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The Magazine of the American Horticultural Society

September/October 2004

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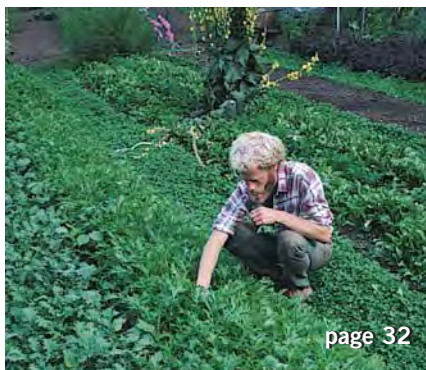
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NATIONAL CHILDREN AND YOUTH GARDEN SYMPOSIUM (NCYGS)

Atlanta will be the site of the 2005 NCYGS, which will be held July 28-30, 2005. Be sure to save the date for this event; more details will be available soon.

RECIPROCAL ADMISSIONS PROGRAM

Through this program, AHS members receive free and discounted admission to botanical gardens throughout North America. Participating gardens are listed in this year's *AHS Member Guide* and also in the Membership area of our Web site. For more information, call (800) 777-7931 ext. 127.

TRAVEL STUDY PROGRAM

AHS members and friends can visit spectacular gardens around the world through the Society's exclusive arrangement with Leonard Haertter Travel. To learn about upcoming trips, call (800) 777-7931 or visit the Events section of our Web site.

WASHINGTON BLOOMS!

AHS's annual celebration of spring will be held April 1 to 30, 2005, at River Farm. Special events will include the Friends of River Farm Spring Plant Sale and a new AHS Garden School: The Art and Science of Color in the Garden.

WEB SITE: www.ahs.org

The AHS Web site contains information about AHS programs and activities, gardening events in your area, and links to other useful Web sites. In 2004, AHS members can reach the member's-only area of the site by typing in this year's password: **meadow**.

The American GARDENER

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David J. Ellis

MANAGING EDITOR AND ART DIRECTOR

Mary Yee

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CONTRIBUTING EDITOR

Rita Pelczar

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The American Gardener
7931 East Boulevard Drive
Alexandria, VA 22150
(703) 768-5700 ext. 120
E-MAIL: editor@ahs.org

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NOTES FROM RIVER FARM

AFTER A LONG, HOT SUMMER, I seem to get a fresh burst of energy, once the days start getting cooler, just like the plants in my garden. The steamy days of the past summer were well spent, however, as I was able to soak up new information and inspiration at gardens throughout America and at different AHS educational programs around the country.

In June, it was a treat to visit the *Better Homes and Gardens* magazine display garden in Des Moines and the headquarters garden of The Gardener's of America/Men's Garden Club of America, our newest AHS Horticultural Partner. Both gardens contained many exceptional plants creatively combined in small spaces.

In July, at the AHS National Children & Youth Garden Symposium in Ithaca, New York, I was inspired anew that connecting young people in America to gardens and gardening is a critical part of the AHS mission. On my way back from Ithaca, I stopped to visit a remarkable new Growing Connection Demonstration Garden that just opened in Scranton, Pennsylvania. My tour guides were young people who were discovering just how exciting it is to grow their own vegetables—and sell the ones they can't eat!

Then, in August, I was off to the Alleghany mountains in Virginia to participate in an exceptional garden symposium at The Homestead resort. Nurseryman André Viette, winner of the AHS 2004 Liberty Hyde Bailey award, put together a program there that made me want to come back to River Farm and plant scads of amazing new daylilies—according to André they are a better financial investment than the stock market—and create a water garden. At each of these stops, it was wonderful to have a chance to visit with so many of you, our AHS family of members.

And now, with batteries recharged by the energy and inspiration I drew from my travels this summer, I am excited to get busy planning for the first phase of our River Farm Master Plan and preparing for our Annual Gala on September 25. As I'm sure you know by now, the gala's theme centers on the set of former White House gates that had for years been hanging at the entrance to River Farm. We only recently learned the unique history of these gates, thanks to the research of architectural historian and AHS board member William Seale. The gates are slated for restoration this winter and then will be shipped up to Philadelphia to serve as the official entrance to the Philadelphia Flower Show in early March.

An AHS President's Council event in Philadelphia on March 4 and 5 is the first of a host of new educational programs and gardening events we are developing for 2005 and beyond. Please take time to review the new "AHS National Events and Programs Calendar" (see page 10), which will be in each issue of *The American Gardener* from now on. We hope you will join us at one or more of these events—even if it is for the very first time—as we move forward with great enthusiasm and resolve to build a new and better AHS and River Farm.

Happy gardening!

—Katy Moss Warner, AHS President

MEMBERS' FORUM



STEVE MASON REMEMBERED

I hope readers enjoyed meeting Steve Mason on the pages of the July/August issue (“Gardening Raised to New Heights”) as much as I enjoyed visiting him and his wife, Mary Carol, in the course of writing the article.

Sadly, just as that issue of the magazine was arriving in mailboxes across the country, Steve found rest from his battle with cancer. He was able, fortunately, to see an advance copy of the magazine article just before he died.

Although all who knew Steve are deeply saddened at his passing and our hearts go out to Mary Carol, I find comfort that, at the end, we celebrated his enthusiasm for life and the joy he found in his garden. I hope others will be inspired by his efforts, guided by his insights, and strengthened by his courage and determination to meet his goal.

A copy of the July/August magazine was displayed among the photos at the memorial service, and afterwards family and friends took home tomatoes Steve grew in his garden—a fitting tribute for a gardener who loved sharing his bounty as much as he loved growing it.

Linda Askey
Birmingham, Alabama

CLIMATE CHANGE AND INVASIVENESS

I was excited to read the article on climate change in the July/August issue of *The American Gardener*. It's great that these kind of issues are being highlighted and brought to the attention of a wide spectrum of gardeners. The additional challenges this will bring for control of invasive plants and pests in this century will be a major issue for not only gardeners, but also for farmers and land managers.

As president of the North Shore Chapter of the National Audubon Society, I'm very active with invasive plant issues. On Long Island we have a Weed Management Area group, spearheaded by the Nature Conservancy, with federal, state and county agencies and other NGO's. We've tackled attempting to identify new invasives and stop them before they gain a critical mass. I've become the queen of mile-a-minute vine—a new invader for us that we are trying to halt before it completely overwhelms the “naturalized” oriental bittersweet, ampelopsis, Asian wisteria, and English ivy. The good news is that with more volunteers learning to identify these high priority targets, we're finding and removing them more quickly.

The Audubon Society is involved because we're seeing that the establishment of exotic invasives affects not only native plants, but birds and other wildlife. Invasive plants heavily affect birds' food options and nesting habitats. The continued diminishment of native plant species leads to poorer, less protected nesting and roosting sites, and wide swaths of nutritionally barren invasive monocultures.

Tackling global warming may seem overwhelming, but it can be acted on locally. I do my bit by not using power equipment in my garden. I do have a pump for my pond, but no blowers, hedge trimmers, or mowers. Personal choices do make a difference.

Jennifer Wilson-Pines
Port Washington, New York

THORNLESS BLACKBERRIES

I would like to expand upon the information in a sidebar about blackberry thornlessness (“Ouchless Berries”) that accompanied Lee Reich's article “Summer Berries” (July/August 2004).

Most thornless blackberries are genetically thornless, not—as Reich indicated—chimeras that have two genetically different sets of tissues. The erect and semierect blackberries get their thornlessness from the cultivar ‘Merton Thornless’. Examples of cultivars with this recessive gene include ‘Navaho’, ‘Arapaho’, and ‘Chester Thornless’. The trail-



Regardless of why they lack prickles, ‘Thornfree’ blackberries are delicious.

ing blackberries have historically gotten their thornlessness from ‘Austin Thornless’, ‘Waldo’, ‘Adrienne’, ‘Murrindindi’, and three new releases from our breeding program at the Northwest Center for Small Fruit Research are thornless cultivars with this gene. Because these cultivars are all genetically thornless, you can propagate plants from any tissue and they will also be thornless.

The thornless blackberries Lee described in the sidebar are a very special case. For many years ‘Evergreen’ blackberry (*Rubus laciniatus*) was grown commercially in Europe and the United States. At some point, someone found a periclinal mutation, as he described, and this became ‘Thornless Evergreen’. The other case

where this happened was in the case of 'Logan'. Someone found a similar mutation and this became 'Thornless Logan'. 'Thornless Logan' is much more stable than 'Thornless Evergreen'. So the chimera Lee described in the sidebar really only applies to those particular cultivars.

*Chad Finn
Small Fruit Breeder*

*Northwest Center for Small Fruit Research
USDA-Agricultural Research Service
Corvallis, Oregon*

Lee Reich responds: I would like to thank Chad Finn for clarifying what I wrote about the source of thornlessness in blackberries. In a private communication to me, he also points out that the western trailing blackberry 'Marion', a cultivar that I did not mention in my article, is the leading blackberry cultivar in the world. Nearly all 'Marion' fruit is processed and sold as "marionberry," but the trailing cultivars 'Kotata' and 'Siskiyou' are sold fresh throughout the United States. The USDA-ARS research center has also just released three new thornless, western trailing blackberries, 'Black Diamond', 'Black Pearl', and 'Nightfall' that are good choices for Western gardeners.

MISSING TOMATO TASTING

I enjoyed your article on tomato festivals ("Celebrating the Tomato," July/August 2004) but can't believe you didn't include the best tomato tasting in New Jersey, the Garden State! After all, our state was the leading producer of tomatoes until the 1950s—it was the home of Campbell's Tomato Soup, remember?

This noteworthy event is the Great Tomato Tasting held for the past 14 years at Rutgers University's Emelda C. Snyder Extension and Research Farm in Pittstown, New Jersey.

It has been attended by over 1,000 visitors in the past several years, is admission free, and has a contingent of avid Master Gardener volunteers who serve as docents, tomato choppers, and friendly hostesses to crowds of delighted people.

Mimi McWold, a Master Gardener and employee of the farm, selects over 100 varieties of tomatoes to grow, many never before grown at Pittstown, as well as sweet peppers (hot ones, although fascinating, became a problem with children tasters!),

melons, cukes—and, this year—20 varieties of basil being grown in a research plot.

This year's tasting is past—it was held on August 25—but I hope you will include the event in future listings.

*Lillie Dorchak
Master Gardener
Pittstown, New Jersey*

PLEASE WRITE US! Letters should be addressed to Editor, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308, or you can e-mail us at editor@ahs.org. Letters we print may be edited for length and clarity.

CORRECTION An editorial error in the July/August issue in Dr. H. Marc Cathey's July/August "Everyday Garden Science" column implied that ethylene gas is used to extend the life of cut flowers. Ethylene causes flowers and fruits to mature more quickly, thus it is imperative to *reduce* the exposure of cut flowers to ethylene.

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- Celebrate outstanding American horticulture and meet the winners of the 2005 Great American Gardeners Awards
- Be on hand for all the opening day festivities at the 2005 Epcot International Flower & Garden Festival, the signature garden event of the season at the Walt Disney World Resort

We invite you to join your fellow AHS members for three days of sub-tropical garden delights next spring in Orlando, Florida, the site of our 2005 Great American Gardeners Conference. Mark your calendar! Look for more details in the November/December issue of *The American Gardener* and be sure to visit www.ahs.org for regular updates. See you there!



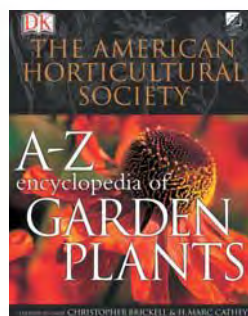
New Edition of AHS *A-Z Encyclopedia of Garden Plants*

FOR THOSE OF YOU who have called, written, and e-mailed to say that you have worn out your copy of the *American Horticultural Society A-Z Encyclopedia of Garden Plants*, we have good news: A revised and updated edition of this essential plant encyclopedia for serious gardeners will be available in mid-October from DK Publishing. The first edition of the encyclopedia, published in 1997, sold nearly 200,000 copies.

AHS President Emeritus **Dr. H. Marc Cathey** served as American editor for the 2004 edition, which contains 15,000 entries—including some 500 plants new to this edition. More than 6,000 full-color photographs illustrate the plants, which are listed alphabetically by genus. Overviews of each genus include basics such as geographic origin, cultural requirements, propagation, and pest or disease susceptibility. Each plant listing includes a complete description of size, flowers, foliage, fruit, origin, and hardiness and heat zone ranges.

One of the major improvements in the revised edition is the inclusion of AHS Plant Heat zones and updated USDA Plant Hardiness zones for all plants. “This is the most current and comprehensive plant guide on the market,” says Dr. Cathey. “No other encyclopedia contains this level of information about so many important garden plants, from the time-tested classics to the most popular cultivars introduced in the last few years.”

Also hot off the press from DK Publishing is the AHS *Southwest SMARTGARDEN™ Regional Guide*, co-authored by **Pat**



Welsh and Rita Pelczar. This is the final book in the four-volume AHS SMARTGARDEN™ *Regional Guide* series—earlier volumes covered the Northeast, Southeast, and Northwest. This groundbreaking series of regional books, based on using earth-friendly gardening practices and selecting regionally appropriate plants, serves as a textbook for the new online garden course, “The Art and Science of the SMARTGARDEN™,” being offered through a partnership between AHS and the Horticultural Gardening Institute of Michigan State University.

The book features more than 3,000 plants adapted to a variety of garden settings in Arizona, California, New Mexico, Nevada, Oklahoma, Texas, and Hawaii. Plants are grouped in more than 150 categories by garden habitat—native shrubs for desert gardens, for instance—or special ornamental features, such as fragrant climbers. A special coding system identifies landscape uses, hardiness and heat zones, as well as cultural requirements for each of the plants covered. “This is destined to become the gardening guide of choice for southwestern gardeners,” says Dr. Cathey.

The *AHS A-Z Encyclopedia of Garden Plants* will not be available until mid-October, but you can pre-order a copy by visiting the AHS Web site (www.ahs.org) and clicking on the book icon on the home page. To order any of the books in the AHS SMARTGARDEN™ *Regional Guide* series, visit www.ahs.org/books/books.htm.



Warner To Speak at America in Bloom Symposium

AHS PRESIDENT **Katy Moss Warner** will be delivering the keynote address during the America in Bloom's third annual Awards Ceremony and Educational Symposium, which will be held October 7 through 9 in Indianapolis, Indiana. An AHS Horticultural Partner, **America in Bloom (AIB)** is a non-profit organization that promotes and rewards community beautification programs nationwide.

Katy's speech will come during the educational session on the morning of Friday, October 8. The awards ceremony and reception will be held on the evening of Saturday, October 9.

In addition to the awards ceremony, at which the winners of AIB's 2004 awards for community beautification will be presented, this year's AIB symposium includes many workshops and tours to highlight the gardens and beautification efforts

that earned Indianapolis the top AIB award last year.

On the agenda are tours of the city's oldest neighborhood, which contains the home of the Hoosier poet James Whitcomb Riley and many of the city's finest parks and gardens. Workshops will focus on special projects such as converting parking lots to public gardens and replacing turf with diversified native plantings that attract and support beneficial wildlife.

“By placing a premium on beautiful gardens and green spaces, Indianapolis is providing inspiration for all American cities to get involved in similar beautification programs,” says Katy

For more information on the AIB awards ceremony and symposium, call (614) 487-1117 ext. 23 or visit www.americainbloom.org. A complete list of award-winning cities for 2004 will be published in the next issue of *The American Gardener*.



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AHS NATIONAL EVENTS AND PROGRAMS

2004–2005 CALENDAR

Mark your calendar for these upcoming AHS national events and programs! More details about all these events will be available soon in *The American Gardener* and on the AHS Web site (www.ahs.org).

- DEC. 2. **Friends of River Farm (FORF) Volunteer Reception**, George Washington's River Farm, Alexandria, Virginia.

IN 2005

- MAR. 4 & 5. **AHS President's Council Event at the Philadelphia Flower Show**, Pennsylvania Convention Center, Philadelphia, Pennsylvania.
- MAR. 31–APR. 1. **AHS Garden School: The Art and Science of Color in the Garden**. George Washington's River Farm, Alexandria, Virginia.
- APR. 1–30. **Washington Blooms!** George Washington's River Farm, Alexandria, Virginia.
- APR. 3–5. **Colonial Williamsburg Garden Symposium**. Williamsburg, Virginia.
- APR. 13–15. **AHS Great American Gardeners Conference and Awards Presentation**. Orlando, Florida.
- APR. 22 & 23. **Friends of River Farm Spring Plant Sale**. George Washington's River Farm, Alexandria, Virginia. *Members-only preview sale on the evening of April 21.*
- MAY 6. **Magic of Landscaping Conference**. Orlando, Florida.
- MAY 27. **AHS Member Day at Cleveland Botanical Garden Flower Show**. Cleveland, Ohio.
- JUNE 2. **Taste of River Farm**. Alexandria, Virginia.
- JULY 28–30. **AHS National Children & Youth Garden Symposium**. Atlanta, Georgia. Hosted by the Atlanta Botanical Garden and Wonderland Gardens.

Online Gardening Course Goes on Trial



In August, attendees at the Northeast Master Gardener Day open house at Pleasant View Gardens in Loudon, New Hampshire, signed up to test an online gardening course, "The Art and Science of Container Gardening." This course, developed by the Horticultural Gardening Institute (HGI) of Michigan State University, is offered through a partnership between HGI and AHS. Carole Huntington of Pleasant View Gardens (back left) and HGI's Mary Ann Patterson (back right), Mary McLellan (front left) and Kate Koltvedt (front right) were on hand to support the pilot program. For more information about HGI and AHS online courses, visit the AHS Web site at www.ahs.org.

Help Decorate Our Holiday Trees!

LAST YEAR, the holiday trees at River Farm's estate house were festooned with cheerful and creative themed ornaments made by school and youth groups from across the country. The program debut was so successful that AHS Youth Programs Coordinator **Nancy Busick** is planning to enlarge the scope of the project this year. "We hope even more individuals, families, classes, and clubs will furnish our ever-expanding holiday tree display with their own handmade ornaments and garlands," says Nancy. "This is a creative project that both children and adults can have fun with."

This year there will be six trees to decorate, each with a separate theme: Americana (red, white, and blue); Lewis and Clark (silver and gold); George Washington (blue and white); Plants and Flowers (multicolored); Solar System (multicolored); and Bountiful Harvest (red and gold).

According to Nancy, she is looking for at least 32 groups willing to create a minimum of 25 ornaments each; it will take approximately 200 ornaments to decorate each of the six trees. To learn how to get your school or youth group involved with the holiday decoration project, contact Nancy Busick by phone at (703) 768-5700 ext. 132, or via e-mail at nbusick@ahs.org.

Seed Exchange Success Story

OVER THE YEARS we have heard a lot of inspiring stories from AHS members about the success they had with seeds from the AHS Free Seed Exchange, but recently we learned that a plant grown from seeds offered in an AHS seed exchange has been introduced in the nursery trade.

According to AHS member **Edward Hasselkus**, professor emeritus of horticulture at the University of Wisconsin–Madison, a Lavalley corktree (*Phellodendron lavalleyi*) selection named ‘Longenecker’ (Eye Stopper™) was originally derived from seeds distributed in the 1973 AHS seed exchange.

Edward, who is also the longtime curator of the university’s Longenecker Horticultural Gardens, ordered the seeds and planted one of the resulting seedlings in the Longenecker collection in April 1976. As the plant matured, it caught the eye of one of Edward’s former students, **Michael Yanny**, who was then a propagator at **Johnson’s Nursery, Inc.** in Menomonee Falls,



Phellodendron lavalleyi Eye Stopper™ was developed from seed obtained from the 1973 AHS Seed Exchange.

Wisconsin. “Michael was so impressed with the plant that he propagated it vegetatively and named it Eye Stopper™,” says Edward, noting that the name is a play on words relating to the tree’s common name, cork tree.

Edward says Eye Stopper™ is distinctive because of its beautiful clear yellow autumn foliage and exceptionally corky bark. It is also staminate, or male-flowering only, a quality that is particularly important because cork tree’s seedlings can be invasive under the right growing conditions. The species is native to central Japan and grows 40 to 50 feet tall at maturity.

Johnson’s Nursery is now working with the **J. Frank Schmidt & Son Co.**, a wholesale nursery in Boring, Oregon, to expand production and marketing of Eye Stopper™, which is suited to USDA hardiness zones 5 to 7 and AHS heat zones 8 to 5. The plant is not yet available in the retail trade, but you can request that your local nursery order one from Schmidt (www.jfschmidt.com).

We can only hope that future AHS seed exchanges will, uh...



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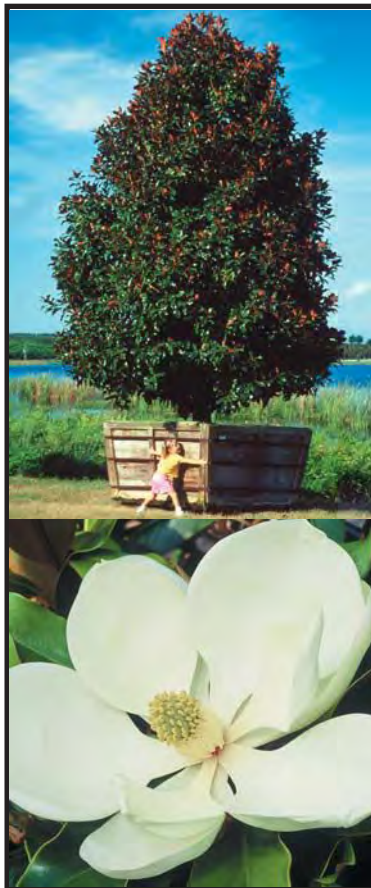
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Cherry Lake Tree Farm is pleased to announce its corporate partnership with the American Horticultural Society and is committed to helping fulfill the AHS mission by promoting the importance of large trees in the landscape.



uncork more outstanding garden plant selections for gardeners. To learn more about the AHS seed exchange, turn to the form between pages 8 and 9.

Cherry Lake Tree Farm Is New AHS Partner

THE AHS is pleased to welcome **Cherry Lake Tree Farm** as our newest Corporate Partner. Based in Groveland, Florida, Cherry Lake is a wholesale supplier of large containerized ornamental trees to the landscaping industry in the Southeast and Mid-Atlantic.

In partnership with the AHS, the **Florida Nurserymen and Growers Association**, and the **Epcot International Flower & Garden Festival**, Cherry Lake sponsors the annual "Magic of Landscaping" program, which explores the value and importance of high quality landscaping in corporate development.

To learn more about Cherry Lake and the "Magic of Landscaping" program, visit www.cherrylake.com.

Girl Scout Spells Relief for Alphabet Garden

A RENOVATION OF the Alphabet Garden, one of the children's gardens at AHS's River Farm headquarters, is underway as part of a Girl Scout project. Neighborhood resident and Girl Scout **Brittany Amerau** is renovating the garden to fulfill the requirements for the Gold Award, the Girl Scouts' highest honor.



Brittany Amerau in the Alphabet Garden at River Farm

This past summer, Brittany planned and carried out improvements to the Alphabet Garden, which displays plants and garden objects corresponding to each of the letters of the alphabet. Installed in 1993 as one of 12 gardens in the AHS Children's Garden, the garden has been in need of a face-lift for some time. Much of the work involves shifting existing plants, so AHS Horticulturist **Peggy Bowers** is overseeing Brittany's transplanting efforts. Brittany has also secured funding from the **Yacht Haven Garden**

Club in Alexandria for new plants and garden ornaments.

Now 16, Brittany first visited River Farm as a second grader, when her mother, **Karla Amerau**, began volunteering here. Later visits were on school and Girl Scout field trips. "The Children's Garden was always the highlight of our trips," says Brittany, explaining why she chose this site for her Gold Award project.

AHS Youth Programs Coordinator **Nancy Busick**, who is guiding Brittany through the Gold Award process, can identify with Brittany's project: She's been involved with the Girl Scouts since she was in the second grade. "I consider myself a lifetime Girl Scout," she says.

News written by Editorial Interns Jessie Keith and Katie Palanjan

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As New AHS Board Chair, Arabella Dane Brings High Energy, Accomplishment

BY CAROLE OTTESEN

ARABELLA DANE comes to the office of AHS Board Chair with the enthusiastic recommendations and warm regard of friends and associates in the gardening world. “Arabella has a super vision. She’ll make the ideal chairman of the board for the AHS,” says **Corliss Engle**, a fellow Garden Club of America (GCA) horticulture judge and friend. But, Engle warns, “There might be some kicking and screaming at first. She’s innovative. She snookers you into things you don’t want to do—and then you learn all of these wonderful new skills you didn’t know you had!”



Those who have worked with Dane come away in awe of the prodigious energy and dedication she puts into every project in which she is involved. Dane has expended this great energy generously in a variety of not-for-profit organizations over the years, including the AHS, the Garden Club of America, The Massachusetts Horticultural Society, the Arnold Arboretum of Harvard

University, and the Harvard Art Museums.

Currently she serves on the board of the National Garden Clubs, Inc., and has recently been elected to the board of the National Fund for the U.S. Botanic Garden. Along the way, she has garnered numerous awards for her work in education, conservation, and flower arranging. Among these are the AHS Frances Jones Poetker Medal for floral artistry in 1996 and the GCA Zone 1 Creative Leadership Award in 2004.

David DeKing, executive director of the New England Wild Flower Society (NEWFS), worked with Dane to establish Project Native, an award-winning collaboration between the Garden Clubs of Massachusetts and NEWFS in which thousands of native trees were planted in coordination with development of symposia and an educational curriculum. He credits Dane with a “can do attitude for getting people involved in horticulture.”

“What excites me is the challenge of working with people to make their dreams come true,” says Dane, who has been a member of the AHS board for nine years. Dane and her husband, **Edward (Nat) Dane**—a former AHS president—recently “retired” from their Boston home to live full-time in Center Harbor, New Hampshire. At Hillcrest Farm, they restored an old farmhouse and created garden spaces in the abandoned fields. Their gardens, both formal and informal, feature native plants and decorative edibles.

“Arabella is an excellent horticulturist who has used her talents in a broad perspective,” says **Deen Day Smith Sanders**, former president of the National Garden Clubs, Inc. When

Smith Sanders was president elect of the National Garden Clubs, Inc. she selected Dane to develop a butterfly program to serve the 9,000 member clubs and 300 international affiliate clubs in Central and South America.

“What excites me is the challenge of working with people to make their dreams come true.”
—*Arabella Dane*

As is her practice in all she does, Dane threw herself into the study of butterflies. Ultimately, she co-authored, with Jackie Stone, *Through the Eyes of a Butterfly*, published by National Garden Clubs, Inc. And, at Smith Sander’s request, she also organized ecotourism trips, including one to a monarch overwintering site in Mexico. One visit there provided her with vivid memories. “I



An avid fishing fan, Arabella is shown with one that *didn't* get away.

was surrounded by fir trees weighted down by clusters of swarming monarchs,” recalls Arabella. “As the sun warmed the butterflies, they would leave the swarm and flutter like snowflakes in an early winter storm. In the silence of the sanctuary, they flew so densely you could hear the music of their wings.”

More recently, Arabella created Showtime®, a comprehensive database of approximately 94,000 plants used by American gardeners. Originally developed as an educational tool for garden clubs and flower shows, Showtime® is also serving both as a resource for the USDA hardiness and AHS heat zone codes and for botanical nomenclature clarification in AHS horticultural reference books and in *The American Gardener*.

“This is a pivotal time for the American Horticultural Society,” says Dane. “Our extraordinary Board and talented staff, working under the inspired leadership of **Katy Moss Warner**, have committed to an exciting Master Plan for River Farm, in keeping with our shared vision for the Society. We are listening and responding to the needs of our members, our staff, and our public, as we connect people to plants and promote the art and science of horticulture through our educational programs and publications.” And, she adds with her signature optimism, “The seed is planted; we all have to work together to make the magic happen.”

Carole Ottesen is associate editor of The American Gardener.

Gardens for Children

Highlights from the 2004 AHS National Children & Youth Garden Symposium held in July in Ithaca, New York.

BY JESSIE KEITH

THIS YEAR'S AHS National Children & Youth Garden Symposium (NCYGS), held at Cornell University in Ithaca, New York, was a huge success, according to the 208 children's gardening professionals and enthusiasts who attended. Participants enjoyed visiting top gardens, inspirational keynotes, fun field trips, and creative workshops all within the environs of the outstanding host city. "The biggest thrill for me," said Marcia Eames-Sheavly, senior Extension associate at Cornell and NCYGS National Advisory Panel member, "was sharing the incredible treasures of this region—the gardens, natural resources, the amazing people linked with our educational effort at Cornell, and Ithaca treasures like the Compost Theatre and Johnson Museum of Art—with a national audience."



The gardens at Cornell Plantations were at their best for visiting symposium attendees.

SPEAKING FOR KIDS

The symposium's two keynote speakers, Roger Hart, director of the Children's Environments Research Group, and Frank S. Rossi, assistant professor of turfgrass science at Cornell, offered different yet equally powerful insights into the link between children and gardening.

"Children's gardens and playgrounds don't need to have a lot of peripheral stuff,

like amusement-park accessories and placards," noted Hart, "but they do need to invite children to explore, learn, and truly play. Make diverse spaces where they can modify the landscape and create."

Hart challenged the audience to strive for truly amenable and interactive play areas that encourage exploration while squelching the need for parents and caretakers to micromanage or "hover." "Children need unmediated contact with the natural world," said Hart. "We need to learn how to get children to ask questions rather than feeding them answers before they even inquire."

One way to accomplish this, he suggested, is to let children be actively involved in the design process of their gardens or play areas.

Some participants may initially have been skeptical about the idea of a children's educational program based on turfgrass, but Rossi captivated the audience with his

contagious enthusiasm and anecdotes. He described the numerous creative and entertaining ways he uses turf to teach children about plant biology, chemistry, and environmental science, among other disciplines. "Everyone has grass," said Rossi, "so why not use it for teaching kids? One square foot of turf is all that you need."

Rossi emphasized that turf grass offers many teaching applications for learning about species diversity (there are many common lawn grass species), growth habit (bunch, versus stoloniferous and rhizomatous grasses), life cycles (perennial, annual, cool and warm season) and seed germination. "When I teach kids about grass seed germination I tell them the endosperm is like a fuel tank full of gas, and the embryo is like a rocket just waiting to use the fuel and shoot up," explained Rossi.

FIELD TRIPS AND WORKSHOPS

Over the course of three days, symposium

Atlanta in 2005

Experience first-hand the inspiration and enthusiasm generated by the AHS National Children & Youth Garden Symposium. Mark your calendar now for the 2005 event, which will be held July 28 to 30 in Atlanta, Georgia. Co-hosts for the 13th annual symposium will be the Atlanta Botanical Garden and Wonderland Gardens.



Top: Young people assumed many leadership roles during the symposium. Here high school student Jonah Rosenthal leads a tour of the butterfly house at Cayuga Nature Center. **Above, left:** Roger Hart, one of the keynote speakers: **Above, right:** Symposium attendees enjoyed watching birds during a tour of Cornell's Ornithology Lab.

attendees enjoyed a variety of field trips, workshops, and tours in and around Ithaca. Among the most memorable tours were Cornell Plantations with its wealth of gardens, blueberry tasting at Cornell Orchards, The Cayuga Nature Center's "Treetops" treehouse and butterfly house, the preview of the new Ithaca Children's Garden, and watching birds at Cornell's renowned Lab of Ornithology.

Participants also took home many new teaching ideas after attending workshops like "Fun with Fiber," where they learned to beat flax, and "Garden Mosaics," which presented new non-formal science activities for young gardeners.

KIDS TAKING ACTION

A novel element of the gardening and outdoor programs for Ithaca's youth was the number of children involved in decision making and leadership roles. At the Cayuga Nature Center outside of Ithaca, sym-

posium attendees enjoyed a butterfly house tour given by 15-year-old butterfly expert extraordinaire Jonah Rosenthal and reveled in the massive "Treetops" treehouse fortress planned and developed by the Ithaca High School class of 2000.

At the newly created Ithaca Children's Garden (ICG)—designed with the assistance of AHS staff members and members of the NCYGS Advisory Panel—attendees learned about the Ithaca Children's Garden Apprenticeship Program, a unique horticultural work-training effort for youth ages 14 to 19. Apprentices helped with the tours and described their experiences in the garden.

And Tricia Armstrong from Ithaca's Dewitt Middle School shared inspirational stories of some of her academically challenged children who, through Dewitt's horticultural program, gained life skills that enabled them to pursue careers in the landscape industries.

ADVISORY PANEL MEETS

The presence of 15 members of the NCYGS Advisory Panel, a 35-member committee created to advise and direct NCYGS initiatives, added to the richness of the symposium experience for many attendees. "Participating in a conference with folks of like mind from all over the U.S. and the world is a rare privilege," said panel member Jane L. Taylor, founder of Michigan State University's 4-H Children's Garden. "We savor our commitment to plants and kids all year long as we make plans for the next wonderful symposium adventure."



Advisory panel members Norm Lownds and Jane L. Taylor

In Ithaca, the panel met to discuss major goals for enhancing future symposiums and to identify potential host sites after Atlanta in 2005 (see box, opposite page). "The more we can plan ahead for these events, the stronger they will grow," said Tom Underwood, AHS director of horticultural programs.

According to Mark Miller, an environmental educator at Ohio State University in Columbus, the advisory panel also considered ways to get young people involved in the planning and execution of future symposia. "It is so important to include children in this process," said Miller. "They are our stakeholders." —J.K.

The symposium's success can be traced to the advance planning and hard work of many people, as well as to the enthusiasm of all the attendees. "When you hear comments from participants like 'If I hear one more good idea I'll explode!' it makes it all worthwhile," noted Jane L. Taylor, founding curator of the Michigan State University 4-H Children's Garden.

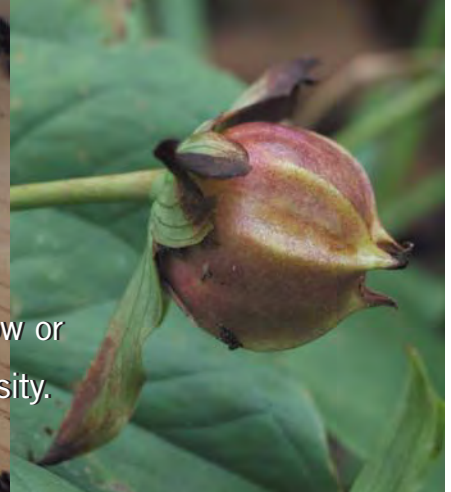
Jessie Keith is an editorial intern for The American Gardener.

TOP AND FAR RIGHT: JESSIE KEITH; BOTTOM LEFT: COURTESY OF ROGER HART; BOTTOM RIGHT: COURTESY OF ARABELLA DANE.

Saving Seeds

A time-honored gardening tradition, gathering seeds to grow or share helps preserve rare or heirloom plants and fosters diversity.

ARTICLE AND PHOTOGRAPHS BY CAROLE OTTESEN



AT ONE TIME or another, most of us who think of ourselves as gardeners have witnessed the miracle of germination. After pressing a tiny seed into the moist earth, we waited and watered and watched for the first sign of life: a satiny filament of stem, or a root groping for soil. We have taken pride in (and credit for) the metamorphosis of fragile seedling into impossibly large plant. And we've marveled that something as small as a tomato or zucchini seed could have produced a year's worth of sauce or fed an entire neighborhood.

But that's usually where it ends. Today, given the availability of an incredible diversity of seeds for only a couple of dollars a packet, few of us regularly collect seeds and save them for another year. A notion is beginning to take hold, not unlike the one about vegetables coming from the supermarket, that seeds ought rightly to come in paper packages. But everywhere we look—in the garden, along the roads, in the fields and woods—a multitude of seeds in every size and shape challenge that notion.

Look around your garden. You will find seeds of every description just waiting to be collected. But no matter how different each from another is, they share a common goal. Each one is a clever container that packages life itself to bring it safely through what is

Clockwise from top left: *Rudbeckia* seedheads contain hundreds of seeds; *Hydrastis canadensis* and *Trillium grandiflorum* seeds come in attractive packages; seeds of umbellifers like fennel are easy to spot; a pod of *Helleborus* × *hybridus* splits to reveal the seeds within.



'Mortgage Lifter' is an heirloom tomato developed by a West Virginia gardener through cross pollination and seed selection.

often one of nature's inhospitable periods, be it cold, heat, or drought. The seed guards the dormant embryo within until conditions are again supportive and the incipient plant can germinate and grow.

Many flower seeds such as those of columbines (*Aquilegia* spp.), wake robins (*Trillium grandiflorum*), or Lenten roses (*Helleborus x hybridus*) develop in pods. When the seeds are ripe, the pod opens and, often, spills its contents on the ground. The seeds of fruits such as tomatoes are inside, imbedded in pulp, and will not mature until the fruits are fully ripe.

PRESERVING DIVERSITY

Collecting and saving seeds is not only a satisfying ritual that acknowledges the reproductive phase in the cycle of plant life, there are good reasons to save your own. Not least is diversity.

"If you are looking for genetic diversity, saving seed is a good thing," says Tony Avent, founder and president of Plant Delights Nursery in Raleigh, North Carolina. "You can select for dwarf, tall, earlier flowering, later flowering, or a number of traits."

You can also help natural selection along on a very personal level. Over and above appearance, you can choose for such qualities as flavor, disease tolerance, or general health. If, year after year, you were to collect seed from only the healthiest, most strapping plant in the row, the seeds you collected to grow in future would ultimately be those best suited to the garden's microclimate.

Another reason to collect and save seeds is to preserve heirloom varieties that may otherwise disappear from the world. In so doing, you help preserve biodiversity, which is important as more wild land is converted to agriculture, clear-cut for timber, and turned into housing developments.

At the Seed Savers Exchange's Heritage Farm in Decorah, Iowa, "we've been working with heirloom varieties for 25 years and have a collection of 24,000 varieties," says Kent Whealy, who co-founded the organization with his wife Diane. "This is all of the breeding material we'll ever have for future food crops," notes Whealy.

ETHICAL SEED COLLECTING

Collecting seeds in the wild brings certain issues to the fore. While habitat destruction and development are prime con-

AHS FREE SEED EXCHANGE

Since 1959, the American Horticultural Society has sponsored and coordinated a seed exchange among its members so that gardeners throughout North America have an opportunity to try growing a wide variety of new, rare, and heirloom plants.

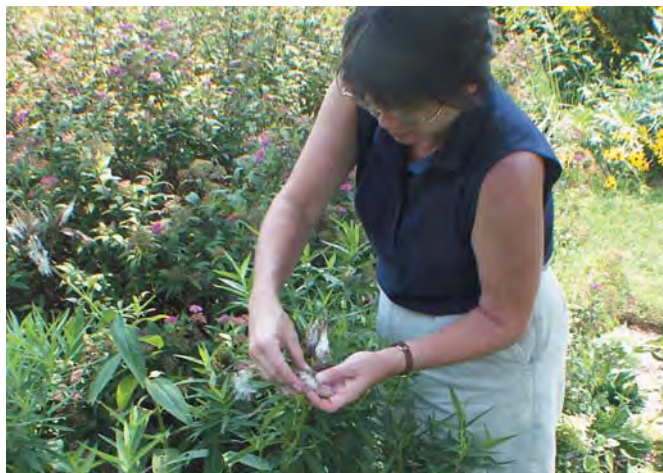
In addition to the many uncommon and rare seeds donated by individual AHS members, seeds offered through the exchange also include many that come from botanical gardens, seed companies, and from plants growing at the AHS's River Farm headquarters.

This program has become one of the most popular benefits of membership in the AHS. Last year, 163 different kinds of seeds were offered and more than 1,000 AHS members took advantage of this opportunity to get seeds through the program. Over the years seed donors and seed recipients have shared many interesting stories about their seeds, and if you turn to page 11, you will learn how seeds from a previous year's AHS seed exchange ended up producing a plant that has been patented and introduced as an ornamental tree.

In this issue of *The American Gardener*, there's a tear-out form that includes information on how to donate seeds (look between pages 8 and 9). The list of seeds being offered will be published in the annual *AHS Member Guide*, which is mailed to members with the January/February 2005 issue of *The American Gardener*.

tributors to the reduction and extinction of plants in the wild, uncontrolled plant and seed collection has also played a role in the endangering or even extinction of certain species.

On the other hand, plant hunters have preserved other species by allowing them to live and proliferate safely *ex-situ* when their place of origin was compromised. The Franklin tree (*Franklinia alataamaha*) is the poster child for seed collecting. Had seeds from this marvelous American native not been gathered by John and



Collecting seeds from plants in your own garden is a good way to ensure you'll always have favorite varieties for the next season and beyond.

Resources

Abundant Life Seed Foundation, PO Box 158, Cottage Grove, OR 92424-0061. (541) 942 9547. www.territorial-seed.com.

■ This non-profit organization is dedicated to preserving genetic diversity and supporting sustainable agriculture through the “acquisition, preservation, distribution and propagation of native and naturalized seed.”

Native Seeds/SEARCH, 526 N. 4th Ave., Tucson, AZ 85705-8450. (520) 622-5561. www.nativeseeds.org.

■ A non-profit organization that seeks to preserve the traditional crop seeds of Native American cultures.

Seed Savers Exchange, 3076 North Winn Road, Decorah IA 52101. (563) 382 5990. www.seedsavers.org

■ A network of mostly small-scale growers and gardeners dedicated to “saving the world’s diverse, but endangered, garden heritage for future generations.”

Theodore Payne Foundation, 10459 Tuxford Street, Sun Valley, CA 91352. (818) 768-1802 www.theodorepayne.org

■ A non-profit foundation focusing on the native plants of California with an online seed catalog.

Plant Society Seed Exchanges

In addition to the American Horticultural Society Free Seed Exchange, gardening Web sites and plant societies sponsor seed exchanges for their members. The Garden Web (<http://forums.gardenweb.com>) offers users a seed exchange, as does Seedswappers.com (www.seedswapper.com).

com). Societies include the North American Rock Garden Society (www.nargs.org/seed/exchange.html), North American Fruit Explorers (www.nafex.org), and the Cactus and Succulent Society of America (www.cactus-society.org).

Books

Breed Your Own Vegetable Varieties: The Gardener’s and Farmer’s Guide to Plant Breeding and Seed Saving by Carol Deppe, Chelsea Green Publishing, White River Junction, Vermont, 2000.

Collecting, Processing and Germinating Seeds of Wild Land Plants by James A. Young and Cheryl G. Young. Timber Press, Portland, Oregon, 1986.

Seed to Seed by Suzanne Ashworth, Seed Savers Publications, Decorah, Iowa, 1995. (Order through www.seed savers.org.)

Seed Sowing and Saving by Carole B. Turner, Storey Publishing, North Adams, Massachusetts, 1998.

Seeds of Woody Plants in North America by James A. Young and Cheryl G. Young, Timber Press, Portland, Oregon, 1992.

Vegetable Seed Savers Handbook, Seed Savers Publications, Decorah, Iowa. (Order through www.seedsavers.org.)

William Bartram in 1770 and grown in cultivation, the tree would have been lost to the world.


Today, sanctioned seed collection is one of the most important ways conservationists are preventing the extinction of endangered plants. The Center for Plant Conservation, a national non-profit organization dedicated to preserving endangered American plants, works closely with a network of 33 botanical gardens and arboreta that preserve seeds and plants of more than 600 endangered species in the National Collection of Endangered Plants.

For home gardeners, the best place to collect seeds is from your own garden and from those of friends and neighbors who like to share. It may be tempting to collect seeds from botanic gardens, arboreta, and community parks, but most such facilities—for obvious reasons—don’t permit collection of seeds or plants.

If you plan to forage seeds in the wild, it’s important to observe certain ground rules. Check with the powers that be before collecting seeds on government lands or in national and state parks. You may or may not receive permission and/or be granted a permit. Before gathering seeds on private land, you should get permission from the landowner. Not doing so could

result in a very unpleasant encounter, or even prosecution.

To avoid collecting something that’s rare, always be sure you know what kind of plant you are harvesting seeds from, recommends Diana Reeck, co-owner of Collector’s Nursery in Battle Ground, Washington, who has collected seeds from around the world. Even if the seeds you are collecting don’t come from a rare plant, she adds, it’s important to leave far more than you take to help preserve the wild population. “It’s having a consciousness that we’re a part of the earth and the seeds aren’t there just for us,” says Reeck. “I am careful never to over-collect. I take a little bit, perhaps not more than five percent, and always scatter some seeds nearby.”

No matter why you save seeds, the process will bring you satisfaction, plenty of seeds, and, perhaps, some pleasant surprises. You can develop your own heirlooms and share your favorites with relatives, friends, and neighbors. Or you can inspire a child in your life to grow his or her own plants by passing along to them the miracle of seed germination. Seeds are fun and easy to collect and free for the taking. 

Carole Ottesen is associate editor of The American Gardener.

HOW TO COLLECT AND SAVE SEEDS

Step 1: Collecting Seeds

Timing is crucial. Keep watch over the seedpods of ornamental plants and vegetables as they mature. When the pods are quite dry, chances are the seeds are ready. With plants whose seedpods tend to burst and eject the seeds, such as impatiens or wisteria, tie a paper bag or the foot of an old nylon stocking around the pod to catch the seeds. Seeds of legumes—such as beans and peas—are best left on the plants until the pods are dry and the seeds rattle within.



Removing pawpaw seeds from the fruit

Cut open fully ripe but not rotten fruits such as tomatoes and cucumbers, and separate out the seeds. Allow tomato seeds to ferment for three or four days in a little of their own juice or water to eliminate a germination-inhibiting mucilaginous coating.

Remember that the seeds of hybrid plants will not come true from seed. In general, those that are truest to their parents are the self-pollinators (sometimes called “in-breeders”), including most flowers, lettuce, beans, and tomatoes. Plants that require cross pollination (or “out-breeders”), include corn, cabbage family members, and most squashes and melons.

When collecting seeds, provision yourself with small paper envelopes, sometimes available at stationery stores, or make your own from folded paper. Be sure to carry a pen so you can label each envelope with the type of seed and date collected.

Step 2: Cleaning and Drying

Separate seeds such as those of black-eyed Susans (*Rudbeckia* spp.) or coneflowers (*Echinacea* spp.) from seed balls by gently rolling the

ball between your fingers. The tiny seeds of butterflyweed (*Asclepias tuberosa*) are flying machines attached to gossamer “wings.” Rub seeds with any unnecessary structures like these through a sieve or remove the chaff by hand. Then, allow them to further dry for up to 10 days on newspaper. Spread the roughly cleaned seeds of fruits out on a plate and allow them to dry completely.



A homemade sieve can be used to separate chaff from large seeds.

Step 3: Storage

Make certain the seeds are absolutely dry before storing them. Store dry seeds in a tightly lidded jar (baby food jars are perfect for small amounts) or sealed plastic bag.



Label your seeds before storing them.

or sealed plastic bag. Dry powdered milk, encased in several layers of tissue, can be included to absorb moisture during storage. Label each seed type by name and date with an indelible marker and place jars or bags in a refrigerator or dry, cool room. Do not freeze. ☺

GERMINATION REQUIREMENTS VARY WITH SEEDS

Knowing the germination requirements of different seeds is important when you harvest them, because this may affect how—or even whether—you store the seeds.

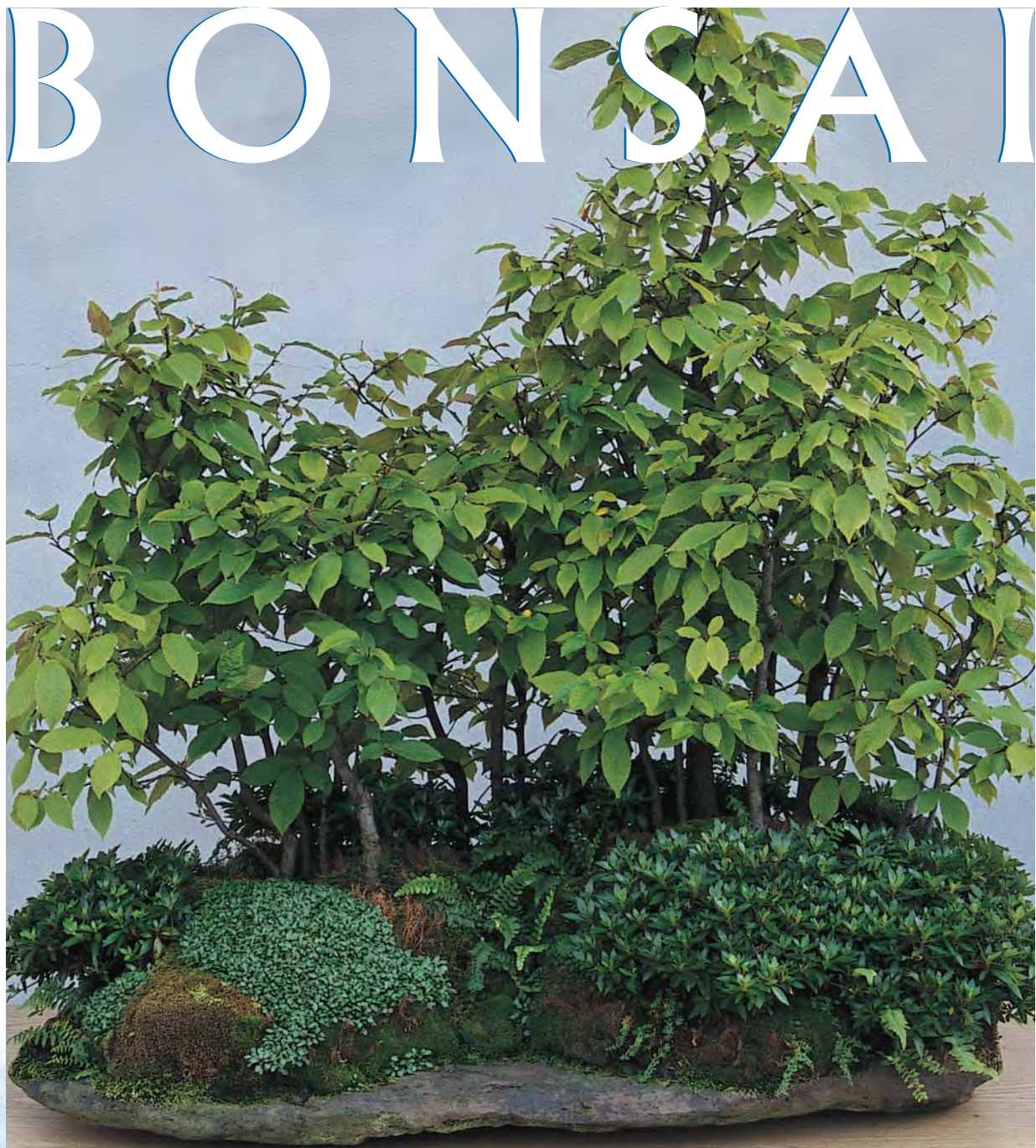
Certain seeds, such as those of wake robin (*Trillium grandiflorum*) and hellebores will not tolerate dry storage—these germinate best if planted fresh, immediately after harvesting. So when the pods are dry, crack them open and scatter the seeds where you want new plants.

Other seeds, including acorns from oaks and nuts from walnuts and hickories, require a period of cold treatment to break dormancy. These should be sown outdoors in fall or placed in moist soil medium in a sealable plastic bag and stored in a refrigerator over winter.

And yet other seeds germinate best if allowed to stay dry for a period of time (this generally ranges from one to three months). These include many members of the daisy (Asteraceae), mustard (Brassicaceae), and bellflower (Campanulaceae) families, as well as grains such as wheat and barley.

—C.O.

BONSAI



APPALACHIAN STYLE

BACKGROUND PHOTO BY CAROLE OTTESEN

At the North Carolina Arboretum, Bonsai Curator Arthur Joura has created an extraordinary collection showcasing plants native to the southern Appalachian region.

BY NAN CHASE

PHOTOGRAPHS BY HUGH AND CAROL NOURSE



YOU COULD hike for days—weeks, months—through the Appalachian Mountains to discover the rich diversity of the region's native trees, flowering shrubs, and jewellike wildflowers: bear oak (*Quercus ilicifolia*), Allegheny serviceberry (*Amelanchier laevis*), mountain laurel (*Kalmia latifolia*), flame azalea (*Rhododendron calendulaceum*), and sweetfern (*Comptonia peregrina*), to name just a few. Or you can visit the North Carolina Arboretum in Asheville and see these and scores of other native Appalachian plants within just a few feet of each other, in miniature, as bonsai.

The evolution of the unique bonsai collection at the arboretum can be traced to a confluence of unusual circumstances that combined to create an opportunity for a new public educational institution to represent its state's botanical heritage in a

strikingly beautiful and original way. In guiding this endeavor the arboretum's bonsai curator, Arthur Joura, diverged from classical Asian bonsai style to pursue bonsai as a homegrown American horticultural exercise.

"People often ask, 'Isn't bonsai an Oriental art form?' Not the way we play it," says Joura. "We've been able to re-invent it as we go along." Ultimately, Joura says, bonsai isn't about fidelity to ideals that originated in Asia a millennium ago. "It's a horticultural endeavor, not a celebration of another culture," Joura says. "It's just about plants."

In fact, Joura adds, it was the late Japanese bonsai master Yuji Yoshimura who encouraged him to develop a North Carolina school of bonsai in 1995, when Joura was studying with Yoshimura. "He told me back then what I needed to do," says Joura.

Above: Bonsai curator Arthur Joura studies a rhododendron he is shaping into a bonsai specimen. **Opposite:** A mountain scene composed of American hornbeam (*Carpinus caroliniana*), dwarf azalea (*Rhododendron* 'Ruzicon'), and creeping thyme (*Thymus serpyllum* 'Coccineus').

"I thought he was pulling my leg, but that turned out to be prophetic. We had to go that route in order for bonsai to fit in this arboretum. We had to create a North Carolina version of this art form developed on the other side of the world."

That's why visitors to the arboretum's bonsai collection will see not only typical forms of pines and junipers and maples, but also such oddities as brushy St. John's-wort (*Hypericum prolificum*), purple chokeberry (*Aronia arbutifolia* 'Atropurpurea'), Carolina buckthorn (*Rhamnus caroliniana*), and highbush blueberry (*Vaccinium corymbosum*), none of them much more than a foot high.

Through Joura's vision, even the smallest and most overlooked native wildflowers get bonsai treatment, transported from the forest floor and meadow to their own pedestals. Among these are saxifrage (*Saxifraga michauxii*), and bullrush (*Scirpus cespitosus*), as well as wild columbine (*Aquilegia canadensis*), horsetail (*Equisetum hyemale*), foamflower (*Tiarella cordifolia* var. *collinia*), ebony spleenwort (*Asplenium platyneuron*), and Allegheny spurge (*Pachysandra procumbens*).

Today, in addition to maintaining the arboretum's inherited collection of mature tropical bonsai, which are kept in greenhouses, and traditional temperate species, Joura is well on the way to creating a second collection of 50 woody plants native to the Blue Ridge area of western North Carolina; 15 of those are already in bonsai form, the rest are under development—meaning they are being allowed to grow larger before he can begin pruning and training them. And those numbers don't include the miscellaneous herbaceous understory plants he is growing as bonsai.

ROOTS OF THE PROJECT

One of the North Carolina native bonsai project's early champions was John L. Creech, a former director of the U.S. National Arboretum in Washington, D.C. Creech served as the interim director of the North Carolina Arboretum when the facility was first being planned in the 1980s.

"The collection is in a class by itself because no one has done American plants like this before," says Creech, who retired to North Carolina after a long and storied career as a U.S. Department of Agricul-

ture plant hunter and administrator. “It’s a bold departure from the traditional Japanese or Chinese subjects and requires both artistic vision and horticultural ability to interpret how best to treat these untested species. It captures the beauty of the mountain flora in an art form not accomplished elsewhere.”

When the North Carolina Arboretum officially opened in 1990, Arthur Joura was hired as an assistant to the nursery manager. The following year, a North Carolina family donated an unwanted 100-piece bonsai collection to the arboretum. By the time the plants finally reached the arboretum, in 1992, many of them were in poor condition. Even though Joura knew nothing about bonsai at that point, his experience growing container plants and background in fine arts qualified him for the position of part-time bonsai curator. While nursing the specimens back to health, he embarked on an accel-

Small leaves and the ability to withstand pruning make the American hornbeam (*Carpinus caroliniana*) a natural candidate for bonsai. This specimen was trained from a forest tree collected in 1990.

erated training program.

First came study sessions at the Bonsai and Penjing Museum at the U.S. National Arboretum, then a World Bonsai Convention in Orlando, Florida, followed by what Joura says was an “exceptionally rare” opportunity to study privately with Yoshimura, the “father of American bonsai.” Finally, Joura was able to travel to Japan for a month in 1998 to study bonsai.

Meanwhile, the arboretum’s management gradually worked Joura into his curatorial role, designating more and more of his work week to care of the bonsai collection. “There was not a plan at the beginning,” says Joura, “just fortuitous and sometimes extraordinary coinci-



dences. As we progressed, certain things just fell into place.”

BRANCHING OUT

Joura has been raising a generation of native plants from wild-collected seed and from cuttings at the arboretum. These plants hold promise as additions to the native Appalachian bonsai collection. Along the way he is learning the limitations and the potential of species that have not been trained before as bonsai. Indeed, the Appalachian bonsai offer more varied springtime flowering, fall leaf color, and fruits than traditional bonsai plants, and sometimes offer a denser, more rugged look that Joura describes as more informal and naturalistic.

Joura used American hornbeam (*Carpinus caroliniana*) from nursery stock as well as numerous cultivated red maples (*Acer rubrum*) for classroom demonstrations and public workshops and for long-term bonsai training. As he observed the wealth of native plants in nearby national forests—the arboretum is nestled alongside the Bent Creek Experimental Forest of Pisgah National Forest—and at the arboretum, he considered nearly every plant as potential bonsai material.

In general, Joura says, the best bonsai candidates should have small leaves, withstand pruning, produce new growth off old wood, tolerate root pruning, and develop interesting trunk and branch shapes.

Not all the regionally native plants have proven amenable to bonsai. Sassafras (*Sassafras albidum*), for instance,

WHAT IS BONSAI?

The practice of bonsai originated in China more than a thousand years ago and made its way to Japan sometime before 1200 A.D. Unique bonsai traditions developed in China (called *pent sai*) and Korea (called *boon jay*), but the version most people are familiar with originated in Japan. In bonsai, plants are painstakingly trained and nurtured to create miniature replications of mature plants growing



A normal branch compared to a bonsai specimen of *Viburnum nudum* var. *cassinoides*.

in their natural habitat. To achieve this, vigorously growing plants are pruned to much smaller dimensions and often coaxed into stylized shapes with wires and weights to create the appearance of great age.

In striving for miniaturization, growers plant their specimens in shallow ceramic containers or on stone or wooden trays and keep the roots carefully pruned to restrict growth. At the same time, growers must provide plants with the perfect balance of water, fertilizer, and light to ensure optimum health. It’s

a practice in patience that relies both on artistic sensibility and on an intimate understanding of the cultural requirements of the individual plant species.

“Bonsai sits somewhere between the horticultural world and the art world,” says Arthur Joura. “We use sound horticultural principles to produce extraordinary results that reflect and capture the essence of wild nature in very, very cultivated form. Consider the fact that there are bonsai with documented histories over 500 years old. A plant won’t last that long if it’s mistreated.” —N.C.

doesn't take root pruning well, nor does sourwood (*Oxydendrum arboreum*). The leaves of the tulip tree (*Liriodendron tulipifera*) are just too large and the native hickories have long taproots and composite leaves.

That doesn't mean Joura hasn't attempted to create bonsai from unusual subjects. Among his most surprising bonsai-in-training are cutleaf staghorn sumac (*Rhus typhina* 'Dissecta') and an American wisteria (*Wisteria frutescens*).

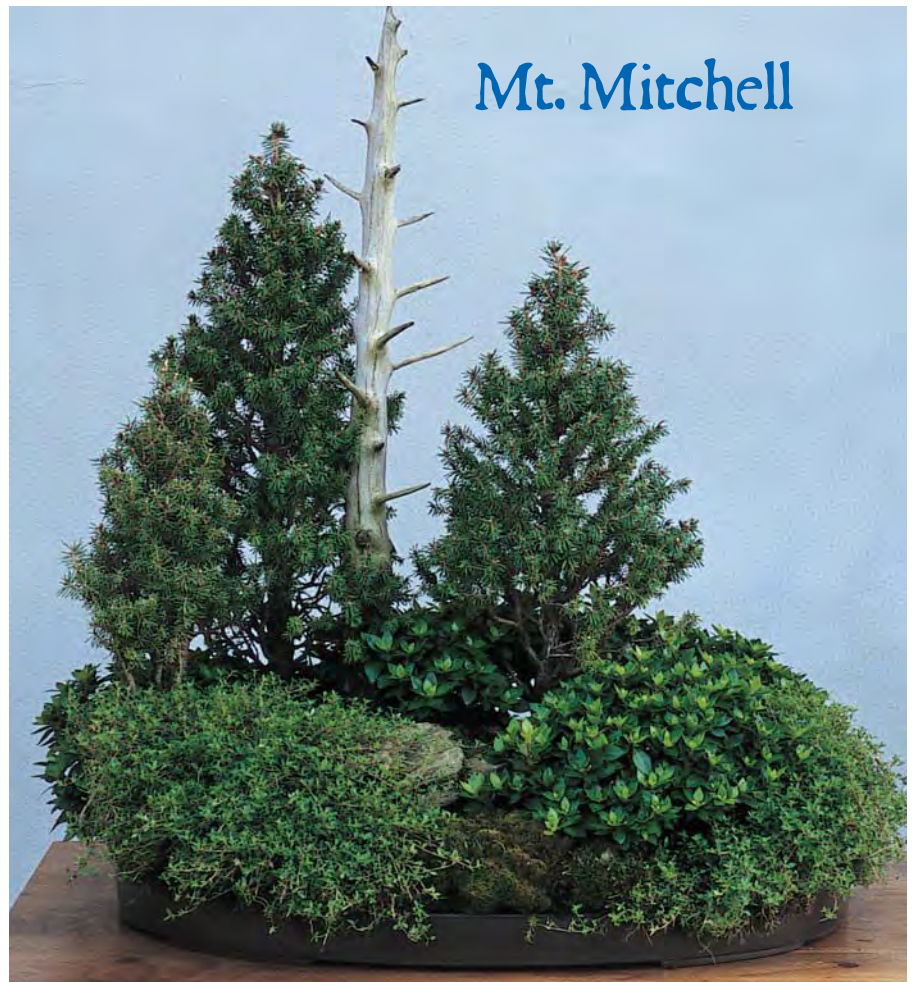
"If anyone should be trying this it should be us," Joura explains. "We're not afraid to experiment and fail. We were free to expand in this direction because our efforts are not market driven. A bonsai business has to move proven sellers. If the market demands Chinese junipers and Japanese maples, then that's the way to go. We're free of that. We have to sell it in another sense, to get people to accept what we're doing."

MIRRORING NATURAL VIGNETTES

In addition to growing individual species in containers or on wooden or rock slabs, Joura is using combinations of plants to represent notable North Carolina vistas and landmarks. Here the collection's educational function comes to the fore, as bonsai helps viewers establish an understanding of the relationship between their botanical and cultural heritage.

The first such representation was of Mt. Mitchell, which at 6,684 feet is the highest point east of the Mississippi River. The bonsai version mirrors in miniature the mix of full-size plants found at the site, including weather-beaten old Fraser firs (*Abies fraseri*) and red spruce (*Picea rubens*) that tower over the wind-stunted undergrowth. "The central element of this planting is a dead tree, which represents the countless dead and dying trees in the decimated spruce-fir forests of the highest elevations in the Southern Appalachians," says Joura.

Next was Graveyard Fields, on the nearby Blue Ridge Parkway, where a super-hot forest fire in 1925 scorched the vegetation to expose bare, mineralized soil. Gradually, significant colonies of blueberry bushes began to flourish, along with islands of red maple (*Acer rubrum*), yellow birch (*Betula lutea*), fire cherry (*Prunus pennsylvanica*), witherod (*Viburnum*



Scenes from Appalachia. Top: The Mt. Mitchell bonsai reflects the severe weather of that site. Above: In Graveyard Fields, Joura attempts to evoke the "never ending story of natural succession."

9TH ANNUAL CAROLINA BONSAI EXPO IN ASHEVILLE



This *Fothergilla gardenii*, here in autumn color, was a nursery plant that Joura began working on in 1995.

The North Carolina Arboretum in Asheville is hosting the 9th Annual Carolina Bonsai Expo on October 9 and 10. This year's Expo will feature more than 50 bonsai specimens created by bonsai clubs from across the Southeast, including Virginia, Tennessee, Georgia, and of course, the Carolinas. In addition to the bonsai exhibit—and an opportunity to view the Arboretum's permanent bonsai collection—there will be free demonstrations by bonsai experts, a live auction, and a bonsai marketplace.

For more information about the bonsai expo, call (828) 665-2492 or visit www.ncarboretum.org

nudum var. *cassinoides*), St. John's-wort, and serviceberry. In this vignette, Joura says he is trying to evoke the “never ending story of natural succession.”

Then came the Roan Mountain scene, named for the 6,285-foot peak that straddles the North Carolina–Tennessee border. This site is special because it is home to a stunning 600-acre grove of Catawba rhododendrons (*Rhododendron catawbiense*). The bonsai composition, which Joura created with the assistance of Ken Duncan and John Geanangel, two colleagues from the Bonsai Club of South Carolina, was five years in the making. Final assembly of the collection took place in October 2003 at the annual Carolina Bonsai Expo (see box, above). Here Joura mimicked the richly textured rhododendron groves by using, as he has elsewhere, stand-ins for regional native plants that didn't quite work as bonsai—Asian junipers (*Juniperus chinensis* ‘Shimpaku’) instead of red spruce and Asian azaleas (*Rhododendron kiusianum*) for the native rhododendrons.

NATIVE BONSAI OUTREACH

The Bonsai Expo, which debuted in 1996, is one aspect of Joura's highly visible outreach and education programs, which includes not just residents of North Carolina but the Southeast and beyond. He frequently travels to schools and garden clubs to show specimens and demonstrate bonsai techniques, and many such groups come to the arboretum for similar programs. The popularity of the bonsai exhibit has encouraged the arboretum to launch a fundraising campaign for the construction of a \$1.8 million bonsai display pavilion that will eventually house the rapidly growing collection.

While the arboretum's native Appalachian bonsai collection is still quite unique, there has been significant interest in adapting the horticultural practice of bonsai to local plant collections all over the United States.

David De Groot, curator of the Pacific Rim Bonsai Collection in Federal Way, Washington, has visited the arboretum's

Resources

The American Bonsai Society, P.O. Box 1136, Puyallup, WA 98371-1136. www.absbonsai.org.

Bonsai Clubs International, P.O. Box 1176, Brookfield, WI 53008-1176. www.bonsai-bci.com.

The Pacific Rim Bonsai Collection, Weyerhaeuser Company, 33663 Weyerhaeuser Way South, Federal Way, WA 98003. (253) 924-5206.

Bonsai by the editors of Sunset Books and Sunset Magazine. Lane Publishing Co., New York, New York, 1994.

The Complete Book of Bonsai by Harry Tomlinson. Abbeville Press, New York, New York, 1991.

Totally Bonsai: A Guide to Growing, Shaping and Caring for Miniature Trees & Shrubs by Craig Coussins. Tuttle Publishing, North Clarendon, Vermont, 2001.

collection several times and says he is impressed with its progress.

“I think it is particularly important for a young collection that is still being developed to have some identifying characteristic, something that sets it apart from other collections,” says De Groot. “Using native flora as an identifying characteristic also makes sense from the standpoint of practicality, because trees generally do better as bonsai if they are grown in their native environment and heroic measures are not required to keep them alive and beautiful.”

While Joura values and drew inspiration from the important educational and artistic contributions of traditional bonsai collections around the country, he's obviously proud of the pioneering role the arboretum's collection is playing. “Nobody else is looking at it in quite the same way we are,” he says.

A freelance writer in Boone, North Carolina, Nan Chase gardens with Appalachian plant species.

HOW BONSAI IS CREATED

To create a miniature of a mature tree or shrub, it is helpful to examine several full-size specimens, particularly those that are old and gnarled. These natural growth patterns can be mimicked in a young plant through selective pruning and shaping techniques.

A specimen for bonsai is carefully studied for existing patterns that can be enhanced. A leaning trunk or a cascading branch, for example, add character to a bonsai. Both branches and roots are pruned to accomplish dwarfing and shaping. Once the branches that will become the framework of the specimen are determined, the remaining branches are gradually reduced to create a balance between areas of growth and open or negative space. Copper wires are wrapped around branches to guide growth—particularly with coniferous bonsai specimens. Pruning and wiring are done in stages in a process that may take several years to obtain the desired form.

TOOLS OF THE TRADE

- Scissors
- Pruners
- Wire cutters
- Copper wire (various gauges)



1. A short leaf pine (*Pinus echinata*) is shown before its initial pruning and wiring. Note the fullness of foliage and the horizontal position of the lower branches.



2. Pruning is done lightly and in several stages to reduce the density of the foliage and expose more of the tree's framework. Here the pine has been given its second pruning.



3. The trunk and branches are wired to guide growth to accentuate the natural cascading tendency of the lower branch. Progressively smaller gauge wire is used as the distance from the trunk increases.



4. Further pruning and wiring will be needed to train the pine, but here it is beginning to take its desired form.

Late Bloomers



When cool nights and shorter days signal the arrival of fall, a few special perennials keep on blooming. BY CAROLE OTTESEN

PLANT LUST does not go unpunished. Hortigluttons are condemned to the circle of hell reserved for those who lusted overmuch after plants. In recent years, swarms of tormentors—mosquitoes and gnats—have made being in the garden in summer a torture unless one is properly armored against these insects. And being armored against them—a hat, a coating of citronella oil or, worse, a highly unfashionable net bag to cover the face, and long pants and long shirt—is itself a torture if the day is hot, which it always is.

Gardening during this period—which lasts from the first 80-degree day in May until sometime in September for me here in the Mid-Atlantic—boils down to choosing between sweltering or the itch of dozens of insect bites, gritting my teeth and doing what has to be done, and longing for that fine day in September when, the mosquitoes and gnats, having accomplished their evolutionary destiny, whatever that may be, mercifully disappear.

When that blessed day arrives, the best revenge is to have acquired even more plants, but to have stocked up on those that bloom late in the season. Fortunately, there is no dearth of late bloomers from which to choose. Some of the most welcome are those whose late summer appearance heralds the approach of relief.

HARBINGERS OF FALL

When turtlehead (*Chelone* spp.) starts to bloom, you know that summer's half way mark is past and fall is just around the corner. These wildflowers, native to creek banks and other moist-to-wet places in eastern North America, adapt well to ordinary garden soil and grow well in sun or part shade. The plant is upright to about three feet with very dark green leaves. The flowers range from white (*Chelone glabra*), pale pink (*C. obliqua*), or hot pink (*C. lyonii* 'Hot Lips'). All are

well adapted to USDA Zones 3 to 9 and AHS Zones 9 to 3.

Children love them because, as with snapdragons, squeezing the flowers will force open the "mouth." But turtleheads are much more terrifying than snapdragons. Squeezing their heads reveals the turtle's sickled fangs. Butterflies, including the Baltimore checkerspot, are not deterred by the threatening mouth parts and flock to the flowers. Deer usually ignore the plants and the flowers are good for cutting.

Another wildlife plant that blooms on the cusp between August and September is obedient plant (*Physostegia virginiana*,



Zones 4–5, 8–3). Native to much of eastern and central North America, it must have been named by the same wag who christened Greenland. Wildly disobedient, it refuses to stay in place, but erupts naughtily via rhizomes to form great colonies—which is less surprising when you learn it is a member of the mint family.

But, in the right place, excessive growth can be an advantage. Let obedient plant loose in the sunny, boggy places that are the undoing of other plants and enjoy the erect, two-foot stalks of pink snapdragon flowers that this plant carries with geometric precision. The flowers are freely produced for more than a month and are great for cutting (in fact, you may want to deadhead them to avoid self-sowing).

Opposite: Blooming in October, *Eupatorium* 'Chocolate' has white flowers that contrast with its bronze-green foliage. This page, top: Obedient plant and turtlehead both thrive in boggy places. Right: As its name implies, New York ironweed isn't bothered by pests and diseases.

Several cultivars are available, including ones with white flowers ('Summer Snow') and variegated leaves ('Variegata'). Or plant one of the truly "obedient" cultivars: 'Miss Manners', a stay-put, clumping form with white flowers; or 'Vivid', a compact, later-blooming selection that has claret-pink flowers.

WAYSIDE BEAUTIES

Obedient plants attract hummingbirds, but it is long-tongued bees and butterflies that search out the deep, rich purple flowers of New York ironweed (*Vernonia noveboracensis*, Zones 4–8, 8–3). An attention riveter on roadsides in the fall—and named the 1995 Plant of the Year by the Virginia Native Plant Society—this plant has yet to receive the attention it deserves.

The flowers, which open in August and continue into September, would be reason enough to grow it, but other attributes render it a must-have. Nothing bothers it. A tough, upright stem, celebrated in the common name, keeps it from needing staking and an equally tough constitution precludes trouble of any kind, provided ironweed is grown in mostly sun and moist, but well-drained soil.



Native, despite its name, to much of the eastern United States, New York ironweed responds to site conditions. Abundantly rich soil and moisture can produce a nine-foot giant. Ordinary conditions will produce a husky six-footer. If height is a problem, ironweed can be lopped back in June. This not only controls size, but tends to delay bloom.

Other ironweeds worth considering include giant ironweed (*V. gigantea*), a Kentucky native that typically reaches seven or eight feet. The Missouri (*V. missurica*) and western (*V. baldwinii*) ironweeds top off at about four feet. All attract such butterflies as swallowtails, whites, sulfurs, monarchs, and painted ladies.

Unfortunately, while these species are sometimes available through native plant sales and through seed exchanges such as the North American Rock Garden Society's, you are unlikely to find them at the garden center. One that is more readily available is the smooth ironweed (*V. fasciculata*), a four-to-six-foot-tall plant that offers bright red flowers in late summer through early fall.

The gold that accompanies ironweed's purple on roadsides most often belongs to members of the sunflower tribe (*Helianthus* spp.). The perennial sunflowers are all late bloomers. Like their better-known annual relative, they are generally tall plants that need full sun, but they produce sprays of smaller flowers.

One whose single stem makes a bouquet is Maximilian's sunflower (*Helianthus maximiliani*, Zones 4–9, 9–4), a giant from the Southwest blessed with gray-green foliage and four-inch bright golden flowers that bloom in elongated clusters. Plunk just one stem in a low-slung container and you'll feel like an Ikebana master.

Depending upon soil and moisture conditions (it thrives in dry to slightly moist soil), Maximilian's sunflower will grow from four to 10 feet tall and will spread nearly as wide. Plant it at the back



The cheerful yellow blossoms of willow-leaved sunflower brighten autumn days.

of a border or as an anchor or spot screen. It draws birds and butterflies like a magnet and is a fine companion to tall prairie grasses such as switch grass (*Panicum virgatum*) and Indian grass (*Sorghastrum nutans*). David Salman of High Country Gardens in New Mexico has introduced a very floriferous cultivar called 'Santa Fe', which begins flowering in September and may continue until hard frost.

Smaller than Maximilian's sunflower, the western sunflower (*H. occidentalis*, Zones 4–9, 9–4) is also more erectly narrow in habit, reaching about four feet in height but spreading to only two feet wide. It thrives in the same dry to average soil and full sun as Maximilian's sunflower, but blooms in a deeper golden-orange color.

As the western and Maximilian's sunflowers are in full bloom in September, a third native is just beginning to produce hundreds of yellow ray flowers around dark brown centers. This is the willow-leaved sunflower (*H. salicifolius*, Zones 5–9, 9–4), which usually grows to about six feet and thrives in average soil and medium moisture. A shorter cultivar, 'First Light', grows to slightly less than four feet and another, 'Autumn Glory', is covered with golden flowers throughout the fall.

AWESOME ASTERS AND ANEMONES

Garden centers may push chrysanthemums as the official flower of fall, but for my money, it is asters that really light up fields and gardens beginning in late August and September.

The late, starry flowers of New England asters (*Aster novae-angliae*, Zones 3–9, 9–1) come in a bevy of cultivars and colors ranging from two-foot-tall, sky-blue 'October Skies' and the even shorter 'Purple Dome' to four-foot, rose-colored 'Alma Potschke'. Generally bushy plants that may grow as tall as six feet, New England asters are easy to cut or pinch into more compact shapes. Native to much of the Northeast and the upper Midwest, they are well adapted to a wider range in gardens and thrive in moist to average soil and full sun.

Blooming at the same time, but tolerant of drier soil in full sun, the smooth aster (*A. laevis* 'Bluebird', Zones 4–9, 9–2) has a more slender, distinctly upright habit than its New England cousins. Its attractive deep blue-green foliage grows to about three feet and sets off violet-blue flowers with yellow centers. A widely adaptable species, smooth aster is native to



MORE FALL-BLOOMING PERENNIALS

Name	Hgt./Width (feet)	Flower color	Culture	Origin	USDA Hardiness/AHS Heat Zones
<i>Aster tataricus</i> (Tatarian aster)	3-6/2-3	blue	full sun, average soil	Siberia	3-9, 9-1
<i>Boltonia asteroides</i> (False aster)	3-6/2-4	white	full sun, moist to dry soil	east U.S.	4-8, 9-2
<i>Chrysopsis mariana</i> (Maryland golden aster)	2-3/2-3	yellow	full to part sun, average soil	east U.S.	5-9, 9-4
<i>Cimicifuga americana</i> (American bugbane)	3-4/2-3	white	part sun or shade, moist soil	east and midwest U.S.	3-8, 8-1
<i>Salvia greggii</i> (Texas sage)	2-3/1-2	red/orange	full sun, average to dry soil	Texas	7-9, 9-7
<i>Solidago speciosa</i> (Showy goldenrod)	2-4/2	yellow	full sun, moist to dry	east and central U.S.	3-9, 9-3

fields, open woodland, and prairies over much of North America.

Less forthcoming with its pale lilac August and September flowers, the big leaf aster's (*A. macrophyllus*, Zones 3-9, 9-1) foliage is the weightiest part of this plant. It is dense, robust, dark green, and luxuriant in contrast to the slim, delicate flower stalks. Growing six inches to two feet tall, big leaf aster forms a handsome ground

cover in the wild or in wild gardens. Native from Quebec to the Carolinas, this aster is very hardy; it thrives in full sun at higher elevations but elsewhere does best in dappled shade.

Unlike the thinly distributed flowers of big leaf aster, heath aster (*A. ericoides*, Zones 5-8, 8-5), is smothered in white, yellow-centered flowers from late August through October. Heath aster's stems

grow three or four feet but tend to flop. It benefits from a good mulch to keep down weeds that grow through its supine, branching stems. Native to the sunny prairies of the Midwest, heath aster is at home in dry, hot sun.

Not so the white wood aster (*A. divaricatus*, Zones 3-9, 9-1), which thrives in the deep, moist humus and dappled shade at woodland's edge. Northeasterners will recognize this as the familiar native wildflower that festoons roadsides in September and October. It's a spreading, sprawling plant with numerous small, white flowers with yellow centers that age purple. A great, if rambunctious, edger for woodland gardens.

Anemones are also useful August and September bloomers. If you have room in dappled shade, acquire at least two and let them naturalize. The Japanese anemone (*Anemone hupehensis*, Zones 4-8, 8-1) will begin sending up pink flowers in late August and continue through September—good selections include 'Hadspen Abundance' and 'September Charm'. The tried-and-true 19th-century hybrid anemone 'Honorine Jobert', which has a pure white flower with scalloped petals, is completely reliable, floriferous, and great for cutting. Both these anemones grow about four feet tall in bloom, but are practically invisible the rest of the year.

TILL HARD FROST DO WE PART

After September, the pickin's get slimmer. There are rebloomers such as green and gold (*Chrysogonum virginianum*,



'Alma Potschke', left, is a cultivar of New England aster that attracts bees and butterflies in the autumn garden. *Aster ericoides*, above, is a recumbent species that blooms from late August through October and tolerates heat and drought.

Zones 5–8, 8–5), a six-inch-tall, rhizomatous ground cover that will produce the odd yellow flower in October and even in November. And there's the old faithful *Sedum* 'Autumn Joy' (Zones 4–9, 12–1), an 18-inch-tall succulent with innocuous pink August flowers that become more ornamental as they age. They develop a deep rusty-red in October before slowly fading to rust-brown.

There are also some *bona fide* October-blooming perennials. Long popular with rock gardeners, the Japanese onion (*Allium thunbergii* 'Ozawa', Zones 5–9, 9–5) somehow escaped the attention of perennial gardeners until a few years ago, when it was "discovered." It has since garnered a lot of attention. And no wonder! This bloom is about as late as it gets—usually October and November, and there are reports of December flowers. They look like big, floppy, very deep cherry-pink chive flowers above an upright, one-foot tall, chive-like clump. When flowering is done, the foliage turns a beautiful pumpkin orange.

The Japanese onion grows best in full sun, but will adapt to part shade. It isn't fussy about soil and, once established, it is drought tolerant. In the manner of onions or chives, the clump thickens quickly. But you still need at least three plants to make a statement.

Another plant that seems to have gained great popularity in the last several years is the toad lily (*Tricyrtis* spp., Zones 5–9, 9–5), an Asian genus with many attractive cultivars that were developed in Japan. In a 10-year study conducted at the Chicago Botanic Garden, 24 cultivars were rated for garden worthiness. Of the 16 survivors after a decade in the Midwest's challenging climate, the top performers were *T. formosana* and *T. hirta* 'Miyazaki'. Of the others, *T. latifolia* and hybrid selections 'Sononome' and 'Tojen' also received high ratings for hardiness and good looks throughout the season.

Toad lilies are multiply talented. They grow into handsome, shrubby, two-to-three-foot clumps that wait until Septem-



The flowers and seedheads of *Sedum* 'Autumn Joy', above, grow more colorful as they mature. Green and gold, left, isn't strictly an autumn bloomer, but it bears yellow flowers sporadically well into fall.

ber before they even think about flowering. Then, for at least two months, they produce a steady supply of wonderfully mysterious blooms resembling spotted orchids. Carried on arching sprays, they make good and long-lasting cut flowers.

And toad lilies do it all in the shade! South of the Mason–Dixon line, they really need deep shade. In moist, humusy soil, toad lily clumps are moderately rhi-

zomatous. They are good companions to hellebores, hostas, and Turk's cap lilies (*Lilium superbium*). Their single drawback is not of their own making: Deer love them, often munching the tender flower buds just before they open.

Still another good companion for toad lilies is the October-blooming bottle gentian (*Gentiana andrewsii*, Zones 3–7, 8–1), which thrives in the same sort of shady site. When their needs are met, these 18-inch-tall plants will spread indefinitely into attractive clumps that are also, alas, attractive to deer. Native to the eastern half of North America, bottle gentians have cobalt blue, closed, bottle flowers—resembling balloons with a pointed end.



The orchidlike flowers of toad lilies, such as *Tricyrtis hirta* 'Miyazaki', bloom in fall and bring a touch of the exotic to the garden—unless the deer get to them first.

Two *Eupatorium* species—hardy ageratum or mist flower (*Eupatorium coelestinum*, Zones 3–8, 8–1) and white snakeroot (*E. rugosum*, Zones 4–8, 8–4)—will also stick around until frost. Both these natives of eastern North America grow three to five feet tall.

Hardy ageratum produces eight weeks of blue, ageratumlike flowers that can be cut for bouquets and are also edible. It can be extremely aggressive, however, spread-

ing by rhizomes in moist, fertile soil. If this happens, the only recourse is to pull it out regularly and/or whenever it threatens choice ferns or other wildflowers. The cultivar 'Cory' has red stems and clear blue flowers. Grow hardy ageratum in full sun or very light shade.

Not as aggressive—but a free spreader nonetheless in moist, rich soil—white snakeroot grows about three feet tall and thrives in full sun or at woodland's edge.

Sources

Busse Gardens, Big Lake, MN. (800) 544-3192. www.bussegardens.com. Catalog \$3.

Forestfarm, Williams, OR. (541) 846-7269. www.forestfarm.com. Catalog \$5; free online.

Meadowbrook Nursery/ We-Du Natives, Marion, NC. (828) 738-8300. www.we-du.com. Catalog \$3.

Niche Gardens, Chapel Hill, NC. (919) 967-0078. www.nichegardens.com. Catalog \$3

Plant Delights Nursery, Inc., Raleigh, NC. (919) 772-4794. www.plantdelights.com. Catalog 10 stamps or a box of chocolates.

Prairie Nursery, Inc., Westfield, WI. (800) 476-9453. www.prairienursery.com. Catalog free.

Roslyn Nursery, Dix Hills, NY. (631) 643-9347. www.roslynnursery.com. Catalog \$3.

Resources

Herbaceous Perennial Plants by Allan M. Armitage. Stipes Publishing, Champaign, Illinois, 1997.

The New England Wild Flower Society Guide to Growing and Propagating Wildflowers of the United States and Canada by William Cullina. Houghton Mifflin, Boston, Massachusetts, 2000.

The straight species might be mildly attractive in a spot behind the garage, but the cultivar 'Chocolate' is striking anywhere. Dark red-brown, serrated leaves are topped in October with pinky-red buds that open to complementary, dazzling white flowers. Bees and butterflies flock to the flowers, but be aware that the leaves of this plant, once used for medicinal purposes, are poisonous.


COMPANION PLANTS

Late bloomers are even more attractive when nicely accompanied. Perennials that flowered earlier in the season, grasses, or annuals will do the job with grace.

For the very upright moisture lovers, turtlehead and obedient plant. Palm sedge (*Carex muskingumensis*), with bright green horizontally whorled leaves on lax stems is a soft-textured complement. There's a dwarf, 'Little Midge', that grows only eight inches tall, and a two-foot-tall variegated form, 'Oehme' (Zones 5–8, 8–4).

The spherical foliage of a well pruned wild indigo (*Baptisia australis*, Zones 3–9, 9–1), which grows two to four feet tall, looks great with tall sun-loving ironweed and perennial sunflowers. So does the fine texture of switch grass (*Panicum virgatum*, Zones 5–9, 9–1). Asters are spectacular growing around dense, fierce yuccas (*Yucca* spp.). Annuals such as lime-green sweet potato vine (*Ipomoea batatas* 'Marguerite'), dark red coleus, and castor bean plant (*Ricinus communis*) can contrast with or augment this color scheme.

In the shade, ferns such as tassel fern (*Polystichum polyblepharum*, Zones 6–8, 8–5) and hellebores (*Helleborus × hybridus*, Zones 6–9, 9–6) form low, lacy frames around autumn bloomers like bottle gentians and toad lilies.

If you suffer from outrageous plant lust, consider carefully the abundant temptations that bloom at the end of the hot, muggy summer. Indulge yourself with as many late-season bloomers as you can pack into the beds and borders. Then garden wickedly, in bug-free, breeze-cooled comfort while surrounded by flowers. 

Carole Ottesen is associate editor of The American Gardener. She enjoys bug-free strolls among the late-blooming plants in her Potomac, Maryland, garden.

Used as living mulch or green manure, cover crops improve your soil, prevent erosion, and suppress weeds.

BY KRIS WETHERBEE

Cover Crops *in the garden*

OF ALL THE gardening techniques you can employ to enrich your soil and beautify the garden, growing a cover crop is among the best. Cover crops perform an array of essential roles in the garden—from an organic soil conditioner, fertilizer, and mulch, to a natural resource for suppressing weeds, garden pests, and diseases. Whether your garden is large or small, you can use cover crops to your advantage.

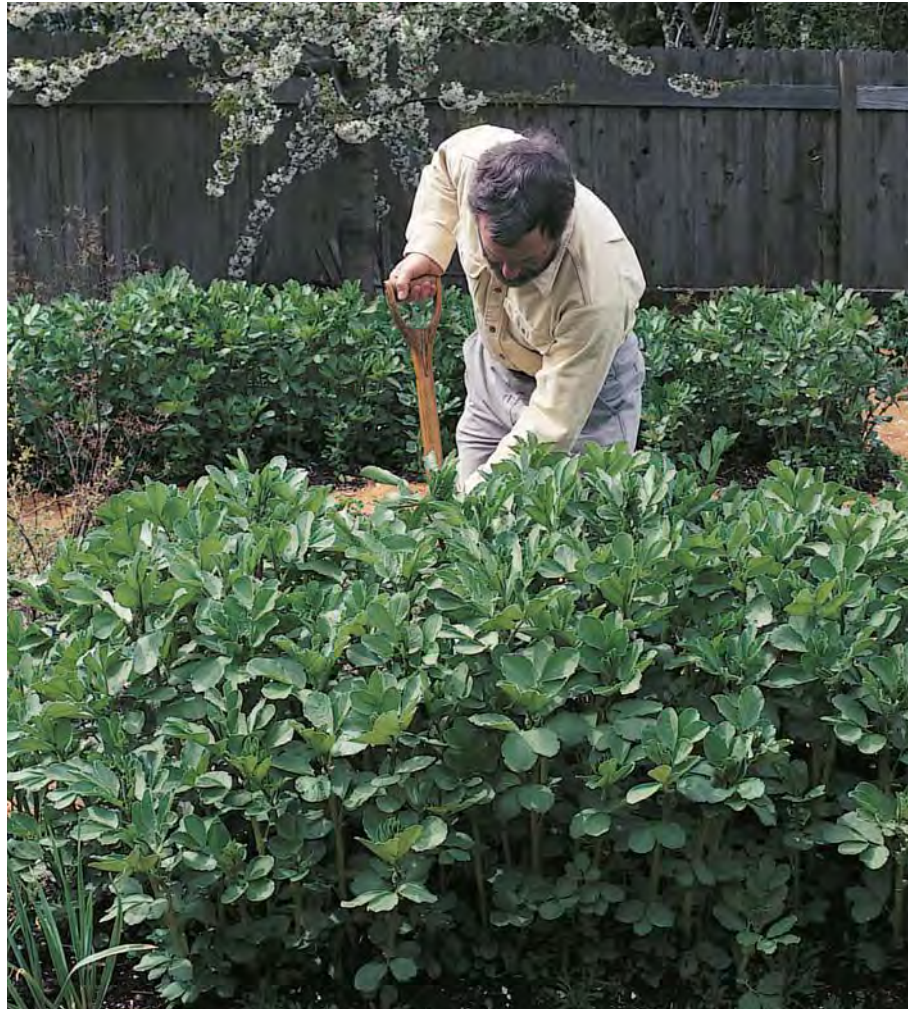
These economical workhorses can transform poor, bare ground into a site with rich and friable soil. As cover crops grow, they create an extensive network of penetrating roots that improve soil structure. Crops with roots that grow extra deep—like Sudangrass, buckwheat, or alfalfa—are ideal for breaking up heavy clay.

When the crop is turned under or tilled into the soil, its leaves, stems, and roots begin to decompose. In addition to further enhancing the soil structure, this added organic matter—often called green manure—serves as food for a host of soil-dwelling creatures, which in turn increase the soil fertility by reprocessing those nutrients and releasing them back into the soil as food for your garden plants.

REAPING RICH REWARDS

When used on a regular basis, cover crops can provide most of the nutrient requirements for your garden. Leguminous cover crops, such as alfalfa, clovers, and vetches, provide extra nitrogen to crops through a symbiotic relationship with specialized bacteria called rhizobia that convert atmospheric nitrogen into a form that can be used by plants.

Other cover crops mine nitrogen from the soil. Fibrous-rooted grasses, grains, and brassicas that grow quickly in the fall are especially effective at capturing excess nitrogen and other easily leached nutrients



Turned under in early spring, fava beans are a great source of “green manure.”

with their deep roots and holding them in reserve in their tissues. The nutrients are returned to the soil the following spring when the crop is turned under.

Broadleaf cover crops with deep roots like buckwheat and alfalfa help recycle nutrients that have moved beyond the reach of other plants. Their deep rooted action draws up valuable trace minerals as well as macronutrients like potassium and phosphorus. Once the “green manure” is

turned back into the soil where soil organisms can break it down, the nutrients gradually become available to the next generation of plants.

As a living mulch, cover crops protect and shade the soil and encourage the presence of earthworms and beneficial microbes. In addition, the resulting leaf canopy moderates soil temperature, conserves soil moisture, minimizes erosion, and prevents weeds from taking over.



Annual cover crops such as buckwheat (left) and soybeans (right) grow rapidly to serve up nutrients and organic matter, and suppress weeds.

Buckwheat, red clover, chickling vetch, and other fast-growing crops are good choices for weed control because they form thick stands that out-compete and smother the weeds.

Above ground, cover crops provide food and shelter for beneficial insects that keep pests in check. Clovers support a large variety of “good bugs” such as tachinid flies, big-eyed bugs, ground beetles, and parasitic wasps that prey on aphids, scales, and whiteflies. Alfalfa appeals to a host of parasitic wasps, lady beetles, damsel bugs,

big-eyed bugs, and assassin bugs. Most grains entice lady beetles. Fava beans attract predatory and parasitic wasps, as does buckwheat, which has the added benefit of luring hover flies and bumblebees.

COVER CROP OPTIONS

The key to reaping maximum rewards from a cover crop is knowing which crop to grow. Do you want cover in the spring, summer, fall, or winter? Is your main goal to enhance the soil with an abundance of organic matter, add significant amounts of

nitrogen, recycle valuable nutrients from the subsoil, or use a fast-growing crop to starve out weeds? Consider how long a cover crop takes to grow, when it needs to be turned under, and whether that schedule meshes with your particular garden plan. Your growing season, soil, and climate are also factors. The crop should suit your needs—not grow into a nuisance.

Buckwheat, soybeans, and other cover annuals can be used during the growing season in crop rotations or for planting between fruit trees, vine crops, or vegetables



Fast-growing legumes such as Austrian winter pea (left) and crimson clover (right) smother weeds and boost the available nitrogen levels.



Annual ryegrass develops a deep, fibrous root system that helps break up compacted soil. It can be planted in rotations during the growing season or as a winter cover.

like corn or tomatoes. These annuals usually grow fast, are quick to establish, and won't resprout from their roots. They also provide a source of food and shelter for beneficial insects.

Perennials tend to be deep-rooting and slow to establish. They work well as a long-term cover in crop rotation, for improving poor soils, in orchards, or, for providing winter cover after your food crops have been harvested.

In general, they are not the best choice for home vegetable gardens, however, because some may become persistent weeds that have to be eliminated with herbicides. The exception to this is alfalfa (*Medicago sativa*), which is fairly easy to control (an annual alfalfa cultivar called 'Nitro' is also now available, see sidebar, right).

All cover crops add organic matter, though grains and grasses are especially noted for the surplus of bulky material they add to soil as well as the excess nutrients they scavenge. They're often first-choice as a fast and effective living mulch, and many also reduce nematodes in the garden. Legumes decompose rapidly when turned under and contribute more nitrogen than non-legumes.

Each cover crop brings its own set of virtues, but you can get the most benefits by growing a mix. Steven Zien, executive director of Biological Urban Gardening Services in Sacramento, California, regularly recommends cover crops to his clients for improving soil, providing a habitat for beneficial insects and preventing erosion. "By using a variety of differ-

ent plants, you can accomplish more of those goals," Zien says.

Grow oats with field peas in late summer or early fall, then till under in early spring for a soft seedbed, loads of organic matter, and a ready supply of nitrogen.

Use fast-growing grains to act as a nurse crop for sustaining and providing support for slower-growing vining legumes.

PLANTING PARTICULARS

Depending on the plant and your purpose in using it, cover crops can be sown anytime from early spring through late fall. The planting season extends through winter for southern regions of the country. Cool-season annuals can be sown in spring, late summer, or fall. Winter-sowings are also an option for warmer regions of the south. Cold-hardy legumes, such as fava beans and field peas, can be sown in fall and grown through winter or planted as soon as your soil can be worked in early spring. Warm-season annuals, like cowpeas, buckwheat, and soybeans, are best sown in late spring or early summer, after all danger of frost has passed.

Fall and winter covers can be sown as early as August in cooler climates, or as late as December in the deep South. You can choose a cover that will survive the

COVER CROPS FOR ORNAMENTALS

Cover crops are most commonly used with vegetable gardens, but they can also be effectively integrated in certain ornamental gardening situations.

One of the most useful applications is to stabilize and enrich newly created flower beds in fall so that they will be ready for spring planting. By planting an annual cover crop in the new bed in early fall, the roots of the plants prevent erosion while at the same time loosening and aerating the soil. Come spring, the cover crop can be chopped up with a recycling mower and either tilled or spaded into the soil, incorporating organic matter into the bed before it is planted.



'Nitro' alfalfa makes a rich "tea."

then cut down before it sets seed and gently dug into the soil. Or it can be grown in a holding bed on its own and cropped repeatedly for use as a soil amendment.

Alfalfa can also be steeped in water to form a "tea" (much like compost tea) for application on and around plants. The cultivar 'Nitro', an annual alfalfa developed by the University of Minnesota, continues growing later in the season than other annual cover crops and reportedly "fixes"—or makes available in the soil—50 percent more nitrogen than its perennial counterparts.

—AHS STAFF

COMPARING COVER CROPS AT A GLANCE

The following are some of the more commonly available cover crops. Your choice of crop, as well as the planting time, depends upon what you are trying to achieve and where you live.

Crop	Seeding rate: lb per 1000 square feet	When to sow	Description and use
LEGUMES			
Alfalfa (<i>Medicago sativa</i>)	1/2	spring or summer	drought-tolerant perennial yields high nitrogen fixation. Annual types such as 'Nitro' grow faster, fix more nitrogen, and are easier to turn under
Austrian field pea (<i>Lathyrus hirsutus</i>)	2/3	very early spring or fall	annual that grows rapidly in spring, may winter-kill in cold regions
Chickling vetch 'AC Greenfix' (<i>Lathyrus sativus</i>)	2-3	early spring to early summer	drought tolerant, fast growing annual, high nitrogen fixation
Berseem clover (<i>Trifolium alexandrinum</i>)	1	late summer	annual that tolerates shade and a wide range of soils
Crimson clover (<i>T. incarnatum</i>)	1	fall	widely adapted and winter-hardy annual; grows one to three-feet tall; won't multiply by runners, and is easily eliminated through tilling
Dutch white clover (<i>T. repens</i>)	1/4	spring through fall	low-growing perennial, easily cultivated living mulch, use between rows of fruit trees or grapes; tolerates heat
Field pea 'Maxum' (<i>Pisum sativum</i>)	4	early spring or fall	short term annual, provides a high-nitrogen green manure
Fava bean 'Bell' (<i>Vicia faba</i>)	2- 4	early spring or fall	annual, tolerates wide range of soils and temperatures to 15 degrees; produces an enormous amount of easily tilled organic matter.
Hairy vetch (<i>Vicia villosa</i>)	1	spring through late summer	semi-vining, shade and cold tolerant; good mixed with rye or oats
Soybean (<i>Glycine max</i>)	3	late spring or summer	annual, tolerates most soils, thrives in summer's heat; improves scab control in potatoes
NON-LEGUMES			
Barley (<i>Hordeum spp.</i>)	4-5	spring or fall	fast-growing, weed-suppressing annual grain, tolerates alkaline conditions and drought, produces abundant organic matter
Buckwheat (<i>Fagopyrum esculentum</i>)	2-3	spring through midsummer	fast-growing annual; turn under in as little as six weeks, smothers weeds, accumulates phosphorus, and breaks up compacted soil; flowers attract bees
Oats (<i>Avena sativa</i>)	4	spring, summer or fall	quick-growing annual grain; fall-sown crops will winter-kill in most areas of the country, leaving behind stubble that can be tilled under in spring
Ryegrass (<i>Lolium multiflorum</i>)	1	early spring through late summer	fast-growing robust annual, tolerates a wide range of soils including heavy wet clay; great winter cover, may be winter-killed
Sudangrass (<i>Sorghum bicolor</i> var. <i>sudanense</i>)	1-2	spring or summer	widely adapted summer annual, thrives in heat and humidity; out-competes weeds, suppresses harmful nematodes, needs regular mowing to control height
Winter rye (<i>Secale cereale</i>)	4	spring through mid-fall	aggressive annual that tolerates drought and winter conditions better than other grains, requires a heavy-duty tiller to turn it under
Winter wheat (<i>Triticum aestivum</i>)	4-6	fall	dependable, winter-hardy grain adapts to a wide range of soils, produces extensive fibrous root system

Seed Sources

Fedco Seeds, Waterville, ME. (207) 873-7333.
www.fedcoseeds.com. Catalog free.

Johnny's Selected Seeds, Winslow, ME. (800) 854-2580.
www.johnnyseeds.com. Catalog free.

Pinetree Garden Seeds, New Gloucester, ME.
(207) 926-3400, www.superseeds.com. Catalog free.

Territorial Seed Company, Cottage Grove, OR.
(541) 942-9547, www.territorialseed.com. Catalog free.

Resources

Managing Cover Crops Profitably. Sustainable Agriculture Publications, Burlington, Vermont, 1998. Download at: www.sare.org/publications/covercrops/covercrops.pdf.

Handbook of Northwest Gardening: Natural-Sustainable-Organic by Ann Lovejoy and Janet Loughrey. Sasquatch Books, Seattle, Washington, 2003.

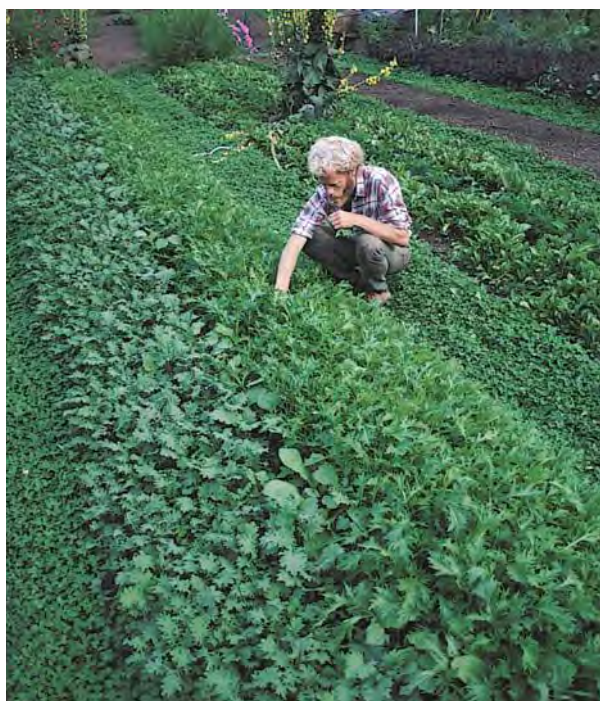
Rodale's All-New Encyclopedia of Organic Gardening, edited by Fern Marshall Bradley and Barbara W. Ellis. Rodale Press, Emmaus Pennsylvania, 1992.

winters in your area, or grow one that will be killed by winter's cold, leaving behind a mulch of stubble that can easily be raked back when it's time to plant next spring.

With so many options, you can grow a variety of covers for each season. For example, a mix of 'Nitro' alfalfa and oats sown in early spring can be turned under by midsummer, then after a few weeks rest, the soil will be prime for planting fall food crops. Or plant 'Mammoth' red clover (*Trifolium pratense*) in spring and let it grow the entire season to help break up heavy soil.

Summer sowings include fast-growing buckwheat (which can be tilled in five to six weeks after germination), Sudangrass, alfalfa, soybeans, or cowpeas. Fall plantings generally include the clovers, vetches, field peas and fava beans, winter rye, winter wheat, oats, and barley. These should be planted early enough to become well established—usually six weeks before cold weather arrives. Most cover crops need to be turned under at least four weeks in advance of planting your garden.

Naturally, cover crops grow best if you prepare the soil as you would for food crops, but simply clearing the bed of weeds and spent vegetables will suffice. Just broadcast the seeds by hand using a fanning motion, then rake them in so the seeds are lightly covered with soil. Cover fava beans and other large-seeded crops with additional soil to a depth three times the seeds' diameter. Be sure to keep the soil moist until the cover becomes es-



Clover, planted between rows of mixed salad greens, makes an attractive living mulch.

tablished, then water as needed.

When planting legumes, always use an inoculant to ensure that sufficient populations of the right bacteria are present at the right time. Inoculants are powdered substances containing live bacteria that colonize the roots of legumes and feed from their carbohydrates. In return, the bacteria take gaseous nitrogen from the air and change it to a form that plants can use. "Without these microbes," says Zien, "the amount of nitrogen fixed will be minimal. The company that sells the seed should have the inoculants, which need to be freshly packaged for the current season."

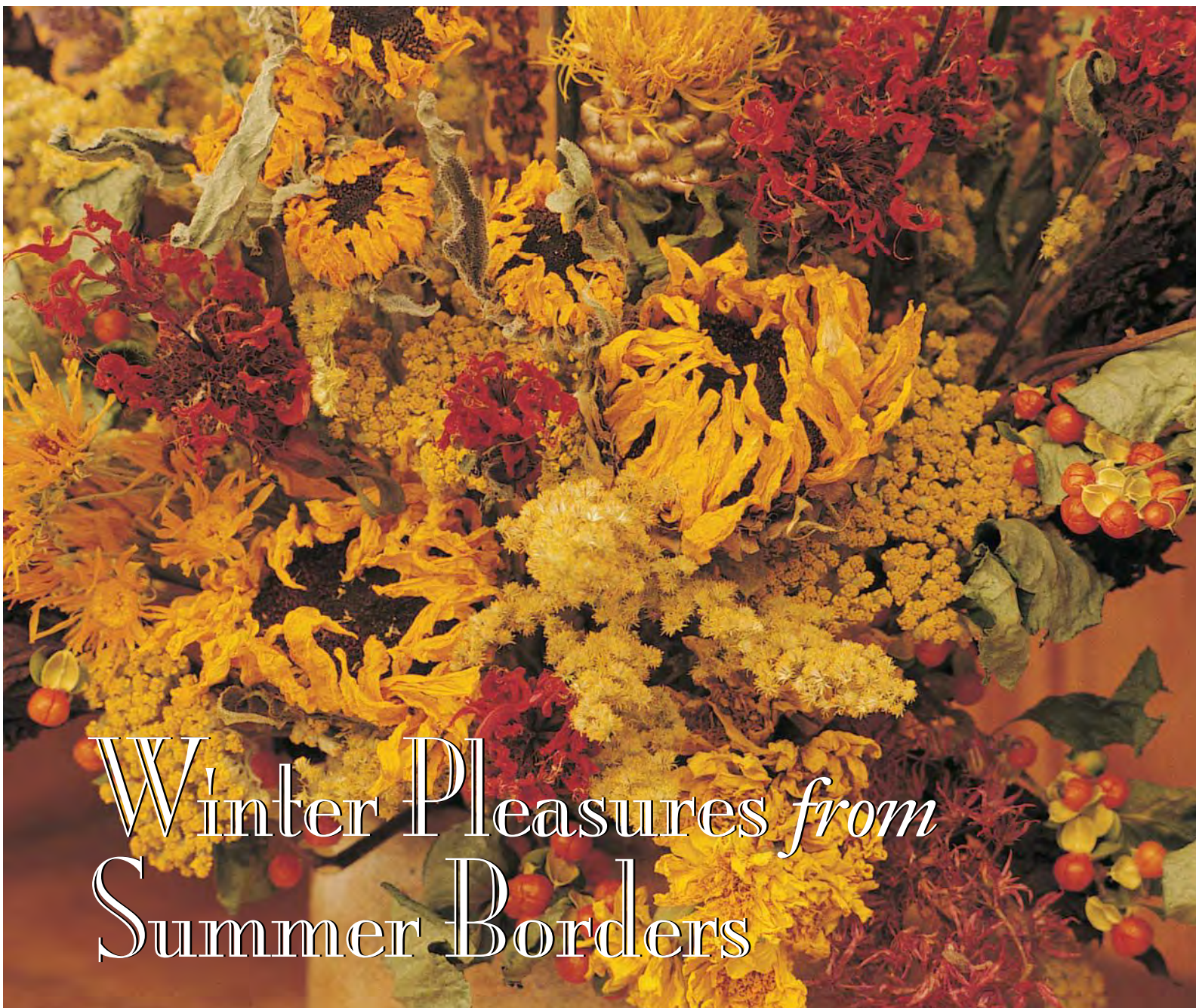
THE TURNING POINT

Cover crops can be turned under just about anytime, but careful timing of this step yields maximum benefits. Legumes are at their nutritional peak between the point just before flowers start to form until right before they set seed. In the case of grasses and grains, the optimum turning point is when they start to form grain heads. Crops sown in fall are usually turned under in early spring. Regardless of season, all cover crops should be turned under before they set seed or they may become a weed problem.

Mow or cut annual cover crops, leaving the clippings in place. After a few weeks, you can plant seedlings right through the mulch. Easy-to-kill crops can be tilled in or turned under, but tall crops need to be cut down with a mower, scythe, or string trimmer before you can till, dig, or hoe the green manure into the soil along with the remaining stubble. After digging your cover in, wait at least three to four weeks before planting again.

All it takes is a bag of seeds and a bit of sweat equity to fertilize, mulch, inhibit weeds, and add organic matter all in one easy step. So before you start putting your garden to rest this fall, consider including cover crops in the mix. The end result will be a harvest filled with rewards you don't want to miss.

Writer Kris Wetherbee specializes in gardening and environmental issues. She lives in Oakland, Oregon.



Winter Pleasures *from* Summer Borders



Floral designer Betsy Williams shows how easy it is to preserve summer flowers for indoor enjoyment all winter long.

BY MARY YEE

PHOTOGRAPHS BY KAREN BUSSOLINI

DRYING FLOWERS is a centuries-old way to preserve summer's blossoms for indoor enjoyment in fall and winter. Whether simply arranged in a vase or basket or fashioned into wreaths, swags, or other types of ornament, they make wonderful decorative accents for the home and for holiday gift-giving. Craft stores are often stocked with dried flowers, but there's no reason not to dry your own, because it's so easy and you'll get much more variety.

Betsy Williams, owner of The Proper Season (www.betsywilliams.com), a floral business in Andover, Massachusetts, has been working with dried flowers for over 30 years, creating custom arrangements and teaching about the joy of her craft in workshops nationwide. She's also been featured in national home and lifestyle magazines and contributed to several best-selling herb books. Although she doesn't grow many of her own flowers anymore—opting instead to buy fresh flowers from the flower market in Boston—she won't buy and use pre-dried material. “I dry all my own flowers,” says Williams, “because you can tell the difference in the quality.”



WHAT TO DRY

Flowers that are almost dry even when fresh and have fairly rigid stems are the easiest to dry. Known as “everlastings,” these include statice, money plant (*Lunaria annua*), sea holly (*Eryngium* spp.), and yarrow (*Achillea* spp.). “Flowers with large flat petals, like lilies and poppies, generally don't dry well,” says Williams. “You can dry the individual petals and use them in potpourri, but the flowers won't stay intact. Flowers with multiple petals, like marigolds and roses, dry best.” (See sidebars on following pages for more suggestions.)



Betsy Williams dries her own flowers in her workshop and uses them in arrangements, left, and to make wreaths, above.

In addition to the usual flowers, Williams likes to use a number of culinary herbs in her work because of their aromatic appeal. “Mints are easy to air-dry,” she says. “They're not beautiful dried, but they are useful as filler in arrangements and in wreaths and add a nice fragrance.” The same goes for sages and sweet marjoram. Most basil don't dry well for ornamental use, Williams says, with one exception: “Holy basil [*Ocimum tenuiflorum*] isn't bad at all, and it smells like black walnuts.”

Many plants in the genus *Artemisia*—including sweet Annie (*A. annua*) and *A. ludoviciana* ‘Silver King’—are used in dried arrangements and lend a distinctive fragrance. However, they can cause allergic reactions in some people, so if you're sensitive to pollen, avoid these plants.

KEYS TO SUCCESS

No matter what technique you use to dry your flowers (see following pages), start with quality material. “Choose fresh, vibrant blossoms and greens with crisp leaves,” says Williams. “Damaged, wilted plant material doesn't improve with drying.” If you're cutting flowers from your garden, do it in late afternoon on a hot, dry day, when the flowers contain the least amount of moisture. Don't pick flowers wet with rain or dew, she advises.

Once dried, the flowers should be displayed away from direct sunlight to prevent their colors from fading, and in a dry environment to keep them from drooping. Moisture is, in fact, doubly destructive. “Whereas sunlight softens flower color,” Williams adds, “moisture leaches out colors in a way that makes flowers very unattractive.”

Though dried flowers can be enjoyed for a long time, even with the proper care, they don't last forever. “I tell people: 18 months to two years,” says Williams. “After that, beauty is in the eye of the beholder.”

Mary Yee is managing editor and art director of The American Gardener.

TECHNIQUES FOR DRYING FLOWERS

Betsy Williams uses the basic techniques described below and on the following pages—hanging to air dry, using a desiccant, and applying heat with a food dehydrator or microwave oven—to dry all the materials needed for her floral work. One of the beauties of drying flowers is that few, if any, specialized tools or supplies are needed.

AIR DRYING

This is the easiest method and works for a wide variety of flowers. Williams says about 80 percent of her flowers are air-dried—simply hung upside down in bunches in a dark, consistently warm—85 to 110 degree—location with good air circulation. “At that temperature range,” says Williams, “most plant material will dry in four to eight days.” Some good places for drying flowers this way, she adds, are dark attics, the space above a refrigerator, wood stove, or dehumidifier, and—believe it or not—the closed trunk of a car in summer.



1. Remove all leaves from flower stems. If you're drying cut greens, remove leaves from the bottom two inches of stem to provide space for bunching the stems together.



2. Secure four to eight stems of flowers together with rubber bands. Larger bundles will take longer to dry.



3. Hang tied bunches of flowers upside down in a warm spot away from sunlight until they are fully dry.

PLANTS FOR AIR DRYING

Here are Betsy Williams's favorite flowers, seed pods, and foliage for air drying. There are many more than can be listed here. Experiment with any materials that appeal to you.

Ageratum

(*Ageratum houstonianum*)

Annual statice (*Limonium sinuata*)

Baby's breath

(*Gypsophila paniculata*)

Beebalm (*Monarda didyma*)

Bells of Ireland (*Moluccella laevis*)

Blazing stars (*Liatris* spp.)

Blue salvia (*Salvia farinacea*)

Cockscomb (*Celosia argentea*)

Costmary (*Tanacetum balsamita*)

Delphiniums (*Delphinium* spp.)

False spireas (*Astilbe* spp.)

Feverfew (*Tanacetum parthenium*)

German statice

(*Limonium tartaricum*)

Globe amaranth (*Gomphrena*

globosa and *G. haageana*)

Globe thistles (*Echinops* spp.)

Goldenrods (*Solidago* spp.)

Honesty, money plant

(*Lunaria annua*)

Hydrangeas (*Hydrangea* spp.)

Ivy foliage (*Hedera* spp.)

Lady's mantle

(*Alchemilla mollis*)

Lamb's ears foliage

(*Stachys byzantina*)

Larkspur (*Consolida ambigua*)

Lavenders (*Lavandula* spp.)

Lilacs (*Syringa* spp.)

Love-in-a-mist seed pods

(*Nigella damascena*)

Oats (*Avena sativa*)

Oregano (*Origanum vulgare*)

Ornamental onions (*Allium* spp.)

Peonies (*Paeonia* spp.)

Ranunculus (*Ranunculus* spp.)

Roses (*Rosa* spp.)

Safflower (*Carthamus tinctorius*)

Sages (*Salvia* spp.)

Sea lavender (*Limonium latifolium*)

Tansy (*Tanacetum vulgare*)

Teasels (*Dipsacus* spp.)

Tickseeds (*Coreopsis* spp.)

Wormwoods (*Artemisia* spp.)

Yarrows (*Achillea* spp.)

DESICCANTS

Flowers that lose their shape if hung upside down to dry—such as daisies and zinnias—can usually be successfully dried in shallow containers of fine material—also known as a desiccant—that both help maintain flower shape and absorb moisture. Many flowers that can be air-dried can also be preserved with desiccants. Desiccant-dried flowers may need to be attached to florist's wire to make artificial stems before they can be arranged, because the stems are removed close to the flower heads prior to drying, or they can simply be attached to some arrangements with a hot-glue gun, available in craft stores.

The most commonly used desiccant is silica gel, a fine powdery substance also sold in craft stores that absorbs large quantities of moisture both from objects and from the air. You can also use fine sand (although it's technically not a desiccant, since it doesn't absorb moisture), borax, cornmeal, and fine kitty litter. Williams suggests using borax and cornmeal together rather than separately: "Borax alone is too harsh for many flowers, and plain cornmeal often attracts insects," she says.

Use plastic or metal containers with tight-fitting lids if you plan to use silica gel; this concentrates the gel's moisture-absorbing power on your flowers. If you use other desiccants, open cardboard boxes or shoe boxes will work fine.

Flowers can dry in as quickly as three days in silica gel and in about a week or more in the other media. Because drying time can vary from one type of flower to the next, it's a good idea to dry only one kind per container.

FLOWERS FOR DESICCANTS AND DEHYDRATOR

Black-eyed Susans (*Rudbeckia* spp.)
Carnations (*Dianthus* spp.)
Dahlias (*Dahlia* spp.)
Daffodils (*Narcissus* spp.)
Daisies (*Leucanthemum*, *Bellis*, etc.)
Delphiniums (*Delphinium* spp.)
Larkspur (*Consolida ambigua*)
Lily of the valley (*Convallaria majus*)
Marigolds (*Tagetes* spp.)
Pansies (*Viola* spp.)
Pot marigold (*Calendula officinalis*)
Roses, especially miniatures (*Rosa* spp.)
Zinnias (*Zinnia* spp.)



1. Trim the stems of the flowers to about half an inch from the base. This will allow you to bury each flower completely under the desiccant.



2. Pour about an inch of desiccant in a container and arrange the flower heads face down on top, making sure they do not touch each other.



3. Carefully cover the flowers with more desiccant. If you used silica gel, put a tight cover on the container. Store the container in dry, warm place.



4. Check the flowers after three days by gently uncovering them with a small paintbrush. Flowers that are fully dry can be removed after brushing off all traces of desiccant.

MICROWAVE AND FOOD DEHYDRATOR

Subjecting flowers to heat speeds up drying time. Household appliances that can be used for this purpose are microwave ovens and food dehydrators. According to Williams, both give good results, but she prefers the dehydrator. "To me, time is important," she explains, "and it's easier to put a tray of flowers in a dehydrator, set the timer, and go do other things." A limitation of a dehydrator is its usually small size precludes drying large flowers and other plant material.

Flowers dried in a microwave tend to have a more realistic or fresh appearance, but close monitoring is required to prevent overdrying. Because it works so fast, you'll have to figure out through trial and error how long to leave the flowers in, how high to set the heat, and how much supplemental moisture (usually a small amount of water in a cup) you might need to include with the flowers to produce good results. Flowers buried in desiccant can also be placed in a microwave and dried.



Flowers arranged face up on trays of a dehydrator have finished drying and are ready for storage in a box of silica gel, right. Williams has found setting the thermostat at 110 degrees F and the timer for one hour works well. The dried flowers will have a somewhat leathery texture.

PRESERVING FOLIAGE FOR ARRANGEMENTS

Unlike flowers, most foliage—like branches of magnolia, camellia, oak (*Quercus* spp.), and the like—don't dry well using conventional techniques. (Exceptions are boxwood, eucalyptus, lemon leaf, and leatherleaf fern, which air dry beautifully.) Many can be preserved by placing their stems in a solution of water and glycerin, a liquid preservative available at drug stores. The stems absorb the solution over a period of time, replacing the water in their tissues. Preserved plants retain their natural shape and flexibility but change color from green to olive, brown, or black.

To preserve plants with glycerin, collect mature stems during the active part of the growing season; cuttings should be no longer than 18 inches. Put the stems in a clear glass container with four to five inches of cooled glycerin solution (one part glycerin to two parts hot water) and set them away from sunlight in a warm location. Refill the container with water as needed. Check the plants after two days for doneness; some may require several weeks. The plants are done when the leaves have changed color almost entirely to their edges. Promptly remove them at that point and store them in an empty container. Left too long in the solution, the plants will ooze glycerine, causing a sticky mess you'll have to throw away. —M.Y.

More Information



Betsy Williams teaches individuals and groups how to work with and enjoy fresh and dried flowers both in her Massachusetts cottage/workshop and in travels nationwide. To find out more about her classes, lectures, and workshops, visit www.betsywilliams.com, e-mail: office@betsywilliams.com, or call (978) 470-0911.

Resources

Book of Dried Flowers: A Complete Guide to Growing, Drying, and Arranging by Malcolm Hillier. Simon and Schuster, New York, New York, 1987.

Dried Flowers for All Seasons: Creating the Fresh-Flower Look Year-Round by Jan and Michael Gertley. The Taunton Press, Newtown, Connecticut, 2001.

Applying Metaphors

This is the fifth article of an ongoing series on garden design.

IN THE LAST ISSUE we discussed looking for metaphors in gardens and then using metaphors to inspire garden design. Now let's move from the theoretical to the practical by discussing an example of a metaphor designers often evoke—the garden as theater—and how I have used it in my own garden.

To set the stage, so to speak, I think of gardens as being similar to theater in two major ways. First, gardens are a stage upon which people, plants, paving, structures, and other garden elements enact their roles in the overall plot. They allow for and support the activities and rituals of daily life, often lending a sense of the special and unique to the mundane.

Second, gardens are also theatrical because they create intentional effects, moods, and meanings through creative human artifice. They engage the viewer (the audience) in a specific story.

SETTING THE STAGE

In using the theater as a metaphor, it's important initially to decide what kind of stage you are setting up—or to be more explicit, where your audience will be sitting. Typical theaters have the audience facing rigidly toward where the action occurs in front of a backdrop. The traditional suburban front yard planting of island beds with trees and color, lawn, and a backdrop of foundation plantings is similar. The primary audience is the neighbors and passersby; the key players are the house, its décor, and—more often than not—the garage. The gardener becomes something of a stagehand relegated to behind the scenes dabbling.

In the garden I share with my partner, Michael, I decided to opt for “theater in the round,” where I could view the action from all angles, continually discovering new perspectives as my viewpoint and the performances changed. I created a series of stages in a string of separate-but-interconnected and equal gardens surrounding the house. Like a circus, I had some sort of action happening in each ring at every time of year. I wanted to be the director of the theatrics as well as a member of the audience.

I placed key garden areas where I could view, access, and/or enjoy them from several points. The rose garden, for example, surrounds the deck immediately off the family room and kitchen, allowing for easy access. This is where Michael and I lounge, but the garden also offers a stunning focal point for guests arriving at the end of the driveway.

The front garden offers a four-season entry space to the main door on the ground level. The dining room also has focused views into this area. Additionally, the planting is designed to reveal new patterns and plants when viewed from the second floor master bedroom and bathroom, creating a wonderful “balcony” view every day of the year.

Part of the front garden stage already existed in the form of a young woodland and some evergreen rhododendrons planted by the previous owners. The land slopes upward from the driveway to the front door, adding a sense of drama as the body and eye move toward the horizon, discovering the plantings. I added three sets of hedges perpendicular to the sloping turf to create “wings” to the stages. The hedges subtly subdivide the larger space while focusing the eye on the



central view, now anchored by a classical birdbath. No one sees any of this from the public road. It is our private show.

CHOOSING A STYLE

Just as there are many styles of plays, there are many types of garden. Early on I decided to avoid high drama and its sophisticated status. I had no desire to come home after a grueling day at the office to a horticultural version of *Hamlet*, with its mind-stirring dilemmas about natural order and human relationships. I wanted to relax. This ruled out endless axes, moody groves, marching topiaries, grand parterres, modern abstraction, and other tragic-heroic grandeur.

Also, a melodramatic extravaganza involving a cast of hundreds and no fewer number of costume changes (think of anything by Andrew Lloyd Weber) was a bit out of keeping with the rural location and simple style of my home. So, I gave up on the idea of non-stop "Amazing Technicolor Dreamcoat" plantings dependent upon seasonal changes of annuals or complex perennial borders.

Instead, I settled on a series of related "community theater" performances unique to each stage within the overall garden. Many performers would share the spotlight throughout the year; no one plant or groups of plants would need to carry the entire garden or hog the spotlight. I set intermissions between acts and created plant combinations that play to the plants' (actors) individual strengths.

I also determined to avoid a cast of thousands, preferring to concentrate on a relatively small palette of color and form to create unity and a sense of restfulness. I would suffer no divas with their attendant demands and need for constant coddling. Common, but solid performers would suit the garden just fine and make acquiring the plants both affordable and achievable.

CASTING CALL

Now, I needed to figure out what types of action would occur on stage, the plant-centered and human-centered plot lines. Plants would definitely play major roles and I needed to script when and how they would enter and exit the stage.

For example, my front garden's plot revolves around white, yellow, purple accents, and fragrance, a simple scene offering much creative leeway. Fragrant 'Thalia' daffodils begin the spring action, sharing the spotlight with fluffy white 'Shirley Temple' herbaceous peonies. The daffs depart just as *Spiraea nipponica* 'Snowmound' takes center stage. Yellow tiger lilies enter as the peonies complete their lines and fragrant *Hemerocallis* 'Hyperion' begins its act.

Summer witnesses a pre-intermission finale of oakleaf and peegee hydrangeas and *Clethra alnifolia* 'Hummingbird'. The garden briefly rests and then 'Honorable Jobert' Japanese anemones bloom.

The grand finale I leave mostly to the autumnal polychromy of native maples and beeches in the woodland, but echoed in the fall color of the oakleaf hydrangeas.

I recently realized the stage was a bit bare in winter and the play's grand opening was starting a little late in the year. I added evergreen rhododendrons and arborvitae to bolster the winter stage and provide a backdrop to the performance. Young hellebores will hopefully become the opening act next February or March, warming up the audience in anticipation of the daffodils. A planned fall planting of *Scilla siberica* 'Alba' will also support the cast of scene one.

ON WITH THE SHOW

With a little thought and creativity, we can make our gardens more than generic props decorating the facades and foundations of our homes. I hope sharing with you how I use a theater metaphor to facilitate certain design decisions encourages you to give this technique a try. Other metaphors can work just as well. Part of the excitement and challenge of designing a gardening is making up the metaphors and then seeing where they lead.

Now that we have discussed garden design concepts and tools to help you envision what you want from your garden, the next step is to capture that vision in a program statement. We'll cover that in the next issue.

Tres Fromme is a landscape designer at Longwood Gardens in Kennett Square, Pennsylvania.

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How Climate Affects Biological Cycles

by Dr. H. Marc Cathey

AS A FORMER research horticulturist, I still tend to pay a great deal of attention to the physiological processes of plants, and this past spring I observed a number of different plants leafing out and flowering much earlier than normal. Among these were crape myrtle (*Lagerstroemia indica*), tree lilac (*Syringa reticulata*), and shadbush (*Amelanchier arborea*), all of which instigated their growing and flowering cycles three to five weeks earlier than I have ever observed in all of my years at River Farm. Even more

perplexing, other plants, such as flowering dogwood (*Cornus florida*) and American fringe tree (*Chionanthus virginicus*) flowered at their normal time. The varied flowering times and combinations of plants in flower at the same time are definitely noteworthy.

In reviewing the climate differences over the past several years, the controlling factor for these aberrations appears to be the dry soil conditions we have experienced over that period. In November 2003, I noticed that flowering pears (*Pyrus calleryana*) and tall bearded irises (*Iris germanica*) bloomed almost as heavily at that time as they did the following spring of 2004. This flowering occurred without supplemental watering or fertilization. The hardiness of these plants was demonstrated by the abrupt transition that fall from 60 degree Fahrenheit days to a total icing of all the plants. Most of these hardy trees, shrubs, grasses and ground covers were rated as being adapted to USDA Plant Hardiness Zones 3 to 8, AHS Heat Zones 9 to 3.

SNOW COVER FAILS MIDWEST

Over the winter of 2003–2004, there was a period when the recorded temperatures were lower than they had been for 30 years. Fortunately for us here in the Mid-Atlantic, the substantial snow cover we received during that period helped protect many of our borderline hardy plants. But upper Midwest states such as

Michigan, Minnesota, and Wisconsin (USDA Plant Hardiness Zones 3 to 5), experienced severe losses of garden plants because they lacked the usual snow cover that ameliorates the impact of bitter temperatures and harsh chilling winds. Under those conditions, even the toughest landscape plants, including hardy evergreens like common juniper (*Juniperus communis*) and creeping juniper (*J. horizontalis*), suffered losses.

Given these many unusual variations we are seeing in our normal climate, it is

more important than ever that gardeners keep careful records of the temperature changes and levels of rain, snow, and wind each year. Developing this kind of detailed historical knowledge about local weather conditions—a key element of the American Horticultural Society's SMARTGARDEN™ program—can help gardeners make wise decisions about plant selection and placement in their landscapes.

MORE RESEARCH NEEDED

There is much that research horticulturists can accomplish in breeding and selecting new hybrids and plant forms that will thrive in our gardens under adverse weather conditions. The only comprehensive species/cultivar research program I know of that focuses on hardy perennials is the Department of Horticulture at Michigan State University. They are evaluating plants species by species and cultivar by cultivar with respect to vernalization (chilling) requirements, temperature tolerance, daylength, supplemental lighting, growth regulators, and acclimatization in the garden. We need to support more of this kind of detailed research to find and select tough, resilient plants for these challenging climatic times. 🌱



A former USDA research scientist and director of the U.S. National Arboretum, Dr. H. Marc Cathey is president emeritus of the American Horticultural Society.

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Horticultural News and Research Important to American Gardeners

WHERE THERE'S SMOKE, THERE'S...GERMINATION

In the quest to unveil the secrets of seed germination, researchers have identified various environmental stimuli and specific plant hormones that impact seed dormancy. The latest breakthrough, by an Australian research team, is the discovery of butenolide, a specific compound in smoke from burning plant tissue that induces germination in a wide range of plants. The research team that made this discovery—headed by Gavin Flematti and Emilio Ghisalberti from the University of Western Australia, Robert Trengrove from Murdoch University, and Kingsley Dixon from Kings Park and Botanic Garden—recently published its findings in the journal *Science* (August 2004).

Researchers had long known from ethnobotanical evidence that smoke—as well as heat—could stimulate germination in various plant species, but the first scientific studies correlating increased germination with exposure to smoke began only 15 years ago. “For hundreds of years, African tribes have used smoke to improve germination of red rice and maize,” says Dixon. “Scientists only recently realized what indigenous Africans have known for centuries.”

Now that butenolide has been identified, it is likely to have many practical applications in agriculture and horticulture. Plant seeds that have shown a response to butenolide range from ornamental and food plants such as coneflowers (*Echinacea* spp.) and celery to field weeds like rye grass and wild oats. One potential use, according to Dixon, could be to induce germination of dormant weed seeds in fields so weeds can be eliminated before crop planting.

Another advantage of butenolide is that it is effective at extremely low concentrations. “We have found that the compound is active at extraordinarily low levels (parts

per trillion concentrations)...this represents new frontiers in nano-stimulation of germination,” says Dixon.

The Australian research team is now directing its studies towards better understanding how the butenolide molecule behaves in agriculturally desirable and undesirable plants. The research has “potential applications to the farming, mining, landcare, and conservation management sectors,” says Dixon. “This could bring enormous benefits to many parts of the world.”

TOWARD NON-INVASIVE BUTTERFLY BUSHES

Butterfly bush (*Buddleja davidii*) is well named. Plant one in your garden and butterflies will swarm to it. Unfortunately, winglike appendages on the seeds of butterfly bushes enable them to soar far and wide and take root far from where they were planted. This tendency to stray from gardens into natural areas has put these popular ornamentals on the weed lists of several states, including Washington and Oregon.

Seeking to develop butterfly bushes that are not invasive, Jon Lindstrom, a plant scientist at the University of Arkansas–Fayetteville Department of Horticulture, is taking two approaches.

The first is to try to develop buddlejias that have “an odd number of chromosomes, because they have a tendency to be sterile.” He does this by crossing buddleja species that have four chromosomes (tetraploids), such as *B. davidii*, with those that have two chromosomes (diploids) to produce offspring that have the intermediate odd number of chromosomes.

The second approach is to modify the seed’s architecture. Lindstrom has achieved this by cross breeding *B. davidii* with *B. indica*, a species from Madagascar that has large, heavy seeds. In the first hybrid (F1) generation, seed size was intermediate between the parents. “It is unlikely, says Lindstrom, “given the size of the wingspan to the size of the seed, that seeds of the F1 would be disseminated by wind.”

Until breeding work is complete and non-invasive butterfly bush selections are



Left: A *Buddleja davidii* ‘White Bouquet’ and *B. indica* cross bred by Jon Lindstrom, assistant professor at the University of Arkansas. Below left: The large, open seed capsules of *B. davidii*. Below right: The intermediate seed capsules of a *B. davidii* and *B. indica* cross.

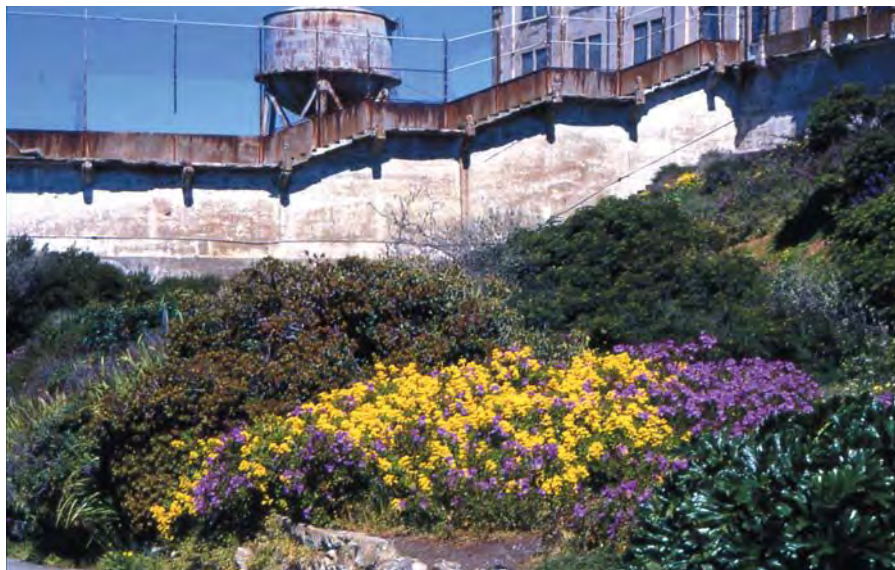


in the marketplace, gardeners can reduce seed spread by deadheading butterfly bush flowers once they have faded.

For those who don't already have butterfly bushes, there are plenty of other butterfly magnets to choose. Good candidates include butterflyweed (*Asclepias tuberosa*), sweet pepperbush (*Clethra alnifolia*), coneflowers (*Echinacea* spp.), Virginia sweetspire (*Itea virginica*), blazingstars (*Liatris* spp.), cardinal flower (*Lobelia cardinalis*), and New York ironweed (*Vernonia noveboracensis*).

GARDENS OF ALCATRAZ

A mere 10-minute ferry ride from San Francisco's Fisherman's Wharf, Alcatraz Island, *aka* the Rock, or Devil's Island, was, sequentially, the site of a military fortress, a Civil War prison, and, from the mid-1930s until the mid-1960s, the country's most forbidding federal maximum security prison. As such, it housed some of the most hardened and violent criminals. It was here that Al Capone, broken in solitary confinement, went mad, and here that the Birdman of Alcatraz, Robert Stroud, an



The grounds of the once infamous prison are being turned into a haven for garden plants.

expert on canaries and a savage murderer, spent 17 years.

And, surprisingly, it was here that those who peopled the island—soldiers, superintendents, families of guards, and inmates—gardened. They worked hard to coax plants to grow in a harsh environment, the wind-blown, thin, barren top-

soil of a 22-acre rocky island that is thought to be the top of a submerged mountain. Over 150 years, the efforts of these early gardeners ensured that some 140 garden plants naturalized on the island.

Now the Garden Conservancy (GC), in partnership with the Golden Gate National Recreation Area (National Park Ser-

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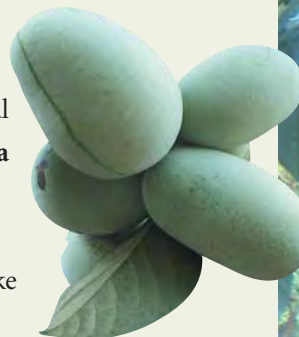


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One of the very first sights that greets visitors to our River Farm headquarters is a pawpaw tree (*Asimina triloba*). Now you can add two of these uniquely American trees to your own landscape. Besides enjoying the delicious fruit (great right off the tree or in any recipe where you'd use bananas), you'll also attract the zebra swallowtail

butterfly—because pawpaws are the only larval host plant for these beautiful

insects. Watch your mail for the 2004 River Farm Appeal, **make a gift of \$50 or more to support the stewardship of River Farm, and we'll send you two free pawpaw trees** as a token of our appreciation. Or, if you prefer, call us at (800) 777-7931 and make your gift with any major credit card.



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vice) and the Golden Gate National Parks Conservancy, is restoring key gardens on Alcatraz. “The Garden Conservancy wanted to strengthen the entire program in California and needed a signature preservation project,” says Bill Noble, director of GC Preservation Projects. “Alcatraz came up.”

Overseeing the project will be Carola Ashford, the newly appointed recipient of the GC’s sixth annual Marco Polo Stufano Garden Conservancy Fellowship. According to Noble, Ashford is a landscape architect with a degree in criminology. “She impressed us as being a leader in the field of public horticulture in the Bay Area,” says Noble.

One of the most popular tourist attractions in San Francisco, Alcatraz draws approximately 1.3 million visitors a year. Restoring Alcatraz’s gardens will add to the visitor experience, says Noble, because “the entire journey up to the cell house is through gardens and areas that were once gardenized.”

For more information about the Garden Conservancy and its programs, visit www.gardenconservancy.org.

2005 PHS GOLD MEDAL PLANTS

The Pennsylvania Horticultural Society (PHS) has announced the four exceptional plants awarded the PHS’s Gold Medal for 2005, bringing the total number of plants honored in this way to more than 75 since the Gold Medal Plant Award program debuted in 1978.

The goal of the Gold Medal program is to promote worthy ornamental woody plants suited to the growing region from New York to Washington, D.C., that are little-known or underused. Home gardeners, garden designers, horticulturists, landscape architects, and nursery owners submit candidates for each year’s award. A group of nursery owners and horticultural professionals then evaluate the nominees for garden performance and hardiness.

This year’s winners are:

Korean fir (*Abies koreana*) is a heat-tolerant pyramidal evergreen tree that reaches 25 feet high with short needles, green on top and silver below. Dark violet cones in spring give the impression of flowers. USDA Zones 5–7, AHS Zones 7–5.

‘Michael Lindsey’ Carolina allspice (*Calycanthus floridus*) is an adaptable, trouble-free selection of a native shrub

with fragrant early summer flowers and bright yellow fall color. Reaches seven feet tall and wide. Zones 5–9, 9–1.

‘Margarita’ Carolina jessamine (*Gelsemium sempervirens*) is a drought-tolerant, deer-resistant evergreen vine that covers itself with fragrant yellow flowers in spring. It grows about 12 feet high, adapts to most soils, is tolerant of part-shade. Zones 5–9, 9–4.

‘Winter Gold’ Winterberry (*Ilex verticillata*) has berries that are a welcome shade of orange yellow on a native shrub, tolerant of less than well-drained, acid soil. The male winterberries, ‘Southern Gentleman’ or ‘Apollo’ will pollinate ‘Winter Gold’. It grows to seven feet high and wide. Zones 4–8, 8–2.

For plant profiles and sources, visit www.goldmedalplants.org, or send a 60-cent self-addressed-stamped envelope to Gold Medal Plants c/o PHS, 100 N. 20th Street, Philadelphia, PA 19103.

VOODOO LILY WINS FOLIAGE AWARD

With a spectacular six-foot single leaf on a six-foot green-and-pink-marbled stem spotted with white dots, a voodoo lily (*Amorphophallus konjac*) (formerly known as *A. rivieri* var. *konjac*) from Worldwide Orchids of Apopka, Florida, won the award for “Foliage and Tropical Potted Plants Best New Product” at the Super Floral show, held this past June in Charlotte, North Carolina.

In mature plants, a huge inflorescence rises from the corm, whether or not it has been planted in soil. The flower may measure up to six feet tall with a three-foot spadix and a vase-shaped purple spathe. Perhaps the most remarkable feature of this flower is a dead-meat odor that can bring tears to the eyes. The striking foliage of the voodoo lily doesn’t appear until a month or more thereafter.

In flower or foliage, the voodoo lily looks like an escapee from the rain forest, but Ron McHatton, director of horticulture at Worldwide Orchids, says it has been known to survive in the ground to as far north as Wichita, Kansas (USDA Zone 5). “It’s very tough—easily a USDA Zone 6 plant,” says McHatton. “It grows from Japan throughout Southeast Asia and mainland China.”

Voodoo lilies thrive in part shade to full sun. In climates colder than USDA



The odd and tropical-looking voodoo lily—in flower, left, and in foliage, right—is surprisingly hardy.

Zone 6, a heavy mulch will usually protect the winter-dormant corm. “The corms are sensitive to winter wet,” says McHatton. “Drainage is key; amend the soil so they don’t sit in water—or dig them like dahlias.”

Mature corms can weigh as much as 25 pounds. In addition to being sold as voodoo lilies, the corms are used to produce Glucomannan, a 100-percent dietary fiber source that contains no calories and is used for weight-loss diets.

One retail mail-order source for voodoo lilies is Plant Delights Nursery in Raleigh, North Carolina, (919) 772-4794, www.plantdelights.com.

GEOGRAPHY AFFECTS HOW WE GARDEN

Who you are, what you earn, and where you live affect how you garden. Such are the findings of a survey of American gardeners, conducted from June 8 through June 13, 2004, and sponsored by the Garden Writers of America. After 1001 computer-assisted telephone interviews were taken with numbers by region reflecting population, the data were weighted by gender, age, and race to reflect census.

Some of the results were to be expected. For example, ease of use of hand tools was more important than price in the 65-and-over age group. And the durability of hand tools was more important than price for wealthier respondents who also spend more money on fertilizers than

groups at lower income levels.

Similarly, it is no surprise that Westerners were the least likely group to depend upon rainfall for watering needs and were almost twice as likely to install water-conserving irrigation. Unexpected was the finding that divorcees and singles are the people most likely not to conserve water.

Along with Southerners, western gardeners are also less likely to address insect problems than either Midwesterners or Northeasterners. Midwesterners, who freeze and preserve the vegetables they grow more than other groups, use more chemical products than any other region.

Most surprising is that Northeasterners, the least likely to fertilize, are only half as likely to donate the vegetables they grow to others.

COLD-HARDY CLEMATIS

Uno Kivistik may not be a household name just yet in North America, but the breeding work on cold-hardy clematis done by the late Estonian plant breeder and his family is starting to make news on this continent.



Clematis Piilu™ from the Kivistik collection

Kivistik and his wife, Aili, ran a family farm in Estonia, breeding ornamental plants in their spare time from farming. In the last quarter century, Kivistik, who died in 1998, focused on clematis, collecting some 23 species from around the Baltic countries and the Soviet Union. These became the basis of a breeding program that has yielded more than 6,000 hybrids and 140 cultivars.

Developed on the farm, which is north of the 58th parallel (equivalent to

southern Alaska and northern Newfoundland), these clematis cultivars are attracting attention not just for their amazing hardiness, but for their compactness and beauty. They are also proving quite heat tolerant, surviving the heat and humidity at Roseville Farms nursery in Apopka, Florida, which is the major licensed producer of the Kivistik clematis in North America.

A lovely example of the Kivistik Collection is *Clematis Piilu*™ ('Little Duckling'), an all-summer, big-flowered, heavy bloomer that begins producing its two-toned pink flowers at one year old. The earliest flowers are doubles. Later flowers are singles, but plentiful and carried on a plant that tops off at about six feet and thrives in Zones 2 to 8, 8 to 2.

One retail mail-order source for the Kivistik Collection is Completely Clematis, Ipswich, Massachusetts, (978) 356-3197, www.clematisnursery.com.

Associate Editor Carole Ottesen and Editorial Intern Jessie Keith contributed articles for this section.

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Recommendations for Your Gardening Library

The Jewel Box Garden.

Thomas Hobbs. Timber Press, Portland Oregon, 2005. 176 pages. Publisher's price, hardcover: \$34.95.

IN THIS BOOK, gardening virtuoso Thomas Hobbs challenges us to dream outside the box, activate our *bel'occhio*—"beautiful eye"—and create a garden full of "plants that give you a thrill instead of just filling up space." Hobbs hates heathers and dwarf conifers, which he describes as "dull, blobby-shaped plants," and prefers the spikes, swords, and spears of foliage plants such as *Kniphofia*, *Phormium*, *Cortaderia* and *Agave* selections. Instead of sinking in the "botanical quicksand" of popular annuals like impatiens and petunias, Hobbs urges us to search diligently for foliage plants that have striking and unusual leaf color, form, and texture. With statements like "wind chimes are as bannable as leaf blowers," he challenges us to share in his uncommon, sometimes cheeky view of the garden.

Twelve chapters take readers into and through Hobbs' garden design perspective. In "Gilding The Lily," he introduces us to the delights of potted bowling balls, ceramic bamboo, and rock mulch; in "Tastes Like Chicken," he tantalizes us with *Echeveria* "pizza" and provides tips for overwintering these tender succulents. In "Investment Potting," Hobbs gives practical advice on choosing and using containers, revels in the spell-binding effects of blue glazed pots, and introduces jewels such as *Agave americana* 'Mediopicta'.

All these creative design schemes come into play in the gardens of Kania Castle, the spectacular Mission Revival house in Vancouver, British Columbia, that Hobbs shares with his partner, Brent Beattie.

More than 150 of Hobbs' favorite plants are featured in 160 superb color photographs taken by David McDonald. The photographs are tack-sharp, elegantly composed, and virtually all were taken in ideal, diffuse light, which highlights the amazing variety, color, and textural complexity revealed in the gardens showcased in the book. Most of these gardens are in California and the Pacific Northwest (USDA Zones 6, 7, and 8), so gardeners living in less benign zones of the midwestern and northeastern United States may need to substitute plants that are more cold tolerant or try to overwinter their plantings indoors.

The Jewel Box Garden is an irreverent and enjoyable gem of a book. It will have special appeal to gardeners seeking to push

the envelope of garden design by using some highly unusual foliage plant combinations and avant-garde hardscape ideas to move beyond "pretty" to "the new ugly," from "garden ornament" to "garden incident."

—Ian Adams

Ian Adams is a freelance garden photographer, photography teacher, and writer. He lives in Cuyahoga Falls, Ohio.

Encyclopedia of Water Garden Plants.

Greg and Sue Speichert. Timber Press, Portland Oregon, 2004. 388 pages. Publisher's price, hardcover: \$49.95.

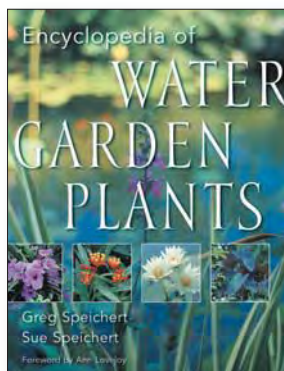
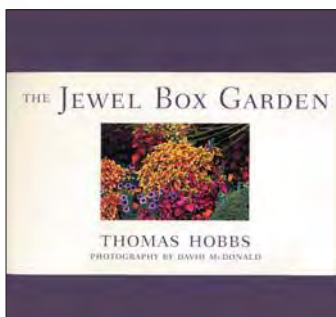
IF YOU HAVE more than a casual interest in water gardening, the *Encyclopedia of Water Garden Plants* by Greg and Sue Speichert is for you. This fascinating reference literally "covers the waterfront" of aquatic plants to enjoy.

The Speicherts begin their book with pertinent general information about water plants and end it with a synopsis of these plant's pests and diseases. In between these sections, they cover waterlilies (269) and lotuses (90) and provide a thorough overview of accessory aquatic plants. In fact, they clearly have a love affair with accessory aquatics, and systematically describe over 400 marginal plants, including one hundred or so water irises, a couple dozen waterlilylike plants, and numerous floating and submerged plants. And, throughout, Greg relates many interesting and relevant vignettes of his life and gardening experiences.

This book contains an array of intriguing aquatics not found in nurseries or other garden books. As respected authorities in growing a diverse range of ornamental aquatics, the Speicherts present glimpses of tempting "new" plants that could become future favorites.

Nearly every page offers striking color pictures that complement the authors' easy-to-read text. Accurate photography and plant identification (with rare exceptions) are hallmarks of this extensive reference.

In addition, the Speicherts meticulously provide vital cultural information including plant growth habits, water depth, and USDA plant hardiness zones. Among the minor quibbles I had was to disagree with their suggestion to fertilize submerged plants like *Cabomba* and *Egeria*, because their submerged foliage absorbs nutrients, making additional fertilization unnecessary.



The Speicherts also offer hard-to-find information on how to successfully hybridize waterlilies and lotuses, which will excite those readers who are bent on experimentation. Straightforward plant breeding directions are followed by information on seed-to-flower bloom times so prospective plants breeders will know when they will be able to see the fruits of their labor. Many precious propagation tips are also given for these aquatics.

There are many helpful supplements to the main text, including four very useful appendices: Appendix A identifies plants for special places and purposes (table top ponds, streams, waterfalls, etc.); Appendix B lists plants by flower color; Appendix C catalogs native plants as well as rare or endangered plants; and Appendix D provides conversion charts for measuring. There is also a thorough index of common and botanical names.

This practical book rates top honors as an outstanding reference for accessory water garden plants.

—Charles B. Thomas

Founder of the International Waterlily and Water Garden Society and former director of Lilypons Water Gardens, Charles B. Thomas has authored and co-authored four water gardening books.

Hydrangeas for American Gardens

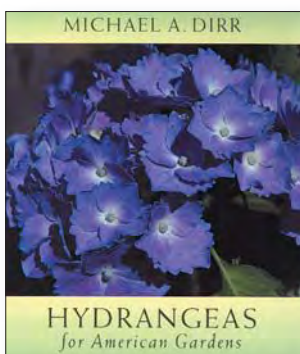
Michael A. Dirr. Timber Press, Portland, Oregon. 2004. 236 pages. Publisher's price, hardcover: \$29.95

MICHAEL A. DIRR'S new book *Hydrangeas for American Gardens* totally seduced me. It is attractive enough to pick up, deep enough to take home, enthralling enough to take to bed, and by the morning light I wanted it to be mine forever.

This is not entirely what I expected from a Mike Dirr book. I expected (and it delivered) excellent, entertaining writing that read like a conversation with a master, but I did not expect it to be so visually appealing. Some of Dirr's books are plain-looking, but not this one. With a collection of 199 fine full-color photos and several full-page painted line drawings by his wife, Bonnie, Dirr has entered the realm of beautiful, colorful books. The book retains Dirr's famous conversational writing, accuracy, and attention to detail but adds a graphic style previously unseen in his work.

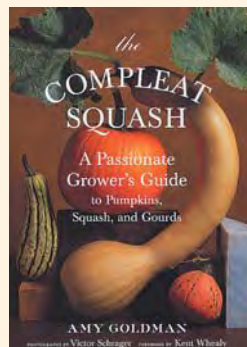
The writing is given from the perspective of both a gardener and a researcher. Dirr clearly explains technical points without being condescending. His taxonomic discussion is practical and clear, and the important parts—the distinction between the species—are distilled. Design hints are lacking, but the book is full of descriptions and ideas of how and where to grow the plants. The pruning discussion is the best and most honest I've seen on this complicated genus.

The review of cultivars shows that Dirr carefully observed these plants and is not just quoting someone else. The descriptions read like a who's who of the plant world, and tell the stories of selections, relationships, and observations. Dirr also gives



Crazy for Cucurbits

Being a mad cucurbit hound—I'm growing 14 different heirloom pumpkins, gourds, cucumbers, and squash this year alone—I was thrilled to see Amy Goldman and Victor



Schragger's exceptional new book **The Compleat Squash** (Artisan, 2004, 208 pages, hardcover, \$40). Along with covering the basics of 150 glorious pepos, Goldman explores their flavors and seeds and explains how to hand-pollinate prized heirlooms.

One trademark of Goldman's books is the spectacular photography and this one is no exception. Schragger's many still-life

photos of gourds, pumpkins, and squash detail the warm hues, pleasing shapes and smooth skin and grooves of these natural sculptures. As fun to look at as it is to read, this book is the perfect pick for fall.

—Jessie Keith, Editorial Intern

due credit to Elizabeth McClintock's classic hydrangea monograph and criticizes another text that ignored her writing. He is encouraging about future hydrangea selections and outlines the recent breakthrough into reblooming plants that offer northern gardeners hope for hydrangea success.

Typical of Dirr, there is no doubt about his hydrangea loves, such as *Hydrangea macrophylla* Endless Summer™—he refers to their bark and buds as highly seductive and mentions them “winking” at him. But pity the plants he spurns, like the “uninspiring” hybrid between *Hydrangea involucrata* and *H. aspera*. This plant, with flowers that have “no flash” and leaves that are “anemic,” is relegated to plant purgatory as something “for the collector who truly has everything.”

As with all books, there are some imperfections here. I wish this book's index were more complete by highlighting photographs, and including references to cultural issues such as pruning, soil, and propagation. It would also have been nice to see the book's tables and charts have titles so they could stand alone.

I also disagree with a few of Dirr's points. For instance, I don't think that *Hydrangea aspera* is the only species hit by Japanese beetles, as he claims; they also skeletonize the leaves of sun-grown climbing hydrangea (*H. anomala* subsp. *petiolaris*). Additionally, I don't believe that the climbing hydrangea ‘Firefly’ is the same as Miranda™. And, while Dirr lists climbing hydrangea as difficult to root, I find it easy to root if young shoots with preformed roots are chosen.

But these minor criticisms in no way detract from the overall excellence of this book, which will stoke an already passionate interest in this versatile genus.

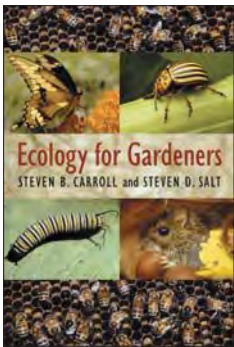
—R. William Thomas

R. William Thomas is Executive Director of Chanticleer gardens in Wayne, Pennsylvania.

Books for Natural Gardens and Garden Naturalists

FALL IS FOR HARVEST, bed preparation, and perennial planting. But it also brings to mind colorful fall foliage, crisp blue skies, walks through the woods, and simply getting closer to the natural world around us. Here are some books that allow gardeners to explore, establish, and enjoy their own bit of backyard wilderness.

Ecology for Gardeners by Steve Carroll & Steve Salt (Timber Press, 2004, hardcover, \$29.95) appeals to every piece of me that is naturalist as well as gardener. It is laden with information that is presented in an easy-to-understand manner; yet, Carroll and Salt aren't afraid to deftly slip in some professional lingo when it is needed.

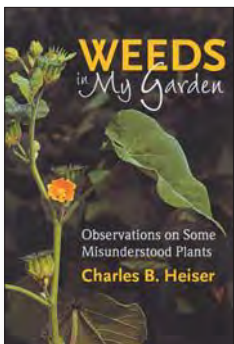


Everything is covered from soil microbes and the larger fauna of the brush and skies to the garden's physical setting and animal-plant interactions. This book is a prime tool for understanding the what's and whys of garden life.

Nearly 200 full-color pictures help readers better understand plant function, cycles and garden dwellers, and detailed indices, a full glossary, and book list for further reading help maneuver readers through and beyond its pages.

Suzy Bales is not a garden taskmaster. Instead, she takes a relaxed attitude and favors a naturalistic gardening style in her new book *Suzy Bales' Down-to-Earth Gardener* (Rodale Books, 2004, hardcover, \$32.50). Rather than adhering to a ridged preset idea of garden perfection, Bales enjoys and nurtures the natural dynamics of her resplendent Long Island garden retreat. Three short sections on weeding, self-seeding plants, and putting the garden to rest preface eight breezy chapters that take you into her gardens through the seasons.

One hundred and fifty color photographs of Bales' beds, borders, and plant favorites supplement earthy descriptions of what she likes and how she gardens, and her comfortable and informative writing style makes the reading enjoyable.



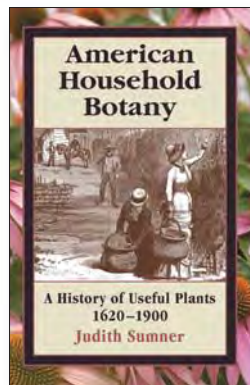
Every gardener—naturalist or not—distains weeds. But Charles B. Heiser, professor emeritus of botany at Indiana University, believes that the great reproductive success of weeds have given them a bad rap. In his most recent book *Weeds in My Garden* (Timber Press, 2004, hardcover, \$22.95), Heiser shares the brighter, more virtuous side of common weeds

through stories, lore, and reports of their historical uses.

This book covers the worst garden offenders—cockleburs, jimsonweed, crabgrass, and dandelion, all organized by plant family. But did you know that dandelion roots make a good substitute for coffee or that cockleburs led to the design of Velcro? Heiser also reveals that violet flowers make a fine syrup and that the downy leaves of mullein were once used as lamp wicks.

Still, there are weeds that even Heiser has no use for. When discussing the “virtues” of field bindweed he states, “Except for the attractive flowers, I know of none,” and he rightfully defines crabgrass as, “one of the most obnoxious lawn weeds.”

If you ever wondered how early Americans used and modified the flora around them to fulfill their basic living needs, read Judith Sumner's new book *American Household Botany* (Timber



Press, 2004, hardcover, \$27.95). It covers the fascinating history of plants that early settlers used for food, medicine, textiles, construction, and as garden ornamentals. In fact, many of the garden plants favored by the settlers are same ones that we use today.

I was particularly interested in Sumner's descriptions of how New World equivalents to Old World plants shaped the early American experience and tested the resourcefulness of the settlers. For instance,

American hops (*Humulus americanus*) soon took the place of European species (*Humulus sativus*) for beer brewing, American ginseng (*Panax quinquefolius*) was cultivated as a replacement for the standard Chinese stimulant (*Panax ginseng*), and American holly (*Ilex opaca*) became the decorative substitute for English holly (*Ilex aquifolium*).

City and country dwellers alike will benefit from Rosemary



Creaser's new book *Wildlife-Friendly Plants* (Firefly Books, 2004, hardcover, \$29.95). Creaser emphasizes both plant selection and wildlife-friendly gardening practices as the best means for inviting desirable wildlife into the garden. Plants for both small and large garden spaces comprise a directory that offers one or more pages of information for each plant, including the wildlife they attract, cultural information and large,

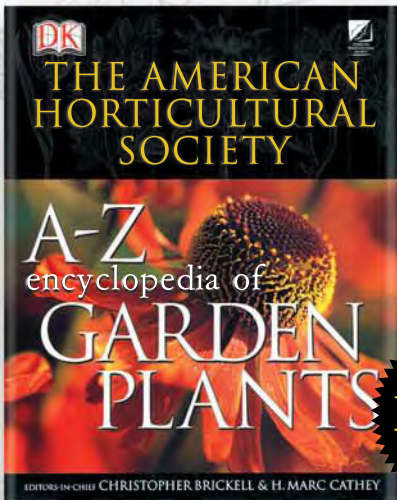
detailed color photos. This is an essential reference for all garden and wildlife enthusiasts.

—Jessie Keith, Editorial Intern



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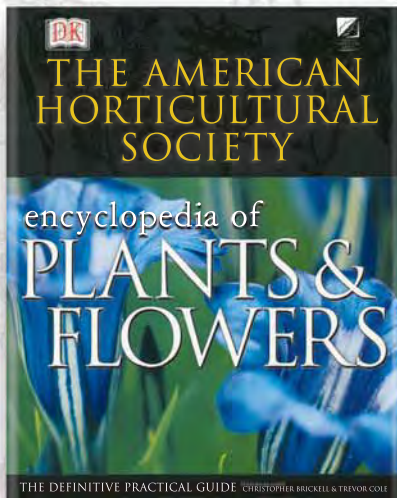
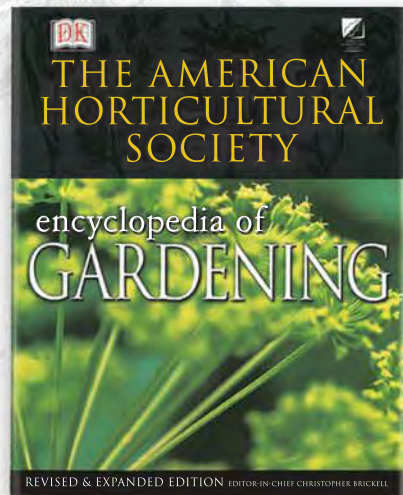
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REGIONAL HAPPENINGS

Horticultural Events from Around the Country

NORTHEAST

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

RAP SEPT. 23. **Gardeners' Fair and Picnic.** Wave Hill. Bronx, New York. (718) 549-3200. www.wavehill.org.

OCT. 2 & 3. **Capital District Apple Festival and Craft Fair.** Altamont Orchards, Inc. Altamont Fair Grounds. Altamont, New York. (518) 861-6515. www.altamontorchards.com.

RAP OCT. 2 & 3. **Harvest Festival 2004.** Berkshire Botanical Gardens. Stockbridge, Massachusetts. (413) 298-3926. www.berkshirebotanical.org.

RAP OCT. 16. **Fall Pruning Workshop.** Blithewold Mansion, Gardens & Arboretum. Bristol, Rhode Island. (401) 253-2707. www.blithewold.org.

THROUGH OCT. 17. **The Last Green Valley: The Aerial Photographs of G. Leslie Sweetnam.** Exhibit. Historic New England. Roseland Cottage, Woodstock, Connecticut. (860) 928-4074. www.historicnewengland.org.

RAP OCT. 15–DEC. 15. **Botanical Discoveries of Lewis and Clark.** Exhibit. The Botanic Garden of Smith College. Northampton, Massachusetts. (413) 585-2740. www.smith.edu.

Looking ahead

RAP NOV. 6–21. **Fall Chrysanthemum Show.** The Botanic Garden of Smith College. Lyman Conservatory. Northampton, Massachusetts. (413) 585-2740. www.smith.edu.

MID-ATLANTIC

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

AHS SEPT. 22. **The Making of a Meadow at River Farm.** Talk by Peggy Bowers, AHS Horticulturist. National Park Service, University of Maryland, and the U.S. National Arboretum. (202) 245-5898. www.usna.usda.gov.

RAP SEPT. 23. **Greening the Concrete Jungle.** Lecture. The Scott Arboretum. Swarthmore College. Swarthmore, Pennsylvania. (610) 328-8025. www.scottarboretum.org.

RAP SEPT. 25. **The Grand Saga of the Monarch Butterfly.** Lecture. Lewis Ginter Botanical Garden. Richmond, Virginia. (804) 262-9887. www.lewisginter.org.

Events sponsored by or including official participation by AHS or AHS staff members are identified with the **AHS** symbol.

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

RAP OCT. 2. **Woodland Gardening.** Workshop. The Scott Arboretum Classroom and Gardens. Swarthmore, Pennsylvania. (610) 328-8025. www.scottarboretum.org.

AHS OCT 5–9. **2004 Northeast Regional Master Gardener Conference.** Baltimore, Maryland. (888) 531-1754. E-mail: rmhessey@umd.edu.

RAP OCT. 8 & 9. **Fall Bulb Sale.** Delaware Center for Horticulture. Wilmington, Delaware. (302) 658-6262 ext. 29. www.dehort.org.

OCT. 12. **The Hottest New Plants.** Lecture. Horticultural Society of Maryland. Loch Raven High School, Baltimore, Maryland. (410) 821-5561. www.mdhorticulture.org.

OCT. 17. **Pennsylvania Floral Expo.** Pennsylvania Floral Industry Association. Holiday Inn Harrisburg/Hershey. Grantville, Pennsylvania. (800) 234-3779. www.pafloral.org.

SOUTHEAST

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

AHS SEPT. 18 & 19. **Refining the Garden.** Symposium. AHS President Katy Moss Warner will be one of the speakers at this event. Mounts Botanical Garden. West Palm Beach, Florida. (561) 233-1757. www.mounts.org.

RAP SEPT. 25 & 26. **Dahlia Society of Georgia Show.** Atlanta Botanical Garden. Atlanta, Georgia. (770) 447-1405. www.atlantabotanicalgarden.org.

RAP OCT. 2. **Harvest Herb Fair.** Huntsville Herb Society. Huntsville Botanical Garden. Huntsville, Alabama. (256) 830-4447. www.hsvbg.org.

RAP OCT. 2 & 3. **Hibiscus Show and Sale.** Fairchild Tropical Garden. Coral Gables, Miami, Florida. (305) 258-1086. www.fairchildgarden.org.

OCT. 9. **Georgia Native Plant Society's 10th Annual Symposium.** Gwinnett Justice and Administration Center. Lawrenceville, Georgia. (770) 343-6000. www.gnps.org.

RAP OCT. 14–17. **Fall Plantasia!** Plant sale. Mobile Botanic Gardens. Mobile, Alabama. (251) 342-0555. www.mobilebotanicgardens.org.

RAP OCT. 16 & 17. **ColorFest.** Fall festival. Bernheim Arboretum and Research Forest. Clermont, Kentucky. (502) 955-8512. www.bernheim.org.

OCT. 9 & 10. **9th Annual Carolina Bonsai Expo.** North Carolina Arboretum. Asheville, North Carolina. (828) 665-2492. www.ncarboretum.org.

OCT. 16 & 17. **North Carolina Chrysanthemum Society Annual Show.** North Carolina Arboretum. Asheville, North Carolina. (828) 665-2492. www.ncarboretum.org.

OCT. 20–23. **Charleston Garden Festival.** Middleton Place, Charleston, South Carolina. (843) 556-6020. www.charlestonhorticulturalsociety.org.

Looking ahead

AHS NOV. 18. **The Art of the Chinese Garden.** AHS President Katy Moss Warner will be speaking at this event. Maitland Art Center. Maitland, Florida. www.maitlandartcenter.org.

NORTH CENTRAL

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

AHS SEPT. 18. **The Art and Science of the SMARTGARDEN™.** Mott Community College, Lapeer, Michigan. (517) 432-1950 ext. 4. www.gardeninginstitute.com.

RAP SEPT. 18–NOV. 7. **Plants in Print: the Age of Botanical Discovery.** The Chicago Botanic Garden. Glencoe, Illinois. (847) 835-5440. www.chicagobotanic.org.

RAP SEPT. 23 & 24. **Perennial Plant Symposium.** The Chicago Botanic Garden. Glencoe, Illinois. (847) 835-8261. www.chicagobotanic.org.

RAP SEPT. 24. **Fall Curator Workshop and Plant Sale.** Nebraska Statewide Arboretum. Lincoln, Nebraska. (402) 472-2971. <http://arboretum.ul.edu>.

RAP SEPT. 26–DEC. 5. **Natural Wonders.** Art exhibit. Olbrich Botanical Gardens. Madison, Wisconsin. (608) 246-4550. www.olbrich.org.

SEPT. 26–29. **54th Meeting of the Eastern Region of the International Plant Propagators' Society.** Hyatt Regency Milwaukee. Milwaukee, Wisconsin. (631) 765-9638.

AHS OCT. 7–9. **America in Bloom Awards Ceremony & Educational Symposium.** The Hyatt Regency. Indianapolis, Indiana. (614) 487-1117 ext. 23. www.americainbloom.org.

RAP OCT. 9. **59th Annual Herb Fair.** Cleveland Botanic Garden. Cleveland, Ohio. (216) 721-2600. www.cb garden.org.

AHS OCT. 16. **The Art and Science of the SMARTGARDEN™.** Sponsored by Indiana Master Gardener Program. (517) 432-1950 ext. 4. www.gardeninginstitute.com.

RAP OCT. 26. **Celebrating 10 Years of the Plant Conservation Alliance.** Symposium. Chicago Botanic Garden, Glencoe, Illinois. (847) 835-8261. www.chicagobotanic.org.

Looking ahead

AHS NOV. 20. **Herbaceous Perennials: Identification, Culture and Garden Attributes.** Mott Community College. Lapeer, Michigan. (517) 432-1950 ext. 4. www.gardeninginstitute.com

SOUTH CENTRAL

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

SEPT. 25 & 26. **4th Annual Fall Festival at the Butterfly House.** Sophia M. Sachs Butterfly House & Education Center. Chesterfield, Missouri. (636) 530-0076. www.mobot.org.

OCT. 7–9. **American Association of Botanical Gardens & Arboretums Regional Meeting.** Garvan Woodland Gardens. Hot Springs National Park, Arkansas. (800) 366-4664. www.garvangardens.org.

OCT. 15 & 16. **The 26th Annual Fall Flower & Garden Fest.** Mississippi State University Extension Service. Crystal Springs, Mississippi. (601) 892-3731. www.msucare.com.

OCT. 16. **The Native Plant Society of Texas Annual Meeting.** Longview, Texas. (512) 868-8799. www.npsot.org.

Florida's Golden Age

THE SPLENDOR OF Florida's Gilded Age returns on October 5 in the form of an exhibit at the Flagler Museum in Palm Beach, Florida. The site of the museum, Whitehall, was originally the estate of Henry Flagler, railroad magnate and founder of Standard Oil, who lived during this turn-of-the-20th-century period associated with opulence and grandeur.

According to Laurie Ossman, chief curator at the Flagler Museum, the gardens of the era marked the beginning of formal landscape design in Florida. The juxtaposition of formal European garden design and the lush, subtropical plants native to Florida provided "an element of theatricality," she says. The exhibit showcases contemporary and historical photography, artifacts, promotional literature, and fine art of the Gilded Age gardens spanning the period from about 1890 to 1925. Exhibit pieces are borrowed from other Florida public gardens such as Goodwood Plantation in Tallahassee, Bok Tower Gardens near Lake Wales, and Villa Vizcaya in Miami.

This exhibit also serves as a conceptual framework for the restoration of the courtyard garden at the Flagler Museum. Originally designed by the firm Carrere and Hastings to complement Flagler's hotel in St. Augustine, the courtyard garden was created in the Hispano-Mooresque style typical of gardens of southern Spain. "These tend to feature a courtyard garden as a metaphor of paradise," explains Ossman.

Years later, Flagler had the courtyard garden redesigned to match the style of his new Palm Beach estate. The restored courtyard garden will feature citrus trees as well as a fountain symbolizing the fountain of youth at its center.

For more information on the exhibit, call (561) 655-2833 or visit the Flagler Museum's Web site at www.flaglermuseum.com.

—Katie Palanjan, Editorial Intern

Fall Plant Sale at Kanapaha

IF YOU LAST VISITED Kanapaha Botanical Gardens in Gainesville, Florida, more than five years ago, you may be pleasantly surprised by changes that have been made. Recent improvements and upgrades include a paved road, new signage, a brand new, tin-roofed Visitor's Center of natural wood, and an overall expansion in size to 62 acres.

Visit the gardens on October 16 and you'll also have a chance to walk away with a favorite flower or shrub during the gardens' Fall Plant Sale. But before taking out your checkbook, find inspiration by strolling down the quiet paths that wind through the recently-expanded specialty gardens.

One of Kanapaha's nicest features is its water gardens, which are surrounded by beds of Asian azaleas and camellias in the shape of an hourglass and an encircling path.

The water gardens are home to a wide variety of wildlife, many of which are visible along the path. Cross an arched bridge and you can usually see turtles sunning themselves on giant, table-sized Amazonian water lilies (*Victoria amazonica*). A sign in the shape of an alligator warns of another resident reptile.

In addition to the Fall Plant Sale, Kanapaha hosts a spring concert series, a Spring Garden Festival, a winter bamboo sale, and occasional moonlight walks complete with live music, food, and even telescopes for stargazing. For more information about the gardens or any of these events, call (352) 372-4981 or visit www.kanapaha.org.

—Adele Woodyard, special to The American Gardener, Tampa, Florida



Turtles sunning on Amazonian water lily pads

RAP OCT. 16. **Daffodil Sale.** Botanica, The Wichita Gardens. Wichita, Kansas. (316) 264-0448. www.botanica.org.

RAP OCT. 22 & 23. **Fall Festival in the Japanese Garden.** Fort Worth Botanic Garden. Fort Worth, Texas. (817) 871-7686. www.fwbg.com.

RAP OCT. 25 & 26. **Harvest Celebration & Antique Tractor Show.** Powell Gardens. Kingsville, Missouri. (816) 697-2600. www.powellgardens.org.

SOUTHWEST

AZ, NM, CO, UT

RAP SEPT. 25. **Wildflower Walk: O'Leary Peak.** The Arboretum at Flagstaff. Flagstaff, Arizona. (928) 774-1442 ext. 110. www.thearb.org.

RAP SEPT. 25. **Seed Collecting Workshop.** Red Butte Garden. University of Utah. (801) 581-4747. www.redbuttégarden.org.

OCT. 29–NOV. 2. **American Society of Landscape Architects 2004 Annual Meeting & Expo.** Salt Lake City, Utah. (202) 898-2444. www.asla.org.

WEST COAST

CA, NV, HI

SEPT. 30–OCT. 3. **Maui Orchid Society County Fair Show.** War Memorial Gymnasium. Wailuku, Hawaii. (808) 572-0756. E-mail: orchidhi@maui.net.

OCT. 2. **Autumn at Filoli.** Festival. Filoli. Woodside, California. (650) 364-8300 ext. 508. www.filoli.org.

RAP OCT. 8–10. **International Orchid Fair. Quail Botanical Gardens.** San Diego County Fairgrounds. Del Mar, California. (760) 436-3036. www.qbgardens.com.

RAP OCT. 8 & 9. **Autumn Plant Sale.** Descanso Gardens. La Cañada Flintridge, California. (818) 949-4200. www.DescansoGardens.org.

RAP OCT. 14. **Garden Feast.** Benefit luncheon. San Francisco Botanical Garden at Strybing Arboretum. (415) 564-3239 ext. 304. www.sfbotanicalgarden.org.

Looking ahead

NOV. 5–7. **Third Annual Beverly Hills Garden & Design Showcase.** Historic Greystone Estate. Beverly Hills, California. (310) 285-2537. www.beverlyhillsgardenfestival.com.

NORTHWEST

AK, ID, MT, OR, WA, WY

RAP SEPT. 24 & 25. **Fall Clean Up Days at**

Cornerstone Festival of Gardens

ART, ARCHITECTURE, AND nature are intertwined in the new Cornerstone Festival of Gardens in Sonoma, California. The avant-garde gallery-style garden display, featuring rotating installations designed to celebrate gardening and the agrarian culture of California, opened July 20 and is expected to continue indefinitely.

The festival debuted with 15 individual gardens, each designed by a leading landscape architect or designer. Featured gardens differ widely, some appealing to traditional garden visitors and others taking more artistic license. For example, “A Lullaby Garden” is comprised of 200 hand-knitted nylon carpets draped over a sculpted landform. The forms are meant to emulate undulating topography, reminiscent of Japanese woodblock prints.

“Stone’s Throw”—designed by Marco Antonini, Roberto Capecci, and Raffaella Sini—relies upon the artistic element of scale, using larger-than-life stones as the major focus of the landscape. Succulent plants like *Echeveria* hybrids grow from pockets in the stones.

“The Garden of Visceral Serenity,” by Yoji Sasaki, invites contemplation and relaxation with a stone path leading to a white sand “ocean,” using the hills of Sonoma as a distant focal point. Prominent plants include pines and Japanese maples.

Cornerstone’s founder Chris Hougie was inspired by a visit to France’s International Garden festival at Chaumont-sur-Loire. Recognizing that there were no gardens in the United States like those at Chaumont, Hougie decided that Sonoma would be a perfect place to launch the project.

Hougie says that although the festival is designed primarily for adults, the exciting colors, shapes, and interactive nature of the gardens make them an entertaining place for children. “They’re whimsical. They’re not just serious gardens,” says Hougie.

Part of the draw to Cornerstone is the ephemeral nature of the displays. Three or four gardens will be replaced this winter, giving visitors good reasons to see them before they are gone. In addition to viewing the gardens, visitors can browse several garden retailers on the site, including a nursery, bookstore, café, and antique store.

For more information on the Cornerstone Festival of Gardens, call (707) 933-3010 or visit www.cornerstonegardens.com.

—Katie Palanjian, Editorial Intern



“Stone’s Throw,” one of the featured gardens at the Cornerstone Festival.

the Garden. Volunteer opportunity. Alaska Botanical Garden. Anchorage, Alaska. (907) 770-3692. www.alaskabg.org.

RAP OCT. 2. **Beginning Bonsai.** Chemekta Community College Workshop. Oregon Garden. Silverton, Oregon. (877) 674-2733. www.oregongarden.org.

RAP OCT. 3. **Fall Bulb and Plant Sale.** Washington Park Arboretum. Seattle, Washington. (206) 325-4510. www.arboretumfoundation.org.

RAP OCT. 23 & 24. **Hoyt Arboretum’s Fall**

Plant Sale. The Hoyt Arboretum. Portland, Oregon. (503) 228-TREE. www.hoytarboretum.org.

CANADA

SEPT. 24 & 25. **Central Ontario Orchid Society Show.** New Dundee, Ontario. (519) 696-2624. E-mail: jboers@albedo.net.

OCT. 1–3. **Gardens of Diversity, Growing Across Cultures.** Conference. The American Community Gardening Association. Toronto, Ontario. (416) 392-1668. www.communitygarden.org.



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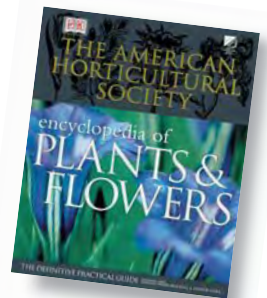
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Choosing Plant Labels

by Rita Pelczar

GOOD PLANT LABELS are indispensable, particularly for gardeners with large or diverse plant collections. Anyone whose garden contains multiple azalea, hosta or daylily cultivars will want to label each, particularly if he or she shares plants with others. Have you ever tried to identify daylilies when they are not in bloom?

Similarly, vegetable growers who raise many heirloom varieties must know their plants' identities for seed saving and to determine the best performers. Labels are also essential for plant breeders and collectors who need to meticulously monitor their botanical treasures.

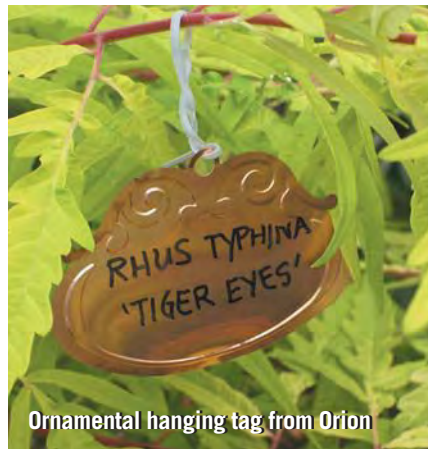
And of course plant labels can help prevent overzealous gardeners from accidentally digging up plants that are late emerging in spring, like scarlet mallow (*Hibiscus coccineus*), or are dormant at odd times, like surprise lilies (*Lycoris* spp.).

A variety of plant labels, in a range of designs and styles, are now available for home gardeners. The style you select should depend both on your goals and personal taste. Labels for use in a propagating bed or cold frame usually serve a strictly functional purpose, whereas those out in the garden proper may be showy or discreet, depending on the individual gardener's desires.

If the label is meant for your eyes only, a durable but discreet marker—easy for you to locate, but inconspicuous to garden visitors—is the ticket. On the other hand, if your intent is to identify the plants for your visitors, you will want to spend a bit more and select a label that is attractive in its own right, and perhaps most importantly, one that does not detract from the garden's appearance.

HANG IN THERE

Metal tags that can be attached to a woody stem with a wire should last for several seasons. They have the advantage of staying put—they won't get uprooted by dogs, stepped on, or buried by mulch. Orion Industries offers several styles of hang tags,



Ornamental hanging tag from Orion

including copper or aluminum rectangles for embossing with a ballpoint pen, or an anodized aluminum tags for use with a weather-resistant marking pencil or pen.

Also intended for attaching directly to the plant are Orion's oval Ornamental Hang Tags in stainless steel or copper. These are a bit more showy and pricey than the rectangular style.

BotanicaLabels from Wren are heavy-duty stainless steel tags with a large space for writing with the paint pen that is included with the package of 10 labels. This style is particularly useful if you like to include information above and beyond the name of the plant (date of planting, cultural information, source, etc.).

All labels that you wrap around a plant stem or branch should be periodically checked to make sure they are not girdling the plant.

WELL GROUNDED

Many gardeners prefer their labels in the

ground rather than on the plant. Labels of this nature preclude the girdling issue; however, they can get lost or displaced, and if you move the plant, be sure to transplant the label, too.

Wren and Orion offer sturdy and attractive steel T-shaped labels that are six-



Terra cotta marker from Orion

and-a-half and five-and-three-quarters inches tall respectively. Both have plenty of room for writing. A smaller copper version from Orion is suggested for use in containers. For a more formal garden, Orion has terra cotta labels in two styles.

Wren's 24-inch scrolled stainless steel



Metal markers and hang tags from Wren Garden Products



Vertical marker from Paw Paw



Horizontal marker from Paw Paw



Professionally printed labels for metal plant markers from Garden Fonts

garden stakes are quietly elegant with their simple design and generous, but not overwhelming, three-and-a-half-inch tag. The manufacturer recommends using them for tall perennials, annuals, bulbs, shrubs and water gardens. Wren offers a pen with oil-based paint that will stand up to the weather. A similar style with an 18-inch stainless steel stake and a steel or copper tags are available from Orion.

Plantid's Plant Identification Markers are dark green, nine-inch, polypropylene mountings that surround a vinyl insert. Both mounting and insert are weather resistant. Three collections of preprinted labels—herbs, vegetables, and perennials—as well as blank inserts for making your own labels are available. Whether you purchase pre-printed labels or you write your own, accuracy is critical. Be forewarned: Even commercially printed labels can come with misspelled botanical names.

Bosmere, Orion, Paw Paw Everlast, and EON label companies produce copper and/or zinc labels with steel stakes in a wide variety of sizes and styles. Practi-

cal and attractive in a no-nonsense sort of way, these labels remain inconspicuous when judiciously placed. The vertically oriented Everlast and the horizontal EON labels have rounded edges, while Orion and Paw Paw's horizontal zinc labels are sharp-edged and tend to bend a little more easily under duress. The disadvantage of vertical labels, of course, is that they are more difficult to read than the horizontal style.

For an easy-to-read professional look, you might consider sending your plant list to Garden Fonts. The company will print your labels on UV-resistant polyester to peel and stick onto metal markers. Or, if you are a do-it-yourselfer, you may be interested in Orion's Computer-Imprintable Labels. Using Orion's software, you can print your own labels, which then be covered with protective plastic and insert them into durable metal stakes.

COMPARING PRODUCTS

The cost, functionality, and durability of plant labels are relatively easy to compare. If you want a "behind-the-scenes" sort of labeling system—handy when you need it, but not really part of the garden picture—consider the factors I outlined above. The aesthetic value of a label is another story. For labels that will be part of the garden picture, you will have to determine which product suits your own taste and garden style. ∞



Preprinted marker from Plantid

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

Sources

For more information about any of the products described, contact the manufacturers below.

EON Industries, Inc., Liberty Center, OH. (419) 533-4961. www.eonindustries.com.

Garden Fonts, Castine, ME. (207) 326-9413. www.gardenfonts.com.

Orion Industries, Cloverdale, CA. (707) 529-8707. www.gardenmarker.com.

Paw Paw Everlast Label Co., Paw Paw, MI. www.everlastlabel.com.

Plantid, Inc., New Prague, MN. (612) 758-6888. www.plantid.com.

Wren Garden Products, Inc., Rowayton, CT. (800) 821-6245. www.bywren.com.

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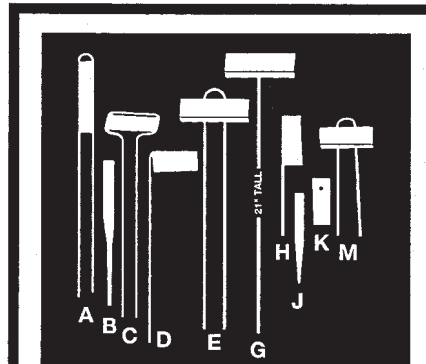


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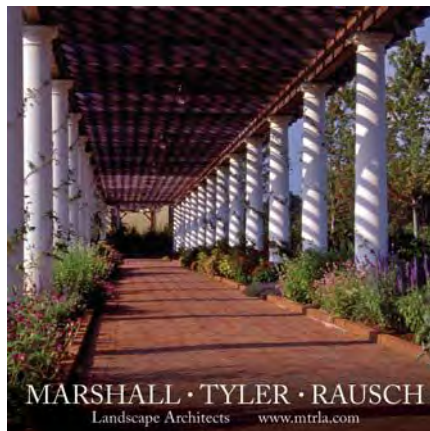
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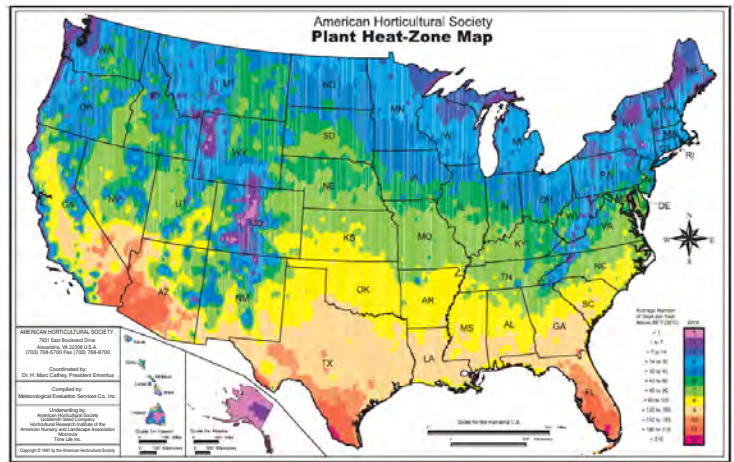
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PRONUNCIATIONS AND PLANTING ZONES

Most of the cultivated plants described in this issue are listed here with their pronunciations, USDA Plant Hardiness Zones—based on the 2003 revised hardiness map, which is currently under review by the USDA—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. 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 codes 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. To purchase a two-by-three-foot glossy AHS Plant Heat Zone Map for \$9.95, call (800) 777-7931 or visit www.ahs.org. Hardiness and Heat zone codes are generated by AHS and documented in the Showtime[®] database, owned by Arabella Dane.



A–E

Abies fraseri AY-beez FRAYZ-yer-eye (USDA Zones 4–7, AHS Zones 7–1)
Allium thunbergii AL-ee-um thun-BER-jee-eye (5–9, 9–5)
Amelanchier arborea am-eh-LANG-kee-ur (4–9, 9–1)
A. laevis A. LEE-vis (4–9, 9–1)
Anemone hupehensis uh-NEM-oo-nee hoo-pee-EN-sis (4–8, 8–1)
Aronia arbutifolia uh-RO-nee-uh ar-byew-tih-FO-lee-uh (4–9, 9–4)
Asplenium platyneuron uh-SPLEE-nee-um plat-ih-NUR-on (3–9, 9–1)
Asclepias tuberosa as-KLEE-pee-us too-bur-O-suh (3–9, 9–2)
Aster divaricatus ASS-ter dih-vair-ih-KAY-tus (3–9, 9–1)
A. ericoides A. eh-rih-KOY-deez (5–8, 8–5)
A. laevis A. LAY-vis (4–9, 9–2)
A. macrophyllus A. mak-ro-FIL-lus (3–9, 9–1)
A. novae-angliae A. NO-vee-ANG-lee-ay (3–9, 9–1)
Avena sativa UH-vee-nuh sah-TEE-vuh (5–9, 9–5)
Betula lutea BET-yew-luh LOO-tee-uh (4–7, 7–1)
Boltonia asteroides bohL-TOH-nee-uh ass-tuh-ROY-deez (4–8, 9–2)
Chionanthus virginicus ky-o-NAN-thus vir-JIN-ih-kus (4–9, 9–1)
Chrysogonum virginianum krih-SOG-on-um vur-jin-ee-AN-um (5–8, 8–5)
Cimicifuga americana sih-mih-SIF-yew-guh uh-mair-ih-KAN-uh (3–8, 8–1)
Cornus florida KOR-nus FLOR-ih-duh (5–8, 8–3)

C. sericea C. seh-RISS-ee-uh (3–8, 8–1)
Carpinus caroliniana kar-PY-nus kair-o-lin-ee-AN-uh (3–9, 9–1)
Chelone glabra chee-LO-nee GLAB-ruh (3–8, 9–1)
C. lyonii C. ly-O-nee-eye (3–9, 9–3)
C. obliqua C. o-BLEEK-wuh (3–9, 9–3)
Clethra alnifolia KLETH-ruh al-nih-FO-lee-uh (3–9, 9–1)
Comptonia peregrina comp-TOH-nee-uh pair-eh-GRY-nuh (4–7, 7–1)
Equisetum hyemale eh-kwi-SEE-tum hy-ih-MAL-ee (3–11, 12–1)
Euonymus fortunei yew-ON-ih-mus for-TOON-ee-eye (4–9, 9–5)
Eupatorium coelestinum yew-puh-TOR-ee-um suh-LESS-tin-um (3–8, 8–1)
E. rugosum yew-puh-TOR-ee-um ROO-go-sum (4–8, 8–4)

F–P

Fothergilla major fah-ther-GIL-uh MAY-jer (4–8, 9–2)
Gentiana andrewsii jen-she-AN-uh an-DREW-zee-eye (3–7, 8–1)
Helianthus maximiliani hee-lee-AN-thus maks-ih-mil-ee-AN-eye (4–9, 9–4)
H. occidentalis H. ahk-sih-den-TAL-iss (4–9, 9–4)
H. salicifolius H. sal-iss-ih-FO-lee-us (5–9, 9–4)
Helleborus × hybridus hel-eh-BOR-us HY-bri-dus (6–9, 9–6)
Hypericum prolificum hy-PAIR-ih-kum pro-LIH-fih-kum (4–7, 7–1)
Iris germanica EYE-ris jur-MAN-ih-kuh (3–9, 9–1)

Juniperus chinensis joo-NIP-er-iss chy-NEN-sis (3–9, 9–1)
J. communis J. com-YEW-niss (2–6, 6–1)
Kalmia latifolia KAL-me-uh lat-ih-FO-lee-uh (4–9, 8–3)
Lagerstroemia indica lag-ur-STROH-me-uh IN-dih-kuh (7–9, 9–7)
Lilium superbum LIL-ee-um soo-PUR-bum (4–8, 8–3)
Oxydendrum arboreum ok-sih-DEN-drum ar-BOR-ee-um (5–9, 9–3)
Pachysandra procumbens pak-ih-SAN-druh pro-KUM-benz (5–9, 8–3)
Panicum virgatum PAN-ih-kum vur-GAY-tum (5–9, 9–5)
Physostegia virginiana fy-so-STEE-juh vir-jin-ee-AN-uh (5–9, 8–3)
Picea glauca PY-see-uh GLAW-kuh (2–7, 7–2)
P. rubens P. ROO-benz (3–6, 6–2)
Pinus echinata PY-nus ek-ih-NAY-tuh (6–8, 8–5)
Prunus pennsylvanica PROO-nus pen-sil-VAN-ih-kuh (6–8, 8–6)
Pyrus calleryana PY-rus kal-lur-ee-AN-uh (5–8, 8–3)

Q–Z

Quercus ilicifolia KWER-kus il-ih-sih-FO-lee-uh (5–8, 8–5)
Rhamnus caroliniana RAM-nus kair-o-lin-ee-AN-uh (5–9, 9–4)
Rhododendron catawbiense ro-doh-DEN-dron kuh-taw-be-EN-see (4–8, 8–1)
R. calendulaceum R. kuh-len-dew-LAY-see-um (5–8, 9–4)
R. kiusianum R. kee-yew-see-AN-um (6–9, 9–6)
Rhus typhina RUS TY-fee-nuh (3–8, 8–1)

Sassafras albidum SASS-uh-frass AL-bih-dum (4–8, 8–3)
Saxifraga michauxii sak-sih-FRAY-guh mih-SHO-ee-eye (7–8, 8–7)
Scilla siberica SIL-luh sy-BARE-ih-kuh (5–8, 8–5)
Sorghastrum nutans sor-GASS-trum NOO-tanz (5–8, 8–5)
Syringa reticulata sih-REENG-guh reh-tik-yew-LAY-tuh (5–8, 8–5)
Thymus serpyllum TY-mus sur-PIL-um (5–9, 9–4)
Tiarella cordifolia var. collinia tee-uh-REL-luh kor-dih-FO-lee-uh var. koh-LIN-ee-uh (3–7, 7–1)
Tricyrtis formosana try-SUR-tiss for-MO-san-uh (6–9, 9–4)
T. hirta T. HUR-tuh (4–9, 9–1)
T. latifolia T. lat-ih-FO-lee-uh (3–8, 8–1)
Trillium grandiflorum TRIL-ee-um gran-dih-FLOR-um (3–8, 8–1)
Vaccinium corymbosum vak-SIN-ee-um kor-im-BO-sum (4–8, 8–1)
Vernonia baldwinii vur-NO-nee-uh bald-WIN-ee-eye (5–9, 9–5)
V. fasciculata V. fuh-sik-yoo-LAY-tuh (4–9, 9–4)
V. gigantea V. jy-GAN-tee-uh (5–9, 9–5)
V. missurica V. mih-ZUR-ih-kuh (3–8, 8–1)
V. noveboracensis V. no-vay-bor-uh-CHEN-sis (4–8, 8–3)
Viburnum nudum var. cassinoides vy-BER-num NEW-dum var. kass-ih-NOY-deez (2–8, 8–1)
Wisteria frutescens wis-TEER-ee-uh FROO-tess-ens (6–9, 9–6)

Autumn Medley of Shrubs

by Carole Ottesen

THIS TRIO of shrubs forms a breezy spring and summer combination that starts to heat up in fall as the temperature drops. In May, the variegated red twig dogwood (*Cornus sericea*) and the fothergilla (*Fothergilla major*) bloom cool and white, a prelude to serene summer colors that counteract the heat: the cooling green and white variegation of the dogwood and the dwarf euonymus (*Euonymus fortunei*) and the blue-green foliage of the fothergilla. With shorter days and cooler nights in fall, the fothergilla's leaves turn fiery gold and orange and the dogwood's leaves start dropping to uncloak the glowing red canes. The euonymus burnishes rose with cold, but remains evergreen, anchoring the composition into the fourth season. 🍂

Carole Ottesen is associate editor of *The American Gardener*.



Red-twig dogwood (*Cornus sericea*) is a shrub that grows to about five feet tall and may sucker gradually into colonies. Small, flat, white flower clusters in May are followed by white or pale blue berries. USDA Zones 3–8, AHS Zones 8–1.

Fothergilla (*Fothergilla major*) is a rounded shrub that can reach eight feet tall. Its fragrant, white bottlebrush flowers bloom in May before the bluish leaves emerge. Zones 4–8, 9–2.

Euonymus (*Euonymus fortunei*) is a species with a number of small, variegated cultivars of which 'Emerald Gaiety' is one with white margins on deep green leaves. It will reach three to four feet tall. Zones 4–9, 9–5.

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