It grows to five feet tall and wide. Zones 4–9, 9–3. Bailey Nurseries, Inc.

North Wind® maple (*Acer ×pseudo-sieboldianum*) is the first introduction

in the Jack Frost® collection, a series of crosses between Korean and Japanese maples designed to enhance hardiness of the elegant Japanese maple. Colorful foliage changes with the seasons from springtime red, to summer green, and finally reddish orange in autumn. The tree grows a foot a year and will reach 20 feet tall and 15 feet wide. Zones 4–9, 9–4. Iseli Nursery.

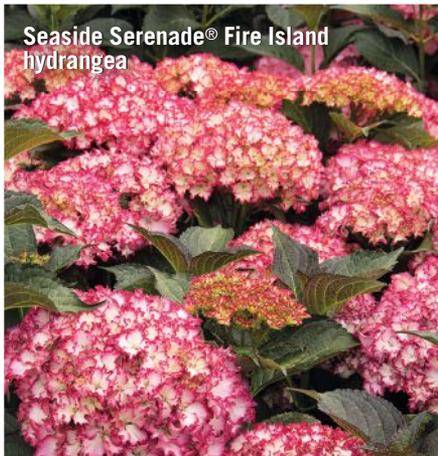
Seaside Serenade® Fire Island hydrangea (*Hydrangea macrophylla*) is a mophead selection that produces white flowers edged in pink or blue (depending on soil pH) in spring with repeat blooms in summer. This quick-growing compact shrub reaches about three-and-a-half feet tall and three feet wide. Zones 5–9, 9–6. Monrovia.



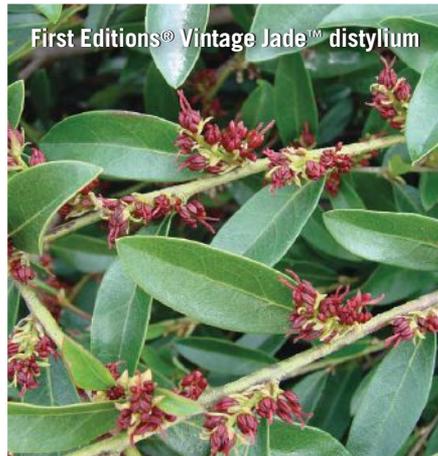
Fiber Optics™ buttonbush



North Wind® maple



Seaside Serenade® Fire Island hydrangea



First Editions® Vintage Jade™ distylium

First Editions® Vintage Jade™ Distylium is the newest selection in this line of evergreen shrubs. Native to China, this four-by-four-foot shrub is a good substitute for boxwood that can take wet or dry soil, sun or part shade. It's reported to be heat tolerant and low maintenance. Small red flowers in winter are a bonus. Zones 7–9, 9–6. Bailey Nurseries, Inc.

More shrubs and trees

First Editions® Sunset Magic™ crape myrtle (*Lagerstroemia* sp.) was hybridized by woody plant expert Michael Dirr and others from the University of Georgia. Winner of an honorable mention at Farwest in 2016, this selection reportedly blooms more heavily than other red-flowered selections with dark foliage. Its purple-black leaves maintain their color all summer. It grows quickly to five to 10 feet tall and four to eight feet wide. Zones 7–9, 9–6. Bailey Nurseries, Inc.

Cherry Berries™ wintergreen or teaberry (*Gaultheria procumbens* 'GaulSid5') won an honorable mention at the Farwest Show. This evergreen groundcover native to eastern North America and the Upper Midwest has attractive foliage that turns red in winter. This selection is notable for its large red winter berries, which are ornamental and edible. The six- to 10-inch-tall plant will spread to three feet in part to full shade. Zones 3–8, 8–3. Raintree Nursery.

British rose breeder David Austin claims **'Desdemona'** is his best white English rose to date. Growing to about five feet tall and three feet wide, this shrub rose produces fragrant white flowers with pinkish overtones and is a repeat bloomer from late spring through frost. In trials, 'Desdemona' performed well in both hot and dry and hot and humid climates. Zones 5–10, 10–1. David Austin Roses Limited.

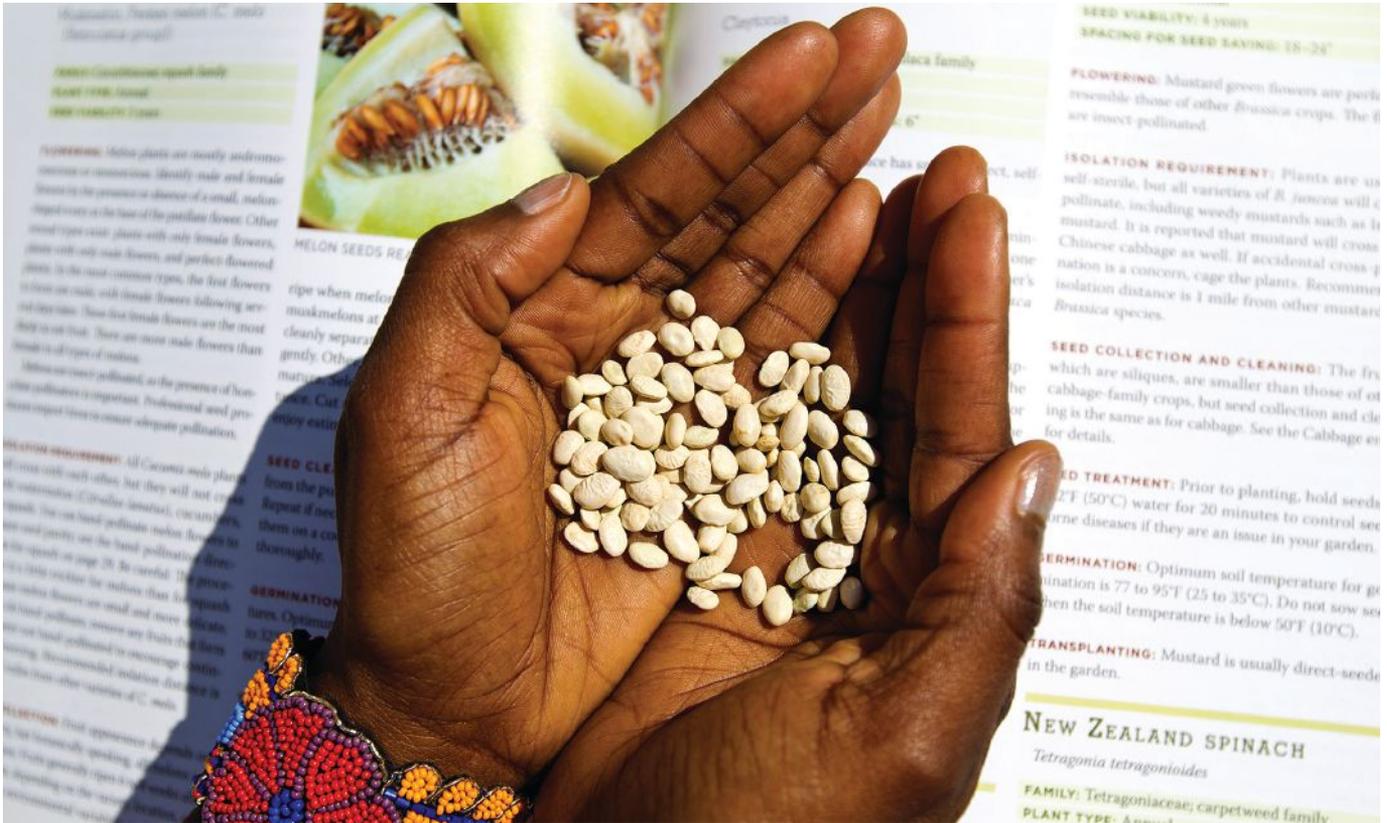
Wholesale Nurseries/ Marketing Consortiums

Visit these companies' websites to locate retail sources for their plants.

- ABZ Seeds**, www.abz-strawberry.nl.
- Bailey Nurseries, Inc.**, www.baileynurseries.com.
- Ball Seed**, www.ballseed.com.
- Bejo Seeds, Inc.**, www.bejoseeds.com.
- Darwin Perennials**, www.darwinperennials.com.
- Dave Wilson Nursery**, www.davewilson.com.
- Intrinsic Perennial Gardens**, www.intrinsicperennialgardens.com.
- Iseli Nursery**, www.iselinursery.com.
- Monrovia**, www.monrovia.com.
- Plants Nouveau**, www.plantsnouveau.com.
- Proven Winners**, www.provenwinners.com.
- Sakata Ornamentals**, www.sakataornamentals.com.
- Seeds by Design**, www.seedsbydesign.com.
- Selecta**, www.selectanorthamerica.com.
- Southern Living Plant Collection**, www.southernlivingplants.com.
- Sunset Western Garden Collection**, www.sunsetwesterngardencollection.com.
- Syngenta Vegetable Seeds**, www.syngenta-us.com.
- Terra Nova Nurseries**, www.terranovanurseries.com.
- Tuffy Plant Collection**, www.tuffypplants.com.
- Van Hemert & Co. Seeds**, www.vanhmertseeds.com.
- Weeks Roses**, www.weeksroses.com.

Retail Sources

- David Austin Roses Limited**, Tyler, TX. www.davidaustinroses.com.
- Garden Crossings**, Zeeland, MI. www.gardencrossings.com.
- Jelitto Perennial Seeds**, Louisville, KY. www.jelitto.com.
- Johnny's Selected Seeds**, Winslow, ME. www.johnnyseeds.com.
- Raintree Nursery**, Morton, WA. www.raintreenursery.com.
- W. Atlee Burpee & Company**, Warminster, PA. www.burpee.com.



Libraries *go to* Seed

Along with books and other media, public libraries are adding seeds to their catalogs as a way to preserve genetic diversity and boost gardening know-how.

BY EVA MONHEIM





THE CONCEPTS of saving, sharing, and even swapping seeds are as old as agriculture itself. For example, for hundreds of years Native Americans exchanged seeds at trading posts and even used them like currency to procure other goods. All this interchange resulted in a tremendous amount of genetic diversity in cultivated plants, which is particularly valuable for staying ahead of pests, diseases, and other challenging conditions. However, scientists estimate that about 75 percent of this diversity has been lost over the last century because seed production has become increasingly industrialized.

A handful of huge companies now control more than half of global seed sales and they only keep the most lucrative seeds in production. The majority of these are pat-

ented hybrid or genetically modified varieties, meaning they cannot legally be saved from year to year by those who grow them. Sure, there are seeds from open-pollinated varieties that can be saved, but unfortunately there are far fewer people who do so today, compared with previous generations.

Of course, plenty of small seed companies, seed banks, and nonprofit organizations around the world act as arks to prevent further loss of genetic diversity. And in recent years, an unexpected ally has taken an active role in both preserving heirloom varieties and getting people interested in growing from seeds: Public libraries.

From a practical standpoint, it certainly makes sense to have seeds available at libraries, which already have organization and catalog systems in place for books and

other media. Patrons simply check out seeds and, after growing new plants and harvesting the resulting seeds, “return” them to replenish the library’s supply. Libraries also can attract new audiences by providing classes in seed-saving techniques and growing from seed, in addition to offering more books on gardening. And when you consider that many libraries already loan out items such as toys, kitchen gadgets, crafting tools, and study kits, why not seeds, too.

SAVING SEEDS, SOWING KNOWLEDGE

The idea of this mutually beneficial arrangement occurred to Ken Greene in 2004 while he was working at a public library in Gardiner, New York. At the time, genetically modified organisms (GMOs)

Above: A patron at the Pima County Public Library in Arizona looks through the seed packets contained in the library’s repurposed card catalog. **Opposite top:** A volunteer shows off bean seeds that can be “borrowed” from the Pima County Seed Library. **Opposite, bottom:** The Hudson Valley Seed Library in New York whimsically displays seedlings growing in old card catalog drawers.

were a relatively new topic of public debate and Greene became concerned about their implications for edible plants. He set up a seed lending program at the library to help the community save and share heirloom seeds as a way to preserve GMO-free varieties. It was one of the earliest library-based seed lending programs in the country and the first on the East Coast.

The program took off and a few years later Greene and his partner, Doug Muller, spun this small but successful operation into a for-profit venture known as the Hudson Valley Seed Library in Accord, New York. Its core mission of preserving heirloom and open-pollinated varieties remains the same. To that end, the company produces its own seed and works with other nearby farmers to grow varieties that are indigenous to the region.

On the other side of the country, middle school teacher and permaculturist Rebecca Newburn co-founded Richmond Grows Seed Lending Library in 2010 at the Richmond Public Library in California. An innovative aspect of this seed library is that it uses a rating system to indicate how easy or challenging particular seeds are to save. This has to do with how particular plants produce seeds. Those that can self-pollinate—such as tomatoes, lettuces, peas, and beans—require less on the part of the seed-saver than those that cross-pollinate, which may require hand-pollination to ensure the seeds will “breed true,” meaning the resulting plants will have the same characteristics as the mother plant. The seed library encourages newbies to start with seeds labeled “Super Easy” if they want to return seeds to the library after growing these plants.

Education is an important part of the seed library’s mission, so it provides plenty of gardening information through on-site handouts, signage, and free classes on seed starting, organic gardening, and seed saving. Its website contains a wealth of resources such as charts of easy plants for seed saving and tips for collecting seeds to share. On a separate website (www.seedlibraries.net),

Newburn maintains an online database of “sister” seed libraries across the country. “I have the count at 579 open seed libraries with over 500 more communities having expressed an interest in starting a seed library,” she reports. There’s at least one in almost every state, and a few in other countries. This website also provides step-by-step instructions for starting a new seed library, complete with supply lists, templates for labels and signage, and even a link to an open-source database for tracking seed accessions (see “Resources,” page 21).

stores. The program has grown steadily each year, and in 2016 the library distributed an estimated 27,000 packets. Now about 30 percent of the seeds are returned by the patrons who grew them. Hernandez attributes the seed library’s continued success to having strong support from a large pool of residents, including a number of Master Gardeners.

The Jenkintown Library, located in a small town just outside Philadelphia, Pennsylvania, has adopted quite a different model for its seed library. It invites patrons to select up to three seed packets from a



Rebecca Newburn, co-founder of the Richmond Grows Seed Lending Library in California, helps a young patron find what she’s looking for among the library’s stock of seeds.

MANY WORKABLE MODELS

Richmond Grows has served as a model for similar seed libraries across the country, such as the Pima County Seed Library in Tucson, Arizona. Justine Hernandez, a librarian at the Pima County Public Library, launched it in January 2012. Eight branches of this public library house a collection of seeds, and patrons can even use its central online catalog to reserve seeds for pick up at their local branch.

Roughly 8,000 seed packets were checked out the first year of operation. About 20 percent of these were provided by community members; the remainder were donated by seed companies and hardware

large wooden bowl without obligation. These seed packets are donated by the Seed Savers Exchange, a nonprofit based in Decorah, Iowa, that works to preserve heirloom and open-pollinated varieties. In order to take more seed packets, lenders need to bring their own seed packets to exchange one-for-one, explains Bonnie Miller, who coordinates this program. Volunteers plant a small display garden outside the library each year to showcase the various vegetables that are available. The resulting produce may be harvested by residents in need or donated to a local shelter.

As these two examples illustrate, the way seed libraries operate can vary consider-



Resources

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www.seedlibrarymap.com.

Hudson Valley Seed Library,
www.seedlibrary.org.

Organic Seed Alliance,
www.seedalliance.org.

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Seed Library of Los Angeles,
www.slola.org.

Seed Library of Pima County,
www.library.pima.gov/browse_program/seed-library.

Seed Library Social Network,
www.seedlibraries.org.

Sister Seed Libraries Database, www.seedlibraries.net.

Sustainable Economies Law Center Seed Law Resources,
www.theselc.org/seed_law_resources.



Bonnie Miller, who coordinates the seed library at the Jenkintown Library in Pennsylvania, displays the seed packets available to patrons, top. Volunteers at the library, shown above left, grow some of the seed varieties in a display bed, above right, so that people can see what they look like.

ably. Full-fledged seed libraries with formal check-out policies like Pima County work best when there are larger numbers of people involved in the programs and more staff to maintain the system. In less populated areas like Jenkintown, it may work better when a library takes a less hands-on approach.

Because seed libraries can be so flexible, the concept has begun to spread

beyond public libraries into other public spaces such as community centers, universities, and schools. For example, the Seed Library of Los Angeles (SLOLA) is based at Venice High School. The school makes use of the seed library's stock by growing anything that can be a potential food source in its Learning Garden. "We believe climate change is the biggest chal-

lenge facing us at this time," says SLOLA's founder David King, "and so we are working with crops (like amaranth and mesquite) that can take extended high temperatures and still produce a viable crop." Students then help to collect seeds from plants that did well and return them to the library.

Unlike other seed libraries, people pay a modest membership fee in order to borrow seeds from SLOLA. A large part of its mission is to make Los Angeles a GMO-free zone, so members also must sign an agreement to avoid any genetically modified seeds or plants in their gardens. When returning seeds, they are required to describe how they were saved and what growing practices were used.

LOCALLY ADAPTED SEEDS

What all of these different seed libraries have in common, however, is that they each serve a relatively local community, rather than a national or global audience. The benefit here is that these libraries essentially can crowd-source the production and development of locally adapted seed strains—something that is not economically viable for most large seed companies.

THE LONG ARM OF THE SEED LAW

Seed libraries have attracted national media attention in the last couple of years because of a kerfuffle over whether state seed laws that regulate commercial seed ventures also apply to these not-for-profit seed entities. In 2014, the Pennsylvania Department of Agriculture brought this issue to a head when it ruled that a nascent seed library in the Joseph T. Simpson Public Library



in Mechanicsburg, Pennsylvania, was not in compliance with the state's seed laws that mandate germination testing, labeling, and other requirements not feasible for the small operation. This basically prohibited the library from accepting seeds harvested by community members, which, after all, is central to what a seed library is all about. Not long after, several other states cracked down on seed libraries under their jurisdictions, too. Seed sharing advocates came to their defense, arguing that seed libraries should be exempt from these restrictive laws.

"Seed laws exist to regulate entities that sell or commercially exchange seeds," explains David King in a Seed Library of Los Angeles blog post dated April 2, 2015. "A seed library is a noncommercial nonprofit, cooperative, or governmental organization that donates seed and

receives donations of seed, especially by encouraging members to learn about seed saving and donate seeds to the library. Seed libraries are far different in nature and scale than commercial seed companies and need to be appropriately recognized under the law to protect their ability to continue freely sharing seeds in communities across the country."

Because of strenuous advocacy on the part of seed librarians, growers, organizations such as the Sustainable Economies Law Center, and many others, the situation has begun to change. To date, four states—Minnesota, Nebraska, Illinois, and California—have amended their seed laws to exempt seed libraries. The Simpson Seed Library in Mechanicsburg also got good news, because the Pennsylvania Department of Agriculture has since determined that its seed law does not apply to seed libraries because the selling of seeds is not involved.

As this issue continues to play out across the country, advocates are keeping pressure on legislators to appropriately amend seed laws. Both the American Association of Seed Control Officials and the American Seed Trade Association are in favor of the Recommended Uniform State Seed Law amendment that exempts seed libraries, so now it is up to each state's legislature to approve it. ☞

—Viveka Neveln, Associate Editor

"Increasing the number and variety of plants that are suited for the particular area in which they are grown," says King, "is one of the most important functions of seed libraries." For SLOLA's members, they favor varieties that will thrive in the hot, dry summers of Los Angeles. The more they save and share seeds from such plants, the better the seed library's selections will become for all users.

Similarly, the Pima County Seed Library in Arizona encourages its participants to "help create local seed stocks that are better acclimated to our unique desert climate and which support an abundant and genetically diverse landscape." To spotlight a particularly well adapted variety, in 2016 the library debuted One Seed Pima County, an initiative that invited the community to "share the experience of planting, growing, harvesting, and appreciating one specially chosen, regional plant variety."

The plant of choice was brown tepary



David King, founder of the Seed Library of Los Angeles, checks broccoli flower stems for ripened seeds to harvest and package.

bean (*Phaseolus acutifolius*). This extremely drought-tolerant, heat-loving, easy-to-grow plant has been cultivated by Southwestern native peoples for millennia. In an effort to "honor and learn more about the rich agricultural roots of our desert home," the library distributed 700 seed packets along with growing instructions, harvesting tips, and recipes for the nutritious beans. Every-

one from new to longtime gardeners all across Tucson tried their hand at raising the beans, and about 10 percent returned seeds to the library. An even more robust program is planned for this coming year.

Much like seeds themselves, the seed library concept came from humble beginnings but has grown into a powerful movement. As these libraries continue to flourish across the country, communities

everywhere will benefit from increased access to seeds—especially from plants that are adapted to particular regions. Possibly even more valuable are the participants these libraries empower to gain first-hand gardening experience and to ultimately contribute to the seed supply. More gardeners and greater seed diversity can only mean a greener world all around. ☞

Eva Monheim is an assistant professor at Temple University in the Department of Landscape Architecture and Horticulture.

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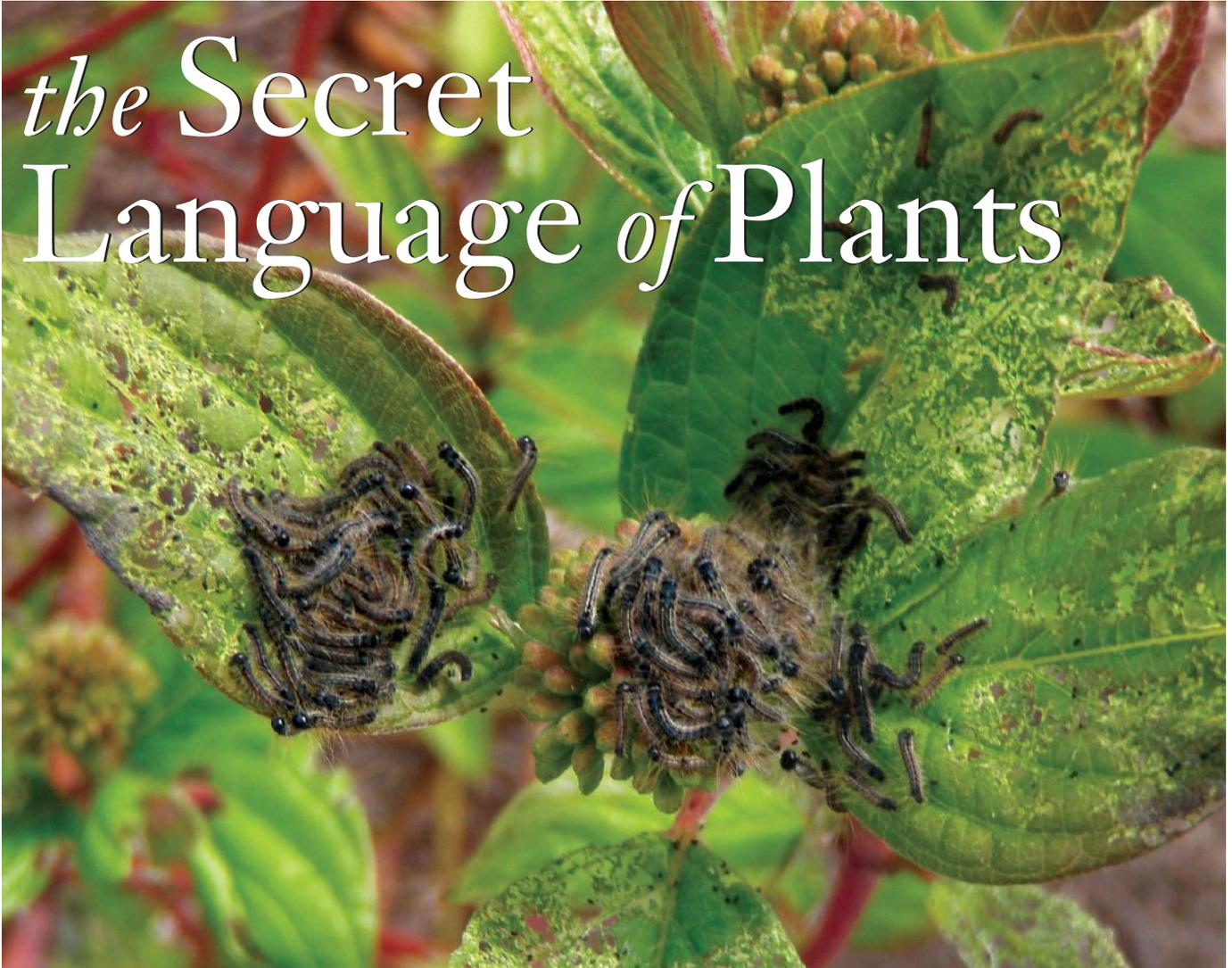
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the Secret Language of Plants



Plants may be unable to run away from predators, yet many species use airborne chemical messages to defend themselves and warn neighboring plants of danger.

BY PAM LARSEN

When pests such as tent caterpillars, shown above on a dogwood, begin feeding, plants can release volatile organic compounds to alert nearby plants or summon caterpillar predators.

W E GARDENERS are generally protective of our plants. We spray them with repellents or put up fences so deer and rabbits won't eat them. Sometimes we plant sacrificial "trap crops" so pests will stay away from our prized veggies. We do this because most plants appear pretty defenseless compared to animals that can run away, hide, fight back, or get help from others.

As it turns out, however, plants have more defensive capabilities than we may realize. In recent years, scientists have discovered that plants have an impressive chemical arsenal to fend off everything from microscopic pathogens to large herbivores. Some plants produce toxins in their tissues that make them unpalatable or even lethal to predators. Another secret weapon they employ is volatile organic compounds (VOCs) they release into the air to communicate with other plants and with predatory insects.

Perhaps you've heard of VOCs in relation to the vaporized synthetic chemicals given off by pesticides, paint, furniture, carpeting, counter tops, laminate flooring, and even the ink in marker pens. At strong concentrations, these are toxic enough to adversely affect human health. Contrasting with these synthetics are plant-created VOCs, which aren't toxic to us. We're most familiar with them in the sweet fragrances plants use to lure pollinators or in the essential oils in herbs, but they also have defense-related functions. To distinguish plant VOCs from synthetic ones, in this article I will refer to them as "phyto-volatiles." We may not be able to see or smell most phyto-volatiles but they can act as beacons, decoys, or deterrents to other organisms that can sense them. Here's a look at some of the fascinating ways plants use these airborne chemicals to protect themselves and alert neighboring plants to pest attacks.

THE CONCEPT OF “TALKING TREES”

In 1983, David F. Rhoades, a University of Washington researcher with doctorates in organic chemistry and zoology, published groundbreaking research on tree communication. He studied the effects of tent caterpillar attacks on alder trees. His findings indicated the attacked trees increased their chemical defenses in response to the assault.

More surprising was that analysis of leaves on unattacked trees growing as far as 18 feet away revealed those trees had also made defensive changes. Nutrients in the leaves were replaced with chemicals that were less palatable for caterpillars. Rhoades attributed this to “pheromones” or volatile chemicals released by the attacked trees that warned neighboring trees of an imminent attack. This concept of “talking trees” was soundly ridiculed by many of Rhoades’s

contemporaries and his career suffered as a consequence.

Today, research not only supports Rhoades’s theory that plants of the same species communicate with each other via phyto-volatiles, but indicates defensive communication by plants in one family can even be understood by members of entirely different families. For example, in a study published in the journal *Oikos* in 2003, researchers found that herbivore-damaged sagebrush (*Artemisia tridentata*) emits phyto-volatiles that warn related plants nearby about the threat, and also can alert genetically unrelated wild tobacco plants to prime their own defenses as did the trees in Rhoades’s study.

In addition, we now know that plants don’t just use these chemical messages to communicate with other plants. Predatory insects and some microorganisms al-

so can detect phyto-volatile distress calls from plants under attack.

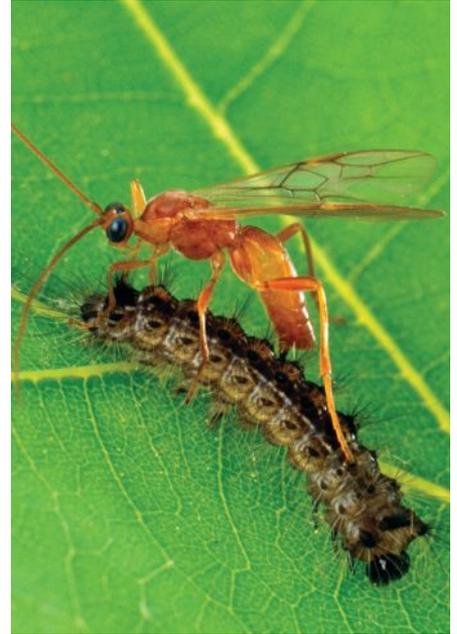
EMERGENCY RESPONDERS

While healthy plants can often discourage attackers by using non-volatile chemical defenses, there are situations when their defenses can’t offer an adequate response and damage can be extensive. We often see this with infestations of small, rapidly multiplying pests such as aphids. In addition, there are plants that can deter most insect pests except for specialist insects that are unaffected; vegetables in the cabbage family (Brassicaceae), for instance, are plagued by specialists such as cabbage loopers and cabbage aphids.

Under these conditions plants can call for help by releasing phyto-volatiles—also known as herbivore-induced plant volatiles—that summon emergency re-



David F. Rhoades, a University of Washington researcher, discovered that when tent caterpillars attacked alder trees, much like these red alders growing in Washington, the trees released airborne chemicals that caused nearby alders to prepare for attack.



Plants release volatile chemical signals for a number of reasons, ranging from alerting nearby plants to herbivore browsing, above left, to enlisting the aid of predatory insects such as lady beetles, above center, and parasitoids like braconid wasps, above right.

sponders. These helpful neighbors are carnivorous insects hunting for plant eaters or their eggs. Wasps, from tiny to large, make up the majority of responders. But several other insects, and even a few nematodes and fungi that feed on root-eating pests, respond to these chemical distress calls from plants that can be 25 feet or more away.

I became aware of these predatory responders inadvertently after I observed a paper wasp sitting on a broccoli leaf in my garden one day. Returning several minutes later after doing a garden chore, I noticed the wasp was still in the same place so I took a closer look using a magnifying glass. I discovered it was busy consuming a cabbage worm. I was thrilled, but the inquisitive part of me wondered how the wasp was able to locate that caterpillar in a sea of green leaves?

Eventually my research into this question revealed that when the caterpillar bit into the leaf, the plant released phyto-volatiles. The passing wasp could detect these chemicals, alerting it to the presence of a potential meal. The degree of volatile release can correspond to the level of damage to the plant; a larger infestation would require more predators so essentially the plant can amplify its call for help accordingly.

Predatory insects don't have to be adults; many prolific aphid eaters are the larval stages of insects such as ladybeetles, lacewings, and syrphid flies. In these cas-

es, phyto-volatiles assist plants by attracting females to lay eggs near the pests, ensuring the hatchlings will have a ready food supply.

Snooping around my garden one day, as I am prone to do, I found a decimated aphid population on an apple leaf. A good hand lens revealed something about an-eighth of an inch long that looked vaguely like a tiny orange slug. It was identified by Linda Gilkeson, an entomologist and author of *West Coast Gardening: Natural*

Insect, Weed and Disease Control, as an aphid midge fly larva. "Midges probably do more aphid control than most other beneficial insects put together," Gilkeson told me. But they are so small that most gardeners never realize they are there.

PARASITOID RESPONDERS

Emergency responders also can be insects known as parasitoids. These insects don't kill prey directly, but as with aphid midges, their



A parasitic plant called dodder uses airborne chemical cues to locate preferred host plants. Above, the vinelike yellow tendrils of dodder engulf a beet plant in order to extract its nutrients.

TOP: COURTESY OF NATIONAL FISH AND WILDLIFE SERVICE. TOP, CENTER: COURTESY OF SCOTT BAUER; USDA AGRICULTURAL RESEARCH SERVICE. BUGWOOD.ORG BOTTOM: COURTESY OF HOWARD F. SCHWARTZ, COLORADO STATE UNIVERSITY, BUGWOOD.ORG

offspring do. Guided by phyto-volatiles, an adult parasitoid locates host insects feeding on a plant and lays eggs in them. The eggs hatch into larvae, which use the host's innards as food. After growing and fully developing in the larval stage, they pupate in or on the host. Finally, adult parasitoids emerge, ready to start the process over again.

A fairly common example of this is when tiny braconid wasps lay their eggs inside hornworms, which are often found feeding on tomato plants. After hatching and feeding on the host caterpillar, multiple larvae eventually emerge and spin tiny white cocoons the size of rice grains. A few weeks later they emerge as adult braconid wasps. When you see a caterpillar covered by these characteristic white cocoons,

leave it in place so the next generation of wasps can seek out other garden pests.

TURNING THE TABLES

Most of the time, it's to a plant's advantage to deploy phyto-volatiles, but in at least one case a plant's chemical messages are being used against it. You may have heard of or encountered a parasitic plant named dodder (*Cuscuta* sp.), which sends out vinelike tendrils that coil around plants to extract their nutrients. A study published in *Science* magazine in 2006 revealed that a particularly troublesome dodder species locates one of its favorite host plants, tomatoes, by growing in the direction of phyto-volatiles the tomato plants release. (To read more about dodder, see the ar-

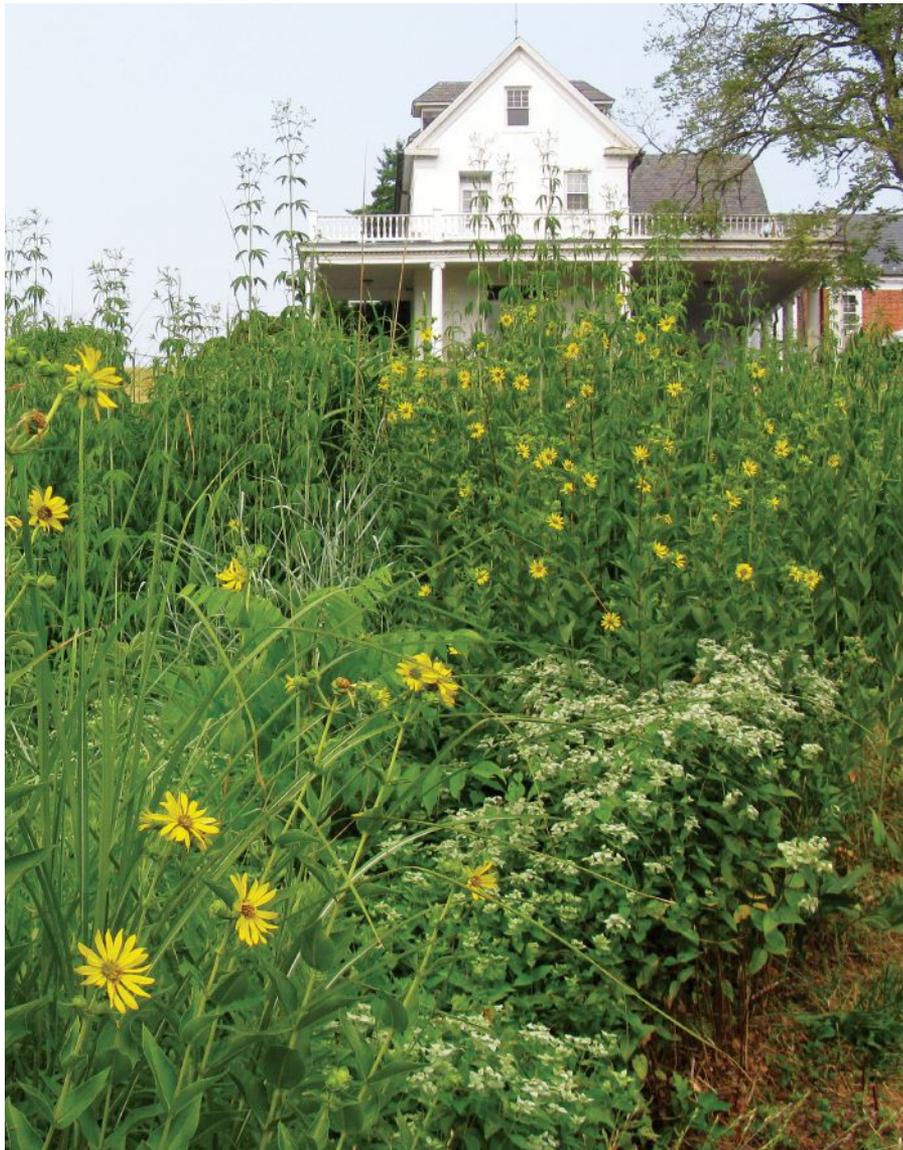
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To encourage an ecological balance in the garden, establish a “wild” area that contains a diverse mix of native plants that will provide shelter and food for insects of all kinds.

ticle published in the July/August 2007 issue of *The American Gardener*).

BALANCING THE GARDEN

As gardeners we may be tempted to tip the ecological scales in favor of aesthetically perfect plants rather than accept the cosmetic flaws that are part of letting nature take its course. But when it comes to protecting our plants, there's a lot to be said for allowing time for natural processes to come into play rather than immediately resorting to pesticides, which often have unintended consequences for beneficial and non-target insects.

There are also many simple things we can do in our gardens to encourage the natural interplay between insect pests and their predators. Interplanting vegetables with a diverse selection of flowering plants provides nectar for a wide range of beneficial insects. Beneficial insects need water, so provide a shallow dish or bowl with rocks in it. To provide habitat for insects, birds, and other wildlife, establish a small “wild” area of the garden that is free from the tyranny of blowers, string trimmers, and mulch.

With an understanding of some of the complex ways that nature works to maintain balance, it's easier for us to be good stewards of our gardens. 

Pam Larsen is the founder of Sequim Organic Gardeners in Sequim, Oregon. She has been teaching organic gardening classes for nine years.

Statuesque Perennials

These stately bloomers provide dramatic contrasts and seasonal color to gardens of every size. BY C. COLSTON BURRELL



STATUESQUE PERENNIALS splash distinctive silhouettes against the sky, evoking scenes of sweeping prairies or woodland edges while providing a strong backbone for a border. They also can make traffic-stopping focal points.

The architectural forms, eye-catching colors, and exceptional textures of these drama queens always make an impact, wherever they grow. From robust and coarse to billowing and airy, these diverse plants all impart scale and proportion even to modestly sized spaces. Here are some of the best perennials for adding substance and drama to the garden.

A BEVY OF TALL BORDER BEAUTIES

White boltonia (*Boltonia asteroides*, USDA Hardiness Zones 4–8, AHS Heat Zones 9–3) in bloom looks like snow in September. A profusion of dainty, one-inch, white aster-like flowers covers its four- to six-foot-tall, upright stems throughout late summer and autumn. This delicate beauty has an airy habit so is best used in masses, contrasted with strong vertical forms. Native to eastern North America, it's easy to grow in moist to wet, humus-rich soil in full sun or light

Planted in drifts, American natives such as sweet Joe-pye weed, left, and queen-of-the-prairie, top, add drama to any garden with their stature and colorful summer flowers.



shade. 'Snowbank' blooms more profusely than the species, with slightly larger flowers.

Sweet Joe-pye weed (*Eutrochium purpureum*, Zones 3–9, 9–1) is another North American native that will grow in similar conditions to white boltonia. It reaches five to seven feet tall, bearing domed clusters of pale red-violet, vanilla-scented flowers from mid- to late summer atop purple-spotted stems that are clothed in whorls of lance-shaped, coarsely serrated leaves. A mature clump is substantial enough to serve as a specimen. In larger gardens, try planting them in drifts, contrasted with grasses and airy perennials.

The frothy pink powder puffs of queen-of-the-prairie (*Filipendula rubra*, Zones 3–9, 9–1) resemble freshly-spun cotton candy. They appear in June and last about two weeks before fading to attractive light brown seedheads. Deep green, pinnately divided leaves decrease in both size and complexity as they ascend the sturdy six- to eight-foot-tall stems. This plant looks best when arranged in scattered clumps or in broad drifts. Over time in rich, moist soil, this eastern North American native will form extensive colonies from creeping rhizomes.

Giant fleecflower, shown at right as a backdrop to false indigo, needs room to spread but is not invasive. Its creamy-white flowers bloom for a long period from late spring into summer.





This combination of 'Lemon Queen' sunflower, foreground, and giant ironweed, behind it, adds a regal color scheme to any garden.

A frothy profusion of white flowers makes giant fleecflower (*Persicaria polymorpha*, Zones 4–9, 9–4) a summer standout. A single plant makes a six-foot-tall mass with an even wider spread; grouping several in drifts magnifies the impact. Unlike other members of this genus, this species native to China and Japan is clump-forming and does not seed, so there is no need to worry about potential invasiveness.

The six- to nine-foot columns of silver plumegrass (*Saccharum alopecuroides*, Zones 6–9, 9–1) dance stiffly in the breeze above open, tufted clumps of strappy basal foliage. Open inflorescences appear in summer, then fade to dense, furry seedheads, which hold through autumn into early winter before shattering. Place it at the middle of a bed as an accent, or in broken drifts among airy giant meadow rue. Native to much of the eastern United

States, this tough, drought-tolerant grass thrives in any soil in full sun to light shade.

The airy lavender veil of giant meadow rue (*Thalictrum rochebrunianum*, Zones 4–7, 8–4) makes it a perfect see-through plant. Stems clad in lacy blue-gray foliage stand three to four feet tall with a spread of one to two feet. The clouds of flowers appear above the foliage in June, adding another couple of feet in height. Use giant meadow rue along a path or close to the front of a bed, rather than relegating it to the rear where its delicate charms may be hidden. Native to Japan, this perennial thrives in moist, rich soil in sun or part shade. 'Lavender Mist' is a large-flowered cultivar; 'Elin' grows to eight feet tall with silvery-lavender flowers.

Hailing from the eastern United States, giant ironweed (*Vernonia gigantea*, Zones 4–9, 9–3) stands heads above other late summer bloomers. Stems soar six to eight feet tall before the domed inflorescences offer tightly packed violet flowers that open in succession for several weeks. It's at its best in drifts, mixed with yellow or orange flowers to make its violet flowers pop. As flowers

GARDEN THUG OR INVASIVE PLANT?

Many perennial giants spread aggressively in gardens, either through vegetative means or by reseeding easily. Though they may make extra work for the gardener, this doesn't mean they are necessarily invasive. The term "invasive" applies to species that become established outside of their native ranges and threaten the structure or ecological function of the native ecosystems they inhabit. This is very different from plants that flourish or dominate the rarified environment of the garden.

How do we deal with garden thugs? Well, if they are free seeders like silphiums and Joe-pye weeds, the best deterrent is deadheading. If they spread rampantly through runners, frequent division is the best control method. If this is too much work, try planting them in containers to form a physical barrier to vegetative increase. Another method is to plant densely, so that competition reduces spread, and eliminates the ability of seeds to germinate and thrive. —C.C.B.

fade, the rusty seedheads make a decorative addition to the autumn garden. Shorter New York ironweed (*V. noveboracensis*, Zones 4–8, 8–3), native along the East Coast from Massachusetts to Florida, is a better choice for smaller gardens and tight spaces. Both species are drought tolerant but thrive in moist to seasonally wet soil in full sun.

AMERICAN DAISY DIVAS

Several statuesque perennials feature yellow daisies over a long bloom period. American natives such as perennial sunflowers (*Helianthus* spp.), rosinweeds (*Silphium* spp.), and black-eyed Susans (*Rudbeckia* spp.) offer plenty of garden-worthy options and, as a bonus, draw birds and other wildlife.

Perennial sunflowers produce spires or open clusters of yellow blooms above medium-textured foliage in summer. Muck sunflower (*H. simulans*, Zones 6–9, 9–5) is a giant with large leaves and stalks eight to 10 feet tall, spreading four to six feet. Golden yellow flowers cover the upper third of stems in late summer and fall on this native of the Deep South.

Similar in appearance and stature is Maximilian sunflower (*H. maximiliani*,

Zones 4–9, 9–4), broadly native in North America, which bears open spires of three-inch flowers on strong stems in mid- to late summer. One of my favorite choices is ‘Lemon Queen’ (Zones 4–9, 9–4), a hybrid sunflower that has six-foot stems topped with domed clusters of two-inch flowers. Plants have a two- to three-foot spread. These and other perennial sunflowers are best planted in masses, combined with bright purples or cool blue tones.

More architectural but less well known than perennial sunflowers, rosinweeds provide a wealth of textural options. Their foliage is bold and the flowerheads large, some reaching four inches across. Most hold their own as specimens, but they can be used in clumps or drifts to add dramatic repeating rhythm to a long border or woodland edge. Some species reseed aggressively but deadheading can reduce the spread. (For more about aggressive spreaders, see sidebar on page 30.)

Basal leaves like giant ping-pong paddles make prairie dock (*S. terebinthinaceum*, Zones 3–9, 9–3) a stellar plant for texture and structure at the front of a bed. The wiry flower stalks rise four to eight feet above the leaves in high summer. The paired leaves



If you're looking for statuesque perennials with great wildlife value, two stellar American daisies worth growing are great coneflower, left, and prairie dock, right.

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Prairie Nursery, Westfield, WI.
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of cup plant (*S. perfoliatum*, Zones 3–9, 9–3) are fused at the nodes, making vessels that hold dew and rainwater. Coarse but captivating, this free seeder reaches four to eight feet in height with a three-foot spread, producing abundant clusters of three-inch flowerheads in summer. Compass plant (*S. laciniatum*, Zones 4–9, 9–4) is arguably the most dramatic, with two- to three-foot, deeply lobed, oaklike leaves near the base and coarse stalks stretching four to eight feet tall, topped by loose spikes of four-inch yellow daisies.

Though the flower color of black-eyed Susans can veer towards brazen gold, they are beloved for their floral profusion, extended bloom cycle, and wildlife value. They are dramatic when used as accents towards the front of a planting, surrounded with plants of lower stature, to accen-

tuate their height and form. The showiest of the lot is surely shiny coneflower (*R. nitida*, Zones 6–9, 9–5), whose three-foot-wide clumps of dense, self-supporting, five-foot stems boast a profusion of showy golden flowers in late summer, particularly in the selection ‘Herbstsonne’.

Green or cutleaf coneflower (*R. laciniata*, Zones 3–9, 9–3) is similar, but the yellow flowers are smaller and the decorative leaves more finely divided. Great coneflower (*R. maxima*, Zones 4–8, 8–3), the largest of the genus, excels both in foliage and flower. Blue-green, spoon-shaped leaves form dramatic basal rosettes from which the four- to seven-foot, sparsely branched bloom stalks arise, each topped with a single flower of drooping yellow rays around a pronounced conical disc.

A TROPICAL FLAIR

A few perennials with tropical tendencies add drama to the garden through both their extraordinary foliage and lovely flowers. At the top of my list is Japanese spikenard (*Aralia cordata*, Zones 4–8, 8–4), which combines tropical elegance with temperate ease. This hardy aralia has huge compound leaves with broad, luscious leaflets. The four- to six-foot stems are topped in mid- to late summer with spherical clusters of greenish white flowers followed by berrylike purple fruits relished by birds. It’s easy to grow in rich, moist soil in part shade. A selection called ‘Sun King’ adds golden foliage to the mix.

Butterfly ginger or white ginger lily (*Hedychium coronarium*, Zones 7–11, 12–7) and its hybrids are Asian relatives of culinary ginger grown for their elegant foliage and intoxicatingly fragrant flowers. The foliage makes a stunning four- to six-foot-tall vertical accent massed near rounded forms such as Joe-pye weed. The straight species is a late bloomer and often flowers in autumn just in time for frost, so you may want to choose an earlier blooming cultivar such as orange-flowered ‘Daniel Weeks’. Provide full sun in temperate regions, part shade in warmer climates, and rich, moist soil.

Scarlet rose mallow (*Hibiscus coccineus*, Zones 6–11, 12–5) is a stately giant of the Southeast, growing up to 10 feet tall and four feet wide. This goliath needs room to spread, so situate it at the rear of a deep bed. A mature plant makes a bold statement; a mass might be gilding the lily.



For exotic-looking flowers and late-summer color, it’s hard to beat scarlet rose mallow, top, or ‘Tara’, above, an orange-flowered selection of butterfly ginger.

It offers broad, deeply incised, palmately lobed leaves and stunning six-inch, saucer-shaped scarlet flowers from summer to early autumn. It thrives in wet or dry sites in full sun or light shade. New shoots emerge later than most perennials, so leave a few inches of the old stems in place to remind you it’s there.

DESIGNING WITH STATUESQUE PLANTS

Shrewd plant choice is critical for setting the proper mood and creating a harmonious landscape; consider size—both height and spread—form, texture, and phenology. Seasonal flow from foliage to flower to fruit to autumn color and winter silhouette are the hallmarks of most large perennials. Their size and stature assure staying power. The interplay of light with your plants, and their fragrance, further enhances the enjoyment of the garden. Even in autumnal senescence, bold is beautiful.

Balancing the scale of the space and the mood you wish to evoke will guide your plant choices. Some bold plants like giant fleecflower show best as specimens, with room to preen, especially in small gardens.

MORE STATUESQUE PERENNIALS

Name	Height/ Spread (ft.)	Ornamental Attributes; Cultural Requirements	Origin	USDA Hardiness, AHS Heat Zones
<i>Alcea rugosa</i> (Russian hollyhock)	4–9/1½–2	Four-inch, clear yellow flowers in dense spikes in summer; good air circulation, rich, well-drained soil	Western Asia	3–8, 8–3
<i>Helianthus angustifolius</i> (Swamp sunflower)	4–5/4	Delicate, pencil-thin leaves and golden yellow summer flowers in open spires; moist loamy soil, full sun to part shade	Eastern U.S.	6–9, 9–4
<i>Kosteletzkya virginica</i> (Seashore mallow)	4/1–2	Produces prolific medium pink hibiscuslike flowers in summer; rich moist soil, salt tolerant	Eastern Seaboard	6–11, 12–6
<i>Lilium formosanum</i> (Formosan lily)	4–7/2–3	Fragrant, white trumpet-shaped flowers appear on stiff, self-supporting stems in midsummer; average to rich soil, sun or part shade	Eastern Asia	6–9, 8–1
<i>Patrinia scabiosifolia</i> (Patrinia)	4–6/1–3	Small clusters of bright yellow flowers bloom on multibranching stems in midsummer; moist, loamy soil and full sun	Eastern Asia	5–8, 8–5
<i>Rudbeckia subtomentosa</i> (Sweet black-eyed Susan)	3–5/1–2	Three-inch flowerheads with flat golden rays and dark discs form a flat to domed mass in late summer; well-drained soil, full sun to part shade	Midwest to southern U.S.	3–8, 8–1
<i>Silphium asteriscus</i> (Starry rosinweed)	3–5/1–1½	Two- to three-inch yellow daisylike flowerheads above a rosette of medium green leaves in summer; full sun to part shade, drought tolerant, attracts butterflies	Central and eastern U.S.	5–9, 9–5
<i>Silphium compositum</i> (Kidneyleaf rosinweed)	4–8/1–2	Large wavy basal leaves, stems of small yellow flowers in summer; full sun to part shade, heat and drought tolerant, good butterfly nectar plant	Southeastern U.S.	6–8, 8–6



Tall perennials with airy foliage and flowers, such as lavender-flowered giant meadow rue, can be used as “see-through” or scrim plants in the front or middle of borders.

Others, like ‘Lemon Queen’ sunflower, deliver maximum impact when massed.

A garden created exclusively of titans would be overwhelming. You need a full complement of variously-sized perennials for an effective planting. It is important to balance harmony with contrast—a dynamic tension that makes the planting more exciting. Stately plants with open structures or lacy foliage such as meadow rues and boltonias usually look best grouped with contrasting plants. Place billowing, airy plants alongside those with bolder textures to make every plant count. Add rounded forms like queen-of-the-prairie, Joe-pye, and ironweed to help ground these combinations.

Resist the temptation to relegate all statuesque plants to the back of a border. Pull a few forward to enliven the garden profile. Use those with open crowns like veils. Front and center, or towering at the back of a border, these perennials elevate gardens to exhilarating heights.

C. Colston Burrell is a garden designer, consultant, and author based in Free Union, Virginia.

create a miniature

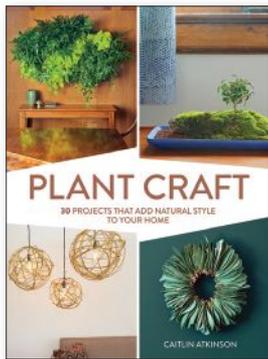
AS A CHILD, I would help my mother pick flowers from our garden in summer and make bouquets—my first exposure to the pleasures of working with plants. Throughout my life, I've continued to feel the need to connect with the natural world. While living in San Francisco, in order to satisfy my desire to bring more green into my urban home, I began creating indoor garden projects. I have since moved and now have outdoor space, but I continue to bring the outdoors in. Outdoors or indoors, the art of creating a garden composition and then tending the garden can be both meditative and transportive.

One of my favorite indoor projects is this rock and sand landscape, which creates a miniature world with haworthias (*Haworthia* spp.), a great, easy-to-care-for indoor succulent. A traditional Japanese rock garden uses rocks, sand or gravel, moss, pruned trees, or shrubs, and sometimes a water feature to create a small stylized landscape. The sand or gravel is raked to represent ripples in water. This tray garden takes its inspiration from these wonderful gardens, but does not imitate them, and in place of the carefully pruned foliage found in Japanese rock gardens, this project uses architectural haworthias.

The white sand used here emphasizes the beauty of the rocks. Choose your rocks carefully, as each one should enhance the composition—each form contributing to the overall balance. You do not have to rake the sand, but if you want a more stylized look, experiment by raking it with your fingers, a fork, or a chopstick. With a tray garden, you are trying to create the feeling of a place, and having a path through the garden provides a visual entry into the garden and gives the eye a space to rest.

Haworthias make great houseplants, especially for a tray garden. A genus of small succulents originating from South Africa, they are readily available, have a range of colors and shapes, and stay relatively small. Plants range in size from one to four inches in diameter. Often succulents that remain small can be found growing under shrubs and trees in nature—they do not want the blazing sun associated with many cacti and succulents. While most rosette-form succulents need more light than an indoor environment can provide, haworthias can tolerate more modest lighting. Because they stay small, they can comfortably fit on a table near a window without seeming to take over a room. Other succulents that would work for this tray garden are jade plant (*Crassula argentea*), gasterias (*Gasteria* spp.), and small cacti.

To learn how you can create this dish garden with a modern flair, see the following pages. And feel free to follow your own inspiration!



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Caitlin Atkinson is a freelance photographer and stylist who gardens in California.

Japanese Rock Garden

Add natural style to your home this winter with a rock-and-sand landscape inspired by traditional Japanese rock gardens.

ARTICLE AND PHOTOGRAPHS
BY CAITLIN ATKINSON



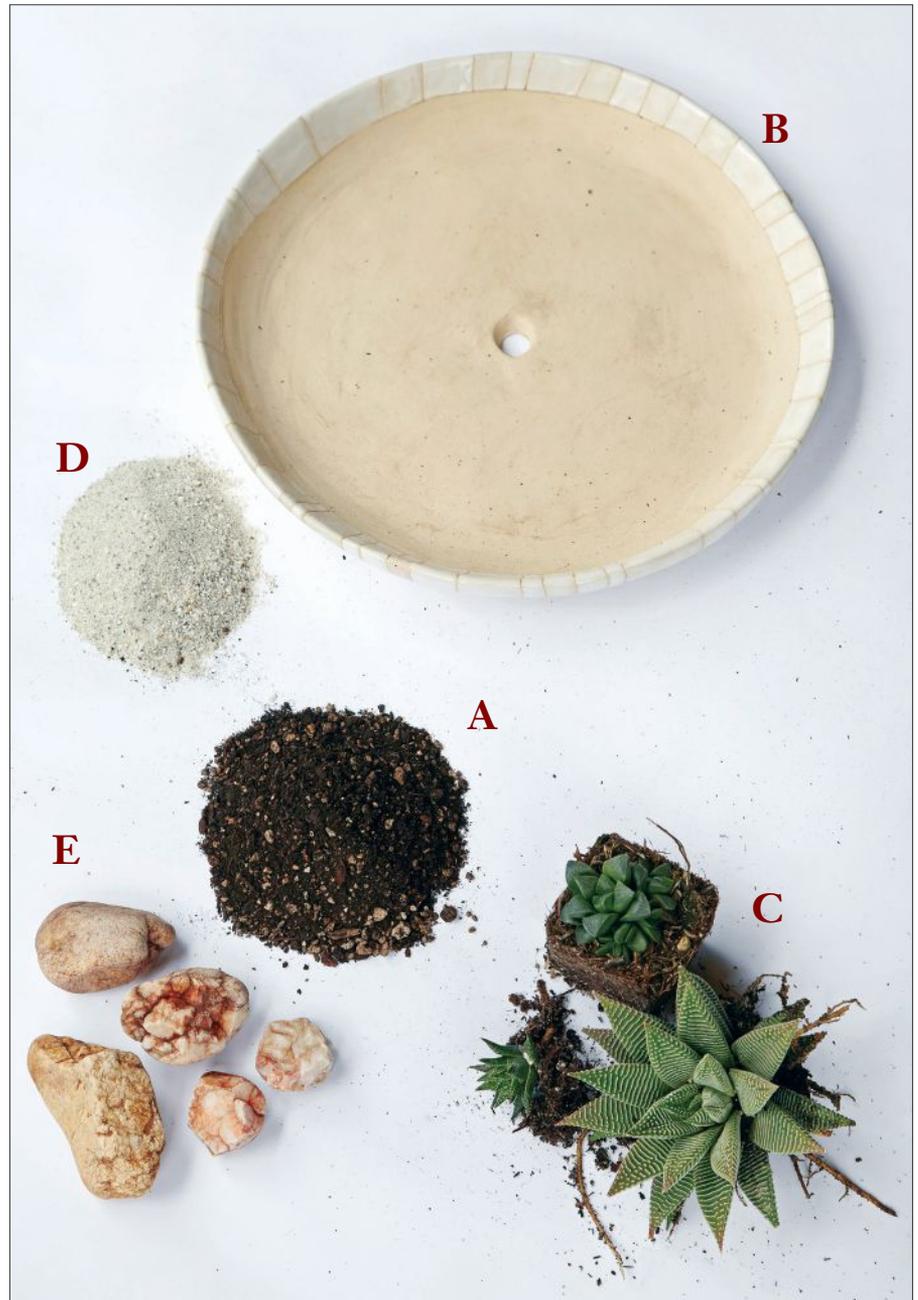
What You'll Need

MATERIALS

- Cactus and succulent potting soil (A)
- Tray with a drainage hole (I used a tray with a 12-inch diameter) (B)
- One 4-inch haworthia and two or three 2-inch haworthias (C)
- White sand (D)
- 5 rocks ranging in size from 4 inches to ½ inch (E)

TOOLS

- Small paintbrush
- Bonsai brush or large paintbrush



How to Create a Rock-and-Sand Dish Garden



1 Place a layer of soil on the bottom of the tray. The depth will depend on how deep your tray is; the tray I'm using here is shallow, so I used a layer of soil that was less than one inch deep. The layer should be deep enough to place the plants and their roots, but leave enough room to add more soil and a finishing layer of sand on top.



2 Remove the plants from their pots and gently loosen the roots from the soil with your fingers.



3 Place the four-inch haworthia to one side of the tray.



4 Fill in around the plant's roots with more soil and tamp it down to remove air pockets.



5 Plant the two or three smaller plants grouped together on the opposite side of the tray, adding soil as needed. Smooth out the soil so that the level of soil is a little below the tray's rim. Gently water in the plants so there is good contact between roots and soil. Add a little more soil if needed to offset any settling.



6 Spread white sand carefully over all the exposed soil.



7 Place the rocks on either side of the two groupings of plants, leaving an open path between the plants across the center of the tray.



8 Use a small paintbrush to remove any sand from the haworthias. Use a larger paintbrush or bonsai brush to smooth the surface of the sand, or rake the sand with the tip of the paintbrush's handle or your fingertips.

Caring for Your Garden

WATER Let the soil dry out between waterings and then water thoroughly using a watering can or faucet head with a sprinkle spout in order to provide a gentle flow of water. It is better to let the plants get a little dry than to overwater them. If any of the sand is displaced, simply replenish it after watering. Increase watering in the warmer months, decrease in the winter.

LIGHT Haworthias like very bright light. Indoors a little sun is nice, but they can survive in bright indirect light. If the plants start to stretch and elongate, it is a sign they are not getting enough light. Their leaves will also lose their color.

FERTILIZER Fertilize the plants one to two times during the summer growing season with a cactus fertilizer, and suspend fertilizing during the colder months.

PROPAGATION If any of your haworthias produce offsets, you can remove them with a sharp knife or snippers to produce new plants. Cut the offsets as close to the mother plant as possible, including a few roots. Allow the baby haworthias to dry a few days and then replant each in a small pot. Place the pots in a warm bright spot and water the plants adequately.

—C.A.



Creating Meadows the Right Way

by Scott Aker



MEADOWS ARE one of the most misunderstood garden features. The idea of a meadow as a naturalistic landscape that is colorful, requires little maintenance, and serves as habitat for wildlife is appealing, but successfully creating one requires more than tilling an area and sowing wildflower seeds. Such meadows may look great initially, but in a short amount of time, the flowers are gone, replaced by weeds. The reality is that, like any other part of a garden, a meadow—as well as our expectations of it—needs to be managed.

In nature, a meadow is a dynamic community of native herbaceous plants, usually dominated by grasses. Perennials form the foundation of meadows, leaving few areas of disturbed soil that annuals generally need to germinate and grow. This is

the opposite of popular depictions of wildflower meadow gardens, which depend on annuals for quick displays of color.

An established meadow can be beautiful and may need less maintenance and watering than a lawn or more conventional landscape, but its carefree look is only achieved with planning and dedicated effort.

IS A MEADOW RIGHT FOR YOUR GARDEN?

Before you create a meadow, check with your homeowner's association and local government to make sure your plan is acceptable. Of course, the line between a meadow and a large perennial border can

Native sand bluestem (*Andropogon hallii*), center, with blue grama grass and Maximilian sunflower in this New Mexico meadow garden designed by Judith Phillips.

be blurred. If you use grasses and native perennials in a linear design, you can have many of the benefits of a meadow even if one is not allowed in your community.

The space you allot for a meadow needs to be large enough to make it aesthetically pleasing. If you have a tiny yard, a better option is to locate open space in your community and organize an effort to create a meadow there for all to enjoy.

SITE ANALYSIS AND PREPARATION

After you've identified the space for a meadow, start planning its contours. Keeping a mowed margin around it prevents it from looking like abandoned space. If size permits, adding mowed pathways and a gathering area allows visitors to get into the meadow to experience its magic.

Gardening Q&A with Scott Aker

SINGING THE ORCHID BLUES

I bought a blue moth orchid in flower about a year ago and it has been growing well. It produced a new flower stalk recently, but when the flowers opened, they were white, not blue. What happened?

No moth orchids (*Phalaenopsis* spp.) produce blue flowers; the ones sold this way have had blue dye injected into the flower spikes late in their development. I don't recommend trying this at home. Just enjoy the flowers in their natural state.

HELP FOR AN UNHAPPY ROSEMARY

I have a large rosemary that I grew outdoors in a container in summer. I watered it daily, but the soil was always very dry. Now I've moved it into the garage, where the soil stays moist, but bumps have appeared on a few of the branches at the top and the leaves on those branches are turning brown. The growth in the lower part of the plant looks fine, however.

Your rosemary suffered from a physiological condition called edema. This happens when the plant is severely heat and drought stressed, and is then saturated with water. The roots take up water faster than it escapes the plant as water vapor, causing cells in the stems to burst. The bumps are callus growth at the site of these burst cells. You can cut off these branches. Repot the plant in spring and position it where it gets some afternoon shade in summer so it won't be as heat stressed. —S.A.

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

The next hurdle is weed removal. Once you stop mowing a piece of land, a variety of native plants will appear, but weedy species are likely to prevail. You can till the area and treat it repeatedly with an herbicide such as glyphosate to clean the slate, or till repeatedly over a period of several months to remove successive crops of annual weeds; if you can, leave the ground fallow for at least a year before planting it. Another option is to till the area and then kill the new weed crop by solarizing (covering the area with a sheet of clear plastic for two to three months).

In the meantime, observe patterns of sunlight and evaluate the soil types and moisture levels in your future meadow. This information will help you select plants that are suited for the existing growing conditions. You will need at least 10 to 15 different species to provide diversity and create habitat for pollinators and other wildlife.

CHOOSING PLANTS AND PLANTING

I suggest avoiding most mass-marketed "wildflower" mixes, which are composed largely of fast-growing annuals that shade out the slower-growing perennials and out-compete them for water and nutrients. The recommended seeding rate on these mixes

For additional information on meadows, see the following articles in past issues of *The American Gardener*: "Win the War on Weeds" by Thomas Christopher (May/June 2016). "The Allure of the Meadow Garden" by Carole Ottesen (May/June 2006).

Resources for recommendations on regional native plants: **Audubon Native Plants Database**, www.audubon.org/native-plants. **Ecoregional Planting Guides for Pollinators**, <http://pollinator.org/guides>. **Lady Bird Johnson Wildflower Society Native Plant Database**, www.wildflower.org/plants.

is designed to provide quick cover, so there usually isn't enough space for the perennials to develop. Most of the species in these "wildflower" mixes are not even native. It is far better to plant only regionally-appropriate native perennials.

Many meadow species don't put on a show until their third year but bloom reliably once established. You can get a head start by planting plugs—small plants grown

individually in finger-sized cavities in a tray. Use the search phrase "native plant plugs" in your internet browser to find a supplier, or enlist the help of a local nursery. If you are looking for recommendations of native plants for your region, try the websites listed in the box below.

If you opt for seeds, it's a good idea to sow a small amount of a nurse crop such as oats or annual rye at the same time you sow the native grasses and wildflowers. The nurse crop helps protect the tiny perennials when they germinate. Because the perennial meadow plants are focused on root establishment in their first year, it generally does not hurt to mow them when the nurse crop is four to six inches tall to remove annual weeds that would otherwise take over.

The best time to plant depends on where you live. In the arid West, plant just before the wettest time of the year. In the East, plant in late spring to ensure seeds get the warmth they need to germinate. Watering your meadow after planting will result in better germination and speed growth. No watering is needed after establishment.

REGULAR MAINTENANCE

Weed control is the most important part of meadow maintenance. Meadows are a transitory stage in the succession of plants in much of the country, and you will need to fight the tendency for shrubs and trees to become established in your meadow and eventually transform it into woodland.

Most meadows are mowed annually in winter when plants are not actively growing; this task is ideally accomplished with a heavy-duty brush mower that can chop up thick stems. The cut vegetation will decompose, providing nutrients to stimulate spring growth. Mowing leaves roots intact, however, so weedy trees and vines will grow back. You can remove them with a weed-pulling device, but the resulting areas of disturbed soil will invite invasion by other weeds. A more successful solution is cutting tree and shrub seedlings at ground level and applying an herbicide containing triclopyr to the cut surfaces with a paint brush.

With proper management, a meadow can be a pleasure for you and a haven for wildlife for years to come. 

Scott Aker is head of horticulture and education at the United States National Arboretum in Washington, D.C.

Rhubarb—A Harbinger of Spring

by Margene Whitler Hucek

SEEING THE first rhubarb's leaves poking up in the garden has always meant spring to me since it was the first vegetable to emerge in my parents' garden in Illinois. Because rhubarb grows rapidly, I knew it wouldn't be long before we would be having rhubarb pie with Sunday's dinner. Now, I eagerly await those early shoots in my Virginia garden.

Rhubarb (*Rheum rhabarbarum*) is a perennial vegetable grown for its stems. Its large, wavy green leaves and, in many varieties, showy red stems, add an ornamental element to vegetable gardens, mixed borders, and even containers. This Asian



Rhubarb is grown for its stalks, right, which are most often baked in pies but can also be cooked into jams, above.



native has been used medicinally for more than 5,000 years. Introduced to this country in the late 18th century by European settlers, rhubarb was used as a spring tonic for loss of appetite and malaise. Rhubarb is rich in antioxidants and vitamin K, with a modest amount of vitamin C.

GROWING GUIDELINES

Rhubarb is a cool-season crop that requires at least 500 hours of winter temperatures between 28 to 49 degrees Fahrenheit (F) to form spring buds. Rhubarb can be grown successfully in USDA Hardiness Zones 3 to 8, AHS Heat Zones 8

to 1. In Zone 8, rhubarb will benefit from a straw mulch to help it withstand the stress of summer heat.

A sunny to partly sunny spot at the west or north side of the garden is ideal so that the plants, which can grow to four feet with a similar width, do not shade other vegetables. Plant in soil that has a slightly acidic pH—6.0 to 6.8 is recommended—and is well drained, because rhubarb will not tolerate soggy conditions.

Rhubarb can be grown from seed, but it is quicker and easier to start with divisions of the rootstock known as crowns or sets. Plant these in early spring after

the soil warms up to at least 50 degrees F. When buying crowns, look for firmness and white or reddish buds.

Allow three square feet of space per plant. Dig a generous-sized hole for each crown and enrich the soil with well-rotted manure or compost. Spread out roots in the holes, setting the crown so that buds are one inch below the soil surface. Firm the soil and water thoroughly. Mulch to conserve moisture and control weeds. Irrigate in summer during dry spells.

After a few years, your plants may produce upright flower stalks. Remove these as soon as you see them as they rob the plant

PLANTING BASICS

Getting Started Plant one-year-old crowns in early spring when the soil temperature is at least 50 degrees F.

Spacing Plant crowns three feet apart, with rows three to five feet apart.

Days to Maturity Begin harvesting moderately one year after planting, when stalks reach 12 to 18 inches long.

Sources

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

Stark Brothers, Louisiana, MO. (800) 325-4180. www.starkbros.com.

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

of nutrients. Rhubarb will remain productive for five to eight years, after which division will be needed to keep plants vigorous. Division is necessary when the plant starts producing many small, slender stalks. Dig up the entire plant and cut it in half or in fourths, leaving at least two healthy buds on each division. After enriching the soil, replant one of the divisions; the remainder can either be planted elsewhere or shared with friends.

PESTS AND DISEASES

The most likely pest you'll encounter is the rhubarb curculio. This three-quarter-inch beetle is brownish black with an elongated "snout," and may be covered with a dusty yellow powder. Signs of infestation include shallow round or oval depressions on the stalks of your rhubarb and a gummy sap.

Rhubarb curculio is a sporadic pest, so insecticidal control is not recommended. Instead, handpick and destroy beetles when you see them. Adults overwinter in old leaves and stems, so clean up all plant debris in the fall. Also eliminate alternative host plants such as dock, thistles, and sunflowers nearby to minimize infestations.

Rhubarb is very susceptible to crown rot if planted in soil that does not drain well. The disease damages terminal buds and eventually kills the plant. Destroy any infected plants and don't plant rhubarb in that site again.

Rhubarb is often listed as deer-resistant, but I had to move my plants into a fenced area because of deer browsing.

RECOMMENDED VARIETIES

The edible stalks come in a range of colors from deep red to bright green. Stem color is not an indication of tenderness or flavor. **'Canada Red'** is a good choice for colder regions. It produces shorter stems than some other varieties, but they are tender and have a high sugar content. It produces very few seed stalks.

'Crimson Red' is the variety I grow. It has thick ruby-red stalks that seldom get stringy and is a heavy-yielder with excellent flavor.

'Valentine' is a vigorous, heat-tolerant ear-

in their crowns for the long haul. You can harvest a few stalks from each plant the second year. From the third year on, you can harvest freely, but don't remove more than two-thirds of stalks at any given time. Established plants can be harvested for a period of eight to 12 weeks. Stop harvesting when stems get shorter and thinner.

Stalk color is not an indication of ripeness. To harvest, select fully-sized stalks that are 12 to 18 inches long. Grasp the stalk near the base and twist slightly while pulling it upwards.

Rhubarb is best in the early spring when its flavor and tenderness are at their peak; stems may become pithy as the weather



'Victoria' is a heavy-yielding selection with thick, pink-speckled stalks.

ly bearer that produces red stalks with low acidity. It also produces few seed stalks.

'Victoria' is a heavy producer of large, thick stalks that are light green with pink speckles. Seed stalk production is high.

ENJOYING THE HARVEST

The edible portion of rhubarb is the leaf stalk, or petiole. Leaf blades contain high concentrations of poisonous oxalic acid and must be discarded. Avoid harvesting frost-damaged plants, because research has shown that under freezing stress, the oxalate in the leaves may migrate into the petioles.

Don't harvest from any first-year plantings; instead, let them store energy

warms. Rhubarb's tart flavor complements the sweetness of strawberries when combined in pies, cobblers, or jam. Always use a non-reactive pan when cooking rhubarb because it is highly acidic and will react with aluminum, iron, and copper, turning the rhubarb an unappealing brown.

Rhubarb's flavor is best if cooked immediately after harvest, but you can refrigerate it for up to a week if needed. Preserve any excess harvest by rinsing stems, cutting them into one-inch pieces, and placing them in zip-top bags in the freezer. 🍷

Margene Whitley Hucek grows and writes about vegetables from her home near Charlottesville, Virginia.

Howard Peters Rawlings Conservatory and Botanic Gardens

by Lynn Brinkley

A HISTORIC LANDMARK for over 125 years, the Howard Peters Rawlings Conservatory in Baltimore, Maryland, is one of the oldest glass conservatories in the United States. It opened in 1888 after the construction of the five-story Palm House was completed. An Orchid Room was added on shortly afterwards. The conservatory, surrounded by sweeping lawns, became the newest feature of Baltimore's developing 745-acre Druid Hill Park, established in 1860 at the height of the grand city park era.



The Victorian-era Conservatory is the focal point of the Howard Peters Rawlings Conservatory and Botanic Gardens in Baltimore, Maryland.

Over the next century, the Victorian-style building, originally named Druid Hill Park Conservatory, became home to an impressive collection of plants from all over the warmer regions of the world. With its emphasis on the tropics and orchids, the conservatory has long offered a welcome respite from the drab cityscape, especially in winter.

It nearly went the way of other vanished Victorian glasshouses in the late 1990s, however, when it was badly in need of renovation. But thanks in large part to the advocacy of long-serving Maryland politician Howard Peters Rawlings and other backers, the conservatory was salvaged from disrepair and three additional green-

houses plus two enclosed pavilions were added. This enabled the facility to expand its plant collections to include species from Mediterranean, tropical, and desert environments. In appreciation of Rawlings's significant role in the aging conservatory's preservation, in 2004 the facility was renamed in his honor.

TRADITIONAL DISPLAYS FOR A NEW MILLENNIUM

Rawlings Conservatory today offers visitors a variety of botanical experiences. In the original **Palm House**, several towering specimens nearly touch the domed glass roof. Scores of shorter palms fill in around these giants, accented by crotons and colorful flowering plants.

Immediately behind the Palm House is the adjoining **Orchid Room** with a similar glass framework but not quite as high a ceiling. Staff rotate the orchids on display as they come into bloom to provide a continuous show of color. The conservatory's collection was enriched in 2015 with 152 additions from the widow of Maryland Orchid Society member Leslie Kirkegaard. The Orchid Room itself was renovated in spring of 2016, thanks to a donation from the estate of a Baltimore philanthropist and gardener, Sidney Silber.

STROLLING THROUGH WARMER CLIMES

The revitalized Orchid Room connects to three newer hothouses constructed in the



This *Phalaenopsis* hybrid is among many blooming orchids on display in the Orchid Room.

early 2000s. The first is the **Mediterranean House**, which is often permeated by refreshing scents from the citrus collection in bloom and also includes a variety of flowering shrubs and trees such as oleander (*Nerium oleander*) and crimson bottlebrush (*Callistemon citrinus*). Simple, blue-tiled fountains brighten the backdrop of ecru tiles and olive-green foliage.

Next through the connecting doors is the lush **Tropical House**, home to a veritable jungle of plants with flamboyant flowers and unusual foliage such as dwarf bananas, papayas, red passion flowers, blue sky vines (*Thunbergia grandiflora*), and walking irises (*Neomarica gracilis*). On one side of the serpentine pathway, moisture-loving species such as cannas and

fire flag (*Thalia geniculata*) nestle closely around a koi pond, which is a particular favorite for young visitors.

Finally, the dry warmth of the **Desert House** supports a diverse collection of plants from the world's arid regions. Familiar plants such as aloes, agaves, and cactus cacti are represented by enormous specimens. Their fellow water conservationists of smaller size include Madagascar palm (*Pachypodium lamerei*), slipper plants (*Pedilanthus macrocarpus*), and zebra starfish flowers (*Stapelia hirsuta*). Painted Desert boulders with their rippled rust red-orange patterns perfectly complement the plants.

ADDITIONAL OFFERINGS

After wandering through the desert, visi-



A variety of warm-climate plants surround this sitting area in the Mediterranean House.

Additional Information

Howard Peters Rawlings Conservatory and Botanic Gardens

3100 Swann Dr., Baltimore, MD 21217
(410) 396-0008.

www.rawlingsconservatory.org.

- Hours: Open year-round, Wednesday through Sunday, 10 a.m.–4 p.m.
- Admission: No entry fee, but a \$5 per person donation is encouraged.

Other nearby sites to explore:

Baltimore Museum of Art, Sculpture Garden,
<https://artbma.org/collections/sculpture.garden.html>.

Ladew Topiary Gardens,
www.ladewgardens.com.

Sherwood Gardens,
<http://guilfordassociation.org/sherwood>.

tors may exit through the south pavilion hall into the outdoor garden featuring several beds of colorful annuals and perennials. At the center of this garden is an enormous bronze-coated granite sundial that was presented to the City of Baltimore in the 1890s. Its many facets keep the solar time of Baltimore, Rio de Janeiro, Tokyo, London, and other international cities.

In addition to its varied plant collection, Rawlings Conservatory offers a range of programs for the public. Workshops, seasonal celebrations, and annual displays, such as the elaborate Spring Bulb Show each April, are regularly held in its indoor pavilions. Moreover, each Sunday afternoon of the month the conservatory hosts a themed session of its “Plants & People” program. Participants may visit an “Ask a Master Gardener” clinic, enjoy education programming for elementary age children, or receive a free guided tour when the month has a fifth Sunday.

Whenever you visit Rawlings Conservatory in Druid Hill Park, it will tantalize all your senses while immersing you in the charms of the Victorian era. The city park is itself a historic treasure, so give yourself time to explore its many features, too.

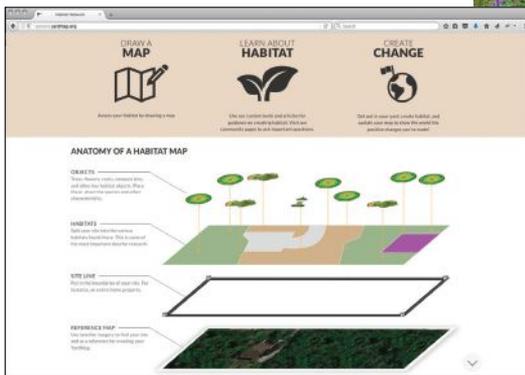
Lynn Brinkley is an editorial intern with The American Gardener.

Horticultural News and Research Important to American Gardeners

HABITAT NETWORK ONLINE TOOLS

You won't be surprised to learn that American yards are primarily composed of lawns and impervious surfaces. If you're looking to create a more ecological landscape appropriate to your region but don't know where to start, the good folks at Habitat Network are here to help.

Formerly known as YardMap, the online mapping tool and social platform has recently been expanded as part of a collaboration between the Cornell Lab of



Through the Habitat Network website, shown above, people can map out an existing property such as the one pictured, top right. Based on the data you enter, the tool shows the environmental goals you already are meeting and provides a list of further actions you could take, such as monitoring and reporting bird activity like a goldfinch snacking on anise hyssop seeds, bottom right.



Ornithology and the Nature Conservancy. With Habitat Network, users can both contribute to citizen science and receive advice from experts. “Science shows us that small changes in the way properties are managed can make a huge impact towards improving our environment,” says Megan Whatton of the Nature Conservancy.

To get started, set up a free account to map aerial images of an outdoor space you are familiar with—whether that be your local park, school grounds, or your own garden—and mark what kinds of surfaces and vegetation are present. After com-

pleting your map, use the newly released planner tool to appraise the mapped area for ways to create wildlife areas, manage rainwater, and engage with nature.

From there, you can choose to prioritize which actions to take, whether they take the form of conserving water, empowering your community, or supporting any variety of wildlife—from birds and pollinators to dragonflies and turtles. Notably, useful regional information is also accessible without setting

up an account; for example, you can use your zip code to search for resources on your local ecoregion, pollinators, and native plants.

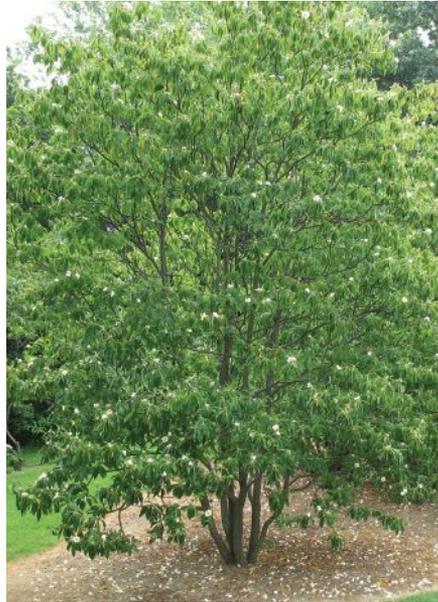
This “game” of community habitat improvement continues as you update the map after each action implemented in the real world. You can also view other nearby sites that are part of the Habitat Network.

To explore the Habitat Network tools, visit www.yardmap.org.

PLANT BLINDNESS

It may be hard for passionate gardeners to understand, but some people don't notice whether leaves have serrated or smooth edges, or get excited about brilliant fall color on a maple tree. In the late 1990s, botanists came up with the term "plant blindness" to describe this tendency to ignore plants in one's surroundings. The problem, they noted, was that this meant the majority of people would perhaps never fully appreciate how important plants are in their everyday lives and in the global environment.

Researchers Mung Blading and Kathryn Williams of the University of Melbourne, Australia, decided to look into the reasons why interest in plant conservation lags behind that of animal conservation. In a 2016 article titled "*Plant blindness and the implications for plant conservation*," they identified two major categories affecting this cognitive bias: biological and cultural. The biological component is that humans appear less able to accurately recall the visual image of a plant than they do of an animal. They tend to perceive plants as merely



a backdrop for the large mammals often termed "charismatic megafauna."

In the second category, they discovered that in some cultures plants are perceived as so different from humans that people can't relate to them. This bias is also found in animal conservation, where humans tend to be more willing to protect animals they see as similar to



Thanks to a phenomenon known as plant blindness, humans tend to notice a cute mammal like a giant panda, above, far more readily than a Franklinia tree, left.

themselves: focusing on cute and cuddly mammals rather than reptilian or fishlike creatures. All of this results, the researchers contend, in humans having a poor understanding about plants' complex and irreplaceable role in Earth's ecology.

So how can humans become more attuned to plants? The authors suggest horticulturists and conservationists must

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create more encounters and experiential learning experiences with plants. This includes collaborating with artists and writers to amplify positive emotions towards plants. In other words, gorgeous botanical illustrations to the rescue.

To read more about this phenomenon, visit www.onlinelibrary.wiley.com and find the December 2016 volume of *Conservation Biology*.

TOMATOES TWO WEEKS EARLY

A new breeding development may extend the growing season—and the geographic range—for many fruit and vegetable crops. Using a new technology known as CRISPR, scientists can now edit specific genes in a species' genome to create targeted mutations.

As one of the first steps in this venture, biologists at the Cold Spring Harbor Laboratory (CSHL)—a nonprofit research institution in Laurel Hollow, New York—used the technology to develop tomatoes that flower two weeks earlier than most other varieties. The newly created variety is not transgenic,



The genetically edited tomato seedling on the right is flowering two weeks prior to a normal seedling of the same age.

because no DNA from outside the tomato genome was added. Done as part of a gene isolation experiment, it is unlikely this variety will be released in the near future. However, this technology “opens the door to expanding the geographical range of where the tomato crop can be grown,” says CSHL Associate Professor Zachary Lippman.

In effect, CRISPR bypasses the comparatively lengthy process of cross-breeding for desired genetic traits. The research team believes this holds promise for meeting future agricultural needs, not only for tomatoes but other crops as well. “It’s really about creating a genetic toolkit that enables growers and breeders in a

single generation to tweak the timing of flower production and thus yield, to help adapt our best varieties to grow in parts of the world where they don’t currently thrive,” says Lippman.

For more information about the tomato study, visit www.cshl.edu.

BOMB-SNIFFING PLANTS

Plants are known to be highly responsive to the conditions of their environments, such as drought or changes in the chemical properties of the soil. In an attempt to capitalize on this sensitivity, researchers at the Massachusetts Institute of Tech-



nology laced spinach plants with nanotechnology and then exposed the plants to a common bomb ingredient.

The plant leaves were first painted with a liquid solution containing nanosensors that were built to respond only to the desired molecules, “nitroaromatics” (nitrogen oxide). After the spinach absorbed the sensors through their leaf pores, their roots were exposed to nitroaromatics. Within 10 minutes the nanosensors responded, emitting fluorescent signals from within the plant. An infrared camera system detected these signals—since they aren’t visible to humans—and a smartphone-sized computer connected to the camera notified the researchers by e-mail.

In the future, the researchers hope to expand the sensing range of the experimental setup beyond one meter, so that similar systems might have practical applications in other situations, such as monitoring groundwater for chemical contaminants. The original paper, “Nitroaromatic detection and infrared communication from wild-type plants using plant nanobionics,” can be found in the October 31, 2016, issue of *Nature Materials*.

News written by Editorial Intern Lynn Brinkley.

GARDENER'S NOTEBOOK SPECIAL: Compost for a Cause

by Lynn Brinkley

MAKING AN investment in the soil is essential for a thriving garden. This is especially true in urban areas, where space is already at a premium, and in some sites, soil is contaminated with lead or other toxins. There's also an increasing need in urban areas to handle organic waste onsite rather than transport it to ever more distant landfills. Several cities are successfully addressing these issues by training volunteers to become master composters.

COMMUNITY COMPOSTERS

An inspiring example is the Neighborhood Soil Rebuilders (NSR), a composter training program devised in 2014 by the Institute for Local Self-Reliance (ILSR), based in Washington, D.C. In partnership with the Maryland-based ECO City Farms, ILSR promotes small-scale composting as a way to make waste into a resource and to keep that resource within communities producing it. "We are using compost to turn food deserts into oases of green. We're choosing to feed people and our soils over landfills and incinerators" says Margaret Morgan-Hubbard, CEO of ECO City Farms.

Of course, making all this happen requires a certain amount of know-how. All

sorts of educational entities from Extension services to nonprofit organizations and local government agencies offer compost training programs, of course. However, most of these programs "don't emphasize



A group of trainees in the Neighborhood Soil Rebuilders composting program practices the best way to compost organic waste.

the art and science of hot composting at the community-scale level," explains Linda Bilsens, NSR project manager.

The ILSR developed NSR with this in mind, so it requires its participants to develop a "capstone" project to implement in their communities and contribute a number of volunteer hours related to composting, in addition to completing classroom lessons and field work. Graduates can then partic-

ipate in an advanced composter apprenticeship to become trainers who can "engage youth, gardeners, and other members of the community in the act of cycling food waste into a valuable soil amendment," adds Bilsens. The NSR program is designed to be replicable anywhere, and so far has been successfully implemented in Lincoln, Nebraska, and Atlanta, Georgia.

GETTING INVOLVED

Urban dwellers looking to get involved in community composting efforts will likely have various options (see "Resources," below). To ensure best results, Bilsens notes that training programs should emphasize learning which systems are best for

which sites, the details of each stage in the composting process (from quantifying raw material inputs to quality testing the final product), and best practices to avoid common problems such as odors. Such programs often are offered in early spring, so there's no better time than the present to get started.

LEARNING TO DO IT YOURSELF

The controlled decomposition of organic waste seems an unexpected avenue for achieving lofty goals such as mitigating climate change, reducing one of the largest contributors to the waste stream, getting young people to care about our fragile soils, creating jobs, and building community spirit. Yet Bilsens contends that getting more people to compost can play a vital role in making progress on all of these issues. "To some people, composting seems silly," says Bilsens, "but once you start doing it and you actually see that you can create something while at the same time helping address a number of other big problems we face, it's pretty inspiring."

Lynn Brinkley is an editorial intern with The American Gardener.

Resources

Denver Urban Gardens Master Composter Training Program,
www.dug.org/master-composter.

Institute for Local Self-Reliance, www.neighborhoodsoilrebuilders.org.

Maine Compost School, www.composting.org.

NYC Compost Project Master Composter Certificate Program in collaboration with the Queens, Brooklyn, and New York Botanical Gardens, NYC Compost Project

Seattle Master Composter/Soil Builder Program, www.seattleilth.org.

State of Texas Alliance for Recycling Master Composter Program,

www.recyclingstar.org.

University of Illinois Chicago Master Composter Program,

www.web.extension.illinois.edu.

U.S. Compost Council, www.compostfoundation.org/Education/COTC.

Lights for Long Winter Nights

by Rita Pelczar

SHORT WINTER days mean long dark nights. Whether winters are cold or mild where you live, chances are, you'll still want to enjoy your garden as much as possible, so it's a good time to add some lights, which can serve a variety of functions. They can be placed where they will draw attention to the areas of your landscape that you want to highlight—such as a piece of sculpture, a specimen tree, or the boundaries of a raised bed—or to create dramatic silhouettes of plants against walls. Putting lights along paths and steps helps you and visitors navigate safely.

I am partial to solar lights. Because they tap the sun's rays for power, solar lights need no special wiring, so they are easy to install. And as long as the sun shines on them long enough during the day to charge their batteries, they usually provide plenty of light from dusk, when they automatically turn on, until dawn, when they shut off. These days, there are plenty of good solar-powered garden lighting options available to fit your needs and garden's style.



Solar Deck Lights

While the word "steps" appears in neither name, I like the **Solar Deck Lights** from Gardener's Supply Company (www.gardeners.com) and the **Solar Fence Lights** from Lights.com (www.lights.com/outdoor) for illuminating steps. Both come in sets of four, are



Solar Fence Lights

easy to install, and have low profiles that suit them to a variety of placements. Two screws secure each light for a flush mount against stair risers. (Of course, these fixtures can also be mounted on fences, decks, or walls.) On my stone front steps, I simply set the lights on the outer edge of each tread where they won't be stepped on. The Solar Deck Lights, which are available in either a silver or bronze finish, are rectangular, with an angled front that directs the solar



Brown Metal Solar Path Lights

collector upward toward the sun and the light downward. The Solar Fence Lights, which are available in brown or white, work in a similar manner, but are round with a curved face.

There are lots of solar path lights available that differ in style, finish, durability, and amount of light they produce. The simple clean lines of the **Heavy Duty Stainless Steel Warm White LED Solar Path Lights** from Lights.com work well with my garden's style and cast a soft glow along the



Heavy Duty Stainless Steel Warm White LED Solar Path Light

stone paths. The set of four lights are a snap to install. Simply pound the supplied plastic stake for each light into the ground and fit the metal sleeve of the light over it. Although I've seen such solar path lights placed equal distances apart along one side of a path, I prefer a more random arrangement. The light they provide is substantial enough that the pathway is visible without giving it a "runway" appearance.

If you prefer a Mission style in your path lights, consider the **Brown Metal Solar Path Lights (with Wall Sconce Converter)**, also from Lights.com. These sturdy and attractive metal-and-glass lights come in sets



Solar Lotus Lantern

of two and can be installed in the ground or as wall fixtures using the supplied adaptor mounts. When it gets dark, the units turn on, casting a pleasing geometric pattern of light on the ground below.

For tabletop or deck use, I like the **Solar Lotus Lantern** from Plow & Hearth (www.plowhearth.com). This 14-inch-tall lantern with textured panels casts a soft subtle glow that sets a pleasant mood without interfering with your stargazing. It includes a built-in holder for a battery-powered tea light of your own if you want additional illumination.

The limiting feature of the above-mentioned lights is that the col-

PROPER DISPOSAL OF SOLAR LIGHTS

Solar lights don't last forever. Depending on their quality, you can probably expect to get between one and six years of use from a solar light. Be sure to dispose of the used batteries properly; they should never be placed in the household trash. Take them to an appropriate waste drop-off site. If your solar fixture uses halogen or compact fluorescent light (CFL) bulbs, these too should be handled as hazardous material to be separated from household trash. Alternatively, solar lights can often be recycled like old computers, cell phones, and other



electronic products. For more information and to locate recycling and disposal centers in your area, contact www.call2recycle.org or <http://search.earth911.com>.

—R.P.

lector and light are housed in a single unit, so they must be placed in a sunny location in order to charge the solar battery. The collector should face the south for best results, particularly in winter when the sun is lower on the horizon.

To brighten an area that doesn't get much sun, or on the north side of your house, look for solar lights connected by a thin wire to a remote collector. The **Superbright Solar Spot Light** from Gardeners Supply Company is great for adding a focused beam of light to shadier paths—as long as the collector can be positioned in a sunny spot within a 15-foot range of the light. It can also be used to create dramatic uplighting effects by directing the light's beam through the branches of trees. The light is housed in sturdy, weatherproof, anodized alu-

minum, and the high-capacity batteries keep the light charged for several days even on days when there is little sunlight.

Outdoor lighting can contribute to both safety and enjoyment, but a good indoor plant light kit can keep you in fresh herbs



Compact Tabletop SunLite® Garden Kit

all winter, or give you a head start growing plants from seed for your spring garden. It's not solar-powered, but the **Compact Tabletop SunLite® Garden Kit** from Gardeners Supply Company can't be beat for tight spaces. At 25½ inches long and 15¼ inches wide, it's perfect for a countertop or small table. The sturdy aluminum stand provides easily adjustable height control of the low profile fixture, so the lights can be kept at the optimal distance from your plants. Also included are two full-spectrum T5 light bulbs and a watertight tray to hold your potted herbs or seedlings.

It may be winter, but with all the options I've covered here, there's no excuse for your outdoor—or indoor—garden not to shine.

Rita Pelczar is a contributing editor for The American Gardener.



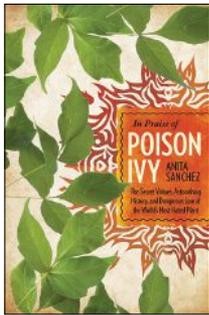
Superbright Solar Spot Light (solar collector in background)

Recommendations for Your Gardening Library

In Praise of Poison Ivy

Anita Sanchez. Taylor Trade Publishing, 2016. 370 pages. Publisher's price, hardcover: \$24.95.

AS SOMEONE who has experienced the discomfort of a poison ivy rash, I initially hesitated to pick up this book because of the stunningly graphic illustration of the plant on its cover. Once I pushed past my reluctance and opened the book, I was rewarded with a well-researched and absorbing story about one of our most pervasive—and reviled—native plants.



Anita Sanchez, whose specialty is to write about the least popular of the world's flora and fauna, sweeps the reader away on an adventure that stretches from the rugged New World settlement of

Jamestown to the elegant palaces of France and the bucolic English countryside. Along the way, she shares fascinating stories that connect famous historical people with poison ivy. Among others enfolded in the vines of the storyline are Captain John Smith, Charles Darwin, John James Audubon, Carolus Linnaeus, Marie Antoinette, and Thomas Jefferson. Who knew that such disparate people have a common botanical bond?

Facts about poison ivy's natural history also will improve the reader's view of this plant. For example, recent research has shown that the leaves and berries serve as important food sources for many insects, birds, and mammals. And poison ivy's roots play a significant role in erosion control, especially on fragile sand dunes. The autumn beauty of the russet-colored leaves (of which no two are alike) doesn't escape the appreciative eye of the author, a passionate proponent of native plants and their value to their ecosystems.

The book's appendix addresses the chemical makeup of urushiol, the rash-causing resin secreted by poison ivy. It also describes how it acts upon the human immune system, how to treat resulting rashes, and how to identify the plants to avoid those itchy rashes in the first place. Control options are offered, with a cautionary note concerning chemical methods.

The author's wry style adds to the appeal of the book, which is sure to delight those who enjoy reading about botany as well as those drawn to historical anecdotes. Upon completion, the reader will, without a doubt, have gained a fresh perspective on this ubiquitous and under-appreciated plant.

—Kathryn Lund Johnson

Kathryn Lund Johnson is a nature writer and photographer living in Michigan's Upper Peninsula. Find her on www.KLJNaturePhotos.com.

Plant: Exploring the Botanical World

Phaidon Press, New York, NY, 2016. 352 pages. Publisher's price, hardcover: \$59.95.

SO MANY FORMS of media vie for our attention these days that it is both refreshing and reassuring when a traditional coffee-table book manages to be mesmerizing. *Plant: Exploring the Botanical World* is just such a book. It represents the best that a large format art book can offer, packed with hundreds of high-quality reproductions of plant images and illustrations, complemented with informative text.



Arranged, by and large, as a series of beautifully paired images, the book

invites readers to dive in wherever they wish. With some exceptions, the images have no chronological or taxonomic relationship to each other. Sourced from all over the world and across various eras of human history, *Plant* makes few didactic comparisons, allowing viewers to muse on whatever theme strikes them.

It is difficult to say which is my favorite set of images. For sheer curation, the contrast between Claude Aubriet's watercolor *Agapanthus umbellatus*, prepared for Louis XIV in 1700, and Ron Van Dongen's photograph, *Pennisetum glaucum* 'Purple Majesty', taken in 2005, is a visual wonder. Despite the difference in medium, the watercolor of the *Agapanthus*, with its swirling leaves and upright stem, speaks across time to the photograph of a single stem, seed head, and blade of ornamental millet.

Another striking example is a page from one of J.M.W. Turner's sketch books depicting a patch of weeds. Juxtaposed with this hasty sketch is a far more contemporary work, *Lightweeds*, 2006, an interactive exhibition by Dutch-born artist Simon Heijdens. Described as a "location sensitive light projection work," these silhouettes of unidentified weeds and grasses reportedly grow in front of gallery visitors—spurred on by foot traffic and actual conditions out of doors. Interestingly, Turner's static sketch appears to have more movement than the photographic capture of Heijdens's dynamic installation.

Plant's unorthodox approach to the art, science, and visual history of botanical illustration makes for an exhilarating reader experience. In our fast-paced, digital world, this book offers a welcome indulgence in good old-fashioned paper-and-ink media focused on flowers and landscapes.

—Susan Hines

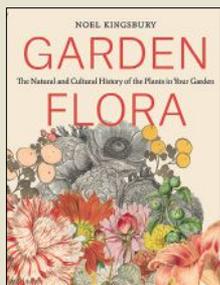
Susan Hines gardens in Hyattsville, Maryland, and is an active member of the Hyattsville Horticultural Society.

GARDENER'S BOOKS

Plant Lore

IN THE DEPTHS of winter, spring can seem like a far-off dream to many gardeners. To make the wait easier, settle in a comfortable chair with these recently published books filled with lush illustrations and fascinating yarns about interesting plants. Perusing their pages will feel almost like walking outside to enjoy the start of another growing season.

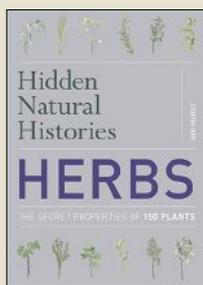
Flower enthusiasts will appreciate Noel Kingsbury's *Garden Flora: The Natural and Cultural History of the Plants in Your Garden* (Timber Press, 2016, \$40). It contains the abbreviated origin



stories of 133 of the most common temperate zone plants, lavishly illustrated with artwork by classic painters, contemporary photography, and images from

vintage catalogs. Considered specimens from *Abutilon* to *Zinnia* appear alphabetically by genus, and Kingsbury's entries amble through both their ecological origins and cultivation history.

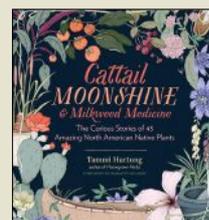
In *Hidden Natural Histories: Herbs* (University of Chicago Press, 2015, \$25), Kim Hurst profiles 150 plants with properties that enhance human quality of life in one way or another.



The book includes both common and lesser-known herbs, arranged alphabetically by botanical name. Hurst provides a brief outline of each plant's culinary, medicinal, cosmetic, or other use, as well as tidbits of folklore. Each profile also highlights the herb's most admired properties or warns of toxicity if misused.

In *Cattail Moonshine & Milkweed Medicine: The Curious Stories of 43 Amazing North American Native Plants* (Storey Publishing, 2016, \$19.95) by herbalist Tammi Hartung includes species that

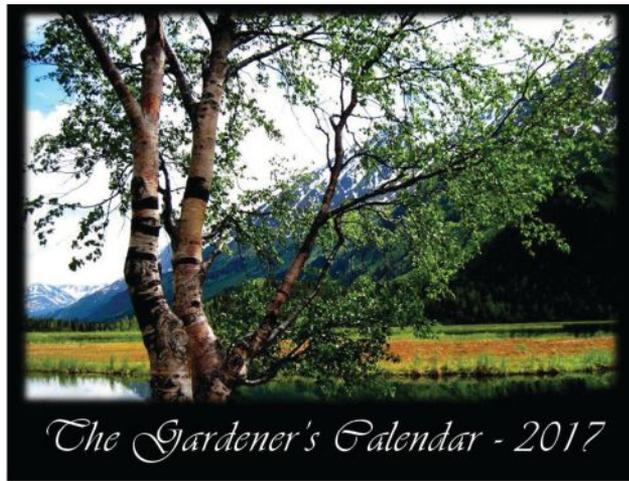
“have often greatly influenced how we shaped our daily lives both in practical and even survival ways, but also in ways that have given



us great pleasure or comfort.” This colorful volume also discusses these plants' potential contributions to a sustainable future in the form of plant-based materials, climate adaptation, or environmental cleanup.

—Lynn Brinkley, Editorial Intern

—Lynn Brinkley, Editorial Intern



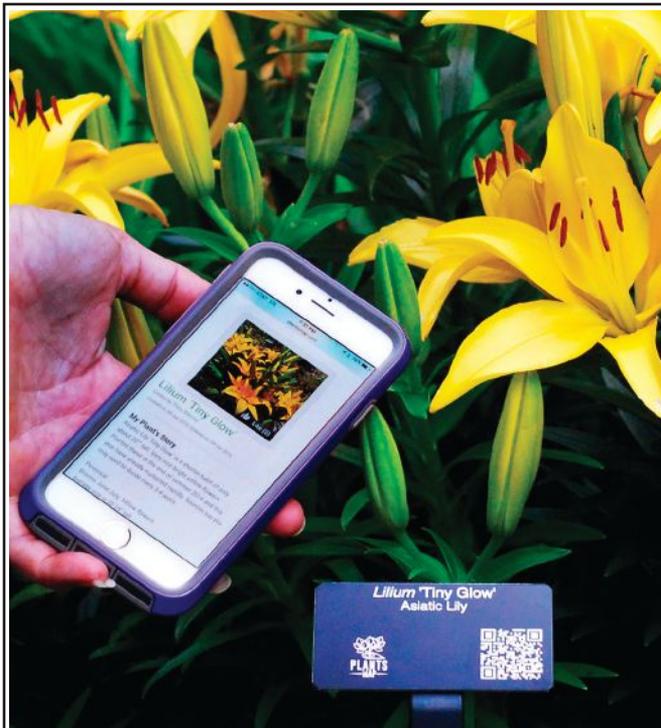
2017 “Gardeners” Calendar

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

The Gardeners of America/
Men's Garden Clubs of America
Box 241, Johnston, IA 50131-0241

(515) 278-0295 Email: www.tgoasecv@qwestoffice.net

Website: www.tgoa-mgca.org



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REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

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

RAP JAN. 29. **Design Solutions for Time-Pressed & Maturing Gardeners.** Lecture. Tower Hill Botanic Garden. Boylston, MA. (508) 869-6111. www.towerhillbg.org.

RAP FEB. 18. **Fruits You Only Dreamed You Could Grow.** Lecture. Wave Hill. New York, NY. (718) 549-3200 ext. 261. www.wavehill.org.

RAP FEB. 19. **Design: Stems & Stones.** Class. Tower Hill Botanic Garden. Boylston, MA. (508) 869-6111. www.towerhillbg.org.

 FEB. 23–26. **Connecticut Flower & Garden Show.** Connecticut Convention Center, Hartford, CT. (860) 844-8461. www.ctflowershow.com.

RAP FEB. 25 & 26. **Orchid Show.** Buffalo & Erie County Botanical Gardens. Buffalo, NY. (716) 827-1584. www.buffalogardens.com.

Looking ahead

MAR. 10–12. **ABCs of Farm-Based Education.** Educator Workshop. Shelburne Farms. Shelburne, VT. (802) 985-8686. www.shelburnefarms.org.

RAP MAR. 15–APR. 19. **Master Composter Program.** Queens Botanical Garden. Flushing, NY. (718) 539-5296. www.queensbotanical.org.

MAR. 22–26. **Boston Flower & Garden Show.** Boston, MA. (800) 258-8912. www.bostonflowershow.com.

MID-ATLANTIC

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

JAN. 27–29. **Virginia Flower & Garden Expo.** Virginia Beach Convention Center. Virginia Beach, VA. (757) 446-2187. www.vafgs.org.

JAN. 29. **Plants & People Walking Tour.** Rawlings Conservatory. Baltimore, MD. (410) 396-0008. www.rawlingsconservatory.org.

FEB. 16. **Working with Our Native Plant Partners.** Lecture. The Delaware Center for Horticulture. Wilmington, DE. (302) 658-6262. www.thedch.org.

RAP FEB. 18. **Eco-Savvy Symposium: Biodiversity Landscaping.** Class. Green

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.ahsgardening.org/rap.

Flower and garden shows that offer free or discounted admission to AHS members or present the AHS Environmental Award are designated by a  symbol. For details on the specific benefits offered, visit www.ahsgardening.org/2017-flower-shows.

Spring Gardens Park. Alexandria, VA. (703) 642-5173. www.fairfaxcounty.gov/parks/greenspring.

FEB. 23–MAR. 23. **Environmental Landscape Design.** Courses. Mt. Cuba Center. Hockessin, DE. (302) 239-8807. www.mtcubacenter.org.

FEB. 27. **Rooting DC.** Urban Gardening Forum. Washington, D.C. www.rootingdc.org.

Looking ahead

RAP MAR. 3. **Growing Together: Cultivating Change in the Economic Landscape.** Longwood Graduate Program Symposium Longwood Gardens. Kennett Square, PA. (610) 388-1000. www.longwoodgardens.org.

 MAR. 4 & 5 & 10–12. **Maryland Home & Garden Show.** Maryland State Fairgrounds, Timonium, MD. (410) 863-1180. www.mdhomeandgarden.com/spring.

 MAR. 11–19. **Philadelphia Flower Show.** Pennsylvania Convention Center, Philadelphia, PA. (215) 988-8800. www.theflowershow.com.

SOUTHEAST

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

RAP JAN. 21–FEB. 18. **Beekeeping Beginner's Course.** Smith-Gilbert Gardens. Kennesaw, GA. (770) 919-0248. www.smithgilbertgardens.com.

FEB. 11–25. **Orchid Care Classes.** Series. Bonnet House Museum & Gardens. Fort Lauderdale, FL. (954) 703-2606. www.bonnethouse.org.

 FEB. 24–26 & MAR. 3–5. **Southern Spring Home & Garden Show.** The Park Expo and Conference Center, Charlotte, NC. (704) 376-6594. www.southernshows.com/sss.

RAP FEB. 25. **The Inspired Gardener Symposium.** Atlanta Botanical Garden. Atlanta, GA. (404) 876-5859 ext. 2558. www.atlantabg.org.

RAP FEB. 25. **Pruning.** Workshop. Huntsville Botanical Garden. Huntsville, AL.

Land Ethics Symposium in Pennsylvania

FOUNDED IN 1934, Bowman's Hill Wildflower Preserve in New Hope, Pennsylvania, encourages the appreciation and use of plants native to Pennsylvania and the northeastern United States. To that end, Bowman's Hill sponsors a number of notable educational programs, including its annual Land Ethics Symposium. This year's symposium, the 17th installment, will be held at Delaware Valley University in Doylestown, Pennsylvania, on March 9.

Geared toward landscape architects, designers, land use planners, environmental consultants, and professionals in related fields, this year's symposium will focus on the theme, "Creative Approaches for Ecological Landscaping." Featured speakers will present on topics ranging from recommendations for underused native perennials to managing invasive species and dealing with climate change issues. The symposium also provides valuable networking opportunities and offers continuing education credits accepted by an array of regional and national organizations.

To register, visit www.bhwp.org or call (215) 862-2924.

—Lynn Brinkley, Editorial Intern

(256) 837-4344. www.hsvbg.org.

Looking ahead

MAR. 2-5. **Nashville Lawn & Garden Show.** Nashville, TN. (615) 876-7680. www.nashvillelawnandgardenshow.com.

NORTH CENTRAL

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

JAN. 28. **Toward Harmony with Nature Conference.** Wild Ones: Native Plants, Natural Landscapes. Oshkosh, WI. (920) 749-7807. www.foxvalleyarea.wildones.org.

FEB. 10-12. **Wisconsin Garden Expo.** Alliant Energy Center. Madison, WI. (608) 262-5256. www.wigardenexpo.com.

RAP FEB. 11. **Shrubs: Pruning Essentials.** Class. University of Minnesota Landscape Arboretum. Chaska, MN. (952) 443-1400. www.arboretum.umn.edu.

RAP FEB. 11-MAR. 26. **The Orchid Show.** Chicago Botanic Garden. Glencoe, IL. (847) 835-5440. www.chicagobotanic.org.

SOUTH CENTRAL

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

RAP FEB. 9. **Greenhouse Propagation of Native Plants.** Class. Missouri Botanical Garden. Gray Summit, MO. (636) 451-3512. www.mobot.org.

Origami in the Garden

WHEN YOU think about origami, you might envision an elegantly folded paper artform that can sit in the palm of your hand. Imagine that same object transformed into a metal sculpture that stands 20 feet tall. Now imagine hundreds of such objects displayed in a garden and you have "Origami in the Garden," a sculpture exhibit created by artist Kevin Box and his wife, Jennifer, who are based in Santa Fe, New Mexico.



A herd of colorful cast-metal "origami" pony sculptures gallop through the garden.

The exhibit—which includes Box's own compositions as well as collaborative works with several well known origami artists—has been touring North American public gardens since 2013. It is currently on display at the Naples Botanical Garden in Florida through April 23. From there it moves to the Morton Arboretum in Lisle, Illinois, from May 18 through October 22. At both venues, family activities and related lectures are being held in conjunction with the exhibit.

According to Box, each sculpture is cast in a metal such as bronze, replicating the nuanced detail of origami's folded paper in a more permanent form. The centerpiece of the exhibition is Master Peace, a 25-foot-tall sculpture created from 1,000 individually cast stainless steel cranes.

More information for the Florida show can be found at www.artisnaples.org or by calling (239) 597-1900. More information for the Chicago area show can be found at www.mortonarb.org or by calling (630) 968-0074.

—Lynn Brinkley, Editorial Intern

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RAP FEB. 11. **Shiitake Mushroom Farming.** Garvan Woodland Gardens. Hot Springs National Park, AR. (800) 366-4664. www.garvangardens.org.

RAP FEB. 22. **Healthy Yard, Healthy Planet: Gardening for Sustainability.** Lecture. Botanical Garden of the Ozarks. Fayetteville, AR. (479) 750-2620. www.bgozarks.org.

 FEB. 24–26. **Arkansas Flower & Garden Show.** Little Rock, AR. (501) 821-4000. www.argardenshow.org.

RAP FEB. 25–APR. 9. **Dallas Blooms Festival.** Dallas Arboretum & Botanical Garden. Dallas, TX. (214) 515-6615. www.dallasarboretum.org.

SOUTHWEST

AZ, CO, NM, UT

FEB. 4. **Growing Fruit in the Desert Environment.** Workshop. Boyce Thompson Arboretum. Superior, AZ. (602) 438-4003. www.arboretum.ag.arizona.edu.

RAP FEB. 11. **Berries & Grapes for the Front Range.** Class. Denver Botanic Gardens. Denver, CO. (720) 865-3500. www.botanicgardens.org.

RAP FEB. 16. **Plants as Prey: the Human-Plant Ecology of 1000 Years Ago.** Lecture. Santa Fe Botanical Garden. (505) 471-9103. www.santafebotanicalgarden.org.

Looking ahead

RAP MAR. 4. **High Plains Landscaping.** The Gardens on Spring Creek. Fort Collins, CO. (970) 416-2486. www.fcgov.com/gardens.

MAR. 4–31. **March Madness Flower Show.** ABQ Biopark Botanic Garden. Albuquerque, NM. (505) 848-7112. www.cabq.gov/culturalservices/biopark.

RAP MAR. 8. **Water Wise Landscape Planning for Non-Designers.** Class. Denver Botanic Gardens. Denver, CO. (720) 865-3500. www.botanicgardens.org.

MAR. 11–APR. 15. **DIY Desert Design.** Class series. Tucson Botanical Garden. (520) 326-9686. www.tucsonbotanical.org.

WEST COAST

CA, HI, NV

RAP JAN. 12, FEB. 10, & MAR. 12. **Magnolias by Moonlight.** Guided tour. San Francisco Botanical Garden. San Francisco, CA. (415) 661-1316. www.sfbotanicalgarden.society.org.

JAN. 28. **Wiliwili Festival.** Waikoloa Dry Forest Initiative. Waikoloa Village, HI. www.waikoloaforest.org.

Cherry Blossom Festival in California



FOR TWO WEEKENDS in March, 4 & 5 and 11 & 12, Descanso Gardens in La Cañada Flintridge, California, is hosting its annual Cherry Blossom Festival, timed to coincide with the flowering spectacle provided by the gardens' cherry trees and other spring-blooming plants. Visitors will also enjoy live music, Japanese fusion cuisine, origami, and a range of educational activities. Those inspired to grow their own cherry tree can do so by way of a cherry tree sale held during the opening weekend.

Timed tickets for the event are available online beginning February 17. For more information, visit www.descansogardens.org, or call (818) 949-4200.

—Lynn Brinkley, Editorial Intern

FEB. 2–23. **Hawaiian Planting & Permaculture.** Thursday Classes. Hawaiian Sanctuary. Pahoa, Big Island, HI. (248) 245-9483. www.hawaiiansanctuary.com.

RAP FEB. 11 & 12. **Camellia & Tea Festival.** Descanso Gardens. La Cañada Flintridge, CA. (818) 949-4200. www.descansogardens.org.

RAP FEB. 18. **Beneficial Bugs in the Garden.** Lecture. South Coast Botanic Garden. Palos Verdes Peninsula, CA. (310) 544-1948. www.southcoastbotanicalgarden.org.

RAP FEB. 18. **Botany Skills for the Edible/Medicinal Plant Enthusiast.** Lecture. San Luis Obispo Botanical Garden. San Luis Obispo, CA. (805) 541-1400 ext. 303. www.slobg.org.

RAP FEB. 18. **Swale Workshop.** Los Angeles County Arboretum. Arcadia, CA. (626) 821-4623. www.arboretum.org.

Looking ahead

RAP MAR. 4. **Composting with Worms.** Class. Fullerton Arboretum. Fullerton, CA. (657) 278-4681. www.fullertonarboretum.com.

 APR. 5–9. **San Francisco Flower & Garden Show.** San Mateo Event Center, San Mateo, CA. (415) 684-7278. www.sfgardenshow.com.

NORTHWEST

AK, ID, MT, OR, WA, WY

RAP FEB. 18. **Rethinking Idaho Landscapes Symposium.** Idaho Botanical Garden. Boise, ID. (208) 343-8649. www.idahobotanicalgarden.org.

 FEB. 22–26. **Northwest Flower & Garden Show.** Washington State Convention Center, Seattle, WA. (253) 756-2121. www.gardenshow.com.

Looking ahead

RAP MAR. 4. **Permaculture for the Backyard Gardener.** Class. Bellevue Botanical Gardens. Bellevue, WA. (425) 452-2750. www.bellevuebotanical.org.

MAR. 16. **Design Your Garden for Year Round Color.** Class. Sawtooth Botanical Garden. Ketchum, ID. (208) 726-9358. www.sbgarden.org.

CANADA

RAP FEB. 22. **Native Plants with Multi-Season Shade Garden Appeal.** Lecture. Toronto Botanical Garden. Toronto, ON. (416) 397-1341. www.torontobotanicalgarden.ca.

MAR. 10–19. **Canada Blooms.** Flower and garden festival. Enercare Center. Toronto, ON. (416) 263-3000. www.canadablooms.com.



American Horticultural Society Members-Only SEED EXCHANGE

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available seeds!

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Orders must be received by **March 4, 2017**. Because supplies are limited, early ordering is advised as is providing substitution preferences with your order. In the event that particular seeds have sold out, you may specify up to five substitute selections to fill your order.

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For a quick reference, here is the list of seeds to choose from, with an order form on the opposite page.

KEY TO DESCRIPTIONS: CV(S)=CULTIVAR(S) SP. & SPP.=SPECIES SSP.=SUBSPECIES SYN.=SYNONYM VAR.=VARIETY

ANNUALS AND BIENNIALS

- | | | |
|--|--|--|
| <p>1 <i>Alcea rosea</i> 'Mars Magic' (hollyhock cv.; red)</p> <p>2 <i>Alcea rosea</i> 'Summer Carnival' (hollyhock; mixed colors)</p> <p>3 <i>Cleome hassleriana</i> (spider flower, cleome; mixed colors)</p> <p>4 <i>Consolida ajacis</i> (larkspur; mixed colors)</p> <p>5 <i>Cosmos bipinnatus</i> (cosmos; mixed colors)</p> <p>6 <i>Cosmos bipinnatus</i> 'Bright Lights' (cosmos cv.; dwarf; mixed colors)</p> <p>7 <i>Cosmos bipinnatus</i> 'Dazzler' (cosmos cv.; red)</p> <p>8 <i>Cosmos sulphureus</i> (cosmos; orange and yellow mix)</p> <p>9 <i>Digitalis purpurea</i> (common foxglove; mixed colors)</p> <p>10 <i>Eschscholzia californica</i> 'Mission Bells' (California poppy cv.; mixed colors)</p> <p>11 <i>Lavatera trimestris</i> (annual mal-low; pink and white mix)</p> <p>12 <i>Lunaria annua</i> (honesty, money plant; purple and white mix)</p> <p>13 <i>Mirabilis jalapa</i> (four o'clock; mixed colors)</p> <p>14 <i>Nicotiana glauca</i> (flowering or woodland tobacco)</p> <p>15 <i>Orlaya grandiflora</i> (white lace-flower)</p> <p>16 <i>Papaver somniferum</i> (breadseed poppy)</p> <p>17 <i>Ricinus communis</i> 'New Zealand Purple' (castor bean cv.)</p> <p>18 <i>Viola × wittrockiana</i> Swiss Giants mix (pansy cv.; mixed colors)</p> <p>19 <i>Zinnia elegans</i> (zinnia; mixed colors)</p> <p>20 <i>Zinnia elegans</i> 'Apricot Blush' (zinnia cv.)</p> <p>21 <i>Zinnia elegans</i> 'Lilliput' (zinnia cv.; dwarf; mixed colors)</p> <p>22 <i>Zinnia pauciflora</i> (small-flowered zinnia; mixed colors)</p> | <p>28 <i>Chasmanthium latifolium</i> (river oats)</p> <p>29 <i>Chrysopsis mariana</i> (Maryland golden aster)</p> <p>30 <i>Echinacea purpurea</i> (purple coneflower)</p> <p>31 <i>Echinops ritro</i> (small globe thistle)</p> <p>32 <i>Erysimum perofskianum</i> (wallflower)</p> <p>33 <i>Gaillardia × grandiflora</i> 'Arizona Sun' (blanket flower cv.)</p> <p>34 <i>Helenium autumnale</i> (sneeze-weed)</p> <p>35 <i>Hibiscus coccineus</i> (scarlet rosemallow, swamp hibiscus)</p> <p>36 <i>Hosta</i> spp. (hosta mix)</p> <p>37 <i>Iris sibirica</i> (Siberian iris)</p> <p>38 <i>Liatris aspera</i> (rough blazing star)</p> <p>39 <i>Lilium formosanum</i> (Formosa lily)</p> <p>40 <i>Lobelia cardinalis</i> (cardinal flower)</p> <p>41 <i>Lychnis coronaria</i> 'Alba' (white rose campion cv.)</p> <p>42 <i>Ratibida columnifera</i> (Mexican hat)</p> <p>43 <i>Rudbeckia triloba</i> (brown-eyed Susan)</p> <p>44 <i>Senna hebecarpa</i>, syn. <i>Cassia hebecarpa</i> (wild senna)</p> <p>45 <i>Verbena hastata</i> (blue vervain, swamp verbena)</p> <p>46 <i>Verbesina virginica</i> (frostweed)</p> | <p>59 <i>Sophora secundiflora</i> (mescal bean, Texas mountain laurel)</p> |
| HERBS | | |
| <p>60 <i>Allium schoenoprasum</i> (chives)</p> <p>61 <i>Allium tuberosum</i> (garlic chives)</p> <p>62 <i>Anethum graveolens</i> (dill)</p> <p>63 <i>Levisticum officinale</i> (lovage)</p> <p>64 <i>Ocimum basilicum</i> (heirloom basil selection)</p> <p>65 <i>Salvia officinalis</i> (common sage)</p> | <p>28 <i>Chasmanthium latifolium</i> (river oats)</p> <p>29 <i>Chrysopsis mariana</i> (Maryland golden aster)</p> <p>30 <i>Echinacea purpurea</i> (purple coneflower)</p> <p>31 <i>Echinops ritro</i> (small globe thistle)</p> <p>32 <i>Erysimum perofskianum</i> (wallflower)</p> <p>33 <i>Gaillardia × grandiflora</i> 'Arizona Sun' (blanket flower cv.)</p> <p>34 <i>Helenium autumnale</i> (sneeze-weed)</p> <p>35 <i>Hibiscus coccineus</i> (scarlet rosemallow, swamp hibiscus)</p> <p>36 <i>Hosta</i> spp. (hosta mix)</p> <p>37 <i>Iris sibirica</i> (Siberian iris)</p> <p>38 <i>Liatris aspera</i> (rough blazing star)</p> <p>39 <i>Lilium formosanum</i> (Formosa lily)</p> <p>40 <i>Lobelia cardinalis</i> (cardinal flower)</p> <p>41 <i>Lychnis coronaria</i> 'Alba' (white rose campion cv.)</p> <p>42 <i>Ratibida columnifera</i> (Mexican hat)</p> <p>43 <i>Rudbeckia triloba</i> (brown-eyed Susan)</p> <p>44 <i>Senna hebecarpa</i>, syn. <i>Cassia hebecarpa</i> (wild senna)</p> <p>45 <i>Verbena hastata</i> (blue vervain, swamp verbena)</p> <p>46 <i>Verbesina virginica</i> (frostweed)</p> | <p>84 <i>Curcubita pepo</i> (pumpkin cvs. 'Big Max' or 'Jack O'Lantern')</p> <p>85 <i>Curcubita pepo</i> 'Cinderella's Carriage' (heirloom pumpkin cv.)</p> <p>86 <i>Curcubita pepo</i> 'Early Sugar' (pumpkin cv.)</p> <p>87 <i>Daucus carota</i> ssp. <i>sativus</i> (carrot cvs. 'Little Finger' or 'Tendersweet')</p> <p>88 <i>Daucus carota</i> ssp. <i>sativus</i> 'Round Romeo' (carrot cv.)</p> <p>89 <i>Eruca versicaria</i> var. <i>sativa</i> (arugula)</p> |
| VEGETABLES | | |
| <p>66 <i>Allium ampeloprasum</i> 'Striesen' (leek cv.)</p> <p>67 <i>Allium cepa</i> 'Rossa Lunga di Firenze' (heirloom bunching onion cv.)</p> <p>68 <i>Allium fistulosum</i> 'White Lisbon' (green onion, scallion cv.)</p> <p>69 <i>Beta vulgaris</i> 'Ruby Queen' (beet cv.)</p> <p>70 <i>Beta vulgaris</i> var. <i>cicla</i> (Swiss chard cvs. 'Italian Silver Rib' or 'Scarlet Charlotte')</p> <p>71 <i>Beta vulgaris</i> var. <i>cicla</i> 'Pot of Gold' (Swiss chard cv.)</p> <p>72 <i>Brassica juncea</i> (mustard cvs. 'Southern Giant Curled' or 'Mild Mustard Mix')</p> <p>73 <i>Brassica oleracea</i> var. <i>acephala</i> 'Lacinato' (dinosaur kale cv.)</p> <p>74 <i>Capsicum annuum</i> (bell pepper cvs. 'California Wonder', 'Canary Bell', or 'Coral Bell')</p> <p>75 <i>Capsicum annuum</i> (Thai chili pepper mix cvs. 'Full Moon' and 'Vesuvius')</p> <p>76 <i>Cichorium endivia</i> var. <i>crispum</i> 'Glory' (curly endive cv.)</p> <p>77 <i>Cucumis melo</i> (cantaloupe cvs. 'Hale's Best Jumbo' or 'Imperial 45')</p> <p>78 <i>Cucumis melo</i> 'Melone Retato Degli Ortolani' (heirloom melon cv.)</p> <p>79 <i>Cucumis sativus</i> 'Endeavor' (slicing and pickling cucumber cv.)</p> <p>80 <i>Cucumis sativus</i> (slicing cucumber cvs. 'Poinsett 76' or 'Straight Eight')</p> <p>81 <i>Cucumis sativus</i> (lemon yellow cucumber)</p> <p>82 <i>Curcubita pepo</i> (white acorn squash)</p> <p>83 <i>Curcubita pepo</i> 'Bennings Green Tint' (pattypan summer squash cv.)</p> | <p>90 <i>Lactuca sativa</i> (baby lettuce mix)</p> <p>91 <i>Lactuca sativa</i> (lettuce mix)</p> <p>92 <i>Lactuca sativa</i> 'Kagraner Sommer' (heirloom butterhead lettuce cv.)</p> <p>93 <i>Lactuca sativa</i> 'Merveille de Quatre Saisons' (heirloom bibb lettuce cv.)</p> <p>94 <i>Lactuca sativa</i> 'Red Salad Bowl' (looseleaf lettuce cv.)</p> <p>95 <i>Pastinaca sativa</i> 'Hollow Crown' (parsnip cv.)</p> <p>96 <i>Phaseolus vulgaris</i> 'Classic Slenderette' (bush bean cv.)</p> <p>97 <i>Phaseolus vulgaris</i> 'Roma Improved' (bush bean cv.)</p> <p>98 <i>Phaseolus vulgaris</i> (pole bean cvs. mix 'Rattlesnake' and 'Purple Pole')</p> <p>99 <i>Pisum sativum</i> (snow pea cvs. 'Oregon Sugar Pod #2' or 'Oregon Giant')</p> <p>100 <i>Pisum sativum</i> 'Sabre' (shelling pea cv.)</p> <p>101 <i>Raphanus sativus</i> 'Petit Déjeuner' (radish cv.)</p> <p>102 <i>Raphanus sativus</i> 'White Icicle' (radish cv.)</p> <p>103 <i>Solanum lycopersicum</i> 'Jubilee' (yellow slicing tomato cv.)</p> <p>104 <i>Solanum lycopersicum</i> 'Roma' (paste tomato cv.)</p> <p>105 <i>Solanum melongena</i> 'Little Prince' (compact purple eggplant cv.)</p> <p>106 <i>Solanum melongena</i> 'Violetta Lunga' (heirloom purple eggplant cv.)</p> <p>107 <i>Spinacia oleracea</i> 'Bloomsdale Long Standing' (spinach cv.)</p> <p>108 <i>Triticum monococcum</i> (Einkorn heirloom wheat)</p> <p>109 <i>Zea mays</i> 'Kandy Korn' (hybrid yellow sweet corn cv.)</p> | <p>91 <i>Lactuca sativa</i> (lettuce mix)</p> <p>92 <i>Lactuca sativa</i> 'Kagraner Sommer' (heirloom butterhead lettuce cv.)</p> <p>93 <i>Lactuca sativa</i> 'Merveille de Quatre Saisons' (heirloom bibb lettuce cv.)</p> <p>94 <i>Lactuca sativa</i> 'Red Salad Bowl' (looseleaf lettuce cv.)</p> <p>95 <i>Pastinaca sativa</i> 'Hollow Crown' (parsnip cv.)</p> <p>96 <i>Phaseolus vulgaris</i> 'Classic Slenderette' (bush bean cv.)</p> <p>97 <i>Phaseolus vulgaris</i> 'Roma Improved' (bush bean cv.)</p> <p>98 <i>Phaseolus vulgaris</i> (pole bean cvs. mix 'Rattlesnake' and 'Purple Pole')</p> <p>99 <i>Pisum sativum</i> (snow pea cvs. 'Oregon Sugar Pod #2' or 'Oregon Giant')</p> <p>100 <i>Pisum sativum</i> 'Sabre' (shelling pea cv.)</p> <p>101 <i>Raphanus sativus</i> 'Petit Déjeuner' (radish cv.)</p> <p>102 <i>Raphanus sativus</i> 'White Icicle' (radish cv.)</p> <p>103 <i>Solanum lycopersicum</i> 'Jubilee' (yellow slicing tomato cv.)</p> <p>104 <i>Solanum lycopersicum</i> 'Roma' (paste tomato cv.)</p> <p>105 <i>Solanum melongena</i> 'Little Prince' (compact purple eggplant cv.)</p> <p>106 <i>Solanum melongena</i> 'Violetta Lunga' (heirloom purple eggplant cv.)</p> <p>107 <i>Spinacia oleracea</i> 'Bloomsdale Long Standing' (spinach cv.)</p> <p>108 <i>Triticum monococcum</i> (Einkorn heirloom wheat)</p> <p>109 <i>Zea mays</i> 'Kandy Korn' (hybrid yellow sweet corn cv.)</p> |
| VINES | | |
| <p>47 <i>Ipomoea tricolor</i> 'Heavenly Blue' (morning glory cv.)</p> <p>48 <i>Lathyrus odoratus</i> (sweet pea; mixed colors)</p> <p>49 <i>Lathyrus odoratus</i> (sweet pea; mixed, ruffled petal cvs.)</p> <p>50 <i>Lathyrus odoratus</i> 'North Shore' (heirloom sweet pea cv.)</p> <p>51 <i>Lathyrus odoratus</i> 'Painted Lady' (heirloom sweet pea cv.)</p> <p>52 <i>Lathyrus sativus</i> var. <i>azureus</i> (blue sweet pea, chickling pea)</p> | <p>91 <i>Lactuca sativa</i> (lettuce mix)</p> <p>92 <i>Lactuca sativa</i> 'Kagraner Sommer' (heirloom butterhead lettuce cv.)</p> <p>93 <i>Lactuca sativa</i> 'Merveille de Quatre Saisons' (heirloom bibb lettuce cv.)</p> <p>94 <i>Lactuca sativa</i> 'Red Salad Bowl' (looseleaf lettuce cv.)</p> <p>95 <i>Pastinaca sativa</i> 'Hollow Crown' (parsnip cv.)</p> <p>96 <i>Phaseolus vulgaris</i> 'Classic Slenderette' (bush bean cv.)</p> <p>97 <i>Phaseolus vulgaris</i> 'Roma Improved' (bush bean cv.)</p> <p>98 <i>Phaseolus vulgaris</i> (pole bean cvs. mix 'Rattlesnake' and 'Purple Pole')</p> <p>99 <i>Pisum sativum</i> (snow pea cvs. 'Oregon Sugar Pod #2' or 'Oregon Giant')</p> <p>100 <i>Pisum sativum</i> 'Sabre' (shelling pea cv.)</p> <p>101 <i>Raphanus sativus</i> 'Petit Déjeuner' (radish cv.)</p> <p>102 <i>Raphanus sativus</i> 'White Icicle' (radish cv.)</p> <p>103 <i>Solanum lycopersicum</i> 'Jubilee' (yellow slicing tomato cv.)</p> <p>104 <i>Solanum lycopersicum</i> 'Roma' (paste tomato cv.)</p> <p>105 <i>Solanum melongena</i> 'Little Prince' (compact purple eggplant cv.)</p> <p>106 <i>Solanum melongena</i> 'Violetta Lunga' (heirloom purple eggplant cv.)</p> <p>107 <i>Spinacia oleracea</i> 'Bloomsdale Long Standing' (spinach cv.)</p> <p>108 <i>Triticum monococcum</i> (Einkorn heirloom wheat)</p> <p>109 <i>Zea mays</i> 'Kandy Korn' (hybrid yellow sweet corn cv.)</p> | <p>91 <i>Lactuca sativa</i> (lettuce mix)</p> <p>92 <i>Lactuca sativa</i> 'Kagraner Sommer' (heirloom butterhead lettuce cv.)</p> <p>93 <i>Lactuca sativa</i> 'Merveille de Quatre Saisons' (heirloom bibb lettuce cv.)</p> <p>94 <i>Lactuca sativa</i> 'Red Salad Bowl' (looseleaf lettuce cv.)</p> <p>95 <i>Pastinaca sativa</i> 'Hollow Crown' (parsnip cv.)</p> <p>96 <i>Phaseolus vulgaris</i> 'Classic Slenderette' (bush bean cv.)</p> <p>97 <i>Phaseolus vulgaris</i> 'Roma Improved' (bush bean cv.)</p> <p>98 <i>Phaseolus vulgaris</i> (pole bean cvs. mix 'Rattlesnake' and 'Purple Pole')</p> <p>99 <i>Pisum sativum</i> (snow pea cvs. 'Oregon Sugar Pod #2' or 'Oregon Giant')</p> <p>100 <i>Pisum sativum</i> 'Sabre' (shelling pea cv.)</p> <p>101 <i>Raphanus sativus</i> 'Petit Déjeuner' (radish cv.)</p> <p>102 <i>Raphanus sativus</i> 'White Icicle' (radish cv.)</p> <p>103 <i>Solanum lycopersicum</i> 'Jubilee' (yellow slicing tomato cv.)</p> <p>104 <i>Solanum lycopersicum</i> 'Roma' (paste tomato cv.)</p> <p>105 <i>Solanum melongena</i> 'Little Prince' (compact purple eggplant cv.)</p> <p>106 <i>Solanum melongena</i> 'Violetta Lunga' (heirloom purple eggplant cv.)</p> <p>107 <i>Spinacia oleracea</i> 'Bloomsdale Long Standing' (spinach cv.)</p> <p>108 <i>Triticum monococcum</i> (Einkorn heirloom wheat)</p> <p>109 <i>Zea mays</i> 'Kandy Korn' (hybrid yellow sweet corn cv.)</p> |
| TREES AND SHRUBS | | |
| <p>53 <i>Acer griseum</i> (paperbark maple)</p> <p>54 <i>Firmiana simplex</i> (Chinese parasol tree)</p> <p>55 <i>Magnolia grandiflora</i> (southern magnolia)</p> <p>56 <i>Mimosa pudica</i> (sensitive plant)</p> <p>57 <i>Plumeria rubra</i> (frangipani)</p> <p>58 <i>Quercus macrocarpa</i> (bur oak)</p> | <p>91 <i>Lactuca sativa</i> (lettuce mix)</p> <p>92 <i>Lactuca sativa</i> 'Kagraner Sommer' (heirloom butterhead lettuce cv.)</p> <p>93 <i>Lactuca sativa</i> 'Merveille de Quatre Saisons' (heirloom bibb lettuce cv.)</p> <p>94 <i>Lactuca sativa</i> 'Red Salad Bowl' (looseleaf lettuce cv.)</p> <p>95 <i>Pastinaca sativa</i> 'Hollow Crown' (parsnip cv.)</p> <p>96 <i>Phaseolus vulgaris</i> 'Classic Slenderette' (bush bean cv.)</p> <p>97 <i>Phaseolus vulgaris</i> 'Roma Improved' (bush bean cv.)</p> <p>98 <i>Phaseolus vulgaris</i> (pole bean cvs. mix 'Rattlesnake' and 'Purple Pole')</p> <p>99 <i>Pisum sativum</i> (snow pea cvs. 'Oregon Sugar Pod #2' or 'Oregon Giant')</p> <p>100 <i>Pisum sativum</i> 'Sabre' (shelling pea cv.)</p> <p>101 <i>Raphanus sativus</i> 'Petit Déjeuner' (radish cv.)</p> <p>102 <i>Raphanus sativus</i> 'White Icicle' (radish cv.)</p> <p>103 <i>Solanum lycopersicum</i> 'Jubilee' (yellow slicing tomato cv.)</p> <p>104 <i>Solanum lycopersicum</i> 'Roma' (paste tomato cv.)</p> <p>105 <i>Solanum melongena</i> 'Little Prince' (compact purple eggplant cv.)</p> <p>106 <i>Solanum melongena</i> 'Violetta Lunga' (heirloom purple eggplant cv.)</p> <p>107 <i>Spinacia oleracea</i> 'Bloomsdale Long Standing' (spinach cv.)</p> <p>108 <i>Triticum monococcum</i> (Einkorn heirloom wheat)</p> <p>109 <i>Zea mays</i> 'Kandy Korn' (hybrid yellow sweet corn cv.)</p> | <p>91 <i>Lactuca sativa</i> (lettuce mix)</p> <p>92 <i>Lactuca sativa</i> 'Kagraner Sommer' (heirloom butterhead lettuce cv.)</p> <p>93 <i>Lactuca sativa</i> 'Merveille de Quatre Saisons' (heirloom bibb lettuce cv.)</p> <p>94 <i>Lactuca sativa</i> 'Red Salad Bowl' (looseleaf lettuce cv.)</p> <p>95 <i>Pastinaca sativa</i> 'Hollow Crown' (parsnip cv.)</p> <p>96 <i>Phaseolus vulgaris</i> 'Classic Slenderette' (bush bean cv.)</p> <p>97 <i>Phaseolus vulgaris</i> 'Roma Improved' (bush bean cv.)</p> <p>98 <i>Phaseolus vulgaris</i> (pole bean cvs. mix 'Rattlesnake' and 'Purple Pole')</p> <p>99 <i>Pisum sativum</i> (snow pea cvs. 'Oregon Sugar Pod #2' or 'Oregon Giant')</p> <p>100 <i>Pisum sativum</i> 'Sabre' (shelling pea cv.)</p> <p>101 <i>Raphanus sativus</i> 'Petit Déjeuner' (radish cv.)</p> <p>102 <i>Raphanus sativus</i> 'White Icicle' (radish cv.)</p> <p>103 <i>Solanum lycopersicum</i> 'Jubilee' (yellow slicing tomato cv.)</p> <p>104 <i>Solanum lycopersicum</i> 'Roma' (paste tomato cv.)</p> <p>105 <i>Solanum melongena</i> 'Little Prince' (compact purple eggplant cv.)</p> <p>106 <i>Solanum melongena</i> 'Violetta Lunga' (heirloom purple eggplant cv.)</p> <p>107 <i>Spinacia oleracea</i> 'Bloomsdale Long Standing' (spinach cv.)</p> <p>108 <i>Triticum monococcum</i> (Einkorn heirloom wheat)</p> <p>109 <i>Zea mays</i> 'Kandy Korn' (hybrid yellow sweet corn cv.)</p> |

2017 AHS SEED EXCHANGE ORDER FORM

Order must be postmarked by March 4, 2017.

You must be a current AHS member—but you do NOT need to have donated seeds—to participate in the Seed Exchange. Due to Federal regulations, seeds can only be shipped within the United States.

- For questions about the Seed Exchange program, e-mail seeds@ahsgardening.org.

Order online at www.ahsgardening.org/seeds for faster processing. Allow 4 to 6 weeks for delivery.

Name _____
Address _____
City _____
State _____ Zip code _____
Daytime phone _____
E-mail _____
AHS member # _____

NOT A MEMBER? You must be a current AHS member to order seeds. If you would like to join the AHS, please select an annual membership level below and add the fee to your payment. Visit www.ahsgardening.org/join to find out more about membership and its many benefits.

PAYMENT SUMMARY

I am not a member and would like to join the AHS:

- \$35 individual membership
 \$50 dual membership

Amount of membership dues \$ _____

Your donation supports the continuation of this program and offsets the cost of shipping and materials.

Donation for level of seed selection from right column:

- \$10 \$20

Amount of donation for seeds \$ _____

I would like to make an additional contribution to the AHS to support its important educational programs and help offset the cost of shipping:

Amount of additional contribution \$ _____

TOTAL PAYMENT \$ _____

PAYMENT INFORMATION

- Please charge the total payment amount above to my
 VISA MasterCard AmEx Discover
- Check enclosed (payable to AHS).

Card # _____

Exp. date _____

Signature _____

Name on credit card _____

please print

SEED DONOR PRIORITY

- I donated seeds to the 2017 Seed Exchange and thus get first choice (**order due by 2/18/17**).

SEED SELECTIONS AND CONTRIBUTIONS

Use seed number only, please.

1. _____
2. _____
3. _____
4. _____
5. _____

COMPLIMENTARY

- FIVE packets of seeds.

6. _____
7. _____
8. _____
9. _____
10. _____

\$10 DONATION

- TEN packets of seeds.
- 2017 AHS Reciprocal Admissions Program Guide.

11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. _____

\$20 DONATION

- TWENTY packets of seeds.
- 2017 AHS Reciprocal Admissions Program Guide.



SUBSTITUTE SELECTIONS

In case any of the selections you listed above are sold out, please indicate secondary choices below.

1. _____
2. _____
3. _____
4. _____
5. _____

- Do not substitute any of my selections.

PRONUNCIATIONS AND PLANTING ZONES



Invasive species threaten
to devour our crops, trees
and way of life.

LEAVE
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USDA United States Department of Agriculture
Animal and Plant Health Inspection Service

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

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

Acer *pseudosieboldianum* AY-ser soo-doh-see-bold-ee-AN-um (USDA Hardiness Zones 4-9, AHS Heat Zones 9-4)

Amsonia *tabernaemontana* am-SO-nee-uh tab-ur-nee-mon-TAN-uh (4-9, 9-3)

Andropogon *gerardii* an-dro-PO-gon jeh-RAR-dee-eye (3-9, 9-1)

Aralia *cordata* uh-RAY-lee-uh kor-DAY-tuh (4-8, 8-4)

Boltonia *asteroides* bohI-TOH-nee-uh ass-tuh-ROY-deez (4-8, 9-3)

Brassica *oleracea* BRASS-ih-kuh o-luh-RAY-see-uh (0-0, 8-1)

Callistemon *citrinus* kah-lis-STEE-mon sih-TRY-nus (9-11, 11-9)

Cephalanthus *occidentalis* sef-uh-LAN-thus ahk-sih-den-TAL-iss (4-9, 9-3)

Cyperus *papyrus* sy-PEER-us puh-PY-russ (10-11, 12-6)

Echinacea *purpurea* ek-ih-NAY-see-uh pur-PUR-ee-uh (4-9, 9-1)

Eutrochium *purpureum* yoo-TRO-kee-um pur-PUR-ee-um (3-9, 9-1)

Filipendula *rubra* fih-lih-PEN-dyew-luh ROO-bruh (3-9, 9-1)

Foeniculum *vulgare* fee-NICK-yew-lum vul-GAY-ree (4-9, 9-1)

Fragaria *ananassa* frah-GAY-ree-uh ah-nuh-NASS-uh (3-8, 8-1)

Gaultheria *procumbens* gawl-THEER-ee-uh pro-KUM-benz (3-8, 8-3)

Hedychium *coronarium* heh-DEE-kee-um kor-o-NAIR-ee-um (7-11, 12-7)

Helianthus *maximiliani* hee-lee-AN-thus maks-ih-mil-ee-AN-eye (4-9, 9-4)

H. *simulans* H. SIM-yew-lanz (6-9, 9-5)

Hibiscus *coccineus* hy-BISS-kus kok-SIN-ee-us (6-11, 12-5)

H. *schizopetalus* H. skiz-o-PET-uh-lus (10-11, 12-1)

Hydrangea *macrophylla* hy-DRAN-juh mak-ro-FIL-luh (6-9, 9-6)

Lomandra *longifolia* lo-MAN-druh lon-jih-FO-lee-uh (8-10, 10-7)

Mahonia *eurybracteata* muh-HO-nee-uh yew-ree-brak-tee-AY-tuh (6-9, 9-6)

Neomarica *gracilis* nee-o-MAR-ih-kuh GRASS-ih-liss (10-11, 12-9)

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

Pachypodium *lamerei* pak-ih-PO-dee-um luh-MAIR-ee-eye (11, 12-8)

Pedilanthus *macrocarpus* peh-dih-LAN-thus mak-ro-KAR-pus (10-11, 12-7)

Penstemon *barbatus* PEN-steh-mon bar-BAY-tus (4-9, 9-2)

Persicaria *polymorpha* pur-sih-KAIR-ee-uh pah-lee-MOR-fuh (4-9, 9-4)

Rheum *rhabarbarum* REE-um ruh-BAR-buh-rum (5-8, 8-1)

Rosa *floribunda* RO-zuh FLOR-ih-bun-duh (5-8, 8-1)

Rudbeckia *laciniata* rood-BEK-ee-uh luh-syn-ee-AY-tuh (3-9, 9-3)

R. *maxima* R. MAKS-ih-muh (4-8, 8-3)

R. *nitida* R. NIT-ih-duh (6-9, 9-5)

Saccharum *alopecuroides* sak-AH-rum al-o-pek-yew-ROY-deez (6-9, 9-1)

Silphium *laciniatum* SIL-fee-um lah-syn-ee-AY-tum (4-9, 9-4)

S. *perfoliatum* S. per-fo-lee-AY-tum (3-9, 9-3)

S. *terebinthaceum* S. tair-eh-bin-thih-NAY-see-um (3-9, 9-3)

Solanum *lycopersicum* so-LAH-num ly-ko-PER-sih-kum (11, 12-1)

Stapelia *hirsuta* stuh-PEE-lee-uh her-SOO-tuh (min. 50°, 12-1)

Tagetes *patula* tah-JEE-teez PAT-yew-luh (0-0, 10-1)

Thalia *geniculata* THAY-lee-uh jeh-nik-yew-LAY-tuh (9-11, 12-8)

Thalictrum *rochebrunianum* thal-IK-trum rowsh-broo-nee-AY-num (4-7, 8-4)

Thunbergia *grandiflora* thun-BUR-jee-uh gran-dih-FLOR-uh (10-11, 12-6)

Verbena *peruviana* ver-BEE-nuh pur-roo-vee-AN-uh (7-10, 10-1)

Vernonia *gigantea* vur-NO-nee-uh jy-GAN-tee-uh (4-9, 9-3)

V. *noveboracensis* V. no-vay-bor-uh-CHEN-sis (4-8, 8-3)

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Fringed Hibiscus (*Hibiscus schizopetalus*)

by Lynsey Grosfield

IFIRST ENCOUNTERED fringed hibiscus (*Hibiscus schizopetalus*, USDA Hardiness Zones 10–11, AHS Heat Zones 12–1) while visiting the conservatory at my local botanical garden. I was drawn to the pinkish-orange flowers of this tropical shrub, which droop from the branches like ornately cut origami.

A member of the mallow family (Malvaceae), fringed hibiscus is native to tropical regions of Kenya, Tanzania, and northern Mozambique. It first came to the attention of Western horticulturists in the late 1800s and is now cultivated in gardens from India to Argentina. Other common names include spider hibiscus, coral hibiscus, and—confusingly, considering the plant’s provenance—Japanese lantern.

A CURIOUS-LOOKING FLOWER

Under ideal conditions, this upright-growing shrub can reach up to 10 feet in height with a six-foot spread. Its ovate to elliptic evergreen leaves have serrated margins. The flowers, which dangle on long pedicels, are roughly three inches in diameter. Particularly striking is the delicate staminal column, which sticks out—botanists term

it exerted—from among the strongly reflexed petals. This elongated staminal column bends slightly near the tip, which is covered in filamentlike anthers; it puts



In addition to ornate petals, the curious-looking fringed hibiscus features a long staminal column that dangles in wait of pollinators.

me in mind of a bottle-cleaning brush. This elaborate structure apparently helps attract the plant’s primary pollinators, which are birds.

CULTIVATION

This shrub can only be grown outdoors year-round in subtropical or tropical regions, but gardeners in temperate climates can grow it in a large pot that

can then be overwintered indoors or in a greenhouse. It requires warmth and humidity, along with at least six hours of direct sunlight daily. If space is an issue, this shrub can be kept smaller with pruning. To showcase its drooping flowers, it is often trained as a standard or grown in a hanging basket.

The cultural requirements are similar to those of other tropical hibiscuses. In hot and dry conditions, particularly indoors in winter, fringed hibiscus is vulnerable to pests such as aphids, white flies, scale, and spider mites. The soil should be allowed to dry out between deep waterings in order to prevent fungal root rot and related problems, especially during the cooler months. Fertilize with a balanced mix every other month during active growth.

CULINARY AND GARDEN USES

As with many hibiscus species, the flowers, leaves, and fruits—which appear rarely—are edible. A tart tea made from hibiscus flowers is a staple in many cultures around the world, and the petals of fringed hibiscus can certainly be used for this purpose.

Fringed hibiscus can be used to add an elegant and bird-attracting touch to a subtropical or tropical garden, an exotic addition to a heated temperate-zone greenhouse, or even serve as a conversation piece potted beside a sunny window. Certainly it’s a plant I’m looking to add to my indoor plant collection, since it adds a sort of otherworldly ambiance to any space.

A Canadian native, Lynsey Grosfield is a freelance writer currently living in Denmark.

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