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The Magazine of the American Horticultural Society

May / June 2016

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NOTES FROM RIVER FARM

NATIONAL POLLINATOR WEEK is June 20 to 26, which is a great time to stop and think about what we as gardeners can do—individually and collectively—to counteract the current decline in the number and health of pollinators. Last summer, the American Horticultural Society became a part of the National Pollinator Garden Network (NPGN). The NPGN represents the interests of the garden, pollinator, and conservation communities, which are collaborating to combat this trend.

One proven way to reverse the dwindling pollinator populations is to increase the number of pollinator-friendly gardens. Each new garden, whether big or small, across the country means more nectar and pollen sources, more welcoming habitat areas, and more people dedicated to pollinator-friendly sustainable gardening practices. It's a simple way to make a difference.

A signature program of the NPGN is the Million Pollinator Garden Challenge, which was launched last June. Since then, tens of thousands of pollinator gardens have been created, including our very own wildlife garden here at River Farm, thanks to our 2015 horticulture interns Sam Guccione and Stacey Snyder. These two young people spent the summer researching and locating the most appropriate plants to include, creating a design, and putting in the sweat equity to bring their plan to fruition. This garden has been registered as one of the million pollinator gardens in this country, and I encourage you to also create and register your own pollinator gardens at www.millionpollinatorgardens.org.

There are many ways to embrace pollinators in your garden; the good news is they don't require a huge amount of room or a big investment. Pollinator gardens are easy to create, and they are attractive as well as functional. To help get you thinking, take a look at the article in this issue of *The American Gardener* on habitat hedgerows. In it, you'll find advice from wildlife gardening authority Kris Wetherbee for designing a welcoming home for a diverse range of pollinators with a variety of plants.

Also in this issue you'll get expert suggestions for using woody vines to add texture and structure in your garden; effective yet earth-friendly tips for controlling weeds; and advice on some of the best native ferns for American gardens. And don't miss the preview on page 12 of our annual National Children & Youth Garden Symposium this summer in Columbia, South Carolina—a sure place to get some tips for inviting pollinators into school, community, or home gardens.

With that, I wish you the best of success with your gardening pursuits this summer—whatever direction they may take. We always love to hear what our members are up to in their gardens, so please share your efforts with us on social media or drop us an e-mail.

Happy gardening!

Tom Underwood
Executive Director



2015 interns Sam Guccione and Stacey Snyder in River Farm's wildlife garden

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■ Find seasonal gardening tips, beautiful gardens around the world, photos of native plants blooming in our members' gardens, and more. Message us with photos of your home garden.



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■ Follow @AHS_Gardening for breaking garden news and eye-catching photos. Join us here once a month for #plantchat, when we host a one-hour open discussion with an expert garden guest, along with our corporate member, **Corona Tools**. If you miss a #plantchat, read the transcripts on our website at www.ahs.org/plantchat.



INSTAGRAM:

www.instagram.com/am_hort_society

■ Enjoy photos from our travels around the U.S., along with year-round views of the gardens at River Farm, our headquarters in Virginia.



PINTEREST:

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■ We're always creating new boards with images and information to supplement our articles in *The American Gardener*. Check out the boards about native ferns and geums while reading the articles about these plants in this issue! Other popular boards include Container Gardening, Gardens to Visit, and Upcycling.



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Join the Conversation!

MEMBERS' FORUM

CORRECTION

Unless taxonomists recently did a major change, *Ginkgo biloba* is not a conifer, as stated by Carl Hahn in "Ancient Trees for Contemporary Gardens" (March/April 2016). Rather, it is in a division (or phylum) of its own, Ginkgophyta, one of 11 divisions of the Plant Kingdom. Conifers are in the division Coniferophyta.

Dale Sievert,
Waukesha, Wisconsin

Editor's response *Ginkgo biloba* appears more closely related to conifers than to any other group of tree, so at one time it was classified in Coniferophyta. You are quite right, however, that ginkgos do have their own division now. It would have been more accurate if we had used the term "gymnosperm" when referring to the group of trees the article discussed. 🌿

HAVE A HOLDING BED?

If you have a holding bed or other space in your garden to temporarily store plants, please let us know. We have an author working on an article about holding beds and are looking for people she can interview. Contact us at editor@ahs.org if you are interested in participating in the article and sharing your experience with our readers. Please include your name, location, phone number, and a brief description of your holding bed and how you use it.

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



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

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

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

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

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

News from the AHS

May / June 2016

PROGRAMS • EVENTS • ANNOUNCEMENTS

WINNING FLOWER AND GARDEN SHOW EXHIBITS

EACH YEAR, the American Horticultural Society (AHS) presents its Environmental Award to worthy exhibits at select flower and garden shows across the country. This award recognizes displays that demonstrate the bond between horticulture and the environment, while inspiring viewers to use appropriate plants and design to beautify their own homes and communities. Each entry is judged in four categories: design, aesthetics, plant material, and environmental stewardship. Here are a few of the winners so far this year.



Above: Plant Man landscape design firm owner Elton Lyle's playful "Wonder Tales of Ancient Wales" exhibit won the AHS award at the Southern Spring Home & Garden Show in Charlotte, North Carolina, in February. Left: This display by W.B. Saul High School received the award at the Philadelphia Flower Show in March.

At the Northwest Flower & Garden Show in February in Seattle, Washington, the AHS Environmental Award went to "The Hoh: America's Rain Forest," created by Washington Park Arboretum and the Arboretum Foundation. The display reflected the show's theme of celebrating the National Park Service's centennial by using numerous native plants that do well in home gardens.

A playful, pirate-themed naturalistic display created by Earth Tones Native Plant Nursery took home the award at the Connecticut Flower & Garden Show in Hartford in February.

At the Philadelphia Flower Show in March, a student team from W.B. Saul High School, led by teachers **Lisa Blum**, **Scott Geller**, and **Garth Schuler**, created the award-winning exhibit “Wander Inn to the Valley.” The display included a two-storey replica of Philadelphia’s historic Valley Green Inn as well as a vast array of plants and a “river” water feature to evoke the surrounding parkland.

SEED YOUR FUTURE INITIATIVE

DESPITE EVER-GROWING career opportunities in horticulture and gardening, surveys have shown a marked decline in Americans seeking the requisite professional training. Several organizations, including the AHS, have partnered to address the problem with the Seed Your Future (SYF) initiative. This new, multi-year effort will promote awareness of horticulture as a rewarding and interesting career through educational programs aimed at middle school through college students.

Led by Longwood Gardens in Kennett Square, Pennsylvania, and the American Society for Horticultural Science, SYF has raised sufficient funds to complete initial audience research and develop its website, www.seedyourfuture.org. The site describes the diverse and critical roles horticulture plays in our daily lives. It also presents career options and provides resources such as an extensive list of two- and four-year schools with horticulture programs.

“Horticulture departments have been disappearing from college campuses because of low enrollment numbers,” says **Tom Underwood**, AHS executive director. “Seed Your Future aims to reverse this trend so that not only will these departments re-open, but new ones will need to be created to accommodate the influx.”

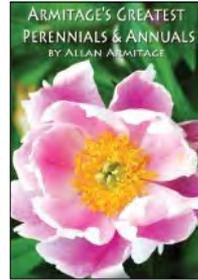
SYF will officially roll out in 2017. In the meantime, it continues to fundraise and develop subsequent phases with its partnering organizations.

INCREASE GARDENING APP-TITUDE WITH TECHNOLOGY

HOW CAN gardening information be made more accessible, especially for younger generations and new homeowners beginning to dabble with plants? One answer is “Armitage’s Greatest Perennials & Annuals,” an app created by renowned garden book author and speaker **Allan M. Armitage**. The app includes information about, and photos of, more than 1,000 plants, searchable by plant type, light exposure, USDA zone, plant height, and bloom times.

“This colorful and user-friendly app is like having one of Allan’s insightful and opinionated books at your fingertips wherever your gardening endeavors take you,” says River Farm Manager and Horticulturist **Sylvia Schmeichel**. “It provides a great introduction to tried-and-true plants and encourages gardeners to be more adventurous.”

The app also contains information on gardening groups such as the AHS, which Armitage describes as one of the organizations “I respect and who are well respected in the horticultural community.” Another handy feature is the ability to search for independent garden centers nationwide that stock plants of interest. Find more information about the app at www.allanarmitage.net.



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2017 "Gardeners" Calendar

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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.ahs.org or call (703) 768-5700 for more information.

- JUNE 2. **Great American Gardeners and AHS Book Awards Ceremony and Banquet at River Farm.** Alexandria, Virginia.
- JULY 13–15. **The Gardeners of America/Men’s Garden Club of America annual convention.** Green Bay, Wisconsin. (AHS partner event.)
- JULY 13–16. **National Children & Youth Garden Symposium.** Columbia, South Carolina.
- SEPT. 1–10. Italy: **Architecture and Gardens of the Veneto, Dolomites, and Venice.** AHS Travel Study Program. **SOLD OUT**
- SEPT. 17. **AHS Annual Gala at River Farm.** Alexandria, Virginia.
- SEPT. 22–OCT. 1. Italy: **Architecture and Gardens of the Veneto, Dolomites, and Venice.** AHS Travel Study Program. **SOLD OUT**
- OCT. 6–8. **America in Bloom Symposium.** Arroyo Grande, California. (AHS partner event.)
- DEC. 1–23. **Indoor Holiday Display at River Farm.** Alexandria, Virginia.
- DEC. 10. **Holiday Open House at River Farm.** Alexandria, Virginia.

AHS TRAVELERS EXPLORE PORTUGAL

THE GRAND GARDENS of Portugal welcomed enthusiastic AHS travelers in April. Accompanied by AHS hosts **Jane and George Diamantis**, the group explored Lisbon, Sintra, and the subtropical island of Madeira. The itinerary included visits to botanical gardens, historic gardens, the private gardens of plant collectors, and architecturally significant sites. “It’s a gorgeous country with amazing gardens,” says Jane Diamantis.

This excursion was part of the AHS’s Travel Study Program, which offers exceptional garden experiences in countries around the world. For more information about upcoming trips, visit www.ahs.org/gardening-programs/travel-study.



Both the architecture and grounds of the Monserrate Palace in Sintra, Portugal, enthralled AHS travelers this spring.

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 February 24 to April 30, 2016.

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If you would like to support the American Horticultural Society as part of your estate planning, as a tribute to a loved one, or as part of your annual charitable giving plan, please call (703) 768-5700.

GARDEN GALA IN SEPTEMBER

ON THE EVENING of September 17, the AHS will hold its annual gala at its 25-acre River Farm headquarters overlooking the Potomac River in Alexandria, Virginia. This black-tie-optional event will feature honored guest **Dean Norton**, director of horticulture at George Washington’s Mount Vernon. Enjoy fine dining while surrounded by enchanting, moonlit gardens. A silent auction will feature one-of-a-kind artwork, tour packages, plants, jewelry, and other items.

Proceeds from the gala support the stewardship of River Farm and the Society’s outreach programs. For more information about the gala, including sponsorship opportunities, call (703) 768-5700 ext. 127 or send an e-mail to development@ahs.org.

News written by AHS staff.

THE AMERICAN HORTICULTURAL SOCIETY'S 24TH ANNUAL

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AHS NEWS SPECIAL:

National Children & Youth Garden Symposium in Columbia, South Carolina

by Ping Honzay

EVERY SUMMER since 1993, the American Horticultural Society has held the National Children & Youth Garden Symposium (NCYGS), an annual forum for hundreds of educators, garden designers, program leaders, and others from across the country who are passionate about connecting kids with plants and the natural world. To showcase the exciting projects taking place in various corners of the country, and to provide access to different audiences, the symposium moves to a different location every year. This year for the first time in its history, the symposium will travel to Columbia, the capital of South Carolina, from July 13 to 16.

EXPLORING THE PALMETTO STATE

The symposium's local co-hosts **Clemson University Extension, Heathwood Hall, and Riverbanks Zoo & Garden** exemplify the richness and diversity of youth gardening efforts taking place throughout the city and state.

Through its Cooperative Extension program, Clemson University serves residents throughout the entire state of South Carolina by providing research-based agricultural, horticultural, and environmental education. "Almost all of our Extension programming impacts youth in some way," says **Ellen Vincent**, environmental landscape specialist at Clemson. "Extension



In addition to a new three-acre space designed for children, the Riverbanks Zoo & Garden offers a variety of themed displays and extensive plant collections.

programs such as 4-H are exclusively dedicated to serving children and their families, and provide important education both in and out of school." The symposium's educational sessions will cover topics such as garden management, curriculum development, and growing practices. In addition, sessions led by Clemson staff will delve into relevant Extension programs and offer tips gathered from years of experience.

Heathwood Hall is a pre-K through 12th grade school boasting an impressive School Environmental Education program (SEED). A large part of this program is the themed gardens spread throughout the campus, created by each year's fifth-grade class. SEED Director and science teacher **Todd Beasley** works with his students to select a theme, make a plan, and plant the garden to use for classwork and research. It's not only an exercise in horticulture but also in long-term planning, creativity, teamwork, and cross-curricular learning. "These gardens offer every student structured opportunities to explore the outdoors in ways that genuinely engage them," says Beasley, "whether that's

digging in the dirt, designing garden structures, taking photos, or whatever may draw their curiosity."

On July 14, the symposium will take a trip to Heathwood Hall for educational sessions, dinner, and a keynote presentation from **Kaiulani Lee**, who will perform her play, *A Sense of Wonder*. Based on the life of biologist Rachel Carson and her experiences following the 1962 publication of *Silent Spring*—Carson's groundbreaking exposé of the ecological damage caused by pesticides—the play has been touring the country for more than 20 years. Through the story of Carson's inspirational legacy, the play explores our deep bond with the natural world and the value of taking a stand to protect it.



Actress Kaiulani Lee

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exposé of the ecological damage caused by pesticides—the play has been touring the country for more than 20 years. Through the story of Carson's inspirational legacy, the play explores our deep bond with the natural world and the value of taking a stand to protect it.



For more details about the 2016 symposium and to register, visit the AHS website at www.ahs.org/ncygs. Plus get updates by following @AHS_ncygs on Twitter.

On the afternoon of July 15, symposium attendees will have a chance to explore Riverbanks Zoo & Garden and its new Waterfall Junction children's garden, which opened in April. The three-acre site features a life-size replica of a *Tyrannosaurus rex*, giant tree houses, a 25-foot waterfall, a wading pond, and a grassy meadow. It is nestled within the larger living classrooms of Riverbanks's renowned botanical garden and zoo. **Amanda Segura**, children's garden manager at Riverbanks, describes Waterfall Junction as "a place where kids can come to be kids."



Fifth-grade students created this garden at Heathwood Hall promoting the Certified South Carolina program.

They can splash, play, climb, dig up artificial dinosaur bones, explore tree houses, discover cool edibles, and pretend to be butterflies all within a safe environment."

EDUCATION WITH SOUTHERN HOSPITALITY

A garden can serve many functions, such as a hands-on learning lab, a source of fresh and delicious foods, a place to play, a foundation for a business, and a place to connect with nature. Columbia abounds with examples of all of these and more, sure to inform and inspire NCYGS participants this summer.

Most importantly, the model gardens and programs that will be featured are run by experts who are excited to share their knowledge with symposium attendees. As **Ethan Kauffman**, garden director at Moore Farms Botanical Garden puts it, "You would be hard pressed to find a warmer, more enthusiastic reception than right here in the Palmetto State, where Southern hospitality flows as freely as the sweet tea."

Ping Honzay is Member Programs Associate for the American Horticultural Society.

PRE- AND POST-SYMPOSIUM TRIPS FOR FURTHER EXPLORATION



Moore Farms Botanical Garden

Before and after the main symposium, optional trips will give attendees a chance to experience even more stellar gardens and programs that call the South Carolina Midlands home. A full-day trip on July 13 will focus on two hidden gems outside of Columbia. The first stop will be the **Pearl Fryar Topiary Garden** in Bishopville. Fryar, a hobby gardener, began creating many of the fantastical topiaries on his three-acre property decades ago from discarded plants rescued from local nursery compost

piles. His garden is recognized by the Garden Conservancy as an exceptional and inspirational landscape. Then the trip will head to **Moore Farms Botanical Garden** in Lake City. Located on what was once farmland, the site has been transformed into a horticultural marvel boasting innovative and breathtaking gardens that serve as a resource for research and educational programs.

Another pre-symposium trip the morning of July 13 will take symposium attendees to school gardens throughout Columbia that are involved with South Carolina Green Steps, a statewide program that "recognizes schools who take annual sustainable steps toward becoming more environmentally responsible." Teachers at **Catawba Trail Elementary School**, **St. John Neumann Catholic School**, and the **Barclay School at Magnolia Farm** will share insights into their school gardens and how they fit into daily school life.



Pearl Fryar Topiary Garden

A post-symposium trip on July 16 will visit Clemson University's **Sandhill Research & Education Center (REC)**, a 600-acre natural haven in northeast Columbia. After touring the on-site **Carolina Children's Garden**, attendees will enjoy a reception in the scenic Sandhill REC Lake House to cap off their symposium experience.

—P.H.

Perennial Vines

for temperate gardens

BY ANDREW BUNTING

These hardy, woody-stemmed vines offer attractive, long-lasting vertical accents.

VINES BRING a vertical element to a garden's design, and their colorful flowers also attract hummingbirds and other pollinators. I have a particular affinity for woody-stemmed vines that do not die back to the ground in the winter. In many cases, the foliage on these vines is as important, if not more so, than the flowers in terms of the overall ornamental effect. In this way they differ greatly from non-woody vines, which tend to be grown primarily for their spring or summer floral display.

As a group, woody vines are quite diverse. They are native to a wide range of habitats, from dense woodland to forest edges and even open meadow, so they vary greatly in their tolerance for light exposures and temperatures. Thus in choosing vines for a garden, site selection is particularly important for long-term success. And while some gardeners may be wary of woody-stemmed vines because of bad experiences with plants such as Japanese honeysuckle (*Lonicera japonica*), there are plenty of options that won't attempt a hostile take-over.

During my career as a horticulturist and gardener, I have mostly grown temperate species—many in a garden I created over the course of 17 years in Swarthmore, Pennsylvania—so I will focus on those in this article. In selecting which vines to include here, I've intentionally left out two major groups—clematises and climbing roses—primarily because both genera are large and complex enough to merit an article in their own right.

HYDRANGEA FAMILY VINES

The hydrangea family is best known for shrubs, but it includes several excellent woody-stemmed vines suited to part or dappled shade. If I could grow only one woody-stemmed vine, it would be 'Moonlight', a selection of Japanese hy-



The large pinkish-orange flowers of Chinese trumpet creeper attract hummingbirds.

drangea vine (*Schizophragma hydrangeoides*, USDA Hardiness Zones 5–8, AHS Heat Zones 8–5). The heart-shaped leaves are dark green with silver veins, which create a somewhat variegated appearance. In July, flat-topped clusters of single-bracted pure white flowers seem to hover above the foliage. Richard Hawke, manager of plant evaluations at the Chicago Botanic Garden in Glencoe, Illinois, recommends a selection called ‘Strawberry Leaf’. The leaves have a more incised margin, giving the vine an interesting textural dimension.

Finding just the right spot seems critical to the success of Japanese hydrangea

vine. It needs reasonably good sunlight to flower, but not so much sun that the foliage loses vibrancy. ‘Moonlight’ in particular seems to thrive in the Pacific Northwest, where the sunlight is less intense and the silver veining on the leaves does not get washed out as it does in regions with warmer summers. Japanese hydrangea vine will grow to 30 or 40 feet if given space, attaching directly to stone, brick, or tree bark with tiny adhesive rootlets.

Tom Clark, curator at the Polly Hill Arboretum on Martha’s Vineyard, Massachusetts, is a fan of the closely related

climbing hydrangea (*Hydrangea anomala* ssp. *petiolaris*, Zones 4–8, 8–4). Native to China and Japan, this self-clinging vine will grow 30 to 50 feet tall over time. It differs from Japanese hydrangea vine in a few ways, notably in its stems, which have peeling, cinnamon-orange bark that adds winter interest. In summer, flat-topped clusters of fragrant, four-bracted white flowers, resembling those of lacecap hydrangeas, bloom above the foliage. In the fall, the leaves can turn a vibrant yellow. A good selection is ‘Firefly’, which was introduced by Dan Benarick, a horticulturist with Chanticleer garden in Wayne,



‘Moonlight’, a cultivar of Japanese hydrangea vine, has silvery foliage and hydrangealike flowers.

VINES TO BEWARE

Certain woody vines, unfortunately, are among the worst invasive weeds in temperate North America. These include Japanese honeysuckle (*Lonicera japonica*), English and Irish ivy (*Hedera helix* and *H. hibernica*), and porcelain berry (*Ampelopsis brevipedunculata*). Other vines to be wary of are Asian bittersweet (*Celastrus orbiculatus*), and the Asian wisterias (*Wisteria sinensis* and *W. floribunda*). Chocolate vine (*Akebia quinata*), which can spread aggressively and naturalize where hardy, is considered weedy in some mid-Atlantic and Southeast states.

Some vines native to North America also can be aggressive in the garden, especially trumpet creeper (*Campsis radicans*), maypop (*Passiflora incarnata*), and Virginia creeper (*Parthenocissus quinquefolia*), so be sure to find out how these species behave in your region or pick your site carefully before planting them. —A.B.

Pennsylvania, who selected it for its strong chartreuse and green variegation. It is not as vigorous as the species, but this can be an advantage in smaller gardens, where it offers a splash of color in a shady corner. Another cultivar, ‘Miranda’, sometimes listed as ‘Miranda’, has variegation similar to that of ‘Firefly’.

Flying a bit under the radar is wood vamp (*Decumaria barbara*, Zones 6–9, 9–5), a native of moist woodlands in the southeastern United States that will grow

Sources

Brushwood Nursery, Athens, GA.
www.gardenvines.com

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

Lazy S's Farm Nursery, Barboursville, VA. www.lazysfarm.com

Plant Delights Nursery, Raleigh, NC. (919) 772-4794.
www.plantdelights.com

Resources

Armitage's Vines and Climbers by Allan M. Armitage. Timber Press, Portland, OR, 2010.

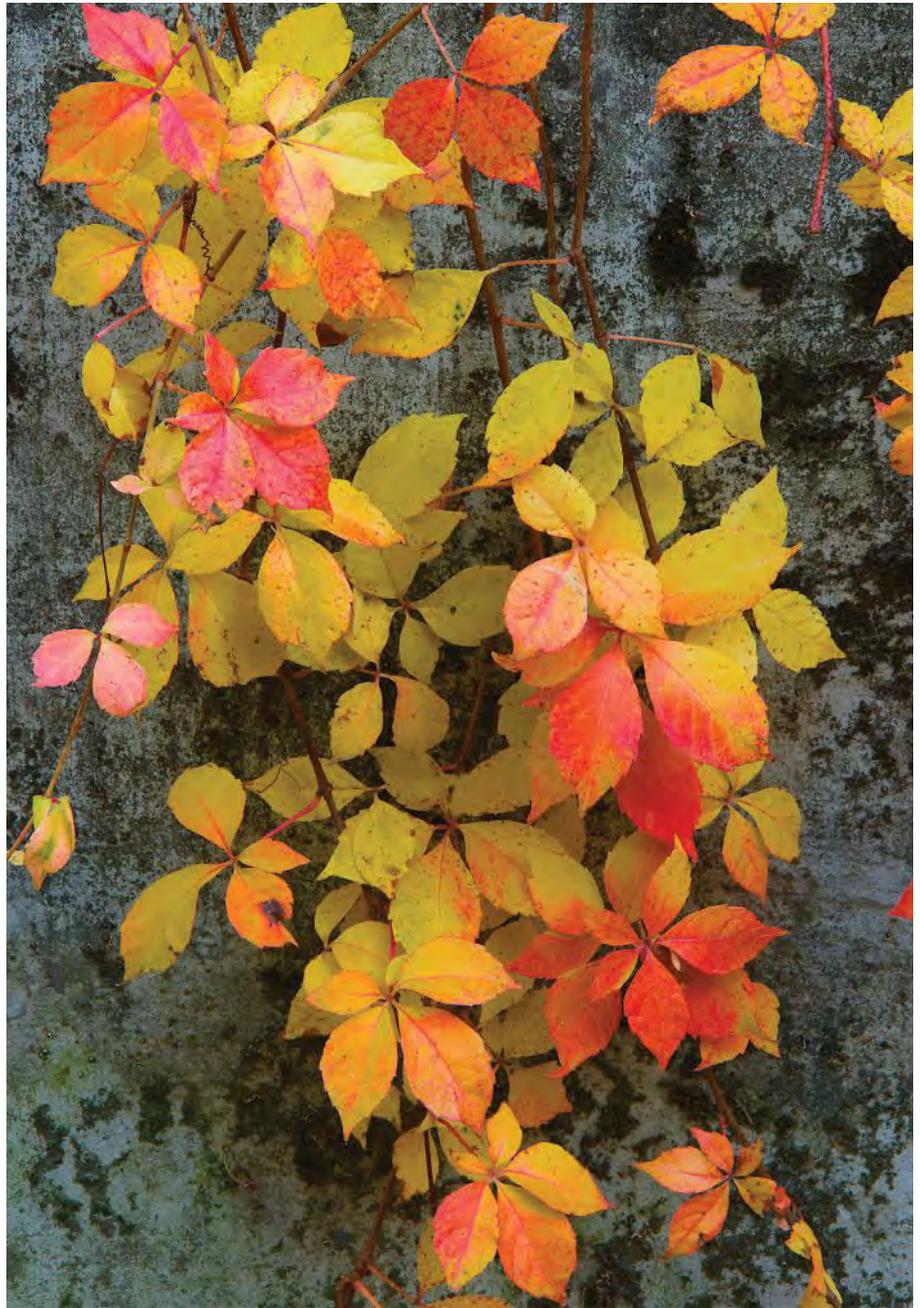
30 or 40 feet up a tree or drape itself over rocks or a fence. Its glossy, rounded foliage turns a vibrant butter yellow in fall. The slightly rounded domes of pure white flowers, which bloom in July, are sweetly scented. I planted this vine on the east side of my house to the right of the front door.

PARTHENOCISSUS

Native to Asia, Boston ivy (*Parthenocissus tricuspidata*, Zones 4–8, 8–3) has glossy leaves with three sharp-pointed lobes. This species—which should more correctly be called Boston creeper because it is not related to ivy—will grow almost indefinitely if given space. Like other *Parthenocissus* vines, it attaches with a tracery of minute suction cups at the ends of tendrils that cling to stone and brick. I have never found this mode of attachment to be destructive to any type of construction material, but I have heard complaints that it can leave dark markings on painted surfaces or siding.

At my house in Swarthmore, I planted 'Fenway Park', a chartreuse-leaved selection, on the shadier north facade. The newly emerging foliage is a striking lemon yellow color, but too much sun will cause the leaves to scorch, while too much shade can cause the leaves to fade to green. In regions with cool climates, such as the Pacific Northwest, the leaves may remain vibrant throughout the summer, whereas in regions with warmer summers they will often fade to green.

On the east side of the house, I planted the silvervein creeper (*P. henryana*, Zones



Virginia creeper shines in autumn, when its leaves turn incandescent shades of yellow to red.

7–9, 9–6), which is probably the least aggressive of the *Parthenocissus* species. Also an Asian native, silvervein creeper's leaves are comprised of five oblong leaflets rounded at the tip. The emerging foliage is shiny green on top and purple underneath, highlighted by prominent silver venation. In fall, the foliage turns a striking red to burgundy.

The foliage of native Virginia creeper (*P. quinquefolia*, Zones 3–9, 9–1) also has five oblong leaflets, but the tips come to a sharper point than those of silvervein creeper. In the fall, the leaves turn a ver-

million red, and it also can be adorned by clusters of fleshy blue-black berries that attract birds. It is a bit wilder than its relatives, growing rapidly to 30 feet or more and spreading by seed, so is perhaps best in a naturalistic garden.

HONEYSUCKLES

Japanese honeysuckle, which has invaded natural areas and roadsides from Pennsylvania south to the Gulf Coast, may have tarnished the reputation of this genus, but there are vining honeysuckles worth growing. Chinese honeysuckle (*Lonicera*

COMBINE VINES TO ADD OOMPH

Grouping two or three different species of vines in a garden can lead to spectacular results. For instance, you could have three periods of flowering and, better yet, overlapping displays by growing a cultivar of *Lonicera sempervirens* with the climbing rose 'Chevy Chase' and *Clematis* 'Etoile Violette'.



Wood vamp, right, and silvervein creeper, left, flank a doorway on the east side of the author's former house in Swarthmore, Pennsylvania.

I have seen native Dutchman's pipe (*Aristolochia macrophylla*) effectively grown in combination with the yellow-flowering *Lonicera sempervirens* f. *sulphurea* 'John Clayton' and the pinkish-flowered selection 'Major Wheeler'. In my Swarthmore garden, one very successful combination was *Wisteria frutescens* 'Longwood Purple' with *Lonicera sempervirens* 'Cedar Lane'.

Also, nearby shrubs can dramatically set off vines. Chartreuse-leaved 'Fenway Park' Boston ivy (*Parthenocissus tricuspidata*) makes a stunning contrast to plants with purple foliage such as 'Velvet Cloak' smoke bush (*Cotinus coggygria*) or any of the purple-leaved Japanese maple cultivars. At my home, silvervein creeper (*Parthenocissus henryana*) intermingles nicely with adjacent shrubs like Japanese clethra (*Clethra barbinervis*) and Japanese mahonia (*Mahonia japonica*). —A.B.

tragophylla, Zones 6–8, 8–5), for instance, behaves well on a pergola adjacent to my Swarthmore home. In May, whorls of yellow-orange tubular flowers are borne in profusion at the ends of each branch. As with other vines with tubular flowers, it attracts hummingbirds.

Another good option is goldflame honeysuckle (*L. xheckrottii*, Zones 5–9, 9–5), a hybrid between the American native trumpet honeysuckle (*L. sempervirens*, Zones 4–9, 9–4) and *L. americana*. This twining vine has blue-green foliage. The fragrant flowers are pink in bud, but when open they are a combination of deep pink, yellow, and soft pink. Though it is a vigorous grower, it is easy to keep in check with judicious pruning. One of my favorite trumpet honeysuckles is 'Cedar Lane', which has attractive, narrowly elliptic foliage and tubular, dark brick-red flowers.

VINES FOR SUNNY, HOT SITES

At my Swarthmore house, I needed a vine that could withstand the hot and sunny conditions on the southern side of the house. I picked 'Tangerine Beauty' native crossvine (*Bignonia capreolata*, Zones 6–9,



Goldflame honeysuckle's fragrant flowers turn from pink into a mix of yellow and pink shades.

9–5) with soft-orange flowers and ‘Dragon Lady’ with deeper-orange flowers. In May, a profusion of tubular flowers are borne. They are a great attraction to the earliest ruby-throated hummingbirds. In fall, the elliptic foliage can turn purple and in regions with mild winters, the foliage can remain semi-evergreen. I also like a selection called ‘Athens’ that has vibrant yellow flowers with a peachy-orange inner and outer throat. Paul Cappiello, executive director of Yew Dell Botanical Gardens in Crestwood, Kentucky, is also a big fan of the crossvine. “In the wild in Kentucky, you’d never give this one a second look—it’s so scraggly and weak,” says Cappiello. “But sited in full sun, it is amazing. It’s the best and earliest of the hummingbird vines for our area.”

Related to crossvine and also suitable for hot, sunny sites is Chinese trumpet creeper (*Campsis grandiflora*, Zones 6–9, 9–6). The species grows 10 to 20 feet tall with compound leaves and is less prone to spreading by suckers than our native trumpet creeper (*C. radicans*). I grow a selection called ‘Morning Calm’, on a stone wall, where it



bears arching sprays of large, tubular, coral pink flowers in late summer. At the Scott Arboretum, there is an upright pillar with a beautiful specimen of ‘Morning Calm’. Each winter, all the wayward branches are pruned back to the column. Because trumpet vines flower on new wood, this type of hard pruning is warranted because new flowering branches are produced and a tidy habit is maintained on a vine that can otherwise become unruly.

JASMINES

Josh Coceano, horticulturist at the Scott Arboretum of Swarthmore College, likes

a selection of common jasmine (*Jasminum officinale*, Zones 7/8–10, 10–1) called ‘Frojas’ (Fiona Sunrise™), which grows 10 to 15 feet tall. He originally planted this as an annual, but has been happily surprised that it has overwintered for the last several years. The small compound leaves with tiny leaflets give it a fine textural quality. The foliage is bright yellow and remains this color all summer long. Blooming from spring into early summer, the highly fragrant flowers have pink stems but open pure white. One year at the Scott Arboretum, it made an eye-catching combination when it twined through the

burgundy foliage of *Acer palmatum* var. *dissectum* ‘Crimson Queen’.

Another showstopper at the Scott Arboretum is ‘Margarita’ Carolina jessamine (*Gelsemium sempervirens*, Zones 6–9, 9–5) growing on a split rail fence as well as on some wire supports on a stone column. In early spring, the semi-evergreen twining vine is covered in beautiful, yellow, tubular flowers. This native vine tolerates part shade but flowers best in full sun.

Dan Long of Brushwood Nursery in Athens, Georgia, likes the fragrant star jasmies (*Trachelospermum* spp.). The confederate or star jasmine (*T. jasminoi-*



Star jasmine, above left, is evergreen where hardy and bears clusters of fragrant, starlike flowers in spring to early summer. Above: ‘Margarita’, a cultivar of Carolina jessamine, mingles with trumpet honeysuckle on a wood fence.

OTHER GARDEN-WORTHY WOODY VINES

Botanical Name (Common Name)	Height (feet)	Ornamental Attributes	Exposure	Origin	USDA Hardiness, AHS Heat Zones
<i>Actinidia kolomikta</i> (Variegated kiwi)	15–25	Foliage has white and pink variegation in spring	Sun to part sun	Eastern Asia, western Russia	4–8, 8–4
* <i>Antigonon leptopus</i> (Coral vine)	15–40	Sprays of bright pink flowers from mid- to late summer	Sun to part sun	Mexico	10–11, 12–4
<i>Aristolochia californica</i> (California pipe vine)	8–20	Pipe-shaped purple and cream flowers bloom in late winter	Part sun to shade	California/Southwest	8–10, 10–6
<i>Aristolochia macrophylla</i> (Dutchman’s pipe)	20–30	Small yellowish-green flowers bloom in mid- to late summer	Sun to shade	Southeastern U.S.	4–8, 8–1
<i>Passiflora caerulea</i> (Blue passionflower)	20–30	Large purple and blue flowers summer to fall	Sun	South America	6–9, 10–4
* <i>Passiflora incarnata</i> (Maypop)	6–10	White and purple flowers bloom from midsummer to fall	Sun to part sun	Eastern U.S.	5–9, 9–4

*Considered potentially weedy or invasive in Florida and other subtropical climates



Blooming in early summer, ‘Amethyst Falls’, a selection of American wisteria, bears drooping clusters of pale purple flowers that have a fragrance reminiscent of grape soda.

des, Zones 8–11, 12–7), is a small evergreen vine with five linear white petals that give each flower a starlike quality. Asian star jasmine (*T. asiaticum*, Zones 7–10, 11–6) has creamy-yellow to white flowers and can be grown as a vine or a sprawling groundcover.

WISTERIAS

There are few things to beat a wisteria in full bloom on a trellis or pergola, but the two Asian species most commonly available—Chinese wisteria (*Wisteria sinensis*) and

Japanese wisteria (*W. floribunda*)—grow rampantly and are prone to escape into natural areas. If you have your heart set on a wisteria, try instead one of the American species: American wisteria (*W. frutescens*, Zones 5–9, 9–4) or Kentucky wisteria (*W. macrostachya*, Zones 3–9, 9–3). They bloom slightly later and are not as floriferous as their Asian counterparts, but have similar compound leaves and growing habit.

Growing 15 to 25 feet tall, Kentucky wisteria, native to the south central Unit-

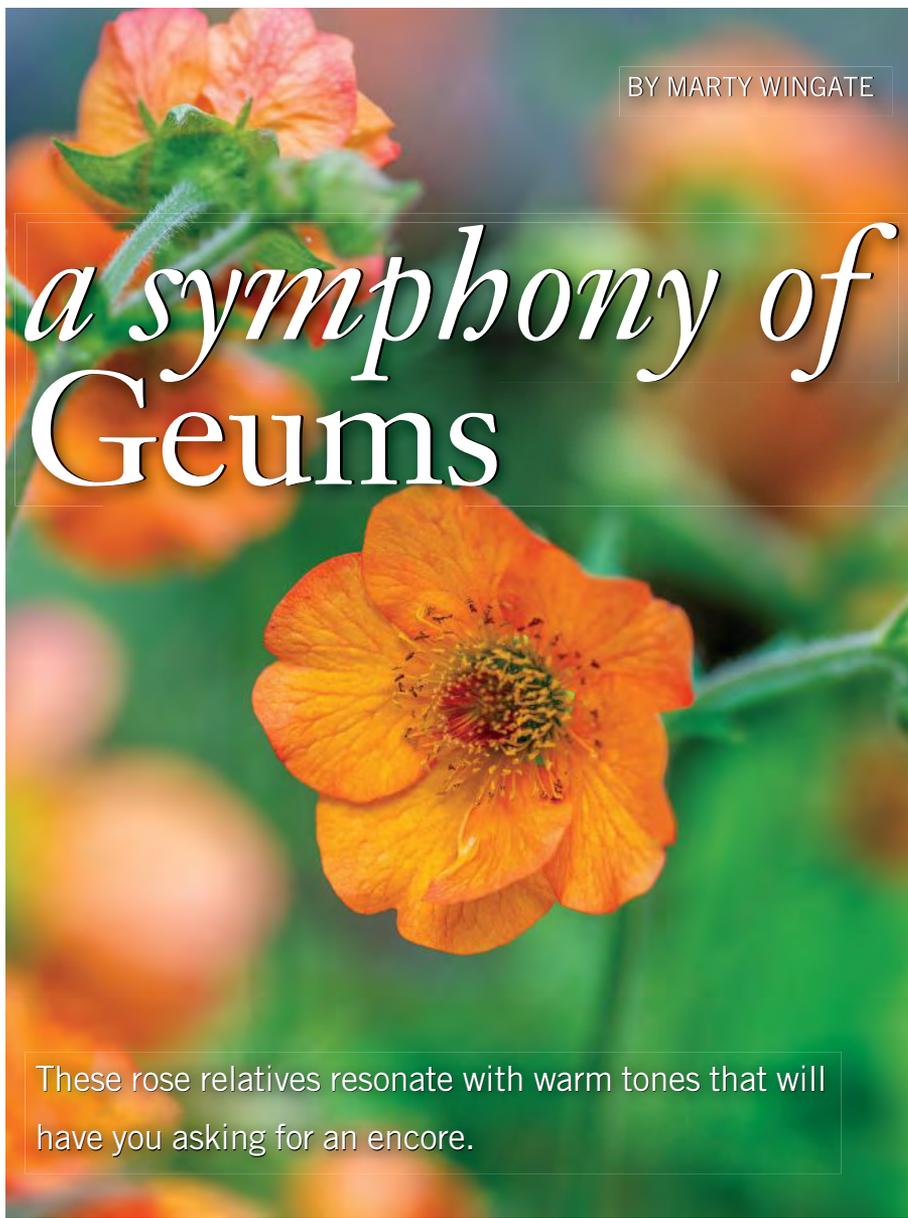
ed States, is festooned with long, pendant clusters of bluish-white flowers in late May. A selection called ‘Blue Moon’ has flowers with a more intense violet-blue color than the species.

American wisteria is native to scattered areas of the Eastern United States from Connecticut to Florida and west as far as Missouri and Texas. It can reach 30 feet or more at maturity with stocky clusters of lilac to pale purple flowers. Scott McMahan, horticulturist at the Atlanta Botanical Garden in Georgia, favors ‘Amethyst Falls’, a selection that won the Georgia Gold Medal in 2006. In May, this vine is adorned by clusters of fragrant, lilac-purple flowers.

FINE VINES

The well-behaved, woody-stemmed vines in this article can be used to create long-lasting focal points in the garden, whether clambering up tree trunks, adorning the side of a building, draping over an arbor, or combined with other vines. Plus, improved cultivars are being selected all the time and new species are still finding their way into cultivation. Woody vines can be grown in nearly all regions of the United States and in a wide variety of sites, so you can surely find a spot for one or more to grace your own garden.

Andrew Bunting recently moved from Swarthmore, Pennsylvania, to the Chicago area. He is assistant director of gardens and curator of plant collections at the Chicago Botanic Garden in Glencoe, Illinois.



BY MARTY WINGATE

a symphony of Geums

These rose relatives resonate with warm tones that will have you asking for an encore.

SOMETIMES I like to think of the garden as an orchestra, in which each plant is an instrument, and the seasons make up a symphony. Spring and summer are the more up-tempo movements, with their riot of color, texture, and form. These can become overwhelming without a few plants to provide sweet, clear tones that weave the composition together like the flute in a full orchestra. The loveliest flutes in my garden belong to the genus *Geum*.

Commonly known as avens or geums, these adaptable perennials offer a wide

range of warm flower colors that harmonize with any garden grouping. Depending on the selection, geums can play counterpoint to taller neighbors, serve as groundcover under shrubs, or sparkle as a front-of-the-border fringe. And although most may be on the floral stage for a relatively brief period, the plants add a pleasing backdrop with their attractive foliage as other plants take over the show.

MEET THE GEUMS

About 50 species belong to the genus, found in the wild on every continent except Ant-

Geum flowers offer warm tones such as the clear yellow of 'Lady Stratheden', bright red of 'Mrs. J. Bradshaw', and peachy pink of 'Wet Kiss' shown from top to bottom on the left, and the glowing yellowish orange of 'Totally Tangerine', above.

LEFT, TOP AND CENTER: BILL JOHNSON. LEFT, BOTTOM: COURTESY OF INTRINSIC PERENNIAL GARDENS, INC. RIGHT: ROB CARDILLO



Chilean avens (*G. magellanicum*) signals spring with bright pops of color that will continue long into the season with deadheading.

arctica. They form a basal rosette of lightly hairy, lobed leaves that vary in length, even on the same plant. “They have great foliage,” says Warren Leach, landscape horticulturist and co-owner of Tranquil Lake Nursery in Rehoboth, Massachusetts, where he says they have “a semi-evergreen quality.” In warmer areas, they may even remain evergreen through winter.

Blooming begins in April in warmer climates such as the California coast, and May for regions that heat up later. Slender floral stems with a few leaves rise above those basal rosettes; in many cultivars, the stems themselves color up to a reddish-pink. Each flower displays a central ring of densely clustered stamens for pollinators, which include butterflies,

beetles, bees, and flies. The flowers themselves—especially the semi-double and double cultivars—resemble miniature roses. Little wonder, given that *Geum* belongs to the rose family.

If spent flowers are deadheaded, you may be rewarded with a second, though possibly smaller, bloom. However, if left alone, the flowers produce seedheads that are fluffy and brownish, like small clematis seedheads. These can be as ornamental as the flower, especially in two species native to North America: prairie smoke (*Geum triflorum*) and water avens (*G. rivale*). The single flowers of those species nod and remain almost closed, opening fully only when the flowers fade. Then they turn their feathery seedheads skyward.

Geums will reseed, but not aggressively. Because species readily cross with one another, seedlings likely will show some variability. The plants also will produce offset rosettes from rhizomatous roots. These new rosettes stay close to home; this is not a genus that runs hither and yon.

Most geums will grow anywhere in the United States except for southern regions with hot and humid summers. Cold seldom is a bother—particularly with prairie smoke, which is hardy to USDA Hardiness Zone 3. They grow best in full sun to part shade and most prefer a well-drained soil with regular watering. Diseases and insect pests rarely cause trouble, and deer and rabbits tend to leave them alone. The basal rosettes may remain through winter but need to be tidied up before spring growth. If divided every three or four years, they will continue year after year in the garden.

GARDEN-WORTHY SPECIES

The most ornamental geums are derived from just a handful of species, which would

Sources

Annie's Annuals and Perennials,
Richmond, CA. (888) 266-4370.
www.anniesannuals.com.

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

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

Jelitto Perennial Seeds,
Louisville, KY. (502) 895-0807.
www.jelitto.com.

Klehm's Song Sparrow,
Avalon, WI. (800) 553-3715.
www.songsparrow.com.

Resources

Essential Perennials by Ruth Rogers
Clausen and Thomas Christopher. Timber
Press, Portland, Oregon, 2015.

Perennials: The Gardener's Reference
by Susan Carter, Carrie Becker, and
Bob Lilly. Timber Press, Portland,
Oregon, 2007.

seem to make them fairly simple to sort out. Richard Hawke, plant evaluation manager at the Chicago Botanic Garden in Illinois, who trialed geums for several years, is quick to quash that assumption. “Geum nomenclature is a mess,” he says. The currently accepted names in botanical circles are used in this article, but you may find them listed under an assortment of synonyms.

Much nomenclatural confusion seems to surround *Geum coccineum* (USDA Hardiness Zones 5–8, AHS Heat Zones 8–1), commonly called avens. For instance, *G.*



On flowering stems up to a foot tall, *Geum coccineum* ‘Borisii’ bears orange-red, upward-facing blossoms above rosettes of lobed leaves.

xborisii, a well-known garden perennial, is now included in *G. coccineum* as the cultivar ‘Borisii’. It produces upward-facing, orange-red flowers instead of the brick-red ones of the straight species. Native to mountainous areas of the Balkans, this species forms six-inch mounds of irregularly lobed leaves and its flowering stems reach about a foot in height.

Geum magellanicum (syn. *G. chilense*, Zones 5–8, 8–1) hails from Chile so its common name is Chilean avens. Its mounds of foliage reach about a foot tall and wide, with toothed leaves that resemble those of strawberry plants. When in bloom, wiry stems topped with upward-facing, bright reddish orange blossoms reach about three feet tall. “It’s kind of wildflowerly looking,” says Mary Te Selle owner of Quite Contrary Garden Design in San Rafael, California, who describes them as “suitably meadowy.”



The nodding pink flowers of native prairie smoke (*G. triflorum*) appear in spring, above. They are followed by up-turned, wispy seedheads, left, that inspired the common name.



The two North American species, water avens (*G. rivale*, Zones 3–8, 8–1) and prairie smoke (*G. triflorum*, 3–7, 7–1), have a wide native range, but prefer very different ecological niches. The former is called water avens because it thrives in bogs and edges of waterways. The latter’s common name of-

fers a clue to its preferred habitat—dry, sunny, open areas. It also evocatively describes its most striking feature: the aforementioned wispy seedheads. “If you can plant it where it is backlit by the setting sun,” says Mary Ann Newcomer, co-author of *Rocky Mountain Gardener’s Handbook* (Cool Springs Press, 2012), “you can see why it’s called prairie smoke.” Both of these *Geum* species produce pinkish-red, nodding flowers.

CAPTIVATING CULTIVARS

The majority of geums found at nurseries and in catalogs are hybrids and cultivars of avens and Chilean avens. However, as Hawke points out, “they’re usually only listed at the cultivar level, which implies they are

hybrids of unknown origin.” These cultivars broaden the hues of geum flowers from orange, yellow, scarlet, and occasionally white to apricot, red, deep pink, sunny yellow, and gold. Some selections look much like shot silk, with an almost iridescent sheen.

Chilean avens is the source of many older selections including the single ‘Dolly North’ with peachy-orange, ruffled petals; double, bright yellow ‘Lady Stratheden’; and the stalwart, double, scarlet ‘Mrs. J. Bradshaw’. Te Selle holds ‘Blazing Sunset’, a newer variety with double, large, reddish-orange blooms, in high regard. In her USDA Zone 10 garden, it blooms from April into November (with deadheading) with flowering stems up to four feet high.

The Cocktails series from Brent Horvath at Intrinsic Perennial Gardens in Hebron, Illinois, is well named, matching that five o’clock quaff with appropriate names and hues, such as ‘Tequila Sunrise’ with its bright yellow petals edged in a color described as “grenadine” and yellow-and-pink ‘Wet Kiss’. “Brent has brought romantic colors into these cultivars,” Hawke says. Most were developed from crosses made between Chilean avens and its cultivars, but offer greater hardiness (to USDA Zone 5) and heat-tolerance than their parents.

Leach from Tranquil Lake Nursery grows ‘Flames of Passion’, a selection of water avens. This cultivar ramps up the show with single, intense red flowers that do not hang their heads. He also favors ‘Totally Tangerine’, a cross between prairie smoke and ‘Mrs. J. Bradshaw’. This apricot-orange, single-flowered selection stands head and



‘Blazing Sunset’ offers brilliant scarlet blooms on robust plants over a longer period than many other popular geum cultivars.

DESIGNING WITH GEUMS

Geums mingle nicely with other warm-hued spring-bloomers such as yarrows (*Achillea* spp.) and columbines such as red-and-yellow eastern red columbine (*Aquilegia canadensis*) in more northern regions and golden spur columbine (*A. chrysantha*) in Western regions. For longer-blooming geums and those that can be coaxed into producing a second flush of blooms later in the season, try them with the maroon blooms of great burnet (*Sanguisorba officinalis*), sunny black-eyed Susans (*Rudbeckia* spp.), or tickseeds (*Coreopsis* spp.).

Flowers on the opposite side of the color wheel from the warm hues of geums give a zing of contrast. For example, the bright orange hue of ‘Totally Tangerine’ pops even more with the cool blue flowers of catmints such as *Nepeta* ‘Six Hills Giant’ or perennial salvias such as wood sage (*Salvia x sylvestris* ‘Mainacht’). Blue-flowered hardy



Warm orange geum flowers blend with the lemon yellow of columbines and vivid purples of salvia spikes to create a cheerful, carefree display that is accented by stately white peonies.

geraniums such as *Geranium wallichianum* ‘Buxton’s Variety’ that begin blooming in early summer and continue into fall could catch ‘Totally Tangerine’ at either end of the growing season. Early-blooming irises and alliums also would make good companions.

The water avens, with its preference for damp soil, plays well with masterwort (*Astrantia major*), either the species’ typical white flowers or one of its many pink or red cultivars, such as ‘Hadspen Blood’ and ‘Claret’. Or plant it in front of taller, water-loving irises. —M.W.

shoulders above the crowd, both physically and in its duration of bloom. Unlike many of the other cultivars that go in and out of flower in the span of only a few weeks, ‘Totally Tangerine’ begins blooming in May and continues, in many regions, until October or November.

It may be the prairie smoke genes that make this selection particularly suitable to gardens in colder and drier climates. “I failed with every geum cultivar I tried to grow,” says Newcomer, who gardens in USDA Zone 6 but is no stranger to Zone 5. But then she spotted ‘Totally Tangerine’ growing at the Idaho Botanical Gar-

den in Boise “in the entry garden, in a very waterwise planting.” After giving it a try, she was duly impressed. “I will keep adding more until I find another cultivar that does as well,” she says.

FINAL NOTES

Whether your garden ensemble is large or small, you can enrich your own symphonies by finding a place for geums. They will add long-lasting notes with their tidy foliage, graceful blooms, and attractive seedheads. ☺

Marty Wingate is a garden writer who lives in Seattle, Washington.

Habitat Hedgerows



Attract and sustain beneficial wildlife in your garden with a versatile hedgerow composed of plants that provide food and cover year round.

BY KRIS WETHERBEE

A variety of shrubs and small trees intermingled with perennials creates a multilayered hedgerow that offers a continuous supply of food and shelter for wildlife through the seasons.

MARY YEE

HEDGEROWS, those less-formal cousins of hedges, provide a long list of benefits wherever they grow. They typically include a variety of tree and shrub species that vary in height, as opposed to hedges, which are usually made up of a single species in a closely spaced row. The resulting layers of plants mimic a woodland or forest edge, fulfilling different habitat functions for wildlife such as shelter, nesting sites, and food sources.

With a little planning and careful plant selection, gardeners can replicate nature's wonderful design while using hedgerows to create privacy, define property lines, screen unsightly views, minimize erosion, reduce sound pollution, and buffer strong winds.

FROM THE BACK FORTY TO THE BACKYARD

Hedgerows are most often seen in Europe and North America, where they are typically used to line field borders and contain livestock. But a hedgerow can be adapted to suburban settings by selecting smaller trees and shrubs to create an informal, wildlife-friendly perimeter to the more manicured parts of the landscape.

"Hedgerows can provide a slice of wild on the outskirts of a landscape design," says Rebecca Lindenmeyr, co-principal of Linden L.A.N.D. Group, an ecological landscape design/build firm in Shelburne, Vermont. "They represent diverse and complex woodland margins with trees, shrubs, forbs, grasses, and sedges, enhanced with wildflower species that provide vital pollinator habitat," she adds.

Interest in habitat hedgerows for suburban landscapes is growing. "I'm seeing hedgerows replacing more formal hedging—less formal hedging suits most Northwest gardens," says Valerie Easton, a former horticultural librarian and garden blogger in Langley, Washington.

"Screening for privacy doesn't have to mean a soldierly, neatly-clipped row

Top right: Native plants such as the evergreen eastern juniper (*Juniperus virginiana*) in the background and the flowering arrowwood viburnum (*Viburnum dentatum*) in the foreground work well in habitat hedgerows. **Right:** Fruit-producing plants like this 'Autumn Brilliance' serviceberry (*Amelanchier* × *grandiflora*) will cater to several bird species, including American robins.





As part of a habitat hedgerow, this native staghorn sumac (*Rhus typhina*) not only supports wildlife with its nectar-rich spring flowers and conelike clusters of red berries that follow, it offers a pop of orange to red fall color to the landscape.

of shrubs,” says Linda Lehmusvirta, producer of “Central Texas Gardener” for KLRU-TV (PBS), Austin, who has observed the same trend in her region. “In Texas, more gardeners are going for habitat plantings to shield views or create conversation nooks.”

PLANNING YOUR HEDGEROW

Start by deciding how you want your hedgerow to function aside from supporting wildlife. For example, if it will serve as a windbreak, site it so that it will block prevailing winds. If you want a screen, select shrubs and trees with denser growth habits or are evergreen.

Next, figure out the ultimate height that will work best within your space. If you want a hedgerow that doesn’t block your view, for instance, select smaller shrubs that naturally top out at five feet or less.

Keep in mind that your hedgerow should include a mix of layers and different heights. This is important because wildlife exists at all levels of the vertical space. For example, some birds, such as chickadees, titmice, nuthatches, and finches, forage for food in trees or taller

shrubs, while juncos, sparrows, towhees, and doves are primarily ground feeders.

The depth of your hedgerow is another consideration; it should be between 10 and 20 feet deep. Wider spaces allow for more plants, which means greater habitat potential. If you have a like-minded neighbor with an adjacent property, you can maximize the depth of your hedgerow—and its wildlife value—if each of you plants a hedgerow on either side of the property line.

PLANT SELECTION

The key to creating a successful habitat hedgerow is choosing the right plants for your space and climate. This means that the growing requirements of the plants you select should be compatible with the soil, water, and light conditions of your site.

Focus on trees and shrubs that produce edible fruit, nuts, seeds, or berries. Include a mix of flowering plants that will attract pollinators and other beneficial insects. For best results, select plants that flower and fruit at different times of the year.

The greater the diversity of plants, the more needs of wildlife your hedgerow will meet. Janet Allen, president and founder

of her local Wild Ones chapter in central New York, observed this in her own garden after she and her husband replaced their backyard flowerbeds several years ago with a habitat hedgerow of shrubs underplanted with native perennials.

“What we didn’t realize at the time was that our hedgerow provided much more than just berries,” notes Allen. “Ornamental flowers also provided nectar and pollen for pollinators. Some of the denser shrubs, such as gray dogwood (*Cornus racemosa*) and silky dogwood (*C. amomum*) are excellent cover and nesting areas for birds. More recently, we learned that many of these native shrubs are host plants for caterpillars—essential food for baby birds.”

Be sure the mature size of plants you select suits your space. “Hedgerows always seem to grow larger than expected here in the Northwest,” says Easton, who advises suburban gardeners to “stay away from the larger conifers, elderberries, and other big, rangy plants.”

Allen agrees, advising that those with more limited space choose “native species that provide the most benefit for wildlife and forego those that tend to get out of bounds.”

RECOMMENDED HEDGEROW PLANTS

The plant palette for a hedgerow is somewhat different for each region of the country. For example, Linda Lehmusvirta in Austin, Texas, suggests gardeners in her region “let the natural forms of native evergreen yaupon holly (*Ilex vomitoria*) and Texas mountain laurel (*Sophora secundiflora*) gracefully enchant your borders in sun while attracting birds and pollinators. In shade to part sun, choose drought-tough viburnums that can be shaped or not, and in spring attract native bees and wasps to nectar.”

“Here in the Northwest,” says Valerie Easton of Langley, Washington, “we have the luxury of lots of hardy evergreens to choose from, so our hedgerows tend to have at least as many evergreens (mahonias, evergreen blueberries, native rhododendrons) as deciduous plants like our native flowering currant, huckleberries, and native Nootka roses.”

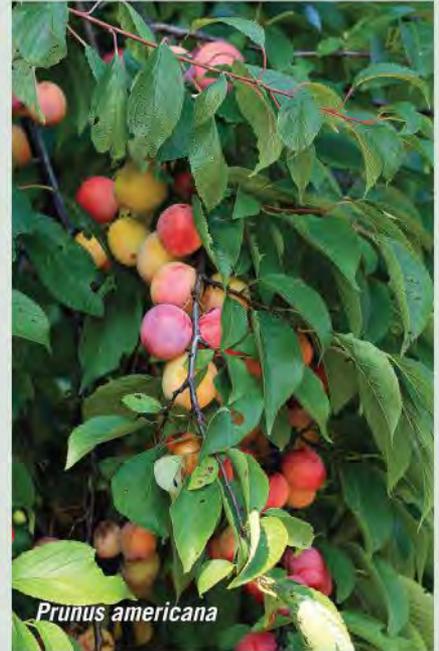
The following are just a few of the many wildlife-friendly small trees and shrubs that can be used in many regions to form the bones of a backyard hedgerow. Underplanting shade tolerant perennials, groundcovers, and grasses will increase wildlife benefits. —K.W.

MEDIUM TO SMALL SHRUBS

- Beautyberries (*Callicarpa* spp.)
- Bush cherries and plums (*Prunus* spp.)
- Chokeberries (*Aronia* spp.)
- Cotoneasters (*Cotoneaster* spp.)
- Creosote bush (*Larrea tridentata*)
- Currants (*Ribes* spp.)
- Evergreen huckleberry
(*Vaccinium ovatum*)
- Highbush cranberry (*Viburnum edule*)
- Junipers (*Juniperus* spp.)
- Mahonias (*Mahonia* spp.)
- Natal plum (*Carissa macrocarpa*)
- Native roses (*Rosa* spp.)
- Red huckleberry
(*Vaccinium parvifolium*)
- Salal (*Gaultheria shallon*)
- Sumacs (*Rhus* spp.)
- Sweetspire (*Itea virginica*)
- Texas silverleaf
(*Leucophyllum frutescens*)
- Western sand cherry (*Prunus besseyi*)



Mahonia bealei



Prunus americana

SMALL TREES AND TALL SHRUBS

- Alder buckthorn
(*Frangula alnus* ‘Columnaris’)
- American arborvitae
(*Thuja occidentalis*)
- American hornbeam
(*Carpinus caroliniana*)
- Common spicebush (*Lindera benzoin*)
- Crabapples (*Malus* spp.)
- Dogwoods (*Cornus* spp.)
- Hawthorns (*Crataegus* spp.)
- Hazelnuts
(*Corylus americana*, *C. avellana*)
- Hollies (*Ilex* spp.)
- Juneberries/serviceberries
(*Amelanchier* spp.)
- Mountain ash (*Sorbus americana*)
- Viburnums (*Viburnum* spp.)
- Vine maple (*Acer circinatum*)
- Wild cherries and plums (*Prunus* spp.)



Ilex verticillata ‘Winter Red’

That said, plants in a hedgerow are meant to overlap, so you can space them about 75 percent closer together than you would if they were being grown as specimens. For a list of trees and shrubs suitable for hedgerows, see page 27.

DESIGN TIPS

Hedgerows certainly will have a natural, informal look, but it's still important to keep aesthetics in mind. "To be acceptable in residential landscapes, habitat hedgerows need to strike a balance between science and good design, between our desire to be good stewards and still maintain a sense of order," says Lindenmeyr.

When including habitat hedgerows her in designs, Lindenmeyr strives to develop landscapes that include both intentionally designed areas and wild areas—"some for

that span the seasons. Plants that flower and fruit at different times of the year not only help sustain wildlife, they add pops of seasonal color. Many wildlife-friendly plants contribute textural contrasts to the landscape, while others offer colorful fall foliage or attractive bark for winter interest.

Repetition—repeating plants or colors within the hedgerow, or using hedgerow plants in other parts of the landscape—helps create visual flow and harmony within the landscape. Mass plantings or large drifts of color also help unify the space.

"We prefer natural landscaping rather than the manicured look, but we've followed some conventional design guidelines," says Allen. For example, she and her husband have planted odd-numbered groups of plants, placing taller plants toward the back and shorter plants in front.



When designing this hedgerow in her central New York garden, Janet Allen followed traditional design tenets to achieve a "wild" yet aesthetically pleasing look.

us and some for them." She encourages her clients to "accept a side order of messy with their main entrée of eco-neat-and-tidy."

One technique Lindenmeyr uses to integrate habitat hedgerows into the greater landscape is "by edging the wildness with ribbons of order—simplified plantings and bold brushstrokes of color."

Year-round landscape interest can be achieved by selecting plants with attributes

"We don't plant in rows but at random. We make sure that we fill the area not just with shrubs but with other plants, such as moss phlox (*Phlox subulata*), to minimize the opportunity for weeds to take hold."

MAINTENANCE NEEDS

Deciding on the look you want—more orderly or more natural—will impact your maintenance chores. "Hedgerows can look

Resources

The Living Landscape: Designing for Beauty and Biodiversity in the Home Garden by Rick Darke and Douglas W. Tallamy. Timber Press, Portland, OR, 2014.

National Wildlife Federation: Attracting Birds, Butterflies & Other Backyard Wildlife by David Mizejewski. Fox Chapel Publishing, East Petersburg, PA, 2004.

Wild Ones: Native Plants, Natural Landscapes, www.wildones.org.

more groomed or wilder, depending on plant choice and pruning style," says garden consultant Janie Taylor of Yamhill County, Oregon, who adds, "An annual review and trimming is a good idea."

It will take a few years for your habitat hedgerow to become established; during this time, keep young plants watered and mulched. "When we first planted, we mulched the area, but now that the plants have matured, we simply let the fallen leaves remain on the ground," says Allen. "We prune some shrubs each spring, and we monitor plants such as gray dogwood or native roses that try to escape the area we've designated for them," she adds.

Weeding is important. "Birds drop a complete laundry list of invasive or irritating weedy species, but there might be some natives in there to surprise you as well," says Taylor, who advises, "Weed early and weed often."

FINISHING TOUCHES

Your wildlife visitors will appreciate the addition of water sources, such as a bird bath or saucer of moist sand on the ground, to your habitat hedgerow. Nesting boxes and feeders encourage birds to visit the area before your plants have begun flowering and fruiting.

As your hedgerow matures, you can enjoy not only your garden's plants but also the life those plants support. As Allen says, "We've grown to appreciate a different kind of beauty and have benefited mind, body, and soul from reconnecting with nature right in our own yard." 🌿

Garden writer Kris Wetherbee lives in Oakland, Oregon.



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Native Ferns

Adapted to diverse regions of North America, native ferns draw gardeners into the shade with their soothing green hues and intricately patterned foliage.

BY C. COLSTON BURRELL

PRIZED FOR their filigreed foliage, ferns add texture and graceful motion to gardens and glades. Some gardeners may equate their dainty appearance with a fussy nature, but plenty of native species adapt well to garden culture. When properly chosen and sited, these ferns will enliven shady spaces with their forms and subtle hues.

In discussing ferns native to North America, it's important to understand that many of our "natives" are also found in other parts of the world. "There is a lot of overlap of the same species between

eastern North America, eastern Asia, and western Europe," says Robbin C. Moran, curator of botany at New York Botanical Garden and author of *A Natural History of Ferns* (Timber Press, 2009).

This overlap resulted from the migration of flora southward from high northern latitudes some 55 million years ago. "As the earth's climate cooled and became more seasonal in the latter half of the Tertiary Period, the once-continuous circumboreal flora migrated southward and became fragmented into three great blocks: eastern North America, eastern Asia, and western

Europe," explains Moran. "That is basically why the plant species that occur in these regions are similar today."

In this article, I am focusing on the North American range of each species.

FERN TERMINOLOGY

Ferns are grown for their foliage; in fact, they produce no flowers at all (see "Fern Reproduction," opposite page). They also have their own taxonomic terminology. A **frond** is a complete leaf, composed of a stalk, called a **stipe**, and the **blade**, which is often dissected into leaflets called **pinnae** (singular, pinna). The unfurling fronds are called **croisiers** or fiddleheads.

DIVERSE HABITATS

Ferns grow wild in varied settings, from open woodlands, swamps, and dappled banks, to bare cliff faces, sheltered overhangs, and along the margins of pounding waterfalls. Among the ground-dwellers are the best all-around garden ferns. Most are readily obtained and easy to grow. Many of the choicest rock ferns are best left to experts, although a few are good garden performers (see the chart on page 33).

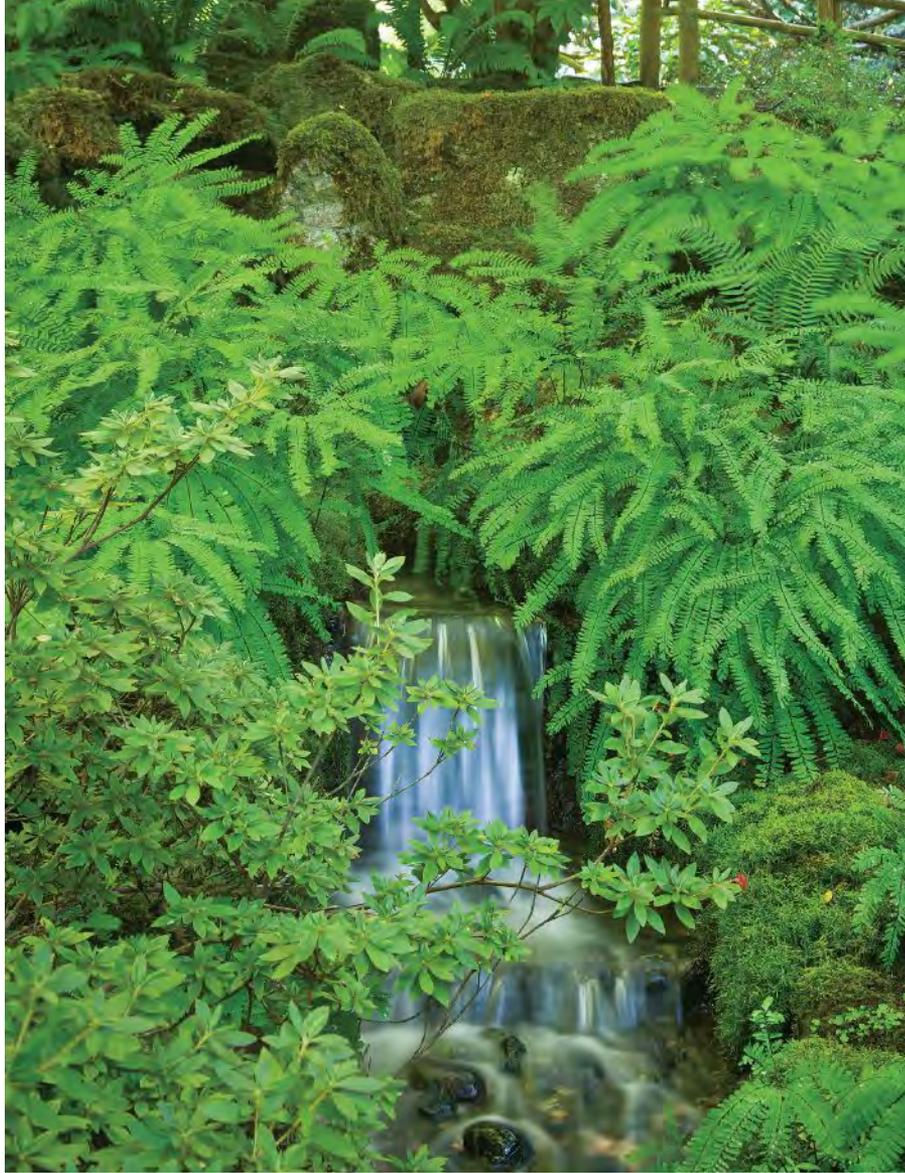
By far the most popular garden ferns are those with evergreen foliage. So much so that veteran fernophile, Judith Jones, who owns Fancy Fronds Nursery in Gold Bar, Washington, laments that it is impossible to sell a deciduous fern. That is a shame, as deciduous and semi-evergreen ferns are standouts in the spring and summer garden. They maintain good foliar constitution with minimal care as long as the soil stays moist. During severe drought, plants may defoliate but will re-sprout when sufficient water is restored. Many species present russet, yellow, or straw-colored fronds once nights become frosty.

MOISTURE REQUIREMENTS

While some ferns require consistently moist, or even wet soil to look their best throughout the growing season, the majority of ferns, once established, are quite drought tolerant. That said, prolonged water deprivation will induce dormancy or can even be fatal.

Plant ferns in water-retentive soil amended with compost. The addition of a light organic mulch helps conserve moisture, but a heavy bark mulch may deprive

The stately fronds of Goldie's wood fern may reach three or four feet in length.



Maidenhair ferns like these flanking a water feature at the Butchart Gardens on Vancouver Island, British Columbia, thrive in a shady, consistently moist site.

the shallow roots of sufficient nitrogen for healthy growth. Ferns take a year or two to become established, and this period is critical to the success of plantings. Consistent moisture is needed until young transplants develop enough roots and rhizomes to tolerate drought.

TOP CHOICES

The characteristics of some of the most tough, indestructible ferns are thick water-storing rhizomes, leathery evergreen fronds, and a tenacious root system. These qualities are typical of many ferns in two genera—*Dryopteris* and *Polystichum*—which I will be highlighting along with other good garden ferns on the following pages. (For regional recommendations for native ferns, visit the AHS website and follow the link to the web special for this article.)

If you weigh beauty, adaptability, and ease of culture in a variety of garden situations, the cream rises quickly to the top. The *crème de la crème* has to be **northern maidenhair fern** (*Adiantum pedatum*, USDA Hardiness Zones 3–8, AHS Heat Zones 8–1), which presents elegant sea-green, horseshoe-shaped fronds atop ebony stipes. The one- to two-foot deciduous fronds dance in the slightest breeze. Plant it in groups or drifts in woodland gardens, under shrubs and flowering trees or with other ferns as a foundation planting. When allowed to cascade down a slope, it looks like a green waterfall. The delicate pink fiddleheads combine well with spring-flowering bulbs and wildflowers. It prefers moist, nearly neutral (pH between 6.5 and 7.5), humus-rich soil in part to full shade, and is native to eastern North America.

The western counterpart of this species is *A. aleuticum* (Zones 3–8, 8–1), which has asymmetrical fronds with elongated pinnae that resemble fingers. Jones says that many commercial growers do not differentiate between *A. pedatum* and *A. aleuticum*. “I find the latter to be a more variable species that occurs in a wider range of environments, making it an excellent choice for a wide climate range. It is well worth the time to establish it,” says Jones.

For adaptability, you can’t beat **Christmas fern** (*Polystichum acrostichoides*, Zones 3–8, 8–1), whose stiff evergreen fronds form dense, dependable clumps in a variety of settings. “There are few truly evergreen ferns hardy in the Northeast, but Christmas fern comes awfully close,” says Wil-

FERN REPRODUCTION

Most ferns flourish in moist soils, not simply because they require constant moisture, but because they demand water for reproduction. Ferns reproduce from spores, not seeds. Unlike seeds, spores germinate not into seedlings, but into an intermediate stage called



Rather than seeds, ferns reproduce with spores like these rust-colored ones on the undersides of Christmas fern fronds.

the gametophyte generation, that produces a small, filmy prothallus, which bears both the male and female sex organs. It is here that water is critical to the survival of the fern, as fertilization can only occur when the sperm cells can swim freely on a film of water to reach the egg cells. After fertilization, a young plant is produced that eventually grows into a fern.

—C.C.B.

liam Cullina, executive director of Coastal Maine Botanical Gardens and author of *Native Ferns, Moss & Grasses* (Houghton Mifflin, 2008). The cast-iron character of this eastern and central North American native adapts to clay soil or humus. Given a little shade, it is well behaved, long lived, and increases in beauty with time. “In bright light, the narrow, 12- to 16-inch fronds are carried nearly vertically, while in deep shade they splay out horizontally,” says Cullina. The stiff fronds remain erect until hard frost or heavy snow pushes them over. Combine Christmas fern with other ferns in foundation plantings, along walks and steps, or in woodland gardens with bulbs, wildflowers, and groundcovers.

At first glance, **silvery glade fern** (*Deparia acrostichoides*, Zones 4–8, 8–1) may look like many other ferns, with its deciduous, moderately dissected fronds, but a second look reveals a tidy, medium green clump with arching fronds clustered on a slow-creeping rhizome. The fronds open chartreuse and fade to green with age. Since fronds are produced in succession through early summer, clumps always look fresh. They turn straw-colored in fall. In the garden, plants form robust two- to three-foot-wide clumps. They require constant moisture and neutral to acidic soil for best growth. They tolerate consid-



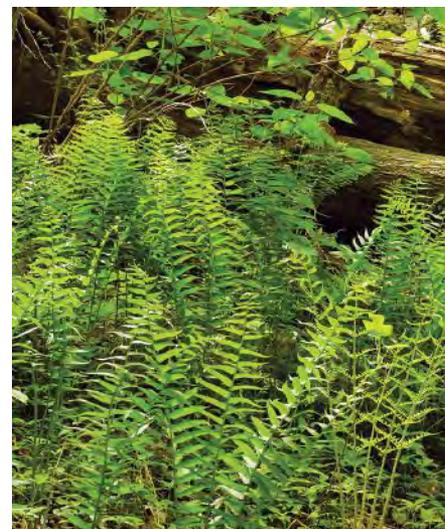
Christmas ferns have coarsely textured fronds that remain evergreen through winter.

erable sun if the soil stays moist. Silvery glade fern is native from Nova Scotia and Ontario, south to Georgia and Arkansas.

With its elongated pinnae arranged like stair steps up the arching fronds, the **narrow glade fern** (*Diplazium pycnocarpon*, Zones 4–8, 8–1) evokes the tropics. Found on limy soils throughout eastern and central North America, this architectural gem

looks stunning in the shade garden among drifts of wildflowers or bold-leaved plants such as hostas. The fronds turn russet in autumn. Plant in constantly moist, nearly neutral, humus-rich soil in part to full shade. Fronds will turn brown quickly if the soil gets too dry.

Another native of eastern and central North America, **Goldie’s wood fern**



Left: Silvery glade fern will slowly form colonies in evenly moist sites. The three- to four-foot-long fronds emerge chartreuse and turn green with age. Its common name refers to the silvery appearance of its spores. Above: The long, slender fronds of narrow glade fern have a tropical appearance.

FERNS FOR WET SOILS

A small group of desirable ferns tolerate or demand constant moisture, and a few will even grow in standing water.

Name	Height/Spread (inches)	Ornamental Attributes	Native Range in North America*	USDA Hardiness Zones, AHS Heat Zones
<i>Adiantum capillus-veneris</i> (Southern maidenhair fern)	12–24/12–18	Deciduous, cascading triangular, fronds chartreuse to sea green, fan-shaped pinnae	Southern U.S., west to California	7–10, 11–7
<i>Dryopteris carthusiana</i> (Spinulose wood fern)	18–30/18–30	Glossy, semi-evergreen fronds are deeply dissected, emerging in a tall arching vase from a stout rhizome	Canada, northern U.S., south to South Carolina and west to Missouri	2–7, 7–1
<i>Dryopteris ludoviciana</i> (Southern wood fern)	24–48/24–36	Stiff, erect narrow fronds, tapered at both ends, are evergreen in mild climates	Southeastern coastal plains west to Texas	6–9, 9–5
<i>Onclea sensibilis</i> (Sensitive fern)	12–30/24–48	Deciduous chartreuse sterile fronds form carpet; fast-creeping rhizomes; beaded fertile fronds persist through winter	Eastern and central North America, from Labrador and Manitoba, south to Florida and Texas	4–9, 9–1
<i>Osmunda cinnamomea</i> (Cinnamon fern)	24–60/24–48	Statuesque deciduous fern with arching sterile fronds that emerge after the cinnamon-colored spore-bearing fronds	Eastern North America Labrador to Ontario, south to Florida and Texas	3–9, 9–1
<i>Osmunda regalis</i> (Royal fern)	24–60/24–48	Tall, deciduous fronds emerge purple-tinged and fade to green; partially fertile fronds bear clusters of rusty-brown sporangia	Newfoundland and Saskatchewan, south to Florida and Texas	2–10, 9–1

FERNS FOR ROCK GARDENS

These ferns can grow in the crevices of rock outcroppings or atop boulders with only a veneer of humus or moss.

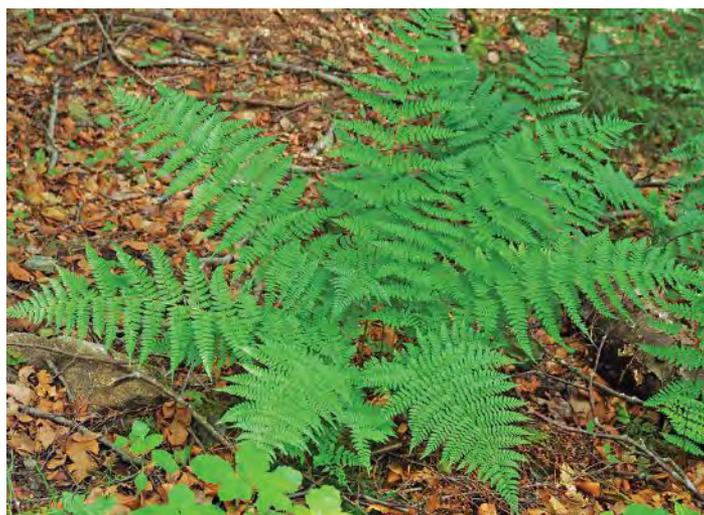
<i>Asplenium rhizophyllum</i> (Walking fern)	2–6/6–12	Evergreen fern spreads over moist, mossy limestone rocks by rooting at tips of the fronds to form new plants	Limestone regions from Quebec and Ontario, to Georgia and Oklahoma	4–8, 8–3
<i>Asplenium trichomanes</i> (Maidenhair spleenwort)	3–6/3–6	Evergreen or semi-evergreen tufted rosettes of slender deep-green fronds with rounded pinnae and black stipes	Throughout North America	3–9, 9–2
<i>Cheilanthes lanosa</i> (Hairy-lip fern)	6–10/8–15	Dense cluster of olive-green, deer-resistant, evergreen fronds	Eastern and central U.S., south to Florida and Texas	5–8, 8–4
<i>Pellaea atropurpurea</i> (Purple cliff brake)	8–15/8–10	Forest-green fronds bear sparse linear pinnae; winter fronds turn purple	Much of the U.S. and eastern Canada	4–9, 9–3
<i>Pentagramma triangularis</i> (Goldback fern)	5–10/5–12	Dark green triangular fronds, ebony stipes; backs of spore-bearing fronds are dusted with yellow powder	Western U.S., British Columbia	6–9, 9–5
<i>Polypodium virginianum</i> (Rock fern, rock polypody)	8–12/12–24	Leathery, deep olive-green fronds arise from a wandering rhizome; forms evergreen carpet	Newfoundland to Manitoba, south to Georgia and Arkansas	5–8, 8–5
<i>Woodsia obtusa</i> (Blunt-lobed cliff fern)	6–15/8–18	Loose clusters of lacy, deep green fronds from slow-creeping rhizomes	Eastern and central North America, south to Georgia, Nebraska and Texas	3–9, 9–3

* In addition to the North American regions listed, many of the ferns included in this chart are native to other temperate or tropical areas of the world.



(*Dryopteris goldiana*, Zones 3–8, 8–2) is a giant among wood ferns. Upright, arching fronds between three and four feet long arise three to four feet from a stout rhizome with an elevated crown. The flattened pinnae are pale green along the margins, giving young fronds a two-tone effect. Fronds turn pale yellow in autumn. Use Goldie’s fern singly or in small groups for a tall, vertical accent, or combine it with strap-leaved plants such as irises. Plant it in moist, neutral to acidic, humus-rich soil in part to full shade.

Fancy fern, also known as intermediate wood fern, (*Dryopteris intermedia*, Zones 3–8, 8–1) is durable and beautiful. The common name refers to the finely dissected fronds, which grow one-and-one-half to two-and-one-half feet tall and are reliably evergreen. “This fern has lacy foliage with the leaves arranged in a basket shape,” says Moran, who adds, “It stays put, and does



Top: Ostrich fern makes a bold focal point in this mixed bed. Above: Despite its delicate appearance, fancy fern is a durable species.

not creep and spread.” It’s great for massing in a glade, as an accent among rocks, or at the base of a stump. It tolerates drier sites than other ferns, but grows to perfection in moist, humus-rich soil in light to deep shade. It is common throughout eastern

and central North America.

Marginal wood fern (*Dryopteris marginalis*, Zones 3–8, 8–1) is a tough, adaptable fern that deserves a place in every garden. “Being one of the most dry-tolerant ferns, it is often found in the wild growing on rock walls and slopes,” says John Manion, curator of the Kaul Wildflower Garden at Birmingham Botanical Gardens in Alabama. The stiff, one- to two-foot arching fronds are olive-green and arise in a vase shape from a central crown.

Pair this fern with rocks along steps or in a rockery. Plants grow in moist, well-drained, neutral to acidic, humus-rich soil in part to full shade. Established plants are drought tolerant and thrive in rocky soil or perched on boulders. It is native to eastern and central North America.

Standing a head above most others, the **Dixie wood fern** (*Dryopteris ×australis*, Zones 5–9, 9–5) sports broad, glossy, three-

to four-and-one-half-foot-tall fronds that remain evergreen in mild climates. This natural hybrid between **log fern** (*D. celsa*) and **Southern wood fern** (*D. ludoviciana*) has a vigorous growth habit. It makes a stunning foundation plant, or can be massed among shrubs or anywhere you want to add a vertical accent. Although it thrives in rich, moist, organic soil, it is widely adaptable to garden conditions and somewhat drought tolerant once established. It has a scattered distribution in southeastern and Gulf Coast states.

Native to northern North America, south to Virginia and west to Nebraska,

thrives in moist, neutral, humus-rich soil in light to full shade.

Interrupted fern (*Osmunda claytoniana*, Zones 2–10, 9–1) is similar in appearance to **cinnamon fern** (*O. cinnamomea*) but the pinnae are broader and pale green in color. The fertile fronds are distinctly different, bearing both sterile and fertile pinnae on the same frond. The congested, ephemeral fertile pinnae occur half way up the frond with sterile pinnae above and below, thus creating an “interruption” in the frond when the spore-laden parts fall off in summer. The one- to five-foot-long fronds emerge from a wiry, crown-form-



Only the pinnae in the middle of the fronds of interrupted fern bear spores. The fronds get their characteristic “interruptions” when the fertile pinnae wither and fall off.

ostrich fern (*Matteuccia struthiopteris*, Zones 2–8, 8–1) is the most popular deciduous fern in cultivation throughout its range and beyond. The three- to four-foot plants produce tall, plume-shaped, sterile fronds that arise in a narrow vase shape from a creeping, crown-forming rhizome. The persistent fertile fronds stand through the winter and release their spores in the spring. Use ostrich fern as a foundation plant or in drifts in the woodland garden, combined with spring-flowering bulbs, wildflowers, and garden perennials. It

ing rhizome. Plants grow best in moist, neutral to acidic, average to humus-rich soil in sun or shade. They are native throughout much of eastern and central North America.

Southern beech fern (*Phegopteris hexagonoptera*, Zones 4–9, 9–1) is native throughout eastern North America. It sports broad, triangular fronds held horizontally on thin stipes. The one-and-one-half to two-foot-long fronds are produced in a row or in loose clusters along creeping rhizomes, and turn pale yellow in the

Sources

Fancy Fronds Nursery, Gold Bar, WA. (360) 793-1472.

www.fancyfronds-nursery.com.

Fern Ridge Farms, Cedar Bluff, AL. (256) 779-6351.

www.fernridgefarms.com.

Prairie Nursery, Westfield, WI. (800) 476-9453.

www.prairienursery.com.

Resources

American Fern Society, www.amerfernsoc.org.

The Hardy Fern Foundation, www.hardyferns.org.

Native Ferns, Moss & Grasses: From Emerald Carpet to Amber Wave, Serene and Sensuous Plants for the Garden by William Cullina. Houghton Mifflin, Boston, MA. 2008.

A Natural History of Ferns by Robbin C. Moran. Timber Press, Portland, OR. 2004.

The Plant Lover's Guide to Ferns by Sue Olsen and Richie Steffen. Timber Press, Portland, OR. 2015.

autumn. Choose southern beech fern as an open groundcover under shrubs and small flowering trees. Combine them with tall wildflowers such as baneberries and black cohosh. Plant southern beech fern in moist, neutral to acidic, humus-rich soil in shade. In fertile garden soils, plants grow rapidly and need dividing to control their spread.

HARD CHOICES

Wading through the vast array of beguiling ferns vying for a spot in your garden can be daunting. Fronds of every description wave seductively from wooded dells and the pages of glossy catalogs. The ferns in this article are only a few of the wonderful options available.

These native species contribute to any garden vignette where the site conditions match their cultural needs; plant them and you will be rewarded.

C. Colston Burrell is a lecturer, author, photographer, and garden designer specializing in native designs and the creation of environmentally sound landscapes.



Win *the* War on Weeds

Revolutionize your approach to keeping unwanted plants at bay by working with your garden ecology instead of fighting it. BY THOMAS CHRISTOPHER PHOTOGRAPHS BY LARRY WEANER

TOO OFTEN, weeds are the gardener's nemesis when they really do not have to be. But to cope with weeds successfully, to control them without excessive inputs of time or chemicals, you do have to understand the way they function in the garden ecosystem.

In general, weeds are fast-growing, often short-lived, opportunistic plants; they are commonly examples of a group that ecologists describe as "pioneer species." When a disturbance—in the wild this may be a flood or fire, or the blow-down of a tree—creates a gap in the vegetation, pioneer species rapidly

colonize the bare spot. They serve as a bandage, holding the soil in place until slower-growing but longer-lived vegetation can re-assert itself. This is a valuable service in a natural setting.

In a garden, though, where the disturbance is more likely to be some aspect of routine maintenance such as cultivating the soil or renovating a bed, the rank growth of these pioneers is less welcome, especially if the pioneers belong to some exotic, invasive species. Because invasive weeds didn't co-evolve with the native vegetation, they tend to short-circuit the restoration process by out-competing

their neighbors and spreading into adjacent areas of formerly intact vegetation.

SNIP, DON'T RIP

What does this mean for the weeder? First, it means that the traditional practice of uprooting weeds to control them is most often a mistake. Ripping a weed out of the ground may satisfy a primal desire for retribution, but the very act creates an area of soil disturbance, which invites more weeds.

Try, instead, snipping weeds off at ground level. This is not applicable to all weeds; some multi-stemmed, ground-hug-



When creating a meadow, think of it as a relay race. The young meadow, above, was seeded with a mix of species that would naturally succeed each other without leaving room for weeds. Early-stage species such as the short-lived, yellow-flowered black-eyed Susan (*Rudbeckia hirta*), above, gradually gave way to later-stage species such as purple coneflower (*Echinacea purpurea*), left.

ging types aren't susceptible to this treatment. But where snipping is practical, it is more efficient than pulling the weeds. In an informal test, Larry Weaner, a landscape designer and my coauthor of *Garden Revolution: How Our Landscapes Can Be a Source of Environmental Change* (see box at right), found that he could snip four weeds in the time that it took him, on average, to pull one. Although a single decapitation is unlikely to kill a weed, it will weaken it and prevent it from setting seed to propagate itself. Weaken the weed a couple more times while allowing the more desirable plants around it to flourish. The uncut plants will overshadow and crowd out the invader.

DO NOT DISTURB

Another way to discourage weed invasion is to minimize disturbance within your garden. Deep digging and "amending" the soil with organic matter or topsoil and fertilizer is unnecessary if you have selected plants, preferably natives, that are adapted to your soil conditions. Rather than benefiting your plantings,

such measures cause disturbances and environmental imbalances that favor weed growth. Nor should irrigation be necessary after new plants have rooted in; again, the extra water will more likely benefit weeds rather than your locally adapted plants.

PLANT FOR SUCCESSION

Often, human actions have impoverished the local ecosystem by eliminating some or many of the plant species that once flourished there. This leaves space and resources unclaimed, which is an invitation to invaders. Enriching your landscape with a diversity of native plants is one way to correct this problem.

When planting a meadow, for example, it is essential to include fast-growing plants such as black-eyed Susan (*Rudbeckia hirta*), a biennial that will quickly cover the ground and flourish during the first couple of years after planting, but you should also include short-lived perennials such as lanceleaf tickseed (*Coreopsis lanceolata*) that will take over

LARRY WEANER
THOMAS CHRISTOPHER

GARDEN REVOLUTION

How our landscapes can be a source of environmental change

This book is a book about how to create a garden that is a source of environmental change. It is a book about how to create a garden that is a source of environmental change. It is a book about how to create a garden that is a source of environmental change.

This article is adapted from *Garden Revolution: How Our Landscapes Can Be a Source of Environmental Change* by Larry Weaner and Thomas Christopher, published in 2016 by Timber Press, Portland, Oregon. Used with permission of the publisher.



as the fast-growing species fade, and slow-growing but enduring perennials such as white wild indigo (*Baptisia alba*), which may persist for 100 years or more, provide long-term stability. Planting such a relay race of desirable species helps to ensure that your landscape doesn't allow opportunities for invasion as it develops.

BAD THUGS VERSUS GOOD THUGS

If your landscape is already infested with invasive weeds, consider planting aggressive-though-desirable species that can hold their own in such a competitive environment. This is an especially useful technique if you don't have a lot of time or resources to devote to weed control, as your plantings will fight your battles for you. Aggressive natives such as sumacs (*Rhus* spp.) and brackenferns (*Pteridium* spp.) are commonly disparaged as "garden thugs" and certainly aren't suitable to the more refined areas of the garden, but their expansive, irrepressible habits may be just the thing for an outskirt afflicted with Japanese stiltgrass (*Microstegium vimineum*) or Japanese barberry (*Berberis thunbergii*). Even if such bare-knuckle tactics do not

This woodland area was once overgrown with brambles. Cutting back the brambles allowed desirable ferns and Canada mayflower (*Maianthemum canadense*) to flourish and naturally fill in the understory without having to bring in additional plants.

eliminate the invasives on their own, they should slow or stop their spread, giving you a chance to get ahead of the situation.

STARVATION DIET

Often it is easier to attack existing weeds *before* you develop an area. Mark any existing vegetation that you want to preserve, then smother everything around it with sheets of black plastic, cardboard, or multiple thicknesses of newspaper. The cover must be left in place for a full growing season to a year to be effective. If the weeds are largely annuals and biennials, you can starve them by repeated cutting with a mower or string trimmer; in this case, consistency is crucial, for if you allow the weeds to regrow and keep their leaves for a significant period between cuttings, this technique won't work.

Repeated cuttings are not an effective treatment, incidentally, for weeds with a large capacity to store food in their roots, or for rhizomatous or tap-rooted species such as mugwort (*Artemisia vulgaris*) or Japanese knotweed (*Fallopia japonica*). Moreover, this treatment, by itself, is actually counter-productive for woody plants that spread by suckers, such as tree-of-heaven (*Ailanthus altissima*) and oriental bitter-sweet (*Celastrus orbiculatus*), as these spread even more vigorously when cut back. To eradicate these woody plants, combine cutting and then painting the stumps with an appropriate herbicide; more than one treatment is likely to be needed.

EXPLOIT DIFFERENCES

One of the most efficient methods for dealing with weeds is to exploit the differences between them and the desirable species, and



Pulling up an unwanted sapling appearing among shrubs and perennials would disturb the soil and give weeds a chance to replace it. Instead, cut it at the base and let the surrounding vegetation shade out any regrowth.

even planting to accentuate this. For example, to help control tall-growing weeds, you can underplant with a shorter species and then set your mower blade high enough that it passes *over* the desirable plants but severs the weeds. This is an especially effective strategy in woodland settings, where the natural groundcover of wildflowers and ferns tends to be low. Make such cutting a regular part of your garden maintenance and you will put the weeds at a disadvantage.

You can also exploit differences in seasons of growth. When caring for an infant meadow, I recommend mowing a couple

OLD HABITS AND THEIR UNINTENDED CONSEQUENCES

A dedicated home gardener who I'll call Rose had a compulsion for pulling weeds. This had perhaps served her well at a former house where she had created sophisticated (if traditional) ornamental gardens. Her new home was different, however: here she had commissioned Larry Weaner to design the landscape, and that included a native garden outside the house's front entrance. This called for a different style of care in line with the principles discussed in this article.

Yet Rose found it hard to stop pulling weeds; she did most of her own maintenance and she had high standards. The pulling worked reasonably well when the



In this mixed planting of wildflowers, pulling out weeds rather than snipping them created an opportunity for native red columbines to seed themselves into the area.

planting was young and still composed of isolated specimens. But by the time Weaner came to inspect three years after planting, the space was filling in. It had developed into a lush expanse of woodland wildflowers, including heartleaf foamflower (*Tiarella cordifolia*) and American alumroot (*Heuchera americana*), that was close to forming an unbroken carpet. Now that the ground layer had become dense and competitive, he advised Rose to stop pulling the weeds and start snipping them. By reducing the level of disturbance, this practice would increase the ecological stability of the garden and reduce the opportunities for new weeds to invade.

When Larry returned seven years later, however, he found something unexpected. The foamflower and alumroot were thriving, but they were engulfed in a cloud of pink and red. These colors were supplied by the blossoms of foxglove beardtongue (*Penstemon digitalis*) and red columbine (*Aquilegia canadensis*), neither of which Weaner had planted by the entryway, although he had inserted them into an adjacent rock outcrop.

The explanation for this migration lay in Rose's maintenance: she had continued pulling the weeds. Neither the beardtongue nor the columbine had persisted on the outcrop; both are short-lived, if prolific, plants and had been displaced by a longer-lived, more competitive fragrant aster (*Aster oblongifolius*). But the myriad seeds borne by the beardtongue and columbine had found opportunities in the areas of disturbed soil Rose had created with her weeding. In the early days of the landscape, this disturbance would have most likely provided opportunities for more weeds, but now that the area had been infiltrated for a decade by the natives and the soil filled with their seeds, they were the ones benefiting from the disturbance. This, surely, is the very best—and most attractive—cure for unsightly weeds.

—T.C.

Vigorous native groundcovers help to crowd out invading weeds, as golden groundsel (*Packera aurea*, syn. *Senecio aureus*) has done in this woodland garden. Groundsel's low-growing foliage allows the use of string trimmers to cut back any weeds that occur.

of times in spring for the first couple of years after planting. Timing the mowing in this way has little effect on the “warm-season” grasses and flowers (native species that make most of their annual growth during the warm weather of summer) that are the backbone of North American grasslands. But a spring mowing inflicts maximum damage on the exotic “cool-season” grasses (Old World species that make their principal growth in the cool, moist weather of spring) that can invade and even overwhelm a young meadow.

Weaner successfully used timed mowing for a project in Dutchess County, New York. Hired to address a 14-acre opening in a woodland, he found remnants of native little bluestem grass (*Schizachyrium scoparium*) emerging amid thickets of shrubby gray dogwood (*Cornus racemosa*). Just by mowing repeatedly in the spring over a period of a few years, he beat back the dogwood (which makes most of its annual growth in springtime) while allowing the little bluestem to re-assert itself. The upshot was a meadow landscape with occasional islands of shrubbery to provide visual punc-



uation as well as cover for birds—and all without sowing new seed or disturbing the soil. Indeed, his minimization of such disturbances was crucial to the ultimate success of the project and its minimal demands for maintenance.

LET NATURE TAKE ITS COURSE

Finally, there is the question all ecologically-oriented gardeners should ask themselves periodically through the life of their garden and landscape: “If I do nothing, what will happen?”



Spring mowing of this meadow in New York's Dutchess County effectively controlled thickets of gray dogwood and allowed endemic little bluestem to take over instead, all without needing to sow new seeds, use harsh herbicides, or disturb the soil.

In a traditional garden, the gardener seeks to control every aspect of its growth and development. In an ecologically-based garden, by contrast, the goal is to work *with* and enhance the course of events natural to the plot. This includes a recognition that not every volunteer seedling is a threat. Indeed, the desirable species that appear spontaneously may be regarded as particularly valuable. Because they are native in the most local sense of the word, such plants are likely to flourish to a greater degree than introduced ones. However, if the desirable, and ideally native, species that you planted propagate spontaneously, seeding themselves around your property on their own, that is also a sign of success, and you should take advantage of this process rather than fight it.

Even undesired volunteers may not require a response in an ecologically-based garden. If the weeds are of a short-lived, pioneer species—such as Pennsylvania smartweed (*Polygonum pennsylvanicum*)—and have appeared in modest numbers amid longer-lived perennials characteristic of a later stage in the landscape's development—say, a drift of pink turtlehead (*Chelone lyonii*)—then you can let nature take its course. As the disturbance subsides, and the vegetation knits, the weeds lose their foothold. 

Thomas Christopher is the author of several gardening books, the most recent of which is Garden Revolution (Timber Press, 2016), co-written with Larry Weaner.



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Staying Ahead of Plant-Feeding Mites

by Scott Aker

ALTHOUGH THEY are among the smallest garden pests, mites can be highly destructive of all types of plants both indoors and outdoors. These tiny relatives of spiders and ticks can't be readily seen without magnification, so most often it is their damage that betrays their presence. By that time, they can be difficult to eradicate because they reproduce rapidly—some species can go from egg to egg-laying adult in just seven days—and they can also be carried from plant to plant on air currents.

There are numerous species of plant-feeding mites. One of the most common are spider mites in the genera *Tetranychus* and *Oligonychus*. The mites feed by piercing plant leaves to extract nutrients. The holes, which are apparent as yellow specks, create a fine stippling on the leaves. In severe infestations, leaves can be covered with webs. All stages of a mite's life cycle—eggs, larvae, nymphs, and adults—are generally present at any given time.



A greatly magnified view of a spider mite

Mites from the eriophyid family are even smaller, about the size of a pollen grain. Many species of eriophyids feed just as spider mites, but because they are smaller, they are difficult to detect without magnification. Eventually the foliage of infested host plants such as camellias, privets (*Ligustrum* spp.), and hemlocks (*Tsuga* spp.) takes on a rusty brown appearance.



Leaves infested by spider mites usually exhibit a speckled appearance due to the pests piercing the surface for nutrients.

Other eriophyids cause a variety of galls, scabbing, blisters, witches' brooms, and other growth abnormalities in plants. When they begin feeding, they inject substances into the plant that mimic the effects of plant growth regulators. The galls and other growth abnormalities provide a protected site for them to feed.

Eriophyid mites can also transmit plant pathogens, such as rose rosette virus and the fungus that causes witches' brooms on hackberry (*Celtis* sp.). Most eriophyid mites don't threaten long-term plant health, but broad mites (*Polyphagotarsonemus latus*) and cyclamen mites (*Phytonemus pallidus*) are very damaging to African violets and cyclamen. Both feed near the growing point of plants, creating hardened, thickened leaves that are small and cupped; in severe cases, growth of new leaves may cease entirely.

EARLY DETECTION IS ESSENTIAL

The easiest way to check for spider mites and eriophyid mites is to hold a sheet of

white paper under a branch of any plant and tap it vigorously. Mites that are present will fall onto the paper, where you can see them slowly crawling around. They are about the size of the period at the end of this sentence. A strong magnifying glass or jeweler's loupe will make them much easier to see. A small number of mites, perhaps 10 or 15 on the sheet of paper, is no cause for alarm. If you see more than that, particularly if hot, dry weather—which is most favorable for mite reproduction—is forecast, some control measures will need to be taken.

Check for mites that move faster than the others on the paper. If they are translucent and orange or amber in color, they are likely beneficial predatory mites that are feeding on the pest mites. Other



The reddish galls on these black cherry leaves are caused by eriophyid mites.

mite predators that you might see are tiny, round, jet-black ladybird beetles or their larvae, which are oval and covered with tufts of white wax, lacewing larvae, and multi-colored, sluglike syrphid fly larvae. If you see any of these insects on the paper, you needn't worry about the plant-feeding mites.

Since mite populations grow quickly, timing is crucial. Start looking for spruce spider mites (*Oligonychus ununguis*) on conifers as early as the first warm days of spring. Two-spotted or red spider

mites (*Tetranychus urticae*) often become problematic in early summer and may continue through the hottest part of summer. Southern red mites (*Oligonychus ilicis*) are most active in the cooler conditions of spring and fall. Cryptomeria red mites (*Oligonychus hondoensis*) build up late in the season on Japanese cedar, and are most active in late fall.

Hemlock rust mites, privet rust mites, and camellia rust mites are most prevalent in cool weather, so begin looking for them as soon as weather warms in early spring.

Microscopic broad mites and cyclamen mites, which are not cold-hardy and are mainly pests of indoor plants, feed near the growing points of plants like cyclamen, African violet, and a wide range of other plants. They are well protected



Stunted and distorted growth, such as that seen on these tomato leaves, is a tell-tale sign of the presence of broad mites.

by the layers of tiny developing leaves that shelter them. You won't be able to find them using a sheet of paper, but will instead need to use a jeweler's loupe or microscope to look at tiny leaves pulled from the very tip of the new growth. Often these tiny mites are diagnosed by their damage alone, since it is very distinctive.

STRATEGIES FOR CONTROL

Because mites are so small, the weather is their biggest enemy. A heavy rain shower can quickly remove mites from a plant, but some are likely to cling to the underside of leaves and other sheltered locations. You can wage a very effective war on mites by using a nozzle on your hose to produce a pressurized stream that you can direct at an infested plant to wash them off. Be sure to hit the underside of leaves. Hosing off plants both physically removes mites and creates a wet environ-

Gardening Q&A with Scott Aker

CLOVER TAKE-OVER

My bluegrass lawn seems to be taken over with clover. I've sprayed weed killer on it, but it always comes back. Do I need to plant new clover-free sod?

Clover in your lawn is a sign of poor soil fertility, and may also indicate that you are cutting your lawn too short. Often increasing nitrogen fertility in the soil is more effective than herbicides in controlling clover. Apply three pounds of nitrogen per 1,000 square feet of lawn in early autumn, using a slow-release fertilizer such as sulfur-coated urea. If you normally bag your clippings, switch to mulching them into the grass instead. Clover fixes nitrogen, so as the clippings decompose they will gradually improve the fertility of your soil. Mow as high as your mower will allow to give the grass a competitive edge over the clover, which grows close to the ground.

BROWN AND MUSHY ROSES

The flowers of my old-fashioned roses are turning brown and mushy just as they are reaching their prime. I have noticed some long black beetles in the flowers. Is this the pest causing the damage?

The insect you describe is not a pest. It is most likely a rove beetle species feeding on the thrips that are causing the damage. Thrips are tiny, winged insects that range in color from yellowish to blackish brown. Break open a flower bud on an infested plant to see if they are present. Although rove beetles do a good job eliminating thrips, they aren't active early enough in the season to prevent the thrips from attacking your plants. Treat your roses with spinosad just as the first buds begin to show color. Spinosad is based on compounds found in bacteria that naturally occur on sugar cane, and since it rapidly degrades, it has little ill effect on pollinators and beneficial insects, including the rove beetles. —S.A.

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

ment that discourages their reproduction.

Severe infestations may require more drastic measures. There are pesticides specially formulated for mite control, although the most effective ones are generally not available to home gardeners. Avoid using pesticides that contain imidacloprid, because mites of all kinds tend to be able to reproduce even more rapidly on plants treated with this chemical, most likely because their predators and other beneficials are killed by the systemic insecticide.

The best pesticide option against spider mites and eriophyid mites is horticultural oil. It smothers all stages, including eggs, so a single, very thorough treatment may resolve the problem. Care must be taken when using oil in hot, humid weather, because the emulsifier that is added to the oil to enable it to be mixed with water for application to the plant needs to dry quickly. Otherwise, it can begin to work on the waxy cuticle on the leaf surfaces, disrupting it and leading to desiccation of the cells and

a scorched appearance. If you need to use oil in these conditions, cut the rate on the label in half, and be sure to spray the plants very thoroughly. As long as you get a layer of oil on the mites and their eggs, you will be successful in killing them. Do not treat plants with oil late in the season; the disruption of the cuticle caused by the oil can be deadly when followed by cold, dry winter winds.

Because broad mites and cyclamen mites feed near the growing points of plants, it is extremely difficult to get sufficient coverage with pesticides or horticultural oil to control them. However, they are vulnerable to high temperatures. They can be completely eliminated from houseplants by soaking the entire plant—including the pot and soil—in water that is just above 110 degrees Fahrenheit in temperature for a period of 10 to 20 minutes. 🌿

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

Rising to a Gardening Challenge: Betty Ford Alpine Gardens

by Uziel Crescenzi



Colorful plants adapted to alpine regions around the world entice visitors down a curving path at Betty Ford Alpine Gardens.

NESTLED AMONG the majestic peaks of the Rocky Mountains in Vail, Colorado, the Betty Ford Alpine Gardens (BFAG) champions the world's alpine plants, while conserving and researching their indigenous habitats. Along with its spectacular mountain views comes an environment of extremes. Located at 8,250 feet above sea level, the BFAG is the world's highest public garden; its gardens thrive amid dramatic swings in daily high and low temperatures, shallow inorganic soils, and unrelenting wind.

PLANTS AND GARDENS

BFAG's location may seem inhospitable to plant life, but when the gardens opened in 1986, the founders saw it as an opportunity to celebrate the plants that

thrive in these tough growing environments and help residents learn how to successfully garden in alpine conditions. The city designated five acres within the town park for these purposes and former First Lady Betty Ford, who had once lived in Vail, agreed to allow her name to be used for the garden.

Since then, the BFAG has flourished. More than 2,000 varieties of alpine plants grow throughout the garden, which includes three waterfalls, ponds, woodlands, and a new alpine house for winter observation. The variety of micro-climates within its mountain landscape allows the BFAG to showcase diverse plant collections. For example, there is a "bog" garden, a dryland montane area, and an aspen and spruce forest. Subtle differ-

ences in topography, drainage, and soil type provide opportunities to site species most appropriately.

Sometimes the challenges of growing at this elevation and in this climate are just what a plant needs to shine. Nicola Ripley, BFAG's executive director, often hears visitors wondering, "I grow this plant in my garden at home, but it doesn't flower as well as it does in the alpine garden. Why is that?" Ripley points out that plants' exposure to ultraviolet light is more intense at the garden's elevation, which enhances flowering.

EDUCATION AND RESEARCH

Education is fundamental to BFAG's mission. The garden's educational programs revolve around the Children's Garden,



Opened in 2015, the Education Center offers a wealth of information about alpine flora.

Kid's Amphitheater, and the Schoolhouse Museum and Gift Shop, tied together by a spectacular perennial border of more than 1,000 plants. The Schoolhouse Garden hosts horticultural therapy programs and the raised beds exhibit medicinal herbs once grown by the Incas, Ute Indians, and the mountain people of the Himalayas. The nearby Education Center contains a state-of-the-art alpine house with plants from all over the globe. This summer, it is hosting a traveling exhibit about the effects of climate changes on Arctic landscapes.

The BFAG also curates the North American Plant Collections Consortium

(NAPCC) collection of Colorado alpine flora. The NAPCC is a network of coordinating botanical gardens and arboreta across the continent that focus on establishing plant collections that serve as a resource for plant germplasm, breeding, evaluation, and research.

CONSERVATION EFFORTS

BFAG is also committed to conservation. "This isn't just a pretty garden, there is serious conservation going on in the background," says Ripley. The garden currently partners with the Bureau of Land Management, Colorado Natural Heritage



A footbridge leads over an alpine pool that reflects picturesque mountain vistas.

Additional Information

Betty Ford Alpine Gardens, Ford Park, 522 South Frontage Road, Vail, CO 81657. (970) 476-0103. www.bettyfordalpinegardens.org.

- Open daily, year round, dawn to dusk.
- Admission: Free.
- Betty Ford Alpine Gardens participates in the AHS's Reciprocal Admissions Program. AHS members with a current membership card receive discounts in the gift shop.

Other nearby sites to explore:

Booth Creek Trail, White River National Forest. Vail, CO. www.fs.usda.gov/recreation/whiteriver.

The Children's Museum at Beaver Creek Resort, Avon, CO. www.beavercreekkids.com.

Vail Nature Center, Vail, CO. www.walkingmountains.org.

Program (CNHP), and the Colorado Department of Transportation (CDOT) to preserve, survey, and study threatened or endangered plants and ecosystems. The public can help by participating in the Adopt a Rare Plant Program. In this joint initiative between BFAG and CNHP, volunteers monitor and search for populations of rare plants such as parachute penstemon (*Penstemon debilis*) or the DeBeque milkvetch (*Astragalus debequaeus*), which is only found in Colorado.

Habitat protection is also a priority. Garden volunteers built a boardwalk above the wetlands on the Shrine Pass Trail, a four-mile-long hiking trail through the mountains, to reduce disturbance from visitors. Volunteers also worked with CDOT to protect the unusual canyon bog orchid (*Platanthera sparsiflora*) from off-trail foot traffic by installing signs reminding hikers to stay on the path.

Open year-round, the garden has something for everyone, whether it's a hike on the snowshoe trails, a stroll through the new alpine house, or simply enjoying mountain views as far as the eye can see. ☺

A resident of the Bronx, New York, Uziel Crescenzi just completed an editorial internship with The American Gardener.

Blueberries: A Delicious Native Fruit with a Healthy Punch

by Keith Uridel



BLUEBERRIES ARE second only to strawberries in berry consumption in the United States—and their popularity is well deserved. In addition to being delicious, they are loaded with healthful antioxidants and fiber. They also are excellent sources of manganese and vitamins K and C.

By selecting regionally appropriate varieties, this North American native can be successfully grown in home gardens almost anywhere in the United States. Their hanging clusters of bell-shaped white spring flowers, deep-blue summer berries, and brilliant red fall foliage make them useful ornamentals.

Several species provide choices for a range of climates. Lowbush blueberries (*Vaccinium angustifolium*, USDA Hardiness Zones 2–6, AHS Heat Zones 6–1) are well adapted to cold climates, but have little heat tolerance. Suited for containers, they grow about 18 inches tall with small, intensely flavored fruit.

Highbush blueberries (*V. corymbosum*, Zones 3–8, 8–1) include northern and southern varieties; the most heat-tolerant

southern hybrids have no chilling requirement. Most varieties grow about five feet tall with large berries. Half-high varieties are crosses between highbush and lowbush types and combine traits of each species.



Top: When ripe, the fruit of ‘Northsky’, a half-high blueberry suited to cold regions, turns deep blue. **Above:** Highbush blueberries—here in spring bloom—grow about five feet tall.

Rabbiteye blueberries (*V. ashei*, Zones 6–9, 9–4) tolerate heat well, so are a good choice for warmer climates. Although older varieties may grow 15 feet tall, most selections available today are in the four- to six-foot range with medium to large fruit.

GROWING GUIDELINES

Blueberries require at least six hours of sun per day and very well-drained, acidic soil with a pH of 4.5 to 5.0. Rabbiteye and highbush blueberries should be spaced at least five to six feet apart from their centers; lowbush varieties can be spaced two to four feet apart.

SOIL PREPARATION AND PLANTING

Blueberry roots are shallow and fibrous, so your planting area need not be as deep as it is wide. Dig a three-foot-wide hole that is 10 to 12 inches deep. If the soil has less-than-excellent drainage, plant the shrub on a mound so it sits six to eight inches above grade. Because such a planting will dry out fast, supplemental watering may be required.

I have tried many strategies to amend the less-than-fertile soil in my southern Indiana garden, and have found two methods that ensure regular yields. The first is to create a soil mix based on a 1:1:1 ratio of sphagnum peat moss, pine bark mulch or mini-nuggets, and soil removed from the hole. If you can’t find shredded pine mulch or mini-nuggets, spruce or fir bark mulch should work as well.

For each shrub, add two pounds of alfalfa meal to one half cup of soft rock phosphate (SRP) or three cups of a balanced organic fertilizer (5-4-5). Mix these amendments into the top eight inches of soil. If you are planting after the end of August, use the alfalfa meal and SRP combo, but not the fertilizer because the nitrogen may inhibit timely dormancy. Instead, wait until early spring to top-dress your plant.

The second method is great if your soil is heavy clay, alkaline, rocky, or sandy. After

excavating the hole, backfill with a one-to-one mix of sphagnum peat moss and shredded pine bark mulch or mini-nuggets so that it is gently mounded and filled to two to three inches above grade. Add the amendments as described in the previous method. I find that all the cultivars I grow produce better yields with this mix.

Plant bare-root stock in late winter or early spring before growth begins. Container-grown stock can be planted any time the ground can be properly prepared. Set the blueberry bush so that the top of

recipe, applied every month during the growing season: For each gallon of water add two ounces of Neptune's Harvest fish fertilizer (2-4-1), one tablespoon of liquid kelp concentrate, and one tablespoon of blackstrap molasses. Apply one gallon of this mix per mature plant (four years and older) or a half-gallon on young plants.

Pruning is not usually needed for a few years, except for removing broken or damaged canes and twiggy, horizontal branches near the base of the bush. Once the bush has put on some size, usually by

Sources

Backyard Berry Plants, Nashville, IN. (812) 340-1140.

www.backyardberryplants.com.

Hartmann's Plant Company,

Lacota, MI. (269) 253-4281.

www.hartmannsplantcompany.com.

Stark Bro's, Louisiana, MO. (800)

325-4180. www.starkbros.com.

when selecting blueberries, so I have listed the recommended cultivars accordingly. It is advisable to plant more than one variety to increase cross-pollination and fruit set.

■ **USDA Hardiness Zones 2/3–5** *Highbush type*: 'Bluegold', 'Bonus', 'Chippewa', 'Friendship', 'Huron', 'Nelson', 'Northblue', 'Patriot', 'Polaris'. *Lowbush type*: 'Northsky'.

■ **Zones 5–8** *Highbush type*: 'Arlen', 'Chanticleer', 'Elizabeth', 'Hannah's Choice', 'Honey Creek', 'Legacy', 'Pioneer', 'Stanley'.

■ **Zones 6–9** *Highbush type*: 'Carteret', 'Gupton', 'New Hanover', 'O'Neal', 'Paloma', 'Robeson'. *Rabbiteye type*: 'Columbus', 'DeSoto', 'Onsow', 'Prince'.

■ **For no-chill Zone 10** *Highbush type*: 'Biloxi', 'Colibri', 'Misty', 'Sharpblue', 'Sunshine Blue'.

ENJOYING THE HARVEST

For the sweetest flavor, pick berries three to four days after they have turned entirely blue; they will not ripen further after harvest. The fruits store well for about a week in the fridge. For longer storage, wash, dry, and freeze them in a single layer on a baking sheet; transfer them to a freezer-safe container or plastic bags after they are frozen.

A mature highbush plant can yield between eight and 12 pounds per year; lowbush and half-high types between one-and-a-half to four pounds. Blueberries can be used in baked goods and salads, to make jam and smoothies, and even star in savory dishes. Because they grow in nearly every region, it's easy to enjoy this native fruit from your own backyard harvest.

Keith Uridel owns Backyard Berry Plants, an organic nursery in Nashville, Indiana.

GROWING BLUEBERRIES IN CONTAINERS

Blueberries adapt well to container culture as long as the pot is sufficiently large. Highbush and rabbiteye types will need a 20- to 25-gallon pot; lowbush and half-high

types will thrive in a seven- to 10-gallon pot. For the planting mix, use equal parts of sphagnum peat moss and shredded pine bark mulch or mini-nuggets enriched with a balanced organic fertilizer. Apply monthly applications of liquid fertilizer during the growing season. In USDA Hardiness Zones 6 and warmer, no special winter care is needed. For Zones 3 to 5, I recommend covering bushes with an opaque, three- to four-mil white polyethylene sheet available at home improvement stores. The plastic seals in moisture and protects the plant during the freezing, dry days of winter.

—K.U.



Many blueberries grow well in containers.

the rootball sits just below the top of the mix prepared in the planting hole. Mulch with three to five inches of pine needles, shredded pine bark, or shredded oak or maple leaves.

IRRIGATION, FERTILIZING, AND PRUNING

For the first two years, water your plants regularly during the growing season with one good soaking weekly—about five gallons of water per plant. While blueberries are drought tolerant when mature, regular irrigation throughout the growing season will increase yields the following year.

To feed established plants, pull back the mulch and top-dress with two cups of alfalfa meal or one cup of balanced organic fertilizer (5-4-5) in spring at the time daffodils start to bloom; repeat one to two months later. I have also had great results using the following liquid feeding

year four or five, prune using the one-in-six guideline: For every six canes, remove the oldest one—usually the biggest and most-branched. Best done in winter when plants are dormant, this practice increases plant vigor and improves airflow, which helps prevent disease.

PESTS AND DISEASES

I've experienced no major pests or diseases on our organically grown plants. If Japanese beetles are an issue, repel them with neem oil. Very wet springs and summers can cause fruit rot, so a preventive spray of copper or sulfur after bloom may be beneficial. Deter birds with netting, suspended above the bushes and sealed along the ground.

RECOMMENDED CULTIVARS

Cold tolerance is a key consideration

Horticultural News and Research Important to American Gardeners

NEW PLANT SPECIES DISCOVERED

New plant species are popping up worldwide. Suetsugu Kenji, project associate professor at the Kobe University Graduate School of Science in Japan discovered



Sciaphila yakushimensis is a newly discovered parasitic plant species that uses a fungal host rather than photosynthesis for nutrients.

and named *Sciaphila yakushimensis*. The new species, found during a plant survey in Yakushima, Japan, is a subtropical mycoheterotrophic plant. Mycoheterotrophic plants do not photosynthesize but depend upon fungal hosts for nutrients. Spotting these species is difficult because they are small and only appear above ground when they flower or fruit.

Orchid enthusiasts should be pleased by the discovery of *Encyclia inopinata*, a new orchid species. Found in deciduous forests along the Pacific slope of Oaxaca state, Mexico, it is a lithophyte, a plant that grows on rocks. It blooms between March and July. Its name is from the Latin *inopinatus*, meaning “unexpected,” for the surprise its discoverers felt upon seeing it in bloom and realizing it was a new species.

A less pleasant surprise is the discovery that *Salsola ryanii*, a hybrid of the invasive tumbleweed species *S. australis* and *S. tra-*

gus, is demonstrating exceptional hybrid vigor. Since its discovery 10 years ago, *S. ryanii* has significantly increased its range, demonstrating potential for invasiveness. According to University of California, Riverside scientists Shanna R. Welles and Norman Ellstrand, *S. ryanii* has spread to 15 of 53 surveyed sites in California. Wells and Ellstrand conclude, “We are not aware of any plant neospecies whose range spontaneously experienced such a dramatic expansion. *Salsola ryanii* has every indication of being just as invasive as its highly invasive parents.”

FREE TICK TESTING TO FIGHT LYME DISEASE

Besides being bloodsucking pests, ticks can carry Lyme disease and other serious infections that afflict humans. However, scientists know little about how widespread these diseases are, which makes avoiding them more challenging. The Bay Area Lyme Foundation (BALF), a leading nonprofit funder of innovative Lyme disease research, is calling on citizens to help fill this void of knowledge through its recently launched tick-testing study.

Gardeners and other outdoor recreationists who encounter ticks of any kind may send them in to Northern Arizona University in Flagstaff for free testing. In addition to Lyme, the ticks will be tested for six other



An adult female black-legged tick can transmit Lyme disease to humans.

human diseases, including Rocky Mountain spotted fever. All data will be mapped, categorized, and recorded. The data will then allow physicians and the public to be “appropriately

vigilant to the symptoms of the disease,” explains Laure Woods, BALF president and co-founder. To participate or for more information, go to www.bayarealyme.org/lyme-disease-prevention/tick-testing.

GOOD NEWS FOR POLLINATORS

Ortho, part of the ScottsMiracle-Gro corporation, has joined the list of garden-industry businesses that are moving away from the use of neonicotinoids, or neonic for short, a widely used class of pesticides that researchers have implicated in connection with the die-off of bees and other pollinators. Specifically, the brand plans to eliminate the use of imidacloprid, clothianidin, and dinotefuran in its products



Voluntary restrictions on the use and sale of neonic pesticides by the garden industry is likely to benefit bees and other pollinators.

by 2017. This decision follows Ortho’s expansion of its line of non-neonic garden products earlier this year. “While agencies in the U.S. are still evaluating the overall impact of neonics on pollinator populations, it’s time for Ortho to move on,” says Tim Martin, the general manager of the Ortho brand.

Pollinators should also benefit from the recently announced partnership between Ortho and the Pollinator Stewardship Council (PSC), a pollinator advocacy organization, to educate the public concerning the appropriate use of pesticides to decrease their impact on pollinators. Part of this effort will involve modifying pesticide labeling regulations so labels can more clearly indicate to consumers which products are neonic free.

“Straight-forward, easily understood product labels help consumers make the best choices to protect both their plants

as well as honey bees and native pollinators,” says Michele Colopy, PSC program director.

Ortho’s decision follows in the wake of some other major U.S. companies—including home improvement stores Lowe’s and Home Depot—that have pledged to phase out neonic pesticides and label plants that have been sprayed with them. Sales of many neonics have been suspended or banned in Europe and other countries. A list of U.S. companies—including retail and wholesale nurseries—that have pledged not to sell or use neonics can be found on the website of the nonprofit Friends of the Earth at www.foe.org/bee-action/retailers.

PURIFYING WATER WITH CACTI

Economically and efficiently removing contaminants from water is a significant challenge. An extract of prickly pear cacti (*Opuntia ficus-indica*) may soon become a viable way to do so, offering a nontoxic, and more sustainable alternative to current methods. It’s all thanks to a Mexican grandmother who recounted using the



A gelatinous substance extracted from the pads of prickly pear cacti can purify polluted water.

plant in the early 1900s to turn muddy river water into clear, potable water.

Norma Alcanta, the woman’s granddaughter and a professor in the Department of Chemical & Biomedical Engineering at the University of South Florida in Tampa, decided to test this for herself. “We found there is an attraction

between the mucilage of cactus and arsenic. The mucilage also attracts sediments, bacteria, and other contaminants.”

According to a presentation Alcanta’s team gave at the American Chemical Society’s national meeting in March, the cactus gel effectively helped clean water during the aftermath of the devastating



NICE DIGS!

The OXO Good Grips Trowel is constructed of high-grade 420 stainless steel for strength and durability. It features a soft, non-slip handle with a gel insert that flexes to provide cushioning when digging into tough and compacted soil. Easy-to-read markings provide clear and convenient depth measurement and serrated edges tear through tough soil and weeds.



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PEOPLE and PLACES in the NEWS

NURSERY FOUNDER RECEIVES SCOTT MEDAL

This year's prestigious Arthur Hoyt Scott Medal and Award recipient is Dale Deppe, president and owner of Spring Meadow Nursery in Grand Haven, Michigan. Presented annually by the Scott Arboretum of Swarthmore College in Pennsylvania, this honor is given to an individual, organization, or corporate body who has made an outstanding national contribution to the science and art of gardening.

With his wife Liz, Deppe founded Spring Meadow Nursery as a small liner production company in 1981, growing it into a 200-acre propagation nursery through the years. The nursery has introduced numerous notable cultivars such as *Hydrangea paniculata* 'Limelight' and Invincibelle™

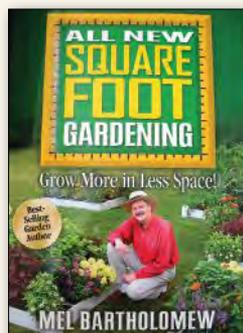
Spirit hydrangea, the first smooth hydrangea (*H. arborescens*) with pink blooms.

Invincibelle Spirit is tied to Deppe's philanthropic activities. Since its introduction in 2009, one dollar from each plant sold is donated to the Breast Cancer Research Foundation. Sales of the plant and corresponding Pink Day fundraisers hosted at garden centers across North America have raised over \$900,000 to date. The Deppes also created the Spring Meadow Nursery endowment fund, dispersed through the Horticultural Research Institute, to provide scholarships for horticulture students and financial support for research projects.

To learn more about the Scott Medal and Award, visit www.scottarboretum.org/programs/scottmedal.html.

IN MEMORIAM

American horticulture has lost two insightful voices with the passing of Suzanne "Suzy" Frutig Bales and Mel Bartholomew this spring.



Bales wrote 15 books on gardening and nature. She contributed to numerous garden publications and was a garden columnist for the *New York Times* and *Newsday*. She served as a garden editor for *Better Homes & Gardens* magazine and *Family Circle* for many years. She was also a gifted photographer, speaker, and garden designer. She received the Horticultural Communication Award from the American Horticultural Society (AHS) in 1995. She served on the AHS Board of Directors for two terms (1990–1994 and 2006–2010).

Bartholomew invented "square foot gardening." The method of planting in square raised beds instead of in traditional rows made gardening more efficient and revolutionized the way many people grew their food. His book, *Square Foot Gardening*, published in 1981, remains a bestseller. In addition to writing over half a dozen books, Bartholomew hosted his own TV show based on his gardening method for eight years. His Square Foot Gardening Foundation spreads this method around the globe in an effort to help end world hunger.

2010 earthquake in Haiti. The researchers found it could break up oil slicks, too, and has shown promise in filtering aquarium and aquaculture water. They are currently working on creating a synthetic version of the mucilage that could be manufactured rather than extracted from cacti.

BIG CHANGES FOR NATIONAL GARDENING ASSOCIATION

A leader in garden-based education for more than 40 years, the National Gardening Association (NGA) has undergone a radical reconfiguration. The NGA brand and website was recently acquired by Dash Works, LLC, a Texas corporation owned and operated by Dave and Trish



Whitingers. The Whitingers state that, "Our long-term goal is to continue to serve the gardening community with educational resources, reference guides and informational databases, social media features, and helpful tools and apps."

The part of the original NGA that focused on youth and school gardening has become a separate nonprofit, KidsGardening (www.kidsgardening.org). It is devoted specifically to providing educational resources to support successful, self-sustaining garden programs in educational settings.

Another of the NGA's original components—widely cited market research—has been spun off into National



Gardening Market Research Company, (www.gardenresearch.com). It will continue to produce and analyze this information as a private business.

Finally, the new, leaner NGA will continue producing Garden.org while giving it a makeover. "Our immediate task," say the Whitingers, "is to update the website with a new and improved software system, and to update the look of the site to give visitors a more up-to-date experience."

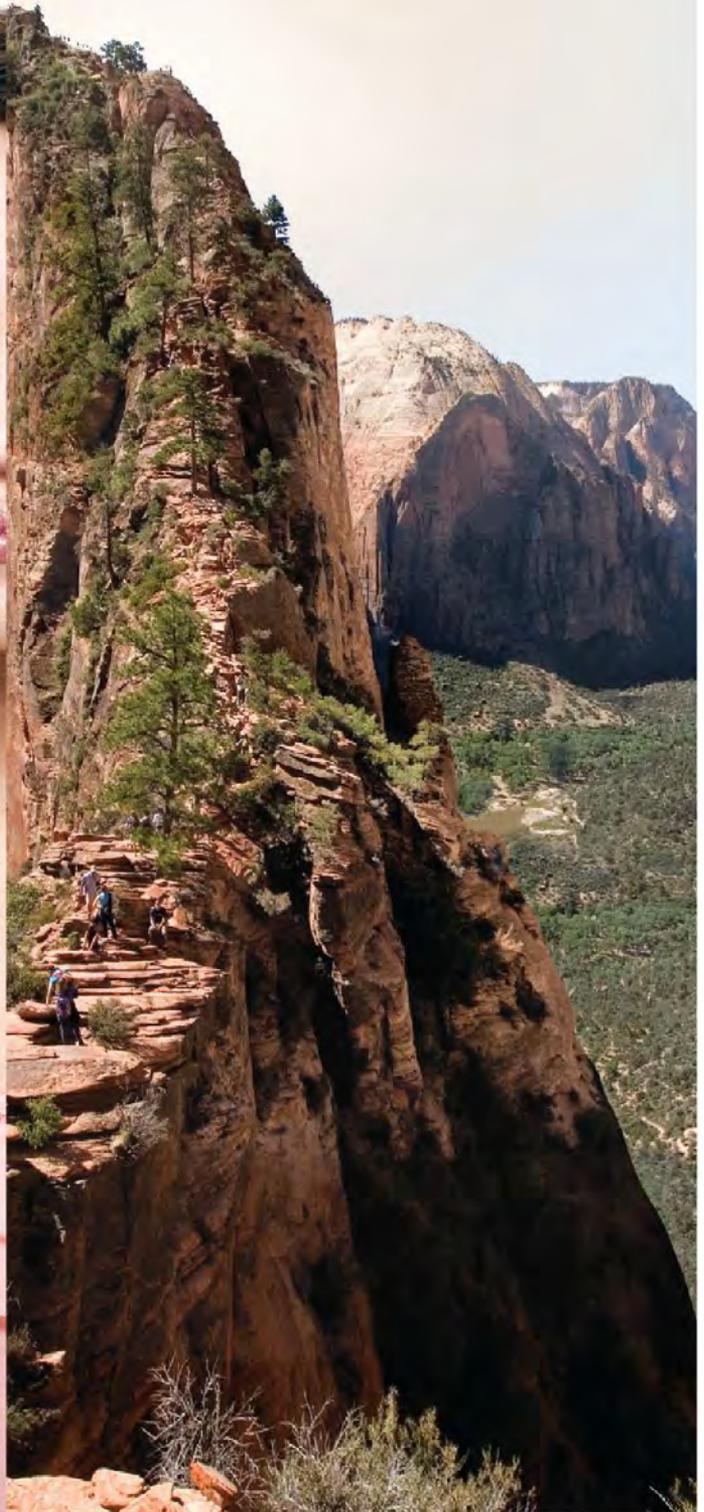
News written by Editorial Intern Mary Chad-duck and Associate Editor Viveka Neveln.

Zion National Park
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Quality Hand Tools for Better Gardening

by Rita Pelczar

FOR ANY gardening activity that involves detailed effort, quality hand tools make the job easier. Here are a few of my favorites.

Transplanting seedlings into the garden is best done with sharp-pointed trowels such as the stainless steel trowels from Lee Valley (www.leevalley.com). The **10-Inch Spear Point SS Trowel** cuts through heavy soil with its long, sharp tip. The narrow-bladed **12-Inch Transplant SS Trowel** can dig a bit deeper. Both are marked in imperial and metric increments to help with accurate depth and spacing when planting.

Also from Lee Valley is the **Transplant Knife**, ideal for dividing houseplants or perennials. The thin, stainless steel blade flexes, so you can slide it along the inner wall of a container to loosen a plant from its pot. For dividing plants, the five-and-one-half-inch serrated blade makes cuts through roots cleanly.

A good choice for cutting down annual weeds is the 17-inch-long **Mini Hula Hoe** from Planet Natural (www.planetnatural.com). This short-handled version of the original Hula Hoe is the perfect length to use for cultivating raised beds. Both edges of the stirrup-shaped blade are sharp, so weeds are cut off at ground level as you move the hoe back and forth.

Also from Planet Natural is a short-handled cultivating tool called the **3-Tined Rake**. It has excellent balance and significant heft that comes



Transplant Knife

in handy for breaking up clumps of soil, cultivating along a row of vegetables, or digging up deep-rooted weeds.

The **Convertible Pruner + Lopper** from Corona (www.coronatoolsusa.com) combines two tools in one package, which is handy when you need to cut branches a bit larger than expected. The forged steel bypass pruners have an internal spring, and the handles fold down easily for additional leverage, morphing the hand pruners into loppers for two-handed operation. It cuts through branches up to one-and-one-quarter inches in diameter.

For larger jobs, Corona's **ComfortGEL+™ Extendable Bypass Lopper** cuts branches to one-and-three-quarter inches with ease. It has comfortable grips and the handles extend to 29 inches and lock in place. The blades



ComfortGEL+™ Extendable Bypass Lopper, top, and Convertible Pruner + Lopper, bottom

are coated with a material that prevents sticking.

A new tool from Fiskars (www2.fiskars.com) called a **Billhook Saw** is great for removing tough weedy roots and vines. The nine-inch, rust-resistant blade has a curved tip, or hook, for both pulling and cutting. The opposite side of the blade features a toothed edge that functions as a coarse saw for severing fibrous or woody branches. The contoured handle allows you to

hold it in different positions to suit the job at hand. A smaller, six-inch Billhook blade is also available.

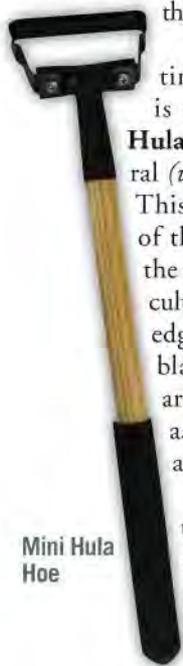
With Fiskars **Garden Bucket Caddy**, you'll have all your hand tools available when you need them. Wrap the canvas



Garden Bucket Caddy

caddy around any five-gallon bucket, secure it in place with its velcro tab, and use the pouches to stash your tools, gloves, seed packages, water bottle, bug repellent, and other small items. Carry plants, collect weeds, or gather harvested vegetables in the bucket.

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



Mini Hula Hoe



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Recommendations for Your Gardening Library

The Cabaret of Plants

Richard Mabey. W.W. Norton & Company, New York and London, 2016. 374 pages. Publisher's price, hardcover: \$29.95.

IN HIS scholarly and often delightfully humorous new book, British naturalist and science writer Richard Mabey explores the effects that plants have had on human history, literature, and art through the millennia. He aims to show that while plants may play second fiddle to animals in most people's minds, they are just as fascinating and deserving of closer scrutiny.

Mabey plumbs the depths of floral guile to give readers the inside scoop on what plants are really up to while humans are distracted by their beauty. "Flowers have been shown to be as potentially busy and impatient as bees," he writes. "Indeed, they could be said to make the first move in most flower–insect relationships," considering plants' capacity for "tempting pollinators... then imprisoning them with fantastic arrangements of trapdoors, one-way tunnels, and chemical handcuffs."

Revealed like any good mystery are some astonishing floral facts of Charles Darwin's "unraveling of the pollination procedures," which previously had been rife with quaint fictions that resulted, in part, from some cringe-worthy Victorian views. When Linnaeus aspired to classify plants according to their sexual organs (males being called "husbands" and females "wives" or "brides"), the *Encyclopaedia Britannica* castigated him for "disgusting strokes of obscenity in a system of botany."

Among other revelations are the strange beliefs of the gardeners of yore, including the purported existence of "plants capable of changing into other beings." One of the most famous is the half plant, half animal "vegetable lamb" depicted in the frontispiece illustration of John Parkinson's respected horticultural manual *Sole Paradisus Terrestris*, published in 1629. This extraordinary plant resembles a lamb growing like a peculiar flower perched on a tall stem.

My only criticism is the unappealing title for the book. Mabey justifies it by likening humans to "the participating audience in an immense vegetable theatre in the round." The performance, he writes, is "full of mimicry and unexpected punchlines, and a long way from abiding by anyone's stage directions," so calling it a cabaret seemed fitting. I'm still not convinced, but do agree this is a botanical show that's often funny and definitely worth attending.

—Linda Yang

Linda Yang, former New York Times garden columnist, is the author of *The City Gardener's Handbook* (Storey Publishing, 2002).

Planting in a Post-Wild World

Thomas Rainer and Claudia West. Timber Press, Portland, OR, 2015. 272 pages. Publisher's price, hardcover: \$39.95.

IN THIS award-winning book, landscape architect Thomas Rainer and landscape consultant Claudia West present a groundbreaking new philosophy of planting design inspired by the way plants work together in the wild. Equal parts manifesto and manual, the authors begin by acknowledging that a pure imitation of nature is both aesthetically and functionally inappropriate in the average backyard, and instead advise us to draw inspiration from archetypal natural settings such as grasslands and forests, and reinterpret them to create

designed plantings that function as evolving communities.

The benefits are compelling: these powerhouses of biodiversity are better able to outcompete weeds, control erosion, and provide year-round cover and food for wildlife. They also require less maintenance than traditional gardens, because plant communities are usually managed as a whole with infrequent large-scale interventions like mowing. These exceptionally dense plantings are created by vertically layering low groundcovers under perennials, interplanting with bulbs and ephemerals, and punctuated with structural species to provide design continuity. The result is an amplified version of nature that has many of the benefits, but a more refined appearance.

Though naturalistic gardening at its worst can look messy, the authors offer tools for working with nature in ways that take into account the human desire for an orderly space. They discuss tricks for working with the patterns in nature so that we can create a stylized version that looks appropriate next to architecture. Though their suggestions in this regard are both specific and effective, the lack of photos of small urban and suburban residential yards does the book a disservice.

Designers and other landscape professionals will find this to be an indispensable guide on a journey towards thinking about plants in a whole new way. However, the frequent use of professional terminology and limited depictions of residential spaces may make this a challenge for most amateur gardeners to put into practice. Still, the payoff for persistence is great, as this new philosophy is sure to inform the design world for years to come.

—Genevieve Schmidt

Genevieve Schmidt is a landscape designer in Arcata, California. She writes for www.northcoastgardening.com, a website for gardeners in the Pacific Northwest.

All the Presidents' Gardens

Marta McDowell. Timber Press, Portland, Oregon, 2016. 336 pages. Publisher's price, hardcover: \$29.95.

IN A PRESIDENTIAL election year, it is grounding (to say the least) to put politics aside temporarily and think back to previous occupants of the White House and contemplate their contributions to the landscape and gardens of that special residence. Marta McDowell allows us to do just that in this meticulously researched book.

As one might expect, McDowell organizes her book chronologically: Washington to Obama. Then she weaves into her narrative the other players in the making of White House gardens: First Ladies and the gardeners, themselves. We meet John Watt, gardener for the Lincolns, who was notorious for the "Manure Fund" whereby he padded his invoices for garden expenses to help Mary Lincoln access money in the garden budget for her own use. Another gardener was Henry Pfister, whose career spanned 25 years and seven presidents in the late 1800s. Pfister was an innovator who adorned the White House grounds with elaborate bedding schemes including tropical plants and ornamental grasses.

Some presidents were involved to various degrees in the garden-making, such as Franklin D. Roosevelt, who commissioned the garden plan still used today as a basis for the garden layout. Others were restricted by their own lack of interest, world events (for example, wars), or the economic situation that dictated what could be done, or not done, to enhance the White House grounds.

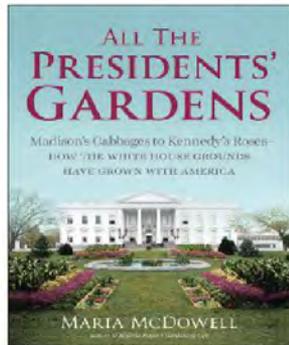
McDowell effectively uses many period photographs to enhance her story and to demonstrate both the hardscapes and the plantings at the Presidents' residence.

When describing grounds maintenance, McDowell includes a photo from the early 1900s showing sheep grazing the White House lawn. Another period photo depicts Pauline Wayne, a Holstein cow, who was the "last cow to graze and fertilize the White House lawn."

From the beginning, the White House gardens were emblematic of the popular form, function, and fashion of each era. McDowell ends her book by comparing the evolution of those gardens whose purpose was to "beautify, nourish, and memorialize" to the evolution of gardening in the United States in general and concludes, "Long may they wave." Yes, and long may there be erudite and entertaining books like *All The Presidents' Gardens* to enlighten and educate about American garden history.

—Denise Adams

Denise Adams writes and gardens in Stony Point, New York. She is the author with Laura Burchfield of American Home Landscapes (Timber Press, 2013).



REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

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

RAP JUNE 4 & 5. **Bonsai Show.** Buffalo Bonsai Society and Buffalo and Erie County Botanical Gardens. Buffalo, New York. (716) 827-1584. www.buffalogardens.com.

RAP JUNE 4 & 5. **Rose Garden Weekend.** Celebration. New York Botanical Garden. Bronx, New York. (718) 817-8700. www.nybg.org.

RAP JUNE 11. **Urban Gardening Series: Container Gardening.** Class. New England Wild Flower Society. Garden in the Woods. Framingham, Massachusetts. (508) 877-7630. www.newenglandwild.org.

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

RAP JUNE 17. **Cultivating Extraordinary Plants.** Symposium. Coastal Maine Botanical Gardens. Boothbay, Maine. (207) 633-4333. www.mainegardens.org.

RAP JUNE 18. **Rustic Garden Trellis or Furniture.** Workshop. Justin Morrill State Historic Site Gardens. Strafford, Vermont. (802) 765-4288. www.morrillhomestead.org.

JUNE 21. **Roses.** Lunch walk and talk. Roger Williams Park Botanical Center. Providence, Rhode Island. (401) 421-7740. www.providenceri.com.

JUNE 24–26. **Newport Flower Show: Gilded Artful Living.** The Preservation Society of Newport County. Newport, Rhode Island. (401) 847-1000. www.newportmansions.org.

Looking ahead

JULY 8–17. **Cape Cod Hydrangea Festival.** Cape Cod Chamber of Commerce. Centerville, Massachusetts. (508) 362-3225. www.capecodchamber.org.

JULY 16. **Maine Home + Design Cape Elizabeth Garden Tour.** Fort Williams Park Foundation. Cape Elizabeth, Maine. (207) 767-3707. www.fortwilliams.org.

MID-ATLANTIC

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

RAP MAY 27–JUNE 5. **Art Blooms: Satsuki Azalea Bonsai.** Exhibit. United States National Arboretum and National Bonsai & Penjing Museum. Washington, D.C. (202) 245-4523. www.usna.usda.gov.

RAP JUNE 8. **Cut Flowers at Home.** Class. Norfolk Botanical Garden. Norfolk, Virginia. (757) 441-5830. www.norfolkbotanicalgarden.org.

RAP JUNE 10. **Genius Loci: The Spirit of the Garden.** Great Speaker Series. The Frelinghuysen Arboretum. Morristown, New Jersey. (973) 326-7601. www.arboretumfriends.org.

JUNE 15–17. **Native Plants in the Landscape.** Conference. Bowman's Hill Wildflower Preserve. Millersville, Pennsylvania. (717) 842-0272. www.millersvillennativeplants.org.

JUNE 19–24. **Preserving Jefferson's Gardens and Landscapes.** Course. Historic Landscape Institute. Charlottesville, Virginia. (434) 984-9816. www.monticello.org.

JUNE 29. **Woody Plant Conference.** Scott

Flora Artwork Celebrates National Parks Service Centennial

SINCE ITS FOUNDING in 1916, the National Park Service (NPS) has preserved the natural resources of the National Park System for future generations. As part



of the celebration of its 100th anniversary, an art exhibit, "Flora of the National Parks," is on display through October 2, 2016 in the United States Botanic Garden (USBG) in Washington, D.C.

The exhibit spotlights the works of 78 artists that represent the diversity and richness of plant species and communities protected throughout the more than 400 national parks in the care of the NPS. Visitors will recognize iconic plant species such as giant sequoias (*Sequoiadendron giganteum*) and saguaro cactus (*Carnegiea gigantea*), and be charmed by representations of rarer flora like the endangered Virginia spirea (*Spiraea virginiana*). Entire plant communities, such as mangrove swamps, are also artistically rendered.

The works, executed in a range of media from water color to kirigami cut paper to quilts, are displayed with plants from the USBG to accent the experience. Graphics on the floor in the exhibit show the ground from different national parks to allow viewers to "stand in the parks" while viewing.

More information is available at www.usbg.gov/floraofthenationalparks.

—Mary Chadduck, Editorial Intern

Daylily Extravaganza in Kentucky

TIMED TO coincide with peak daylily bloom season, the “Dazzling Daylilies Festival with Balloons over the Garden,” will take place June 20 to 26 at the Western Kentucky Botanical Garden (WKBG) in Owensboro, Kentucky. The event spotlights WKBG’s extensive daylily collection with a variety of activities throughout the week. Highlights include guided tours of the Daylily Display Garden, nationally recognized by the American Hemerocallis Society, as well as a daylily sale with hard-to-find varieties.



Starting on June 24 and running through the rest of the event, hot air balloon rides will be offered. Those preferring earth-bound entertainment may enjoy “Balloon Glow,” a nighttime show by the balloonists that will follow “Blooms, Balloons, Bar-B-Q & Bluegrass,” a food- and music-filled fête on June 25. This lively evening will culminate with a “Balloon Release” of sky lanterns. For more information, visit www.wkbg.org.

—Mary Chadduck, Editorial Intern

Landscape. Lecture. Memphis Area Master Gardeners Program. Memphis, Tennessee. (901) 752-1207. www.memphisareamastergardeners.org.

RAP JUNE 18. **Waterlily Celebration.** McKee Botanical Garden. Vero Beach, Florida. (772) 794-0601. www.mckeedgarden.org.

RAP JUNE 25. **A Close Look at Oaks and Hickories.** Class. Birmingham Botanical Gardens. Birmingham, Alabama. (205) 414-3950. www.bbgardens.org.

Looking ahead

JULY 13–16. **National Children & Youth Garden Symposium.** American Horticultural Society. Columbia, South Carolina. (703) 768-5700. www.ahs.org.

JULY 20–23. **Cullowhee Native Plant Conference.** Western Carolina University. Cullowhee, North Carolina. (828) 227-7397. www.wcu.edu/engage.

Arboretum of Swarthmore College. Swarthmore, Pennsylvania. (610) 388-1000 ext. 507. www.woodyplantconference.org.

Looking ahead

JULY 5–9. **Gesneriads in the First State.** Convention. Gesneriad Society. Wilmington, Delaware. (727) 796-5615. www.gesneriadsociety.org.

SOUTHEAST

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

RAP JUNE 3. **Plant ID Workshop.** Fairchild Tropical Botanic Garden. Coral Gables Florida. (305) 667-1651. www.fairchildgarden.org.

RAP JUNE 3. **Summer Tree Identification.** Class. State Botanical Garden of Georgia. Athens, Georgia. (706) 542-1244. www.botgarden.uga.edu.

RAP JUNE 5. **Ethnobotany at Mason Farm: Celebrating Wild Flora.** Lecture, walk. North Carolina Botanical Garden. Chapel Hill, North Carolina. (919) 962-0522. www.ncbg.unc.edu.

JUNE 6–10. **Changing Perspectives, Planting for the Future.** Conference. American Public Gardens Association. Miami, Florida. (610) 708-3010. www.publicgardens.org.

JUNE 16. **Controlling Diseases in Your**

NORTH CENTRAL

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

RAP MAY 21–JUNE 24. **Into the Woods by Gary Engle.** Exhibit. Cleveland Botanical Garden. Cleveland, Ohio. (216) 721-1600. www.cbgbgarden.org.

RAP MAY 28–SEPT. 5. **Butterflies & Blooms.** Exhibition. Chicago Botanic Garden. Glencoe, Illinois. (847) 835-5440. www.chicagobotanic.org.

JUNE 1–4. **Urbs in Horto-City in a Garden.** Conference. Alliance for Historic Landscape Preservation. Chicago, Illinois. E-mail:



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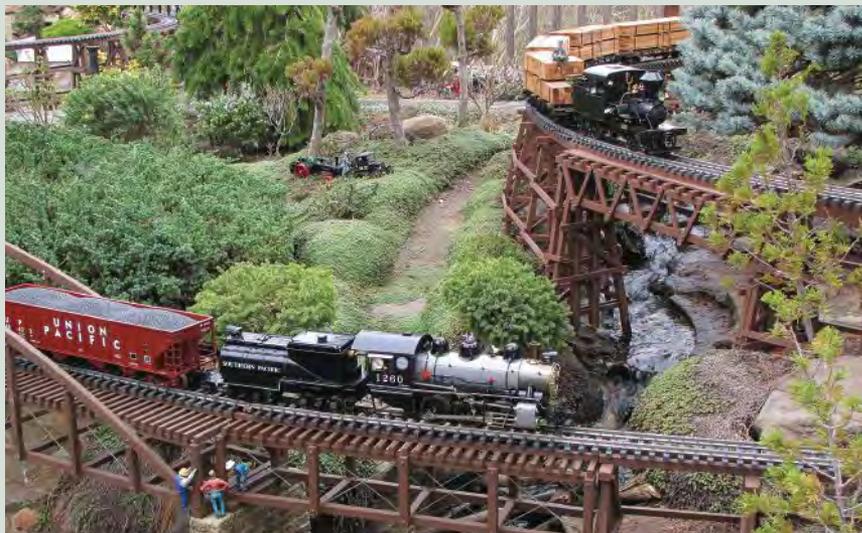


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All Aboard the Garden Railway

THE HOBBY of garden railway combines two popular passions: gardening and model trains. One of the best ways to experience this world is at the National Garden Railway Convention, taking place July 4 to 10 in the San Francisco Bay area of California. It features more than 80 self-guided tours, divided into 10 districts encompassing the entire San Francisco Bay area.



Railway garden enthusiasts create intricate displays such as this one by combining model trains with miniature plants and hardscaping.

Hosted by the Bay Area Garden Railway Society (BAGRS), the event also will offer several landscape sessions that explore standard garden topics as applied to model railroading. For example, plant selection is addressed in “Miniature & Dwarf Plants for RR,” while hardscaping is covered in “Stone & Cement Modeling.”

Another highlight will be the BAGRS’ unique Roving Garden Railroad, based on the childhood classic, *The Boxcar Children* by Gertrude Chandler Warner. “We wanted it to be a real garden,” says Russell Miller, BAGRS president and convention chair. To that end, the layout packs more than 30 plant species, 100 feet of track, natural rocks, and a real water feature onto a five-by-10 trailer bed. For more information about the convention, go to www.ngrc2016.org.

—Mary Chadduck, Editorial Intern

debbie.smith@nps.gov. www.ahlp.org.

RAP JUNE 3–5. **Garden Fair.** Green Bay Botanical Garden. Green Bay, Wisconsin. (920) 490-9457. www.gbbg.org.

RAP JUNE 4. **Garden Spaces for Pollinators.** Lecture. The Brenton Arboretum. Dallas Center, Iowa. (515) 992-4211. www.the-brentonarboretum.org.

JUNE 5. **Rose Day and Show.** Lauritzen Gardens. Omaha, Nebraska. (402) 346-4002. www.lauritzengardens.org.

Looking ahead

RAP JULY 21. **Art Fair in the Gardens.** Munsinger Garden & Clemens Garden. St. Cloud, Minnesota. (320) 257-5959. www.munsingerclemens.com.

RAP JULY 23 & 24. **Rhapsody in Bloom Arts Festival.** Luthy Botanical Garden. Peoria, Illinois. (309) 686-3362. www.peoriaparks.org/luthy-botanical-garden.

AUG. 1–5. **Perennial Plant Symposium.** Perennial Plant Association. Minneapolis, Minnesota. (614) 771-8431. www.perennialplant.org.

AUG. 4–7. **Cleveland Growing Strong.** Conference. American Community Gardening Association. Cleveland, Ohio. (877) 275-2242. www.communitygarden.org.

SOUTH CENTRAL

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

RAP JUNE 4. **North Texas Daylily Society Flower Show.** Fort Worth Botanic Garden.

Fort Worth, Texas. (817) 392-5548. www.fwb.org.

JUNE 4. **Plant Sale.** New Orleans Botanical Garden. New Orleans, Louisiana. (504) 482-4888. www.neworleanscitypark.com.

RAP JUNE 8. **Urban Gardening with Vegetables.** Walk and talk. Philbrook Museum of Art. Tulsa, Oklahoma. (918) 749-7941. www.philbrook.org.

RAP JUNE 14. **Discover Madagascar: Plant Detectives.** Lecture. Missouri Botanical Garden. St. Louis, Missouri. (314) 577-9118. www.mobot.org.

JUNE 14. **Seed Saving and Insect ID.** Lecture. The Botanic Garden, Oklahoma State University. Stillwater, Oklahoma. (405) 747-8320. www.botanicgarden.okstate.edu.

RAP JUNE 18. **Herbs for Summer.** Workshop. Garvan Woodland Gardens. Hot Springs, Arkansas. (501) 262-9300. www.garvangardens.org.

RAP JUNE 18. **Vertical Succulent Garden.** Lecture. Dallas Arboretum and Botanical Garden. Dallas, Texas. (214) 515-6500. www.dallasarboretum.org.

RAP JUNE 25. **Pollinator Workshop.** Myriad Botanical Gardens. Oklahoma City, Oklahoma. (405) 445-7079. www.myriadgardens.org.

SOUTHWEST

AZ, CO, NM, UT

JUNE 8. **Water Wise Landscape and Drip Irrigation Basics.** Lecture. Utah State University Botanical Center. Kaysville, Utah. (435) 797-1251. www.usubotanicalcenter.org.

JUNE 11. **Albuquerque Garden Tour.** Council of Albuquerque Garden Clubs. Albuquerque Garden Center. Albuquerque, New Mexico. (505) 296-6020. www.albuquerquegardencenter.org.

JUNE 11. **Plant Con.** Symposium. Conservation Garden Park. West Jordan, Utah. (801) 256-4400. www.conservationgardenpark.org.

RAP JUNE 11 OR 12. **Tough Plants for Tough Places.** Tour. The Gardens on Spring Creek. Fort Collins, Colorado. (970) 416-2486. www.fcgov.com/gardens.

RAP JUNE 15. **Introduction to Permaculture Principles.** Class. Santa Fe Botanical Garden. Santa Fe, New Mexico. (505) 471-9103. www.santafebotanicalgarden.org.

RAP JUNE 25. **Pollinator Festival.** Denver Botanic Gardens. Denver, Colorado. (720) 865-3500. www.botanicgardens.org.

Looking ahead

RAP JULY 9. **Summer Plant Sale and Penstemon Festival.** The Arboretum at Flagstaff. Flagstaff, Arizona. (928) 774-1442. www.thearb.org.

WEST COAST

CA, HI, NV

RAP JUNE 11. **Create Your Own Bonsai.** Workshop. Santa Barbara Botanic Garden. Santa Barbara, California. (805) 682-4726. www.sbbg.org.

RAP JUNE 11. **Edible Landscaping.** Class. The Gardens at Heather Farm. Walnut Creek, California. (925) 947-1678. www.gardenshf.org.

RAP JUNE 11. **Hanging Vertical Garden Demonstration and Workshop.** The Ruth Bancroft Garden. Walnut Creek, California. (925) 944-9352. www.ruthbancroftgarden.org.

RAP JUNE 11. **Plants of the Pecho Coast and Diablo Canyon Lands.** Presentation, tour. San Luis Obispo Botanical Garden. San Luis Obispo, California. (805) 541-1400. www.slobg.org.

RAP JUNE 18. **Organic Fruit and Vegetable Gardening.** Class. Los Angeles County Arbo-

retum & Botanic Garden. Arcadia, California. (626) 821-3222. www.arboretum.org.

Looking ahead

AUG. 26-28. **Festival of Fruit 2016.** Central Coast Chapter of the California Rare Fruit Growers. San Luis Obispo, California. (805) 668-7749. www.festivaloffruit.org.

NORTHWEST

AK, ID, MT, OR, WA, WY

RAP JUNE 4. **Weeds and Other Naughty Plants.** Class. Bellevue Botanical Garden. Bellevue, Washington. (425) 452-2750. www.bellevuebotanical.org.

RAP JUNE 5. **Straw Bale Gardening.** Presentation. Cheyenne Botanic Gardens. Cheyenne, Wyoming. (307) 637-6458. www.botanic.org.

RAP JUNE 7-AUG. 4. **Gardening Day Camp.** Alaska Botanical Garden. Anchorage, Alaska. (907) 770-3692. www.alaskabg.org.

RAP JUNE 13. **Ecological Communities: Plants, Predators, and Food Webs.** Class. Washington Park Arboretum. Seattle, Washington. (206) 325-4510. www.arboretumfoundation.org.

JUNE 22. **Ferns for the Northwest Garden**

with Richie Steffen. Lecture. Northwest Horticultural Society. Seattle, Washington. (206) 780-8172. www.northwesthort.org.

JUNE 24-26. **Native Plants Matter.** Conference. Montana Native Plant Society, American Penstemon Society. Fairmont Springs Resort. Fairmont Springs, Montana. (406) 498-6198. www.mtnativeplants.org.

RAP JUNE 24-26. **Wildlife and Habitat Plants Sale.** Kruckeberg Botanic Garden. Shoreline, Washington. (206) 546-1281. www.kruckeberg.org.

Looking ahead

AUG. 25-27. **Farwest Trade Show.** Oregon Association of Nurseries. Portland, Oregon. (503) 682-5089. www.farwestshow.com.

CANADA

JUNE 1-4. **Grey to Green.** Conference. Green Roofs for Healthy Cities and Green Infrastructure Foundation. Toronto, Ontario. (416) 971-4494. www.greytogreenconference.org.

RAP JUNE 16. **Bring Your Own Vessel Terrariums.** Workshop. Muttart Conservatory. Edmonton, Alberta. (780) 496-8737. www.muttartconservatory.ca.

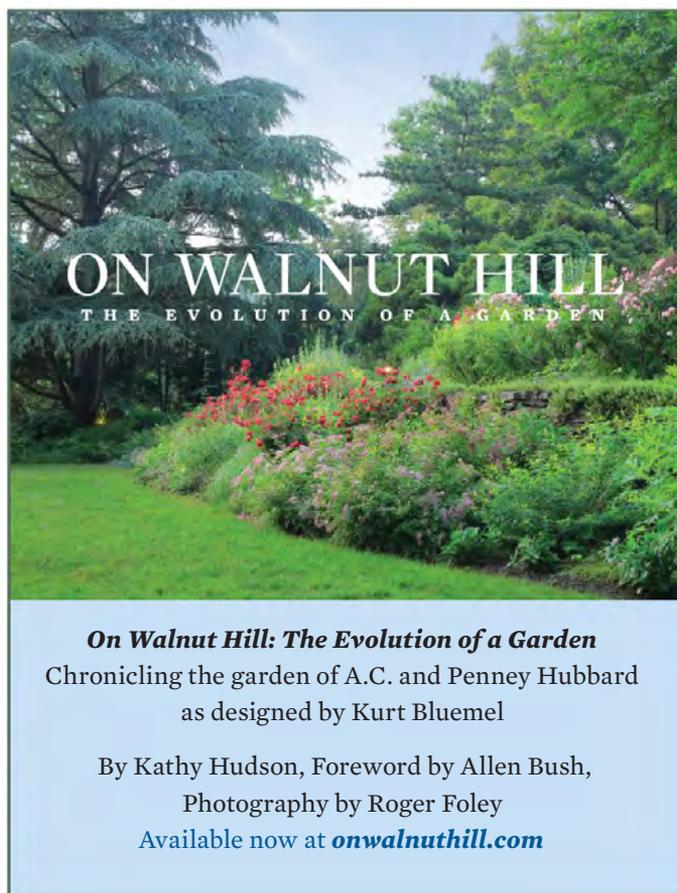


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PRONUNCIATIONS AND PLANTING ZONES



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

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

A–C

- Acer circinatum** AY-ser sir-sih-NAY-tum (USDA Hardiness Zones 6–9, AHS Heat Zones 9–4)
A. palmatum A. pal-MAY-tum (5–8, 8–2)
Adiantum aleuticum ad-ee-AN-tum uh-LOO-tih-kum (3–8, 8–1)
A. pedatum A. peh-DAY-tum (3–8, 8–1)
Amelanchier × **grandiflora** am-eh-LANG-kee-ur gran-dih-FLOR-uh (3–7, 7–1)
Aquilegia canadensis ah-kwi-LEE-juh kan-uh-DEN-siss (4–9, 9–1)
A. chrysantha A. krih-SAN-thuh (3–8, 8–1)
Astrantia major uh-STRAN-tee-uh MAY-jer (4–7, 7–1)
Baptisia alba bap-TIZ-yuh AL-buh (3–9, 9–3)
Bignonia capreolata big-NO-nee-uh kap-ree-o-LAY-tuh (6–9, 9–5)
Campsis grandiflora KAMP-siss gran-dih-FLOR-uh (7–9, 9–7)
C. radicans C. RAD-ih-kanz (3–9, 9–3)
Carpenteria californica kar-pen-TAIR-ee-uh kal-ih-FORN-ih-kuh (8–9, 9–8)
Carpinus caroliniana kar-PY-nus kair-o-lin-ee-AN-uh (3–9, 9–3)
Chelone lyonii chee-LO-nee ly-O-nee-eye (3–9, 9–3)
Clethra barbinervis KLETH-ruh bar-bih-NUR-vis (5–8, 8–5)
Coreopsis lanceolata kor-ee-OP-sis lan-see-o-LAY-tuh (3–8, 9–1)
Cornus amomum KOR-nus uh-MO-mum (5–8, 8–5)
C. racemosa C. ras-eh-MO-suh (3–8, 8–3)
Corylus americana KOR-ih-lus uh-mair-ih-KAN-uh (4–8, 9–1)
C. avellana C. ah-vel-LAN-uh (4–8, 8–1)

D–G

- Decumaria barbara** deh-kew-MAIR-ee-uh BAR-bar-uh (6–9, 9–6)
Deparia acrostichoides dee-PAR-ee-uh uh-kros-tih-CHOY-deez (4–8, 8–1)
Diplazium pycnocarpon dih-PLAY-zee-um pik-no-KAR-pon (4–8, 8–1)
Dryopteris × **australis** dry-OP-ter-iss aw-STRAY-liss (5–9, 9–5)
D. celsa D. SEL-suh (6–8, 8–6)
D. goldiana D. gol-dee-AH-nah (3–8, 8–2)
D. intermedia D. in-ter-MEE-dee-uh (3–8, 8–1)
D. ludoviciana D. loo-doh-vik-ee-AN-uh (6–9, 9–5)
D. marginalis D. mar-jih-NAL-iss (3–8, 8–1)

- Gaultheria shallon** gawl-THEER-ee-uh SHAL-lon (6–8, 8–3)
Gelsemium sempervirens jel-SEE-me-um sem-pur-VY-renz (6–9, 9–5)
Geranium wallichianum juh-RAY-nee-um wah-lich-ee-AN-um (5–8, 8–1)
Gem coccineum JEE-um kok-SIN-ee-um (5–8, 8–1)
G. magellanicum G. maj-eh-LAN-ih-kum (5–8, 8–1)
G. rivale G. rih-VAY-lee (3–8, 8–1)
G. triflorum G. try-FLOR-um (3–7, 7–1)

H–O

- Heuchera americana** HYEW-kur-uh uh-mair-ih-KAN-uh (4–8, 8–1)
Hydrangea anomala ssp. petiolaris hy-DRAN-juh ah-NOM-ah-luh ssp. pet-ee-o-LAIR-iss (4–9, 9–1)
Illex vomitoria EYE-leks vom-ih-TOR-ee-uh (7–9, 9–6)
Itea virginica eye-TEE-uh vir-JIN-ih-kuh (5–9, 10–6)
Jasminum officinale JAZ-mih-num oh-fiss-ih-NAL-ee (7/8–10, 10–1)
Juniperus virginiana joo-NIP-er-iss vir-jin-ee-AN-uh (3–9, 9–1)
Larrea tridentata LAR-ree-uh try-den-TAY-tuh (8–11, 12–8)
Leucophyllum frutescens loo-ko-FIL-um froo-TES-enz (8–9, 9–8)
Lindera benzoin lin-DAIR-uh BEN-zo-in (4–9, 8–1)
Lonicera × **heckrottii** lah-NISS-er-uh hek-ROT-tee-eye (5–9, 9–5)
L. sempervirens L. sem-pur-VY-renz (4–9, 9–4)
Mahonia japonica muh-HO-nee-uh jah-PON-ih-kuh (6–8, 8–6)
Maianthemum canadense my-AN-theh-mum kan-uh-DEN-see (3–8, 8–3)
Matteuccia struthiopteris muh-TEW-key-uh strew-thee-OP-tur-iss (2–8, 8–1)
Osmunda cinnamomea ahz-MUN-duh sin-uh-MO-mee-uh (4–8, 8–1)
O. claytoniana O. klay-toh-nee-AN-uh (2–10, 9–1)

P–Z

- Packera aurea** PAK-ur-uh OR-ee-uh (3–8, 8–2)
Parthenocissus henryana par-then-o-SISS-uh hen-ree-AN-uh (8–9, 9–1)

- P. quinquefolia** P. kwin-kweh-FO-lee-uh (3–10, 9–1)
P. tricuspidata P. try-kuss-pih-DAY-tuh (4–8, 8–1)
Penstemon digitalis PEN-steh-mon dih-jih-TAL-iss (3–8, 8–1)
Phegopteris hexagonoptera feh-GOP-tur-iss hek-suh-guh-NOP-tur-uh (4–9, 9–1)
Phlox subulata FLOKS sub-yew-LAY-tuh (3–8, 8–1)
Polystichum acrostichoides pah-LIS-tih-kum uh-kros-tih-CHOY-deez (3–8, 8–1)
Prunus besseyi PROO-nus BESS-ee-eye (3–8, 8–3)
Rudbeckia hirta rood-BEK-ee-uh HUR-tuh (3–9, 10–1)
Salvia × **sylvestris** SAL-vee-uh sil-VES-triss (5–9, 9–3)
Sanguisorba officinalis san-gwi-SOR-buh oh-fiss-ih-NAL-iss (3–8, 8–1)
Schizachyrium scoparium shiz-ah-KEER-ee-um sko-PAR-ee-um (3–8, 8–1)
Schizophragma hydrangeoides skiz-o-FRAG-muh hy-DRAN-jee-OY-deez (5–8, 8–5)
Sophora secundiflora so-FOR-uh seh-kun-dih-FLOR-uh (7–11, 12–7)
Sorbus americana SOR-bus uh-mair-ih-KAN-uh (3–5, 6–1)
Thuja occidentalis THEW-yuh ahk-sih-den-TAL-iss (3–7, 7–1)
Thunbergia alata thun-BUR-jee-uh ah-LAY-tuh (10–11, 12–10)
Tiarella cordifolia tee-uh-REL-luh kor-dih-FO-lee-uh (3–8, 7–1)
Trachelospermum asiaticum tray-kel-o-SPUR-mum ay-zee-AT-ih-keuz (7–10, 11–6)
T. jasminoides T. jaz-mih-NOY-deez (8–11, 12–7)
Vaccinium angustifolium vak-SIN-ee-um an-gus-tih-FO-lee-um (2–6, 6–1)
V. ashiei V. ASH-ee-eye (6–9, 9–4)
V. corymbosum V. kor-im-BO-sum (3–8, 8–1)
V. ovatum V. o-VAY-tum (6–8, 8–6)
V. parvifolium V. par-vih-FO-lee-um (6–8, 8–5)
Viburnum dentatum vy-BUR-num den-TAY-tum (3–8, 8–2)
V. edule V. ed-YEW-lee (2–7, 7–1)
V. trilobum V. try-LO-bum (2–7, 7–1)
Wisteria frutescens wis-TEER-ee-uh FROO-tess-ens (5–9, 9–4)
W. macrostachya W. mak-ro-STAY-kee-yuh (3–9, 9–3)

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Bush Anemone: A Beautiful Water-Efficient Western Native

by Carolyn Singer

MY INTRODUCTION to the dramatic bush anemone (*Carpenteria californica*, USDA Hardiness Zones 8–9, AHS Heat Zones 9–8) was a mature specimen growing on my neighbor’s property 40 years ago. The evergreen native shrub was over six feet tall with a five-foot spread. Breathtakingly beautiful in full bloom, its clusters of bright white, two- to three-inch, fragrant flowers contrasted with glossy dark green foliage. I began to search for one of my own but was unable to find the plant in the nurseries I explored. Bush anemone was not readily available in the nursery trade then and even at native plant sales, it was seldom seen.

UNCOMMON BEAUTY

Explorer John Fremont noted the plant in 1845 as he made his way east through the southern region of the Sierra Nevada range, but did not record its precise location. Three decades passed before *Carpenteria* was rediscovered. Soon after, the plant became popular in English gardens and other areas of Europe. Today, bush anemone can be found in retail nurseries throughout the Western states, though it remains a bit of a rarity. A more compact form, ‘Elizabeth’, offers gardeners with smaller landscapes an option for enjoying this uncommon native.

In the wild, the natural range of bush anemone is limited to ravines in the Sier-

ra foothills east of the Central Valley near Fresno, and a few sites in Butte County, just north of my own Nevada County. Bush anemone tolerates the seasonal moisture and periods of drought where it is



Bush anemone’s fragrant white flowers with prominent yellow stamens attract pollinators such as native bees and butterflies.

endemic. Plants damaged by wildfire will re-sprout from the roots.

FOR BEST RESULTS

One reason my neighbor’s bush anemone looked so stunning is that it was planted in ideal conditions. It had strong sunlight in the morning tempered by afternoon shade from nearby deciduous oaks in the afternoon. Growing on a slope, it received excellent drainage. Because the plants are quite particular about drainage, gardeners wishing

to grow them should first amend their soil with a little aged compost or leaf mold.

While bush anemone is reported to be deer-resistant, young and recently planted specimens may need protection from browsing deer; a young plant in my garden has been a repeated target. Newly installed plants also will appreciate deep irrigation or rain every couple of weeks. Mulch will protect the upper layers of soil from too much moisture loss during dry periods. Established plants may survive periods of drought without irrigation if they receive afternoon shade.

Bush anemone blooms from late spring to early summer under most growing conditions, but flowering may be extended slightly with irrigation into May and June. Heat spells in early summer don’t seem to diminish the show. Honeybees, native bees, and butterflies all revel in the wealth of pollen from the hundreds of stamens in each fragrant flower.

Bush anemone is naturally rounded and more upright than wide, with dense foliage, so it rarely requires pruning. Spent leaves simply may be rubbed off the branches. Removing a few lower limbs will reveal the ornamental, gray-brown, flaking bark on the trunk. Whether you wish to reveal the lower portion or shape the shrub, prune sparingly to avoid too much stress to the plant.

If you can give this beauty what it requires, it will reward you with showy, scented flowers and its evergreen presence for many years to come.

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

Sources

Digging Dog Nursery, Albion, CA. (707) 937-1130. www.diggingdog.com.
Joy Creek Nursery, Scappoose, OR. (503) 543-7474. www.joycreek.com.



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