

July/August 2002

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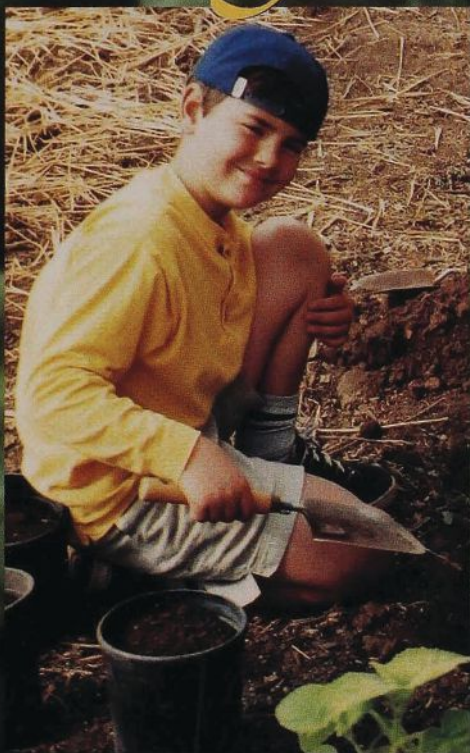
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This symposium was made possible with the help of its generous supporters which include the Stanley Smith Horticultural Trust, Marshall. Tyler. Rausch, Carole Hofley and Waupaca Materials.

Co-sponsors of this year's event include the California State Department of Education, Food, Land & People, Life Lab Science Program, California State Department of Education, the University of California - 4-H Center for Youth Development and the University of California Botanical Gardens.

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Contents

Volume 81, Number 4 • July / August 2002



FEATURES

20 MULLEINS

BY NANCY McDONALD

Tall, beautiful, and slightly untamed, mulleins are perfect for a cottage garden.

26 GROWING FERNS FROM SPORES

BY KATHRYN LUND JOHNSON

Propagating ferns from spores is a rewarding way to diversify your collection

30 THE MAGICAL WORLD OF BUTTERFLIES

BY CLAIRE HAGEN DOLE

Learn how to identify common butterflies and attract and keep them in your garden.

36 10 CLASSIC SHRUBS FOR TODAY'S GARDEN

BY PATRICIA ACTON

These time-tested shrubs are worth a fresh look and breeders are introducing improved varieties better suited to modern gardens.

42 MASTER GARDENERS

BY CAROLE OTTESEN

Inspired by the spirit of volunteerism and a passion for gardening, Master Gardeners are making the world better by spreading the gospel of gardening.

46 ALL-AMERICAN HERBS

BY DONALD HUMPHREY

For a non-traditional herb garden, try some of these attractive and intriguing American native plants that have a long history of medicinal or culinary use.

ON THE COVER: Monarch butterflies on *Liatris ligulistylis*.

Photograph by David Cavagnaro

DEPARTMENTS

5 AN INSIDE LOOK

6 MEMBERS' FORUM

7 AHS 80TH ANNIVERSARY

A retrospective: AHS in the 1960s.

8 NEWS FROM AHS

AHS participates in pilot phytoremediation project, organic lawn care at River Farm, Paul Ecke Jr. in memoriam, Warner to speak at International Horticultural Congress.

13 AHS AWARD WINNER IN FOCUS

Journalist and author Anne Raver.

14 SMARTGARDEN™

Understanding microclimates.

15 GARDENER'S NOTEBOOK

Phase-out of pressure-treated wood, regional plant picks, milk as a fungicide.

17 GARDENER'S INFORMATION SERVICE

Uses for grass clippings, maintaining an espalier, non-blooming Peruvian lilies.

18 OFFSHOOTS

A thirst for watering.

51 PLANT IN THE SPOTLIGHT

Rattlesnake master: *Eryngium yuccifolium*.

52 BOOK REVIEWS

The Bountiful Garden, *The Potted Garden*, *Gardening in Containers*, *Logee's Greenhouses*, *Spectacular Container Plants*, *Melons for the Passionate Grower*, *Dirr's Trees and Shrubs for Warm Climates*, and *Mints*.

56 SEASONAL GARDEN GOODS SPOTLIGHT

An in-depth look at solar garden lights.

57 REGIONAL HAPPENINGS

American Rose Society Convention in Philadelphia, Symposium on Gardening in Special Education in Chicago.

61 HARDINESS AND HEAT ZONES AND PRONUNCIATIONS

62 NOTES FROM RIVER FARM

Summer school for gardeners.



AMERICAN HORTICULTURAL SOCIETY
7931 East Boulevard Drive Alexandria, VA 22308-1300
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To receive an application for the Society's Intern Program, write to Trish Gibson at the address above or e-mail her at tgibson@ahs.org. Intern application forms can be downloaded from the River Farm area of the Society's Web site at www.ahs.org.

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The AHS Reciprocal Admissions Program offers members free and discounted admission to flower shows and botanical gardens throughout North America. A list of participating shows and gardens can be found in this year's *AHS Member Guide* and also in the Membership area of our Web site.

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The AHS Web site is a valuable source of information about the Society's programs and activities. It is also an important resource for getting the answers to gardening questions, finding out about gardening events in your area, and linking to other useful Web sites. AHS members can reach the members-only section of the Web site by typing in this year's password: **perennial**.

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The American Gardener (ISSN 1087-9978) is published bimonthly (January/February, March/April, May/June, July/August, September/October, November/December) by the American Horticultural Society, 7931 East Boulevard Drive, Alexandria, VA 22308-1300, (703) 768-5700. Membership in the Society includes a subscription to *The American Gardener*. Annual dues are \$35; two years, \$60. International dues are \$50. \$10 of annual dues goes toward magazine subscription. Periodicals postage paid at Alexandria, Virginia, and at additional mailing offices. Postmaster: Please send Form 3579 to *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308-1300.

Botanical nomenclature is based on *The American Horticultural Society A-Z Encyclopedia of Garden Plants*, on *A Synonymized Checklist of the Vascular Flora of the United States, Canada and Greenland* and on the *Royal Horticultural Society Index of Garden Plants*. Opinions expressed in the articles are those of the authors and are not necessarily those of the Society. Manuscripts, artwork, and photographs sent for possible publication will be returned if accompanied by a self-addressed, stamped envelope. We cannot guarantee the safe return of unsolicited material. Back issues are available at \$8 per copy.

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An Inside Look

THOSE OF US who lived through much of the 20th century witnessed an incredible flood of chemicals and products introduced to make life easier for us all. As we now know, with the wisdom of hindsight, many of what were at the time considered "wonder chemicals" have proven to be harmful to the environment and to our health. As the 20th century ended, we faced the specter of frighteningly long lists of banned compounds that may still be present in our bodies or in the water and soil that surround us.

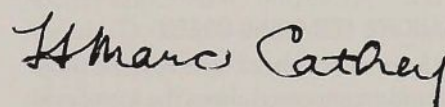
The 21st century will, hopefully, be remembered as a time when we learned how to efficiently remove from our environment many of the toxins we put there in the first place. Among the most dangerous to human health are inorganic elements such as arsenic, lead, uranium, and mercury, which were—and in some cases still are—principal ingredients in products as diverse as fungicides, medical supplies, paint, and fireworks. Unlike organic compounds, which often break down over time into harmless components such as carbon dioxide and water, these inorganic elements are fundamental chemical building blocks that retain their unique characteristics. Trace amounts of certain inorganic compounds—metals such as iron, zinc, copper, and molybdenum, for example—are essential to the life processes of plants and animals but can become toxic in higher concentrations. Other elements are toxic even in extremely small doses.

Arsenic is a truly deadly chemical with a toxicity rate of only 0.65 milligrams per person. It is a prime candidate for removal from old orchards—where it entered the soil as residue from fungicidal sprays—and from sites where pesticides, munitions, and other chemicals were dumped. There has also been concern about possible leaching of arsenic from pressure-treated lumber that is often used in gardens and playgrounds. Until recently, the only way to clean up sites polluted with arsenic was to dig up the entire mass and ship it to a hazardous waste dump.

But plant researchers have been focusing on a promising new field known as phytoremediation—literally using plants to remove pollutants from the earth. In one of the most exciting developments to date, a researcher at the University of Florida discovered a tropical fern that assimilates arsenic and stores it in its fronds. As described in greater detail on page 8, AHS and the National Capital Area Federation of Garden Clubs are cooperating with Edenspace Systems Corporation of Virginia on a pilot project to investigate how effective the fern is at removing arsenic from the soil in home gardens.

We may eventually have the ability to select plants that will not only beautify our gardens, but help cleanse our soil, water, and air. As I was constantly taught during my undergraduate and graduate studies, the green of plants is our hope for survival.

As always, yours in green,



—H. Marc Cathey, AHS President Emeritus

Members' Forum

GOOD READING

I get quite a few gardening magazines and most of the time I skim through and read only those articles that catch my interest. In the January/February issue of *The American Gardener*, however, almost every article hit my interest button. So I've been doing much reading. Thanks a million.

Julia Rappaport
Santa Ana, California

FRESH PERSPECTIVE

I would like to thank Patricia Taylor for her article on the ornamental value of blueberry bushes. In fact, I quoted part of it—with appropriate credit, of course—in a weekly garden column that I write for our local newspaper. What I was quoting was not the main thrust of Taylor's article, but the preliminary paragraphs in which she explained the thought process that brought her to the point where she was able to "look at the [blueberry] bushes differently," seeing them as beautiful ornamental plants rather than just a source of fruit.

What Taylor stated so succinctly was a perfect example of the education of a gardener—something I was just that week explaining to my readers why, after 10 years of gardening in one place, I'm rethinking my vision of the kind of garden that I want and changing directions. Taylor's article was a timely reminder that there is an alternative to either endless battles with *what is* or throwing in the t[r]owel in despair. Even after years of gardening, one can learn to look at things differently.

Pat Stover
Morris Plains, New Jersey

PLAUDITS FOR GOING GREEN

In the past few years I have become more and more concerned about the use of synthetic insecticides, herbicides, and fertilizers. I was therefore very pleased to see Carole Ottesen's article in your May/June issue on the green movement, its impor-

tance, and sources for organic controls. The more my husband and I garden and observe the delicate balance of nature, the more we are convinced that we need to be environmentally responsible and use organic gardening practices and integrated pest management (IPM).

We live in a small historic home (circa 1818) in the middle of the city's greenbelt park. Many walkers who pass by our home often ask what kind of fertilizers we use in our garden. Usually they are surprised to learn we don't use a "blue, dissolve-in-the-water" fertilizer. Few people realize synthetic fertilizers are not necessary to have a beautiful garden, nor do they understand the negative impact such products can have on the soil and the environment.

Thanks for a wonderful article and magazine. I look forward to learning more about the green movement and what we can do to protect our environment.

Nancy Scott
Kingsport, Tennessee

EDITOR'S NOTE: *Promoting environmentally sustainable gardening practices is an important part of the American Horticultural Society's mission and a focus of several of the Society's national programs, including the SmartGarden™ initiative. Additional information about the benefits of using organic rather than synthetic fertilizers will appear in upcoming issues of the magazine.*

MORE ON WEEPING TREES

Linda Yang's letter (May/June "Members' Forum") referring to Carole Ottesen's article about weeping trees in the January/February issue of *The American Gardener* raised an interesting point. In that article I was quoted in an explanation about what makes a tree weep. In her letter, Ms. Yang has extrapolated a little too much from Peter Del Tredici's famous book about a single cultivar of hemlock and the concept of plagiotropism.

While it is unfortunate that the concept of plagiotropism was cut from Ms. Ottesen's original article, one should not infer from Ms. Yang's letter that plagiotropism is synonymous with weeping. Plagiotropism is merely *the tendency* of a stem or branch to grow in a direction inclined from the vertical.

For example, the American elm (*Ulmus americana*) is a tree that is plagiotropic by nature even as a seedling; the stem becomes orthotropic—that is, grows vertically—as it enlarges, but the tree does not weep until maturity. In the weeping white spruce (*Picea glauca* 'Pendula'), the central stem remains orthotropic throughout its life, while the side limbs are always pendulous.

Plagiotropism, in the strict sense, was not apparent in the trees shown in the photographs that accompany the article. Rather, the weeping form of most of them was due to delayed or inadequate stiffening of the leaders and branches.

Guy Sternberg
Petersburg, Illinois

Corrections

✂ Woodruff Imberman, author of the article on species lilies in our May/June issue, lives in Illinois, not Wisconsin.

✂ Alert reader Art Tucker, a research professor and co-director of the Claude E. Phillips Herbarium at Delaware State University in Dover, noted that in our March/April issue we incorrectly listed catnip (*Nepeta cataria*) as a parent of ornamental catmint (*Nepeta xfaassenii*). Ornamental catmint is actually a hybrid of *N. mussinii* and *N. nepetella*.

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.

AHS 80th Anniversary: 1922–2002

~ AHS Retrospective ~

AHS IN TRANSITION: (1960–1972)

WITH THE MERGER of the American Horticultural Society (AHS) and the American Horticultural Council (AHC) in 1960, the long-held vision of a national umbrella group for American horticulture was finally realized. The new constitution and by-laws contained the best policies and most cherished ideals of the two organizations. The motto “For United Horticulture” appeared on the masthead of the Society’s quarterly periodical, which was renamed the *American Horticultural Magazine*.

The 1960s was a turbulent period in the United States, but with the leadership of a who’s-who list of horticultural luminaries, the Society forged ahead with several significant projects; these included cooperating in the development of the first USDA Plant Hardiness Zone Map, creating a special facility to maintain computerized plant records from national botanical gardens and arboreta, and initiating a special service to answer members’ gardening questions.

HARDINESS MAP

The first edition of the United States Department of Agriculture Plant Hardiness Zone Map, published in 1960 by USDA in cooperation with the Society, was a landmark event, providing gardeners for the first time with detailed information on what plants would survive winter temperatures in different regions of the continental United States. The map was the brainchild of a 1953 AHC committee chaired by Henry T. Skinner, the second director of the U.S. National Arboretum in Washington, D.C.

PLANT RECORDS CENTER

The Society’s most important project of the 1960s, however, was the development of the AHS Plant Records Center (PRC)

in 1968 at the Tyler Arboretum in Lima, Pennsylvania. Funded by grants from the Longwood Foundation, the project was the first attempt to computerize plant records for major American arboreta and botanic gardens.

The idea for the PRC was developed during the 17th International Horticultural Congress held in 1966 at the University of Maryland. After the American Association of Botanic Gardens and Arboreta (AABGA) conducted a feasibility study, the project was turned over to the Society.

“In time, we hope to store in our data banks... information on hundreds of plant collections, both public and private, throughout the United States, to make available to gardeners everywhere a vast amount of plant knowledge never before

recorded in one unit in quickly retrievable form,” wrote AHS President Fred C. Galle in the Summer 1969 AHS newsletter. This plan never came to fruition, however, because the very technology that made the PRC feasible soon



David G. Leach, AHS President from 1970 to 1974.

rendered it obsolete. As computers became smaller, less expensive, and easier to use, public gardens began maintaining their own records.

GARDENER’S INFORMATION SERVICE

In early 1969, a special committee began investigating how to handle the overwhelming number of gardening questions coming in from AHS members nationwide. Soon afterwards, the Society’s Gar-

AHS Presidents 1961–1972

Donald Wyman (1961–1962)
Henry T. Skinner (1962–1963)
Russell J. Seibert (1963–1965)
John H. Walker (1965–1967)
Fred C. Galle (1967–1970)
David G. Leach (1970–1974)

dener’s Information Service (GIS)—a network of experts who could provide authoritative answers to an array of gardening problems—came into being. Because questions had to be mailed out to the experts, however, it often took weeks for responses to arrive. Since that time, this popular member benefit has evolved considerably; thanks to a toll-free hotline and e-mail, many gardening questions are answered the same day they are received.

PUBLICATIONS CHANGES

After nearly 40 years as editor of the Society’s magazine, the legendary B.Y. Morrison retired in 1964 and died two years later. In 1972 the magazine was renamed *American Horticulturist* and—with the idea of attracting a wider variety of members—redesigned in both size and format to look less like a professional journal and more like a magazine. In 1968, the Society’s newsletter, the “AHS Gardener’s Forum,” also got a facelift and was renamed “News & Views.”

MOVE TO ALEXANDRIA

In 1971, with David G. Leach, a renowned rhododendron breeder and author taking office as 22nd president, the Society relocated its offices from Washington, D.C. to Alexandria, Virginia. This move, precipitated by the need for more space to house a growing AHS staff, foreshadowed the Society’s next big step—the establishment of a permanent headquarters at George Washington’s River Farm in 1973.



AHS Hosts Soil Remediation Pilot Project

COULD A SUBTROPICAL fern provide a future way to remove toxic arsenic from soil? That's the dream of a Virginia-based company called Edenspace Systems Corporation, which is collaborating with AHS and members of a regional garden club group on a pilot study that will test the fern's effectiveness in taking up arsenic from the soil.

Edenspace, which specializes in the growing field of phytoremediation—using plants to remove soil contaminants—has acquired the rights to a fern that University of Florida researchers discovered has the amazing ability to soak up high concentrations of arsenic from soil it is planted in. This finding yields hope that the fern could be used to clean up sites contaminated with arsenic from dumped or spilled pesticides, munitions, or mine waste. On a smaller scale, Edenspace researchers believe the fern could help gardeners clean up arsenic that might have leached into soil from pressure-treated lumber (see related article on page 15).

The fern, which the company calls edenfern™, is a brake fern (*Pteris vittata*), part of a genus of some 280 species of ferns found mainly in tropical and subtropical forests worldwide.

The trademarked edenfern is being evaluated at River Farm to determine its effectiveness in removing soil contaminants.



Hardy to USDA Zones 9 to 11, it grows best in neutral to slightly alkaline soil in part shade to full sun.

At a meeting held at River Farm in April, 38 members of the National Capital Area Federation of Garden Clubs (NCAFGC)—whose 4,000 members include gardeners from Washington, D.C., Maryland, and Virginia—were given three ferns and a soil test kit. They were asked to select a site in their gardens, preferably near a deck or retaining wall constructed of pressure-treated lumber, to plant the ferns. They were also asked to take a soil sample from the site before planting so that a baseline level of arsenic in the soil could be calculated.

In September, the study participants will clip fronds from their ferns and send those to Edenspace for testing to see what levels of arsenic they contain in comparison to the soil sample. **Betty Mosher**, president of NCAFGC, says the group is proud they were asked to be participants in the pilot study. “We’re a very environmentally conscious organization,” she added, “so our members embraced this idea in the hope it could lead to a significant environmental breakthrough in the future for gardeners.”

Edenspace’s ferns are also being tested in the gardens at AHS’s River Farm headquarters. “This is just another way River Farm can serve as an educational model for American gardeners,” says AHS President Emeritus **H. Marc Cathey**.

Time is running out...

But you can still register for this year’s AHS National Children and Youth Garden Symposium if you hurry. To sign up for the symposium, which is being held August 1 to 3 in San Francisco, call (800) 777-7931 or look for details on the AHS Web site at www.ahs.org.

NaturaLawn Takes Over River Farm Turf

VISITORS TO River Farm ooh and ah over the flower beds, meadows, and children’s theme gardens, but the lawns that surround these gardens are just as important for both aesthetic and practical reasons: They provide a framework and backdrop for the flower displays and serve as a perfect place for adults to plop down on a blanket for a picnic and for children to run off excess energy. Now River Farm’s lawns will be even more inviting, because the Society has worked

out an arrangement to have its turf maintained by NaturaLawn of America, a company that specializes in organic-based lawn care programs.

“This is a perfect alliance for us,” says AHS President **Katy Moss Warner**, “because NaturaLawn and AHS share the philosophy that gardening and taking care of the earth go hand in hand.”

Headquartered in Frederick, Maryland, NaturaLawn currently has 55 fran-

continued on page 10

Paul Ecke, Mr. Poinsettia, Dies at 76

Paul Ecke Jr., a stalwart of the floriculture industry who many credit with transforming the poinsettia from a novelty into a holiday mainstay that is now America's best-selling potted plant, died of pancreatic cancer May 13 at his home in Encinitas, California. He was 76 years old.

"Paul created a whole new standard for the poinsettia industry," says AHS President Emeritus **H. Marc Cathey**, a long-time friend of Paul's who served as master of ceremonies during a memorial service held May 17 at the Magdalena Ecke YMCA in Encinitas. "With his marketing genius, the Ecke poinsettia name was like diamonds from Tiffany."

Focusing on Poinsettias

Paul succeeded his father, **Paul Ecke Sr.**, as president of the Paul Ecke Ranch in 1963. By focusing on innovative breeding and marketing programs, over the next three decades he turned the southern California nursery into an international institution. He hired the best and brightest plant breeders to improve poinsettias through such developments as extending the peak period of color in the attractive, flowerlike bracts and increasing the sturdiness of the stems. He also pioneered the growing of poinsettias in greenhouses rather than in open fields—a key development that led to the production of cuttings with compact roots, which could be economically shipped by air. This opened up the global market to Ecke poinsettias. Today, more than half the poinsettias sold worldwide are varieties licensed by the Paul Ecke Ranch.

Industry Pioneer

In addition to his success story with poinsettias, Paul was widely known for his support of the floriculture profession as a whole. "Paul's passion for floriculture was contagious and his contributions to the industry were enormous," says **Terril A. Nell**, chair of the environmental horticulture department at the University of Florida in Gainesville. "He inspired the nation to enjoy flowers thorough his interest in poinsettias and other beautiful plants. He provided us with the enthusiasm and encouragement to do valuable research and to share information with the floriculture in-

dustry and the public in brief, clear, and meaningful ways. And, above all, he encouraged me and many others to excel in every aspect of our personal and professional lives."

History of Service

After serving as president of the Ecke Ranch for 28 years, he handed the reins over to son **Paul Ecke III** in 1991, but continued to serve as chairman. Less involvement in day-to-day operations freed up time to devote to volunteer

work. A longtime supporter of AHS, he served two consecutive terms on the Society's Board of Directors in the 1990s and continued to be an active member of AHS committees up until a few months before his death. He also served on boards or committees for a variety of other organizations, including the Ohio Florist's Association, the Society of American Florists, and three different California universities.

Paul served in the U.S. Navy in the Pacific during World War II and was recalled to active duty in the Korean War. In between, he earned a bachelor's degree in horticulture at Ohio State University (OSU)—the beginning of a lifelong commitment to horticulture and floriculture programs at OSU and other land grant universities.

Awards

Paul received numerous awards during his lifetime, among them AHS's most prestigious national award, the Liberty Hyde Bailey medal, in 2001. Shortly before his death, Paul was notified that he had been selected to receive the Ohio State University 2002 Alumni Medalist Award, the highest honor accorded by the university's alumni association. The award will be presented to Paul Ecke III at a ceremony to be held this fall.

Marc recalls with fondness Paul's fascination with color and his unquenchable thirst for information and ideas. "All Paul's letters were spiked with vivid colors, you could spot them from 50 feet away," he says. "As soon as one appeared in my mail I would immediately start wondering, 'What does Paul want to know this time?'"



"Paul created a whole new standard for the poinsettia industry. With his marketing genius, the Ecke poinsettia name was like diamonds from Tiffany."

—H. Marc Cathey, AHS President Emeritus

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continued from page 8

chises in 24 states. Its lawn care strategy relies on integrated pest management, an approach that emphasizes use of carefully timed applications of organic fertilizers and biological controls rather than reliance on conventional synthetic



NaturaLawn's Rick Schwartz and River Farm's landscape gardener Peggy Bowers discuss options for implementing an organic lawn maintenance program on the property.

pesticides and fertilizers. NaturaLawn also sells a line of natural lawn care products for do-it-yourselfers.

At River Farm, NaturaLawn will be instituting a pesticide-free program, which is particularly important at a site where so many children play. "Our goal is to develop a totally organic turf-care program while at the same time maintaining a high quality lawn," says **Rick Schwartz**,

branch manager of the Northern Virginia region of NaturaLawn.

Warner to Speak at International Conference

AHS PRESIDENT **Katy Moss Warner** will be one of the keynote speakers at the XXVI International Horticultural Congress and Exhibition to be held August 11 to 17 in Toronto, Canada. The congress's theme, "Horticulture: Art and Science for Life," represents the intertwining of horticultural arts—industrial, decorative, and therapeutic—with human health and quality of life issues.

Katy is part of an illustrious lineup of speakers—including renowned Harvard biologist **E.O. Wilson** and garden designer and author **Julie Moir Messervy**—who will make presentations during the signature colloquium titled, "Applying the Art and Science of Horticulture to Improving the Quality of Human Life."

"This is a wonderful meeting because

it brings together hundreds of horticultural scientists from around the world—these are the researchers and plant breeders on which gardeners depend for improving all our food and ornamental plants," says Katy. "One of things about this year's congress that is particularly exciting for me is that all these horticultural scientists will get a chance to learn about the terrific research that is being done to document the critical importance of people-plant relationships."

The conference opens with seven "big-picture" colloquia of general interest, followed by 23 symposia devoted to more technical presentations. Workshops and other activities will be held in the evenings. The extensive program of activities also includes three pre-congress and 18 post-congress tours that highlight the horticultural features of Toronto and the surrounding area.

The Congress is being held at the Metropolitan Toronto Convention Centre. The complete program, fee schedule, and registration details can be viewed at www.ihc2002.org.

continued on page 12

American Horticultural Society's 80th Anniversary Gala

The Garden as Art

September 28, 2002 6:00 p.m. – 10:30 p.m.

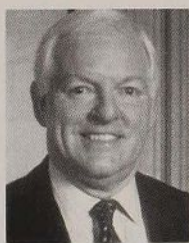
George Washington's River Farm
Headquarters of the American Horticultural Society
Alexandria, Virginia



River Farm main house by Donna Sturm

Join Honorary Chairman, Earl A. "Rusty" Powell, Director of the National Gallery of Art, Washington, D.C., the AHS Board of Directors, and the Friends of River Farm for hors d'oeuvres in the gardens and dinner under tents with a spectacular view of the Potomac River. Spend an exciting evening bidding on fabulous silent and live auction items and kicking up your heels with friends in our ballroom!

Funds raised in this event will be used to preserve and maintain the historical beauty of River Farm and to increase our ability to develop River Farm as a national showplace of environmentally responsible horticulture and gardening.



Rusty Powell has been the director of the National Gallery of Art since 1992. Prior to this he was the director for the Los Angeles County Museum of Art for 12 years. *"I am delighted to be the Honorary Chairman of the River Farm Gala 2002. The preservation of River Farm and its gardens through the support of the American Horticultural Society will help ensure the perpetuation of this important property."*

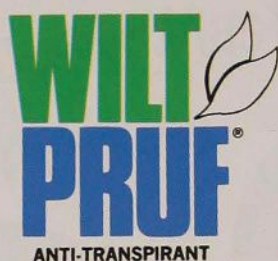
Tickets: \$200 per person

To purchase tickets or to make a donation, please call Janet Daniels at (800) 777-7931 ext. 110.



Music in the gardens provided by the JG Jazz Trio. Dance music in the ballroom by the JG Variety Dance Band, represented by MSE Productions. Catering by Capitol Caterers, Alexandria, Virginia

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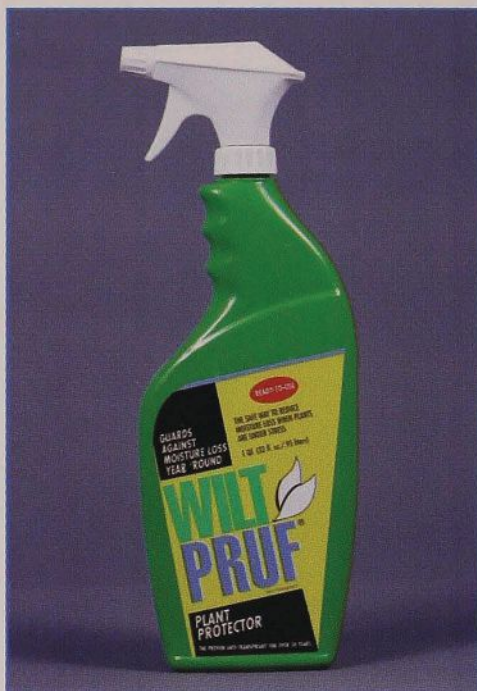
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continued from page 10

River Farm in the News

THE GARDEN at AHS headquarters here at River Farm was among several prominent public gardens in the Washington, D.C., area that were profiled in a summer travel feature in the June/July issue of *Garden Design* magazine. River Farm was featured along with Mount Vernon, Dumbarton Oaks, the U.S. National Arboretum, the newly renovated Conservatory of the U. S. Botanic Garden, and several gardens that surround the museums on the National Mall in Washington, D.C.

So if you visit River Farm this summer and it looks a little more crowded than usual, you'll know why!

Seed Exchange Time

If you haven't already started collecting seeds to submit for the AHS's Annual Free Seed Exchange, now's the time to start checking your plants to see which ones have seeds ready for harvest.

By participating in the seed exchange—a valuable AHS member benefit—you not only get to share



seeds of your prized plants with other AHS members, you also get a chance to choose from hundreds of different kinds of seeds sub-

mitted by other avid gardeners and seed companies.

All you have to do is collect ripe seeds from your plants this summer and fall and store them in a cool, dry place. Then look for the seed exchange information and donor form that will arrive with the September/October issue of *The American Gardener* and follow the instructions. A list of available seeds will be mailed to you in January.

Members who donate enough seeds to fill 100 orders get first choice of seeds.

Leave a Legacy

*Remember the American Horticultural Society
in Your Will or Trust*

AHS provides reliable, up-to-date information on issues of immediate concern to gardeners and the greater community. The Society's mission is to nurture the active development of the United States as a nation of successful and environmentally responsible gardeners.

You can help support us in our mission by making gifts to AHS during your lifetime or under the terms of your will through what is known as planned giving. Let AHS recognize you now for the gift you have planned by joining the **Horticultural Heritage** today.

To learn more about how you can support AHS, contact our Development Office at 7931 East Boulevard Drive, Alexandria, VA 22308-1300, (703) 768-5700 ext. 115.



We urge you to consult with your legal and financial advisors to assist you in arranging the best method of contributing. The American Horticultural Society is tax-exempt under Section 501(c)3 of the Internal Revenue Service Code. Contributions to AHS are tax-deductible to the fullest extent allowed by law. AHS is also a registered charitable organization under Section 57-49 of the Virginia Solicitation of Contributions Law; a financial statement is available upon written request from the State Division of Consumer Affairs.

Anne Raver: Journalist and Author Back Home on the Farm

by Carole Ottesen

ANNE RAVER, prize-winning garden columnist for *The New York Times* and author of *Deep in the Green*, received the Society's award for outstanding garden writing at AHS's annual Great American Gardeners conference in Seattle this past June. To find out why gardening and nature play integral roles in her writing, I visited her at her ancestral Reisterstown, Maryland, farm where she is turning the barn her grandfather built into a new home.



You have lived in Brooklyn but have very often written about rural Maryland. Now that you are building a home in Maryland, do you think your focus will shift?

I still have a foot in both worlds, which is both a torture and a luxury. I guess I will be writing about why I'm here—trying to see if this farm for me is merely nostalgia and a fear of going forward or a rich opportunity for bringing this old place into the present moment, where it can be meaningful to the community.

In your garden writing, a rose is never just a rose or a bean just a bean, but, rather, jumping-off points for musings and stories that uncover a deeper reality.

Yes, I garden more for the experience—digging, looking at worms, watching the light—than for growing beautiful roses, though I enjoy that when I have the time and discipline. But I often don't have the latter, and I never have the first!

I think many people are extremely disconnected from the earth. They water their lawns during droughts and drive large fuel-hungry cars when we all should be saving natural resources. Now everybody is digging wells to get "theirs" before some water board puts the kibosh on it. Where do these people think their water comes from? It's the same with gardening, with pesticide use, and so on.

In your garden writing, you don't play the expert by telling us what to do, but share the uncertainty—even angst—we feel when we pit our inexperience against the unknown. Can you explain this?

This is what I enjoy about gardening: the experimentation and the observation. If something goes wrong, or the gardener wins a battle of some sort or loses—like Job—that's what interests me.

Your farm and family seem conjoined and form a wonderful mother lode of material from which you draw your sub-

ject matter. Do you think your family is unusual?

No. Everyone's family is just as interesting; it's all in the telling. I have a cousin, Randy, who can make getting lost on a trip into a warehouse in Baltimore sound like the Gilgamesh epic; my mother was the same way telling about a trip to the grocery store.

In your writings there is a sense of the farm and, perhaps, the family not being haunted exactly, but sentient to what has gone before. There is one example of invisible guests at the Thanksgiving table—the spirits of Captain John Smith, the Susquehanna Indians, your grandparents. What's going on here?

We all live with these rich layers, if only we would see them. What kind of rock is New York sitting on? Who lived there before the white people came and cheated the Indians out of their land? What plants and recipes did they hand down to us? What pathways and roads and vistas are still there for us to walk on and see as if we are walking in their own bodies? I don't think it's a matter of being haunted so much as being aware of these layers of other existences.

What factors in your childhood influenced you to become a writer?

I came from storytellers on both sides of the family. We didn't have a lot of movies and videos and fancy games, so we made up very involved games down in the woods or around the farm, or pumped our yackety-yak old grandmothers and uncles for good stories—which we had heard, of course, and wanted to hear again. I think I absorbed the art of storytelling and observation from them.

Also, I was sick for about a year, out of school, and was told to go for long walks in the fresh air. Nobody else was around, so I played by myself in the woods and the stream and in the barnyard, talking to the cows, dogs, cats, and birds. And I'm a bookworm; I love stories and storytellers. I probably live in that reality more than real life—which sometimes has its drawbacks!

Do you have any new projects in the works?

Yes, I'm working on a book about the farm as a kind of microcosm for the American landscape. I'm interested in taking a piece of land and looking at it in layers—what animals and birds and reptiles were there before our suburbs and before the farmers who were in my family arrived.

And I am trying to live a life for me now, and not just for my job or bosses, or what I think other people think I *should* be doing. At times that leaves me feeling a bit of a blank slate, and other times it is very liberating.

Carole Ottesen is an associate editor of The American Gardener.



SMARTGARDEN™ —Microclimates

Take a look around your yard. How many microclimates can you identify? And how can you use them to your gardening advantage?

A microclimate is an area that differs from immediately surrounding areas with respect to climate: It might be warmer or cooler, wetter or drier, exposed to strong winds, or protected from them. Identifying these variations within your landscape can extend your gardening options and reduce problems. Plants that are appropriately sited according to their specific cultural needs grow stronger, look better, and are easier to maintain. And microclimates can often expand—or reduce—your plant choices for a specific area within your yard by a full hardiness or heat zone.

Factors that influence temperature, moisture levels, and exposure to wind include location and density of trees and shrubs, existing structures and paved surfaces, presence of water, and variations in topography.

Existing vegetation. Trees provide shade, and shady areas are typically several degrees cooler than adjacent areas in the sun. Shady spots also tend to stay wetter longer. Some plants that thrive in the sun where summers are cool can be grown in warmer climates if they are provided some shade.

Dense vegetation can also block buffeting winds that cause a rapid loss of moisture by plants and soil. Planting a windbreak to provide protection from prevailing winds is one way you can help create a microclimate in your yard.

Structures. A house, garage, fence, or wall can also serve as a windbreak. These structures cast shade as well—the north side of a wall tends to be cool and damp; the sunny south side will be notably warmer and drier. Such a wall creates two distinct microclimates that are separated by mere inches. Each side will support a culturally distinct set of plants. Although the difference in climate on either side of a wall that runs north to south is more subtle, the west side will tend to be warmer than the east side.

In temperate zones, a south-facing wall, particularly if it receives full sun, is a great place to grow sun-loving tropical or subtropical vines—such as bouganvillea and black-eyed Susan vine (*Thunbergia alata*)—as annuals. The soil warms earlier in the spring boosting early growth. And because the wall collects and holds heat, moderating cooler night temperatures, growth will continue later into the fall.

Because the area is cooler, plants growing on the north side of a building break their dormancy in the spring later than those on the south side. This difference can be used to your advantage. For example, the star magnolia (*Magnolia stellata*) bears early spring flowers that are easily

damaged by frost. To reduce the likelihood of this problem, plant the tree on the north side of your house, where it stays cooler, delaying growth for a critical week or two. By the time the magnolia breaks its dormancy and the flowers open, the chance for a damaging frost is significantly reduced.

Air temperatures are influenced by the material and color of nearby structures: White or light colors reflect daytime light/heat back onto the plants; dark colors absorb the heat. South-facing dark walls can become “heat sinks,” collecting and storing heat during the day and releasing it for several hours after sunset, keeping the immediately surrounding area several degrees warmer.

Hardscaping and soil surfaces. The color of paved surfaces and mulch has a similar effect on nearby plants. Dark mulches absorb heat, and using them is an effective method of warming the soil. Light-colored paving reflects both light and heat back to surrounding areas. Heat-tolerant plants that thrive in sunny locations are usually the best choices near unshaded driveways and sidewalks.

Water. Large bodies of water have a moderating effect on temperature, but even a backyard pond or pool can contribute a similar, though more subtle, influence. Plants located at the edge of a backyard pond not only have more water available in the soil, but also benefit from a warmer and more humid growing environment created by evaporation from the pond surface.

Topography. Unless your yard is flat, its topography will influence your growing conditions. Hot air rises, so sloping ground tends to be warmest at the top. Heavier, cooler air sinks to the lowest point. This phenomenon can create “frost pockets,” where frost forms first in the lowest areas of a yard. Such a location should be noted. Tender herbaceous plants and plants that produce cold-sensitive, early spring flowers will be more likely to be damaged by late or early frosts if they are located in a frost pocket.

Slopes also affect runoff. Water can collect in a low area, making an ideal location for a bog garden. Steep slopes can be tamed and runoff reduced by using retaining walls to create level planting areas.

By carefully observing the nuances of climate within your landscape, you can amplify your gardening options and minimize environmental stress.

Rita Pelczar, Associate Editor

Gardener's Notebook

Horticultural News and Research

Phase Out of CCA-treated Wood Over Two Years

ON FEBRUARY 12, 2002 Environmental Protection Agency (EPA) Administrator Christie Whitman announced that the lumber industry had voluntarily agreed to a two-year phase out of CCA treated wood (marketed as Wolmanized® CCA pressure-treated wood) to reduce exposure to arsenic, a known human carcinogen, used in treating the wood.

Calling this agreement "a responsible action by the industry," Whitman outlined a phase-out schedule that will move consumer use away from CCA-treated wood, an enormously popular material that is employed in all manner of residential, garden, and park structures. A 22-month transition period will allow some 350 wood treatment plants around the country to switch over to new, arsenic-free preservatives. During this time, existing supplies of CCA-treated wood will still be sold. After January 2004, the EPA will no longer allow CCA products for residential uses such as decks, porches, seating, fencing, picnic tables, and play structures.

CCA stands for the mixture of copper, chromium, and arsenic that is injected into the wood in a high pressure process that preserves and protects the wood from dry rot, fungi, molds, termites, and other

insect pests. This process has been used since the 1940s.

Research suggests that arsenic leaches from treated wood into the soil at varying rates and amounts, depending upon climate, age, and strength of the preservative. Nevertheless, the EPA is not recommending that existing treated wood structures be removed or replaced. The agency does, however, suggest that people use the following precautions around CCA-treated wood:

- Apply a penetrating coating such as oil-based, semi-transparent stain on a regular basis to possibly reduce the migration of chemicals from the treated wood.
- Don't burn treated wood in open fires, stoves, fireplaces, or residential boilers.
- Don't allow food to come in contact with treated wood.
- Always wash hands and exposed parts of the body after contact with treated wood.
- Always wear a professional quality dust mask when working with the wood.

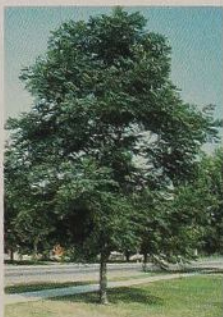
There are also many alternatives to CCA-treated wood, including naturally rot-resistant woods such as redwood and cedar; recycled plastic products; and resins. For more information, visit www.epa.gov/pesticides/citizens/1file.htm.



Pressure-treated wood was, until recently, the material of choice for constructing decks, stairways, raised beds, and other garden structures.

REGIONAL PLANT PICKS FOR 2002

HOMEOWNERS IN Nebraska's climate of extremes have only to check with the state's GreatPlants Program to know what is likely to succeed in their gardens. Each year, the program, sponsored by the Nebraska Statewide Arboretum, recognizes a tree, a shrub, and a perennial that thrive in Nebraska. The 2002 GreatPlants tree of the year is the Kentucky coffee-tree (*Gymnocladus dioica*), a



Kentucky coffee tree

rugged, handsome native with textured bark and large compound blue-green leaves that turn clear yellow in fall. Kentucky coffeetree can reach 60 feet and grows broad with age. Female trees produce the mahogany-colored seedpods, once used as a coffee substitute, that give this tree its common name. Other 2002 GreatPlants are shrubby St. Johnswort (*Hypericum kalmianum*), shrub of the year, and bloody cranesbill (*Geranium sanguineum*), perennial of the year. For more information on these plants, visit www.ianr.unl.edu/greatplants.html.

Other regional gardening groups that have recognized plants in 2002 include: ■ Florida Nurserymen and Grower's Association (www.plantforlife.org/plantofyear.html)

■ Pennsylvania Horticultural Society (www.pennsylvaniahorticulturalsociety.org/GM/2002win.htm) for Mid-Atlantic and Northeast

■ The Cary Award, sponsored by a cooperative of New England horticultural societies and nursery associations (www.caryaward.org)

■ Great Plant Picks program sponsored by the Elisabeth C. Miller Botanical Garden in Seattle (www.greatplantpicks.org)

■ Denver Botanic Gardens and Colorado State University (www.ext.colostate.edu/psell/index.html)

ANTI-FUNGAL USE FOR MILK

WHAT DO Brazilian zucchini farmers and New Zealand's melon growers have in

common? Both groups are using milk instead of synthetic fungicides to control mildew on their crops. And it's working.



Although nobody knows exactly how it works, Brazilian scientist Wagner Bettiol's experiment using weekly sprays of at least a 10 percent milk solution (one part milk to nine parts water) suggests that the milk is both an immune stimulant and a lethal fungicide to *Sphaerotheca fuliginea*, the organism that causes mildew in squashes, melons, and other cucurbits. Bettiol used fresh milk straight from the cow. For farmers and gardeners without access to a bovine supplier, skim milk has been shown to be just as effective by researchers in New Zealand.

HISTORIC WITNESS

IS THERE A tree in your town, your local park, or your yard that has stood as a silent witness to an event of historical significance? Has it shaded the home of a famous citizen? Is it so big or so beautiful that it has

become a legendary landmark in your community? If so, nominate it for inclusion in the National Register of Historic Trees' nationwide campaign for new candidates. Anyone can nominate a tree and there is no fee. The trees selected for the Register will have their stories told in the book, *National Register of Historic Trees*, to be published in spring 2003, as well as at the Historic Trees internet site. To nominate a tree, go to www.historictrees.org.

ANCIENT SUNFLOWER SELECTION

RECENT ARCHAEOLOGICAL excavations near Tabasco, Mexico, have debunked the notion that the sunflower (*Helianthus annuus*) was first domesticated in eastern North America. Working with a team of archaeologists at the San Andres site, David Lentz of the New York Botanic Garden says, "we found big, fat, clearly domesticated sunflower seeds that radiocarbon analysis dated to around 2800 B.C." That predates



anything in the eastern United States.

Lentz has received grants from the National Geographic Society and the National Science Foundation to return to Mexico to look for the wild ancestors of sunflowers.

EASING QUEASINESS

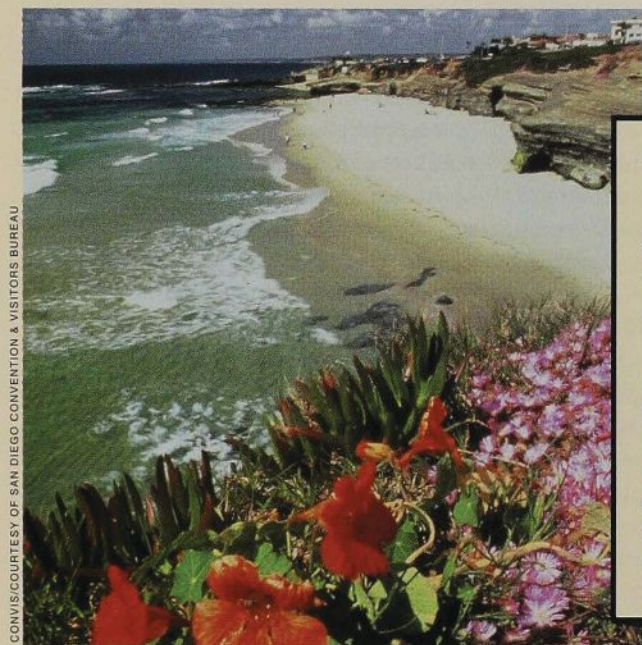
CHINESE SAILORS may have been the first to chew on ginger root (*Zingiber officinale*) to combat motion sickness several thousand years ago. Over the centuries, ginger has become a standard remedy for nausea in India and has spread across the Middle East to Europe. Now, herbalists in the United States are embracing ginger root as the stomach-settler of choice. Several studies have suggested it is just as efficacious as standard over-the-counter remedies such as dimenhydrinate, sold as Dramamine, and scopolamine. Ginger, says ethnobotanist and former USDA scientist James Duke, "beats motion sickness drugs every time." Ginger may be taken in capsule, tea, or candied form.



2002 American Horticultural Society TRAVEL STUDY PROGRAM

Gardens of San Diego and La Jolla

October 29–November 3, 2002



The Travel Study Program to the gardens of San Diego and La Jolla highlights a wide variety of gardening styles, from traditional cottage gardens to woodland settings. Many of the gardens we will visit have been featured in *Better Homes and Gardens* and *Sunset* magazines. A number of the garden owners have extended to us invitations for lunch and dinner.

Leading this program for the AHS will be Patrick Anderson of Fallbrook, California. Patrick helped lead our last Travel Study Program to the San Diego area, and it is through his personal friends and contacts that we have received special permission for our garden visits. We will have the opportunity to visit Patrick's and his partner Les Olson's garden for one of our luncheons. Their unique garden was recently featured in an episode of the PBS series "The Victory Garden."

For complete details of the exciting 2002 schedule, visit the AHS Web site at www.ahs.org, or call the Leonard Haertter Travel Company at (800) 942-6666.

No member dues are used to support the Travel Study Program.



Gardener's Information Service

USES FOR GRASS CLIPPINGS

Should I bag grass clippings or let them fall in place as I mow my lawn?

—D.R., SACRAMENTO, CALIFORNIA

Grass clippings are an excellent source of nitrogen. If you allow them to fall in place, they will slowly decay and naturally feed your lawn. When mixed with high-carbon materials such as twigs, branches, and dried leaves, they are also an excellent source of green matter for compost piles. Finally, grass clippings can be raked up and heaped in piles as a dense mulch to smother undesirable weeds such as poison ivy. Used this way, they also make handy paths in the vegetable garden. But be very careful not to add grass clippings that have been treated with pesticides to the compost heap or the vegetable garden. Studies have shown that grass clippings treated with certain pesticides can have residual herbicidal effects for up to 18 months after application.

MAINTAINING AN APPLE TREE ESPALIER

I have a two-year-old Belgian fence of espaliered apple trees. The trees have now reached the top of the eight-foot fence they are trained against. Do I trim the branches back at the top or do I train them to run horizontally along the top?

—J.R., WENATCHEE, WASHINGTON

A Belgian fence is a complex lattice-patterned espalier formed by combining at least three single plants (technically called "horizontal cordons"). Each is pruned to two major branches, trained in a broad V. A vertical cordon is positioned at each end to complete the pattern edges. How you treat the top of the fence depends upon the look you wish to achieve. The easiest approach is to stop the growth when it reaches the top, leaving relatively

open spaces between the ends of the branches. Alternately, by training the branches horizontally along the top until they meet, the result will be a closed, more fencelike appearance.

Apple espaliers require pruning twice yearly—in summer and in late winter. In the first couple of years, the main objective is training. After establishment, pruning assures good fruiting and appearance. As the spur systems develop and become more complex, use winter pruning to relieve overcrowding and remove old or unproductive sections.

Regular summer pruning controls vigorous upper growth and redirects energy to the lower branches. If the top growth tends to be more vigorous in spite of summer pruning, thinning shoots on their spurs after growth has started will restore some balance.

NON-BLOOMING PERUVIAN DAFFODILS

I have been growing Peruvian daffodils in pots for three years now. The foliage is healthy and they multiply vigorously, but so far they haven't bloomed. I feed them with slow-release granular fertilizer in the spring when I bring them out of the greenhouse and give them plenty of water and sun. How can I get them to bloom?

—C.W., KNOXVILLE, TENNESSEE

Peruvian daffodil (*Ismene narcissiflora*, sometimes listed as *Hymenocallis calathina*) is a bulbous perennial native to the Andes Mountains of Peru. According to Alan W. Meerow of the USDA's National Germplasm Repository in Miami, Florida, for best bloom the plant needs to be allowed a dry, cool rest period in winter. It is possible that your greenhouse may be too warm for the plant, which should be kept dry and at about 50 degrees Fahrenheit during dormancy.

It is also possible that your bulbs are still immature or undersized—they produce flowers most prolifically when they are slightly crowded in the pot. If so, it will take a couple more years for them to reach blooming size. At the opposite extreme, the bulb may have produced so many offshoots that its energy is being sapped. If that is the case, remove all the offshoots this fall and pot them up individually. Plan to divide bulbs about every three to four years.

Also, be sure you are not removing the foliage too soon in the fall—you should be allowing the leaves to wither and turn brown before cutting them off. The plant relies on the foliage to manufacture and store nutrients for the following year—thus increasing the size of the bulb.

KNOTWEED CONFUSION

I have seen the plant 'Painter's Palette' listed under several different names. What is its correct name and natural habitat?

—M.B., MADISON, WISCONSIN

'Painter's Palette' is a cultivar of knotweed or smartweed (*Persicaria virginiana*, sometimes listed as *Polygonum virginiana*). The species is native to the Himalayas, Japan, and eastern North America, where it is found in moist soil in full sun or part shade. 'Painter's Palette' is better behaved than the species, which can become invasive, spreading by rhizomatous roots. Even so, 'Painter's Palette' is a vigorous spreader. Give it ample space and be prepared to keep it in check by removing part of its roots if it spreads out of bounds. It is hardy in USDA Zones 5 to 9 and heat tolerant in AHS Zones 9 to 5. 🍷

William May, Gardener's Information Service Volunteer, and Marianne Polito, Gardener's Information Service Manager.

WE'RE READY TO HELP: For answers to your gardening questions, call Gardener's Information Service at (800) 777-7931, extension 131, between 10 a.m. and 4 p.m. Eastern time, or e-mail us anytime at gis@ahs.org.

Offshoots

A Thirst for Watering

by Nancy Sweetland

I'VE GOT FOUR different automated watering devices, each made to fulfill the special needs of a different part of my garden. When I'm short on time, I put one of them in place, turn it on, and go about my other business. I know the plants I want watered are going to get the sustenance they need, whether it's from an oscillating sprinkler that noisily flings water over a broad section of the garden—and, okay, wastes as much to evaporation—or from the soaker hoses that quietly and efficiently deliver thirst-quenching gratification to the roots of those plants they border.

But what about *me*?

I have a need, too—the need to be a principal player in the ever-changing drama of the cycle of seasons, to play an integral part in the environment that surrounds my small patch of earth.

It's not enough to just plant and watch nature take its course. No. I must be the nurturer, the living instrument that draws nourishment from Mother Earth and returns it to this small greening plot that is under my care. If I could, I'd carry buckets of water from a natural reservoir—or pump freshly caught rainwater from a cistern. But, living in the city, I can't do those things.

What I *can* do is hold a watering hose.

There's a deep-down satisfaction in delivering life-giving water with my hands to the earth, in giving my garden not only the nourishment it needs to thrive, but in simply being there, being one with the plants. I become a part of each growing thing, each burgeoning bud, even each blade of grass and each dandelion.

When I can, I like to head out into the garden in the early morning to start my day. It's also the best time to water, for plants whose wet leaves are soon dried by the day's sun and wind are better able to resist fungal disease.

I turn my hose to a soft, rainlike spray and wave it like a magic wand over each section of the garden. As I quietly work, I take notes: What's different today? What's coming into bloom?



What's in need of special care?

It's early summer and in my wild flower garden the trilliums have turned from white to lavender—some even to deep rust—before they wither. The hepaticas have relinquished their sprays of varicolored blossoms and donned their summer guise of solid foliage. Fleabane is coming into bud along the redwood fence, and, oh, yes, here's a new sprig of wild geranium that has seeded itself.

There's a feeling of cool greenness as I water, moving the hose easily so a shower sweeps over small blossoms on the chokeberry bush and the emerging jack-in-the-pulpit and soaks the wood-ferns, heavy with spore.

I test the length of the hose. Will it reach to wash the dusty leaves of the bittersweet and its random tendrils reaching up to climb the back fence? Yes. The stretching vine responds to the spray

with wet nods, as if in thanks. *You're welcome, glad to do it for you.*

A wren chatters at me. I've come too close to her nest, though the babies must be on their own by now. *Sorry; I'll move along in a moment.* A small bunny, startled and soaked by the water spray, darts from under the wild grape vine. *Good. Perhaps it didn't have time to dine on any new shoots.*

The lilac flowers have faded now. I direct the hose on the bushes, watching water drip from the leaves onto the May apples below. Do they sense it's a false rain? Probably; the water isn't soft. But it's given with heart.

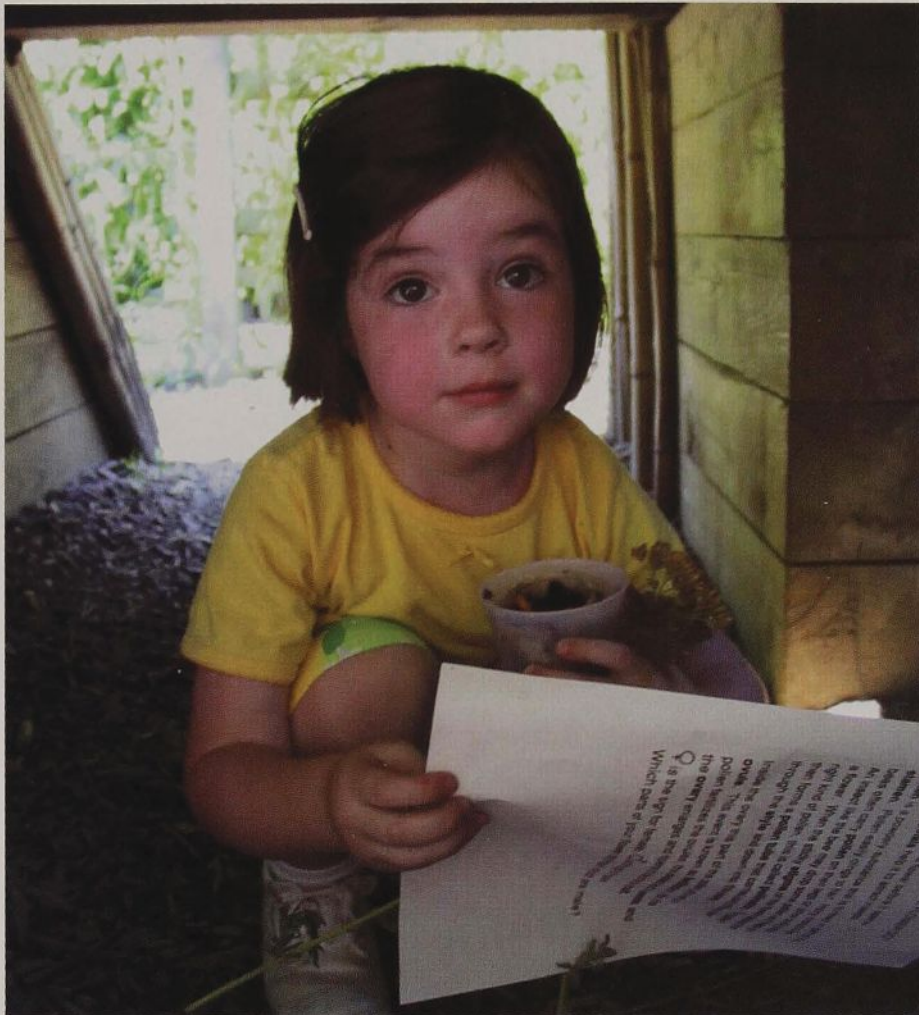
Use the sprinkler or the soaker hoses? Only when I have to. There's a part of me that seeks union with each facet of nature, that needs to identify with every inch of this small garden, to learn which insects might be preying on my Eden—and to welcome the ladybugs and spiders that labor for its betterment.

There is a master plan that works through nature, that—if I pay attention—puts things into perspective. And that's why, when my life goes awry or when there's a problem to work out that needs reflection on a level I can't achieve on my own, I water my garden. I nourish my portion of earth.

And, in return, it nourishes my soul. ☺

Nancy Sweetland is a free-lance writer living in Green Bay, Wisconsin.

Sarah Doesn't Care that AHS has been Inspiring and Educating Gardeners for 80 Years.



Sarah isn't all that interested in our 80th Anniversary celebration. Who can blame her? She just planted her first seed and found out that it will need water and sunshine to grow. She also learned that worms are very good for the soil—and a lot of fun to play with. **Sarah is one of many children whose introduction to the joys of gardening happened because of the caring people who have supported AHS for the past 80 years.** Living Lab programs at River Farm, like the one Sarah is involved in, are just a part of our larger mission to educate and inspire gardeners of all ages. We think that's pretty special and want to thank you on behalf of Sarah for being a part of that history. Take our word for it: Your support is very important to her.

She'd tell you herself, but she just spotted a butterfly on a nearby black-eyed Susan and is very busy watching it and wondering what it is doing. Thanks to you, she's about to find out.



If you'd like to make a donation to the American Horticultural Society, please contact Joe Lamoglia at (800) 777-7931 ext. 115, or visit our Web site at www.ahs.org.



Wild, Woolly, and Wonderful MULLEINS

Tall, beautiful, and slightly untamed, mulleins are perfect for a cottage garden.

BY NANCY MCDONALD

HENRY MITCHELL once wrote, "Mulleins are among those glorious plants that are almost but not altogether entirely weeds." Louise Beebe Wilder thought so, too: "They have the look of things but once removed from the wild, not untidy, not gauche, but affinitive certainly with free spirits." Their almost-wild air and carefree nature make mulleins ideal cottage garden plants, yet the largest species are majestic enough to grace even a formal garden. Wilder called them indispensable and magnificent, noting in 1918 that "the appreciation of Mulleins has but recently begun in this country." That appreciation has been a long time coming; most visitors to our garden still don't recognize a mullein when they see one.

NATURAL HISTORY

MULLEINS BELONG to the genus *Verbascum*, a member of the figwort family, Scrophulariaceae. About 300 species have been identified.

Mulleins range in height from the eight-inch subshrubs to towering biennials; in our garden we once had a 14-footer. A more common height is three to five

Opposite: A single specimen of great mullein (*V. thapus*) dominates a mixed bed at the State Botanical Garden of Georgia. **This page:** Mullein flowers—as these of *V. chaixii*—are typically yellow-petaled with contrasting red or purple stamens.



feet. The leaves tend to be oval in outline with the largest at the bottom of the plant; they grow steadily smaller as you go up the stem. Often they are hairy or even furry.

Mullein flowers are most commonly yellow, usually lemon or canary and blessedly rarely gold or highway-line yellow. Many have a white form as well, and some bloom in violet, purple, pink, or lovely muted, tawny shades including buff, pink, and peach. The flowers are held in racemes (unbranched stalks) or panicles (branched stalks); buds at the bottom open first. There are five usually rounded

petals and five stamens. Often the stamens are bearded. This adds considerably to the charm of the flowers, as the furry beard may be a contrasting purple or red. A very large mullein flower is two inches across—most are about an inch—but what they lack in size they make up for in numbers and length of bloom season.

However, like so many plants, mulleins resist classification. You may find the biennials more long-lived or the perennials short-lived in your climate. The key to enjoying mulleins is to gratefully accept what they will give you and remember that they don't read plant encyclopedias. Most are biennial or short-lived perennials, though a few behave as annuals and some are even considered subshrubs, having woody growth at the base and partially soft stems.

UNBRANCHED BIENNIALS

THE CLASSIC MULLEIN, if there is such a beast, is truly biennial. In its first year from seed it grows a magnificent, furry rosette of leaves so soft that it's hard not to pick them. In its second year, this creature sends up a skyrocket flower stalk. The big biennials differ mostly in the amount and color of their leaf-fur, the height of their stalks, whether or not these stalks are branched, and the flower diameter. Individual plants of the same species reach different heights in the garden—some grow streetlamp-straight, some will curve as they grow skyward—adding to the appeal.

The great mullein (*V. thapsus*, USDA Zones 3–9, AHS Zones 7–2) bears grayish fur. Depending on the soil and situation, the flowering stalk typically reaches three to seven feet. The yellow flowers are less than an inch across, growing in a narrow ring that moves up the usually unbranched stalk. This relative paucity of bloom has kept great mullein out of many modern gardens. I let it seed itself in my garden and keep three or four plants each year; there are more decorative mulleins, but I have a soft spot for it as it was my first love in the genus.

V. densiflorum (once *V. thapsiforme*, Zones 5–9, 8–4) is a good bit more floriferous, though in my garden it grows shorter than great mullein: four to five feet tall and 18 inches across at the base. Its fur is distinctly yellowish and glows beautifully in the sideways light of early

morning or late evening. The flowers are large for a mullein—two inches across—and are produced much more densely than those on great mullein, hence the species name, *densiflorum*.

Beside it in the garden I grow *V. phlomoides* (Zones 4–8, 8–1), considered by William Robinson the best of all mulleins. In *The English Flower Garden* (1896), he describes its flowers as rich yellow, “the display lasting in beauty nearly the whole season through.” It’s as well that I like both *V. densiflorum* and *V. phlomoides*, because they interbreed in my garden, as mulleins are prone to do.

The mullein that most excited Vita Sackville-West was *V. bombyciferum* (known in her day as *V. ‘Broussa’*, Zones 4–8, 7–2). “Huge grey-green leaves, heavily dusted with flour, throwing up a spike six to seven feet tall, even more grey and

woolly than the leaves. It fascinated me to watch this spike growing so rapidly, and to observe its pentagonal buds exploding one by one into the yellow flowers.”

Cultivars of *V. bombyciferum*, ‘Silver Lining’, ‘Polar Summer’, and ‘Arctic Summer’, have whiter fur than the species, and become enormous—to six feet tall or more, taking up a circle a good three feet across—and splendid.

CANDELABRUM BIENNIALS

A MYSTERY MULLEIN takes us from biennials with essentially unbranched stalks to those that form a candelabrum. *V. brevipedicellatum* (Zones 5–9, 9–5) came to me from a seedlist, but I have been unable to find it in literature. In my garden it grows to some five feet, producing a stout, well-branched stalk that nearly covers itself with two-inch, all yellow flowers over several weeks. The last of my mulleins to bloom, it barely has time to set seed in our short season.

A much more readily available and extremely exciting plant is the Olympic mullein (*V. olympicum*, Zones 5–9, 9–5). Louise Wilder classified it as a triennial; Allan Armitage says it’s a long-lived perennial for him in Georgia. In my garden, it



Left: *V. bombyciferum* and blue oat grass (*Helictotrichon sempervirens*) contrast in texture but agree in color. Above: *V. olympicum*, from Greece, forms a perfect candelabrum, topped with yellow tapers.



Moth mullein (*V. blattaria*) is well named: Its small blossoms appear to flutter above its sturdy stalks. This is a pink form of the species, which usually bears yellow flowers.

behaves as a classic biennial, possibly because northern Michigan does not closely resemble its native Greece.

When in bloom, Olympic mullein is a great torch of a thing; no need to dip this one in tallow and set it on fire. Its blooming stalk branches more and more as the season progresses, each successive branch covering itself with rich yellow flowers. Even in autumn, when the flowering show is almost done, the great flame-shaped inflorescence draws the eye with its drama.

The first- (or first- and second-) year rosette of woolly leaves needs about two feet of room. The blooming stalk reaches eight feet or more, elongating as the summer passes. Louise Wilder called it "a cure for commonplaceness in any garden." Elizabeth Lawrence mentions this mullein as a good one for the Southeast and says that it bloomed for her in Raleigh, North Caroli-

na, from late May into July; it starts and ends much later for me, barely finishing its bloom before our first frosts in late August.

THREE FAVORITES

THE WHITE-FLOWERED form of *V. lychnitis* was described in the Chiltern catalog (see "Sources," page 24) as "bridal" in appearance. The first year it grew a gray-green, slightly fuzzy rosette: attractive, but not bridal. But its second-year bloom convinced me. The flowering stalk branches along nearly its entire five-foot-length. Silver-gray-green leaves and stems provide a misty background for hundreds of small, starry, white flowers, each with five yellow filaments in the center. The lacy effect lasts for weeks. Its only fault is that, like some brides, it tends to faint. Rather than tying it rigidly to an upright stake, I sink two

PROPAGATING MULLEINS

You can grow species mulleins easily from seed. Sow the tiny seeds thinly. If starting indoors, barely cover them with well-drained potting mix, water gently, and keep warm. Within five to 14 days, they will sprout. Give seedlings plenty of light and don't let them dry out. Transplant them as early as you can because mulleins tend to be tap-rooted or at least large-rooted; the longer you wait to separate the seedlings, the harder it gets. Put them into individual four-inch pots; six-pack cells just aren't big enough.

There's no great hurry to get them out into the garden; you can wait until after the rush of spring work is over before transplanting them to where they are to grow. Plant them well before your first autumn frost and keep them watered if the weather is hot and dry. The bigger the first-year rosette, the better the bloom will be next summer.

It's easy to save mullein seeds; unless they are sterile hybrids, they produce plenty. Spread a flat bedsheet beneath one side of the mullein stalk as soon as you see a number of dry, open pods. Gently tip the stalk a few inches toward the sheet and tap or shake the stalk so the seeds will fall onto the sheet to be collected.

Remember that mulleins cross freely in the garden, so seeds you gather will not necessarily produce offspring identical to the seed parent. Your own mullein seeds, if you collect them, may produce strange and wonderful hybrids, which is fine, but be sure to mention it if you share seeds.

The named cultivars, like the 'Cotswold' series, can only be propagated by root cuttings. In *Herbaceous Perennial Plants*, Allan Armitage explains how: "Take three-inch-long root cuttings in late winter or early spring and insert them upright in equal parts of moist sand and peat. Place them at 50 to 70 degrees F and transplant when three to four leaves have developed." —N.M.

A dense stand of *V. chaixii* displays its three- to four-foot spires of purple-centered white flowers. There is also a yellow form of this short-lived perennial.

sturdy stakes in the ground to form an X upon which the main stalk of the plant can lean. This allows the formation of graceful curves; the stakes are quickly hidden by the mullein. *V. lychnitis* is typically yellow-flowered in the wild.

Moth mullein (*V. blattaria*, Zones 6–9,

7–2) is another mainly yellow-flowered biennial in the wild. It's very pretty, but the pink form is luscious. Catalogs list it sometimes as the white form. Buy it, whatever they call it. In its first year, moth mullein forms an entirely flat rosette of smooth, semi-glossy, deep green leaves with scalloped edges—attractive enough to see you through to the second year. Then several dark green three- to four-foot stems spring from each rosette. Along these stems grow little horizontal stalks, each bearing one perfectly poised, soft rose-pink bud in the form of a tiny, pentagonal box. This opens to reveal white petals washed pink on the back; each flower bears a central boss of rose-purple fur.

The oddest mullein I have grown is *V. roripifolium* (Zones 4–8, 8–1). The first-year rosette is a smooth, green whorl of—unusual for a mullein—lobed leaves. In its second year, it becomes an octopus. The many thin, dark green, wiry stems branch, growing longer and snakier. Along them, the leaves are deeply cut and lobed. Eventually, the plant reaches five feet tall, spreading that wide or wider. But it is so misty, so thin, so light that from three paces away you can hardly see the stems, just the one-inch, purple-centered, yellow flowers gently floating in space—hundreds of them.

The flowers on my plant were yellow, not metallic bronze as *The Bernard E. Harkness Seedlist Handbook* says they should be. It is, in any case, a fascinating plant that sounds difficult to place, but which in reality obligingly and decoratively insinuates its branches among those of nearby shrubs or other tall plants, and for months provides a fine display of little yellow butterflies bobbing on wires.

THE SHORT-LIVED PERENNIALS

THE MOST PERENNIAL mullein for

me is *V. chaixii* (Zones 5–9, 9–5). This is a fine plant in its soft yellow-flowering form, and the white is even better. Both are purple-centered. I give them 24 inches of space in the garden, though they can make do with less or will spread to 36 inches across if the space is available. Each plant sends up a dozen or more three-to four-foot stems packed with flowers. Full sun and good drainage make these plants quite reliably perennial.

Purple mullein (*V. phoeniceum*) is reliably perennial in USDA Zones 6 to 8, AHS Zones 8 to 1. In my Zone 4 garden it's perennial sometimes, but it self sows nicely. It grows three to five feet tall and one to two feet wide depending on the climate and soil. This species and its hybrid offspring are the only mulleins that prefer part shade. Purple mullein has been selected for various shades of violet, purple, rose, pink, and white, and is often available in a seed mix of these colors.

Hybrid mulleins have been developed using purple mullein and a number of other species. Most are short-lived perennials, although their growth cycle depends on their parentage and on conditions in the garden. I have never seen a hybrid mullein that I didn't instantly covet (see facing page for a listing of choice hybrids).

A number of nearly shrubby little



Sources

Of the hundreds of known mullein species and cultivars, only a few are available in regular commerce, so you'll have to search the floras and the seed lists for a greater selection. The **North American Rock Garden Society** seedlist (www.nargs.org) is one good source. Here are some mail-order sources that offer a selection of seeds:

Busse Gardens, Big Lake, MN.

(800) 544-3192.

www.bussegardens.com. Catalog \$3.

V. 'Pink Domino', *V.* 'Cotswold Queen', *V.* 'Gainsborough', *V.* 'Polar Summer' (listed as *V.* 'Polarsommer', *V. densiflorum*).

Chiltern's Seeds, Bortree Stile, Ulverston, Cumbria LA12 7PB, England. www.chilternseeds.co.uk.

V. blattaria, *V. bombyciferum* 'Arctic Summer', *V. chaixii* forma *album* (listed as var. *album*), *V. densiflorum* (listed as *V. thapsiforme*), *V. lychnitis*, *V. olympicum*, *V. phoeniceum*, *V. phlomoideis*, *V. thapsus*.

The Fragrant Path, Omaha, NE.

(402) 468-5782. Catalog \$2.

V. blattaria, *V. chaixii*, *V. olympicum*, *V. phlomoideis*, *V. phoeniceum*.

Thompson & Morgan, Jackson, NJ.

(800) 526-0467.

www.thompson-morgan.com.

Catalog free.

V. blattaria (pink form), *V. bombyciferum* 'Silver Lining' and 'Polar Summer', *V. chaixii* forma *album*, *V.* 'Copper Rose', *V. phoeniceum* hybrids, *V.* 'Snow Maiden', *V.* 'Southern Charm'.

Hybrid Mulleins

| Name | Height / Spread (ft.) | Flower Color | Foliage Effect | USDA/AHS Zones |
|---------------------|-----------------------|------------------------------|------------------------|----------------|
| 'Copper Rose' | 4-5 / 2 | copper, buff, apricot, tan | silver | (5-8, 9-5) |
| 'Cotswold Gem' | 3-4 / 1-2 | rosy with purple center | gray-green | (5-8, 9-5) |
| 'Cotswold Queen' | 3-4 / 1-2 | biscuit or terra-cotta | wrinkled, gray-green | (5-8, 9-5) |
| 'Gainsborough' | 3-4 / 1 | large, soft yellow | wrinkled, downy, gray | (5-8, 9-5) |
| 'Helen Johnson' | 3-4 / 1 | buff-peach with darker eye | dull green | (5-8, 9-5) |
| 'Letitia' | 1 / 1 | clear yellow | evergreen, gray-green | (5-8, 9-5) |
| 'Mont Blanc' | 3 / 1 | pure white | downy, pale gray-green | (5-8, 9-5) |
| 'Pink Domino' | 4 / 1 | rose-pink with purple beards | purple-green | (5-8, 9-5) |
| 'Silver Candelabra' | 4-6 / 2 | bright yellow | silver, woolly | (5-8, 9-5) |
| 'Southern Charm' | 2 1/2 / 1-1 1/2 | buff, lavender, dusty rose | gray-green | (5-8, 9-5) |

mulleins hail from the shores of the Mediterranean, and if you can give them enough heat and drainage, they'll do well for you. They are excellent choices for rock gardens and hot, dry areas. *V. spinosum* (Zones 8-10, 10-8) and *V. dumulosum* (Zones 6-9, 9-4) are both low-growing, eight to 24 inches, and like most of their brethren are yellow-flowered and long-blooming. These two also happen to be the parents of the hybrid 'Letitia', which Christopher Brickell, in *The Gardener's Companion* (1995), describes as "undoubtedly one of the finest alpine garden plants introduced during the last fifty years."

CULTURE AND COMPANIONS

MULLEINS ARE easy to grow, given full sun and reasonable drainage. Many are native to areas with alkaline soil, though my acidic soil never seems to bother them. If your soil is heavy, try mulleins on a slope or at the edge of a raised bed, digging in gravel if necessary. This fondness for good drainage means that mulleins tend to be drought tolerant, particularly the fuzzy-leaved types. *V. phoenicium* and its offspring, which are smooth-leaved, prefer part shade in all but the coolest climates; *V. blattaria* tolerates part shade.

Except for the semi-shrubby ones from the Mediterranean and the *V. phoenicium* hybrids, all the mulleins I've tried in our garden have proven cold-hardy. The southern limit is harder to gauge. Gardeners in areas with steamy heat will, I'd guess, have more difficulty with the furry mulleins, though Elizabeth Lawrence grew Olympic mullein with no trouble in Raleigh, North

Carolina. Certainly they're all worth trying through AHS Heat Zone 10 or 9 at least. Gardeners in dry, hot areas may do quite well with mulleins; many are native to regions that get only 15 to 20 inches of rain per year. And because they're so easy to grow from seed, it's worth experimenting.



The buff-peach flowers of 'Helen Johnson' offer a color choice unusual for mulleins.

Mulleins fit remarkably well in both formal and informal settings. I love to see them bloom with roses and other shrubs. Pair them with delphiniums for a marvelous harmony of blue and yellow; with foxgloves for pinks and mauves; or with such giant annuals as the fragrant, white *Nicotiana glauca* or rich burgundy amaranths. If you leave mullein stalks intact


over the winter, they will provide seeds for many species of wild birds.

Remember that all but a few mulleins are big plants; the tallest ones will need a two- or three-foot circle for each plant. I've had good luck combining mulleins with early spring bulbs, including daffodils. The bulb foliage dies back early enough that the great, smothering leaves of the large biennials present no problem.

Placement of plants requiring a two- or three-foot circle—particularly those that live only a couple of years—is a challenge. "They are wonderful looking...even before they bloom," wrote Henry Mitchell, "but they do have the bad habit of taking up a good bit of space, and you need not expect any little plant within a yard or so of them to endure the suffocation of those great mullein leaves on the ground."

My solution is to reserve portions of each garden bed for the use of annual and biennial mulleins. But since I am a procrastinator and each fall find myself with dozens of perennial seedlings still needing a home, supreme effort is needed to defend these reserved spaces for the mulleins when I have a seedling in one hand, a trowel in the other, and an eye cocked toward the thermometer. But as usual, when one has mastered one's baser instincts, the reward is great. I have no doubt that I've used the space wisely when a magnificent, silver-leaved, yellow-spangled plant rears up and looks me in the eye.

A volunteer emergency medical technician, Nancy McDonald gardens obsessively in Michigan's Upper Peninsula, assisted by her husband Ira, one horse, and two dogs.



Growing Ferns from Spores

Propagating ferns from their microscopic spores is a rewarding way to diversify your collection.

FERNS ARE mainstays of my shade garden—they provide a soothing green backdrop to flowering plants and add architectural interest to the garden with their tapering, symmetrical fronds. And they have always intrigued me because they are the living relatives of some of the first land plants to evolve.

Ferns—along with their allies the club mosses, spike mosses, and horsetails—belong to a division of the plant kingdom known as the pteridophytes, which reproduce through spores—primitive single-celled microscopic structures—rather than through the larger and more complex seeds produced by flowering plants. Ferns are by far the largest member of this ancient group, which dates back at least 300 million years to the Carboniferous Period. Although most of the ferns of that time became extinct, those that survived gave rise to the ferns we see today. Of the approximately 12,000 species of ferns that still exist—most located in moist tropical forests—fewer than 400 are found in North America.

Ferns are relatively easy to propagate vegetatively by cuttings or division of the underground rhizomes, but when I began to diversify my fern collection a few years

ago, I decided to learn how to propagate ferns from their dustlike spores. I quickly discovered that growing ferns from spores is not for those who seek instant gratification. It takes dedication, patience, and a fascination with things minute to be a successful propagator. The process, however, is really very simple and extremely rewarding, as you'll see if you give it a try.

SPORE PROPAGATION

THE FIRST STEP in fern propagation is collecting the spores. Begin by observing the fiddleheads, or crosiers, of ferns early in the spring as they emerge, develop, and uncoil. The sporangia-bearing fertile fronds present themselves in one of three ways, depending on species. You will need to study your ferns carefully and consult a field guide (see "Resources," page 29) to determine how their spores are produced:

Monomorphic These ferns bear their sporangia on the undersides of the small leaflets, or pinnae, on fronds that, at a glance, look just like the sterile fronds. Most ferns fall into this category. Examples of monomorphic ferns are marginal wood fern (*Dryopteris marginalis*), northern maidenhair fern (*Adiantum pedatum*), and lady fern (*Athyrium filix-femina*).

Partly dimorphic The fertile fronds look much like the sterile fronds except for the fleshy growth, where the sporangia are lo-

ARTICLE AND PHOTOGRAPHS BY KATHRYN LUND JOHNSON

cated, partway up the frond. Examples are interrupted fern (*Osmunda claytoniana*) and royal fern (*O. regalis*).

Totally dimorphic The fertile fronds differ completely in appearance from the sterile fronds, even seeming to be separate entities. Sensitive fern (*Onoclea sensibilis*), ostrich fern (*Matteuccia struthiopteris*), and cinnamon fern (*Osmunda cinnamomea*) are totally dimorphic.

If you have identified a fern to be partly or totally dimorphic, look for the fleshy fertile fronds. The spores are mature and viable when the fronds have turned varying tones of brown, depending on the species. If the specimen is monomorphic, check the undersides of the fronds for the sori. If they are brown with distinctly delineated margins, they probably are ripe and ready to expel their spores. If the sori edges appear ragged and frayed, they most likely have already dehisced, or expelled their spores.



The sori on the underside of this oak fern are fully ripe and have started releasing spores.

To collect your specimens, carefully cut the fertile fronds from the plants with pruners or a knife. Letter-size or larger manila envelopes work well for storing the fronds as they're gathered.

Collecting the Spores. Place the frond on a sheet of paper and store it in a location protected from air movement, such as on an enclosed shelf. If I've collected more than one species, I store them well apart from one another to avoid mixing spores. After 24 hours have passed, check the fronds to see if they've released their spores—if so, you'll see a pattern of small specks on the paper. But the specks are not all spores; they include coarser-looking pieces of chaff. Give the fertile fronds a

Life Cycle of a Fern

The life cycle of a fern is comprised of two distinct phases. The asexual, or diploid, phase is known as the sporophyte generation. In this phase, chromosomes occur in pairs. The sexual, or haploid, phase of the cycle contains one chromosome set and is referred to as the gametophyte generation. The complete cycle is referred to as the "alternation of generations."

SPOROPHYTE GENERATION

A mature fern is called a **sporophyte** because it produces dustlike spores in capsules called **sporangia** on the fertile fronds. Each sporangium generally contains 64 spores. **Sori**, which contain the sporangia, are visible to the naked eye as varied-shaped patterns on the undersides of the leaflets, or pinnae, of monomorphic ferns, and on the fleshy fertile fronds of dimorphic ferns. In some fern species, the sori are covered with thin protective films known as **indusia**.

When the spores are mature and the air is dry, a rapid opening and snapping shut of the sporangium occurs with a force that catapults the spores out of the spore case.



Sori of Japanese painted fern.

GAMETOPHYTE GENERATION

Spores that fall or are sown on moist soil have the best chance of developing into **gametophytes**. These structures, also known as **prothalli**, are heart-shaped plants about a quarter-inch in size. As they become established in the soil, they anchor themselves with hairlike structures called **rhizoids**. The gametophytes produce chlorophyll and, therefore, are able to manufacture their own food. (Exceptions to this in North America are ferns in the genera *Botrychium* and *Ophioglossum*, in which the gametophytes rely on an association with soil fungi for food.)

The maturing gametophyte produces female and male sex organs called **archegonia** and **antheridia**. The antheridia supply sperm and the archegonia provide the eggs. Since the sperm must swim to the eggs for fertilization to occur, they are dependent on a moist environment to achieve their goal. When fertilization occurs, a new sporophyte grows out of the gametophyte, first relying on the gametophyte for food, then putting down roots and becoming self-sustaining. Because the sperm has one set of chromosomes and the egg has one set of chromosomes, the resulting sporophyte contains two sets of chromosomes, thus beginning the sporophyte (diploid) generation of the cycle. Meanwhile, with its mission accomplished, the gametophyte withers, superseded by the young fern plant.

Tiny young sporophyte of northern maidenhair fern.



Northern maidenhair fern gametophyte showing rhizoids and archegonia.

—K.L.J.

few taps with your fingers over the paper to dislodge any lingering spores.

Separating the Chaff. To help avoid contamination, the chaff must be separated as thoroughly as possible from the spores before the sowing. Before starting, rinse your hands in a 10 percent bleach-



Removing the chaff (above right) from the spores (left) reduces the chances that your sowing will be jeopardized by contaminants.

to-water solution to disinfect them. Then place a second piece of paper on a flat surface, and holding the spore- and chaff-laden paper at a slight angle, tap it gently with your fingers. The chaff, which is heavier than the spores, slides immediately to the other sheet of paper. The fine, powderlike residue clinging to the original piece of paper is the spores.

Preparing to sow. Fern spores will grow on a variety of media—I always use a high-quality commercial potting soil. Spoon the soil into a metal cake pan and place the pan in a 300-degree Fahrenheit oven for two hours. It's crucial that the medium and everything that comes in contact with it after this point be as sterile as possible to reduce the risk of contamination by fungi, algae, and mosses, which can crowd out the developing ferns.

Meanwhile, gather together the other materials, beginning with the container for growing the ferns. I use clear plastic containers with snap-on lids, but clear glass or plastic dishes covered with plastic wrap secured by rubber bands can also be used. It is important that the container is clear, to admit light, and as airtight as possible. Rinse the container, cover, soil-scooping spoon, and a plant mister in the bleach solution, and squirt the solution through the

mister to ensure thorough disinfection.

When the soil has finished baking, remove it from the oven and spoon it into the planting container to a depth of one and a half inches. Press the soil firmly with the spoon to remove air pockets and allow it to cool to room temperature.

While it's cooling, pour a cup of distilled water into a measuring cup and bring it to a boil in a microwave oven and then let it cool to room temperature.

Pour the cooled water into the sterilized mister. Now you're ready to sow the spores.

Sowing the Spores. Before beginning, rinse your hands in the bleach solution. Then, tap the spore-laden paper to dust the soil with an even distribution of the spores. They needn't be heavily sown; it's better to cover evenly with a light dusting, as it will be easier to separate the tiny sporophytes later. After sowing, wet the



Use a light hand when distributing spores on top of the growing medium to avoid crowding.

spore-covered soil with a liberal misting of water, enough to thoroughly dampen it, then snap the cover tightly on the container. Slide the container into a plastic bag to help keep the moisture level consistent, and seal the bag with a rubber band or wire twist. Then place the container in indirect sunlight in a south-facing window—and wait.

GAMETOPHYTE GENERATION

WITHIN A few weeks, you'll notice the gametophytes forming—tiny heart-shaped structures about a quarter inch across. If sown too densely, the gametophytes may be crowded in the confines of the container. If this is the case, thin them using sterilized tweezers. If a month has

FERNS FOR BEGINNERS

Fern spores germinate at different rates, and some species are “speedier” and thus more rewarding to work with for first-time propagators. Allan Anderson, retired greenhouse manager at the University of Guelph in Ontario, Canada, who gives classes on spore propagation, suggests that beginners try maidenhair fern, sensitive fern, or any of the spleenworts (*Asplenium* spp.), wood ferns (*Dryopteris* spp.), and *Osmunda* spp.

—K.L.J.

passed and there is no sign of the emerging gametophytes, give the soil an additional misting of sterilized water.

As the gametophytes mature, they produce the sexual structures—archegonia and antheridia (see “Life Cycle of a Fern,” page 27)—that, in turn, produce the gametes—eggs and sperm. To ensure that the sperm have adequate moisture to allow for their journey to the eggs, lightly mist the gametophytes with sterilized water.

SPOROPHYTE GENERATION

ONCE THE EGGS are fertilized, the sporophyte generation begins. The sporophytes are the tiny fern plants that grow out of the gametophytes. Each can be identified as a thin stalk bearing a small leafy structure.

Transplanting Sporophytes. When the sporophytes reach a height of about a half inch, it's time to transplant them. For this,



A pair of sterilized tweezers is handy for separating sporophytes when transplanting.



Once they reach a half-inch tall, sporophytes should be transplanted to a coarser medium.



A lid over the growing tray provides the humidity so vital to the young ferns.



Once fernlings reach three inches, they should be transplanted into peat pots.

use a coarser medium to allow for good drainage, with organic matter added to supply nutrients. I like to hand-mix equal parts sand, peat, vermiculite, and potting soil. Sterilize the medium for two hours in the oven, allowing it to cool to room temperature before using it. Small seed-starting trays with fitted lids, which are easy to find at gardening centers, are just the right size for the tiny fernlings.

Rinse the tray and your hands in a bleach solution, then gently lift each fernling using your fingers and sterilized tweezers, making sure to include the soil surrounding the roots. Make a small indentation in the transplant medium and set the fernling in it, lightly firming soil around its roots. When you've finished transplanting, water the soil and mist the fernlings thoroughly with sterilized distilled water. Then cover the tray with the

lid to help keep the humidity high and consistent, which is still crucial at this stage. Check the fernlings regularly to make sure they remain moist, misting and watering as necessary. When the ferns are about three inches tall, transplant them into two-inch peat pots, then place them on a tray and cover with the fitted lid.

Hardening Off. Before the ferns can be transplanted outdoors, you'll have to gradually adapt them to the natural environment. Leave the tray open a few hours daily for a couple of weeks. Then you can remove the dome and set the container outdoors in light shade on warm, calm days for a few hours at a time. Keep an eye on the plants during the hardening off period. If they show signs that they're drying out—as evidenced by slight curling of the frond

edges—return them to the humid dome environment for a few days.

As the plants increase their tolerance to the natural environment, they become strong enough to plant outdoors. The ideal planting time is in late spring or summer. If you must wait to plant them, transplant them once more—this time into three- or four-inch peat pots with the same coarse medium. Either way, continue to watch them closely to make sure they're receiving adequate moisture, watering and misting as often as necessary. In the end, you'll be rewarded with beautiful, healthy ferns that you've nurtured through all their early growth stages!

Kathryn Lund Johnson is a free-lance writer and photographer living in Middleville, Michigan. Allan Anderson and Dean P. Whittier contributed invaluable information.

Resources

The Fern Guide: Northeastern and Midland United States and Adjacent Canada by Edgar T. Wherry. Dover Publications, Inc., Mineola, New York, 1995.

Fern Grower's Manual by Barbara Joe Hoshizaki and Robbin C. Moran. Timber Press, Portland, Oregon, 2001.

Ferns for American Gardens by John T. Mickel. Macmillan Publishing Company, New York, New York, 1994.

How to Know the Ferns and Fern Allies by John T. Mickel. William C. Brown Publishing Company, Dubuque, Iowa, 1979.

Peterson Field Guide to Ferns by Boughton Cobb, Houghton Mifflin, Boston, Massachusetts, 1984.

American Fern Society, c/o Dr. George Yatskievych, Missouri Botanical Garden, P. O. Box. 299, St. Louis, MO 63166-0299. www.amerfernsoc.org.

■ Web site has a discussion board called Fern Forum through which you can communicate with other fern growers. Members can also participate in spore exchanges.

Hardy Fern Foundation, P. O. Box 166, Medina, WA 98039-0166. www.hardyferns.org.

■ Members can participate in spore exchanges.

North American Native Plant Society, P.O. Box 84, Station D, Etobicoke, ON, Canada, M9A 4X1. www.nanps.org.

■ Members can participate in spore exchanges.

The Magic of

Learn how to identify common butterflies and attract and keep them in your garden.

by Claire Hagen Dole

BUTTERFLIES

THERE ARE certain things in life that you can never have too much of. Chocolate is one; butterflies are another. Butterflies bring movement and color to the garden, flitting from plant to plant and, in pairs, indulging in complex aerial ballets. They instill the same sense of wonder in children and adults alike.

Many of us can identify a couple of common butterfly species, such as monarchs or sulphurs, but every once in a while we encounter one that's new to us. If you're like me, you like to figure out what these welcome visitors are—and learn how to get them to return. To get you started, here's some basic information about butterfly life cycles and family divisions, along with a guide to the most common butterflies found in different regions of North America and tips for making your garden even more attractive to these graceful insects.

THE BUTTERFLY LIFE CYCLE

BUTTERFLIES UNDERGO complete metamorphosis, starting life as an egg de-

posited on a leaf. Adult females choose the proper host plant to feed their caterpillars by scratching the leaf surface with their feet, which bear taste receptors to confirm the chemical makeup of the plant.

When tiny caterpillars—larvae—hatch, their first meal is the protein-rich eggshell. Then they go on an eating spree, bulking up to a thousand times their size in a matter of days. To accommodate this phenomenal growth, they molt their outer skin a total of five times.

A full-grown larva knows when it is time to pupate, or shed its skin for the last time and become a chrysalis (pupa). It crawls restlessly, looking for a branch or the bottom of a windowsill, where it can attach itself with silk. A virtual cellular meltdown occurs during the inactive pupal stage, despite the fact that the chrysalis may clearly show the shape of folded wings. Many butterflies spend the winter as pupae, emerging as adults when days lengthen and weather warms.

When balmy summer days lure you into the garden, take along a hand lens and slowly approach a butterfly that is

perching on a flower. Marvel at the iridescent wing scales, the compound eye, and the wiry proboscis as it uncoils to sip nectar. Watch a spiny caterpillar as it munches on willow leaves. To learn more about these awe-inspiring visitors, you'll want to invest in a regional guidebook that includes a host-plant index to help identify adults and larvae.

Guidebooks organize butterflies by family—a grouping that reflects shared characteristics, such as wing structure, behavior, or host plants. Identification becomes second nature when you begin to notice a butterfly's style: does it glide like a swallowtail, or dart like a Red Admiral? Does it perch on a branch and fly out to investigate passersby? Is it more interested in rotting fruit than in flower nectar? You'll quickly see that butterflies are much more than enchanting accents to your flower garden; they are complicated organisms, endlessly surprising and always interesting.

The following are common butterflies by region.

Above: A Painted Lady sips on a daisy.

NORTHEAST

DENSELY POPULATED areas adjoin a natural landscape of deciduous forests, marshes, and meadows. Woodland clearings and suburban gardens attract many butterflies, including fritillaries, admirals, and tortoiseshells.

The **Mourning Cloak** (*Nymphalis antiopa*) is named for its lustrous purplish-brown wings, bordered by a band of yellow. The wings' underside is camouflaged to resemble bark. This tortoiseshell hibernates as an adult, finding shelter under loose bark or in a woodpile. Mourning Cloaks may awaken briefly on a sunny midwinter day. They are attracted to tree sap and to nectar of early bloomers, such as pussy willow. They mate in early spring, creating a generation that may live into the following year. Spiny black larvae feed communally on willow, elm, poplar and nettles. They can be voracious eaters; move some to an identical plant if the host plant is severely defoliated.



Mourning Cloak

The term **Red-Spotted Admiral** (*Limenitis arthemis*) applies to two subspecies of the same insect, the White Admiral and the Red-Spotted Purple. Similar in shape, they vary in coloration: the first has black wings with a vertical white band, while the second has lustrous blue-black wings. Wing edges of both have a band of blue and white chevrons. Adults take nectar from milkweed, aster, and zinnia, and they sip nutrients from rotting fruit or tree sap. Females lay eggs on leaves of willow, poplar, and wild cherry trees. Tiny larvae spend the winter inside a dead leaf that is attached to a branch with silk. In spring, they crawl out and feed on new leaves. Mature larvae resemble bird droppings, with two branched horns behind the head. They soon pupate, emerging as adult butterflies in late spring.



Eastern Tiger Swallowtail

SOUTHEAST

HOT, HUMID summers and mild winters allow year-round butterfly gardening. Along the Atlantic coast, spectacular fall migrations of Monarchs, Painted Ladies and Buckeyes can be observed.

Buckeyes (*Junonia coenia*) are medium-sized butterflies, with large eyespots on their iridescent brown wings. They spend much of their time basking on bare ground with wings spread open (in hot weather, wings may be closed, revealing camouflage markings that resemble bark). Very common in the South, they produce up to four generations a year. Many disperse northward in summer, laying eggs for a generation that will return in the fall. Host plants include plantain, toadflax, snapdragon and *Lippia* spp. Dark, spiny larvae sport a blue or orange spot at the base of each spine. The ridged chrysalis ranges from pale pink to dark brown with brown striations; it is attached to the underside of a branch.

The **Eastern Tiger Swallowtail** (*Papilio glaucus*) glides into your garden, stopping to take nectar from butterfly bush or phlox. Bright yellow wings of this large butterfly have black vertical stripes and borders, with prominent "tails." Males like to sip minerals from wet sand; try elevating a container of it if predatory

cats lurk nearby. Females lay eggs in the canopy of birch, willow, or black cherry trees. Fat larvae are green, with fake eyespots behind the head. When about to pupate, they turn brown and hurry to a nearby branch or fencepost. The ridged, brown chrysalis hangs on an angle, secured by a strand of silk.

FLORIDA

FLORIDA'S TROPICAL landscape hosts a stunning assortment of butterflies year-round, including occasional vagrants from Central America. The **Malachite** (*Siproeta stelenes*), a large black butterfly with jade-green spots, is expanding its range into Florida.

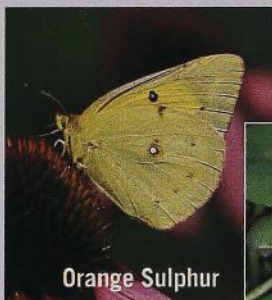
Passionvine is the essential host plant to two brushfooted butterflies in Florida. The **Gulf Fritillary** (*Agraulis vanillae*) has orange wings with black spots. Large silver spots decorate wing undersides. Gulf Fritillaries are frequent garden visitors, attracted to lantana and pentas. Grow passionvine in a sunny spot, and you'll be rewarded with several generations of butterflies each year. Orange larvae have blue stripes and black spines. They gain chemical protection from their host plant, making them (and adults) distasteful to predators. The hanging chrysalis resembles a dead leaf.

BUTTERFLY FAMILIES

SWALLOWTAILS (Family Papilionidae)

Butterflies in this family are typically large—with up to five-inch wingspans—and colorful. They often feature hindwing “tails” that distract predators into attacking the wrong end. Males engage in puddling (sipping minerals from wet sand) and hill-topping (swooping over a ridge to investigate territory and seek mates). For protection, larvae may resemble bird droppings or have fake eyespots behind the head. Most overwinter as ridged, green or brown chrysalides attached to trees or buildings with a single strand of silk.

Representatives: Black, Eastern Tiger, Giant, Pipevine, Western Tiger, Zebra Swallowtails

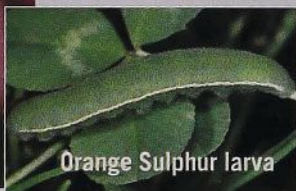


WHITES AND SULPHURS (Family Pieridae)

These medium-sized butterflies are commonly found in gardens and fields. Most overwinter as chrysalides. Whites are strong fliers but do not wander; their larvae feed on mustards.

Sulphurs, named for their yellow coloration, are avid puddlers that often disperse in large numbers in autumn; their larvae feed on legumes such as alfalfa and clover.

Representatives: **Whites:** Cabbage White, Checkered White, Falcate Orange Tip; **Sulphurs:** Clouded Sulphur, Little Yellow, Orange Sulphur



COPPERS, BLUES, AND HAIRSTREAKS (Family Lycaenidae)

These butterflies are typically small with iridescent wings. All rest with wings closed; hairstreaks rub their hindwing “tails” together to confuse predators. Their tiny, sluglike larvae feed on buds of trees and shrubs. Many larvae associate with ants, which protect them in exchange for protein-rich secretions.

Representatives: American Copper; Eastern/Western Tailed Blue, Spring Azure; Brown Elfin, Gray Hairstreak

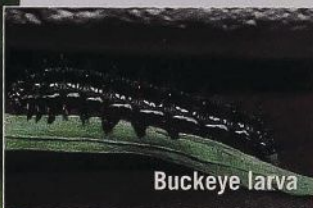


BRUSHFOOTED BUTTERFLIES (Family Nymphalidae)

This large, diverse family—often subdivided into the five groups listed below—is distinguished by having shortened, brushlike forelegs (giving the appearance of having only four legs). Most representatives are medium-sized with cryptic markings on the undersides of wings to provide camouflage against tree bark or dirt. They are strong, fast

flyers and some—especially Monarchs—can migrate long distances. The larvae may be covered with protective barbs. Chrysalides, often angled and knobby, hang from branches.

Representatives: **Heliconians:** Great Spangled Fritillary, Gulf Fritillary, Zebra Longwing; **True Brushfoots:** Buckeye, Mourning Cloak, Painted Lady, Question Mark, Red Admiral; **Admirals:** Red-Spotted Admiral, Viceroy; **Satyrs:** Common Ringlet, Common Wood Nymph; **Milkweed Butterflies:** Monarch, Queen



SKIPPERS (Family Hesperidae)

Named for their quick, darting flight, these mostly small butterflies come in shades of brown and burnt orange. They resemble moths with stout, hairy bodies and smaller wings held close to the body. Folded-wing skippers hold forewings at an angle, like paper airplanes. Their antennae are often hooked rather than knobbed like other butterflies. Larvae are smooth, with a prominent head. Pupae overwinter in loose cocoons in grass or leaf litter.

Representatives: Checkered, Fiery, Silver-spotted, Woodland Skippers





Gulf Fritillary

The related **Zebra Longwing** (*Heliconius charitonius*) is black with horizontal yellow stripes on its long, narrow wings. It drifts through the garden, perching in the shade with wings spread open. Adults are long-lived (up to six months) because they absorb nutrients from pollen. Zebra Longwings are distasteful to predators due to their larval diet of passiflora. Larvae are white with black dots and long black spines. They form a spiny brown chrysalis.

MIDWEST

ONCE HOME TO a vast prairie of grasses and wildflowers, the Midwest has a climate of extremes. Native perennials, such as purple coneflower, thrive in dry, hot summers and wait out frigid winters by dying back in fall. Give plants a heavy mulch, where moths and skippers may overwinter as pupae.

The **Silver-spotted Skipper** (*Epargyreus clarus*) is named for the silver band on the underside of its hindwing—a marking that is easily seen because the butterfly perches with wings closed. This brown skipper is medium-sized, with a diagonal gold bar on the forewing. Like all skippers, it has a fat body and antennae that end in a hook. Adults visit many garden flowers. Females lay eggs on locust, wisteria, bush-clover, and other legumes. Green larvae have a large black head and "neck," which allows them to

bend backwards and construct leaf shelters. They form a loose cocoon, overwintering in leaf litter.

The **Black Swallowtail** (*Papilio polyxenes*) is another common garden visitor, taking nectar from phlox, milkweed, and other flowers. Its black wings have two lengthwise rows of yellow spots surrounding a band of blue, ending in "tails." Females may hover in the herb garden, laying eggs on dill, fennel, or parsley—an unusual use of non-native host plants—in addition to natives such as angelica. Colorful larvae are striped in green, yellow and black. They form a ridged green chrysalis, attached to a branch or stalk with a strand of silk. Check fennel stalks for overwintering chrysalides before cutting back in fall.

SOUTHWEST

CLOSE TO MEXICO and the tropics, Southwestern deserts host a rich diversity of butterflies and hummingbirds. Spring rains create an explosion of wildflowers, birds, and butterflies.

In some years, huge populations of **Painted Ladies** (*Vanessa cardui*) disperse from the desert in search of nectar and host plants. They travel from coast to coast, as far north as Canada. This familiar butterfly is medium-sized, with mottled brown and orange markings. It readily visits gardens and spends time basking on the ground. It prefers thistle as its host

HOW TO ATTRACT BUTTERFLIES

✿ **Pick a sheltered location.** Create your butterfly garden in a sunny, sheltered spot out of the wind. Large rocks or a stone wall make great basking spots for these cold-blooded creatures.

✿ **Provide water and nutrients.** Wet sand or soil at the edge of a pond or in a container enables male butterflies to sip salts and other minerals from the sand, a behavior known as puddling. Some butterflies gain additional nutrients from rotten fruit, tree sap, animal dung, or even carrion.

✿ **Provide nectar plants.** Colorful masses of flowers—especially composites such as marigolds, zinnias, cosmos, and coneflowers—attract butterflies. Stick with species plants as much as possible because some hybrids—bred with human interest in mind—are less useful to butterflies for perching or feeding.

✿ **Provide larval host plants.** Female butterflies are very particular about the plants on which they will lay their eggs. Plant parsley for black swallowtails, milkweed for monarchs, grasses for satyrs and skippers, and willow, poplar, or wild cherry trees for tiger swallowtails and admirals. Consult regional guidebooks for host plant recommendations.

✿ **Avoid using pesticides.** Butterflies are extremely susceptible to pesticides, including some considered organic, such as pyrethrin, and even Bt, a biological control that kills caterpillars. Hand-pick pests or use water jets to remove them whenever possible. Also, creating a diverse habitat for birds and beneficial insects reduces infestations.

✿ **Provide shelter.** On rainy or cloudy days, butterflies rest in the foliage of shrubs and trees. Don't tidy up too much in the fall: tiny larvae of ringlets and satyrs overwinter in meadow grass; skippers and moths pupate in leaf litter. An undisturbed wood pile will shelter a diverse group of insects and small animals, including adult butterflies like anglewings.



Monarchs cluster on the flowers of goldenrod

Resources

Butterfly Gardens edited by Alcinda Lewis. Brooklyn Botanic Garden, Brooklyn, New York, 1995.

Butterfly Gardening by Xerces Society and Smithsonian Institution. Sierra Club Books, San Francisco, California, 1998.

How to Spot Butterflies by Patricia Taylor Sutton. Houghton Mifflin Company, Boston, Massachusetts, 1999.

Stokes Beginner's Guide to Butterflies by Donald and Lillian Stokes. Little, Brown and Company, Boston, Massachusetts, 2001.

Through the Eyes of a Butterfly by Jackie Stone, Arabella S. Dane, and Chess McKinney. This useful reference includes detailed information about butterflies and their life cycles, along with an extensive index of nectar and larval host plants. Copies cost \$5 plus postage and can be ordered from National Garden Clubs, Inc., 4401 Magnolia Avenue, St. Louis, MO 63110. (800) 550-6007.
www.gardenclub.org

North American Butterfly Association, 4 Delaware Road, Morristown, NJ 07960. (973) 285-0907. www.naba.org.

Xerces Society, 4828 SE Hawthorne Boulevard, Portland, OR 97215. (503) 232-6639. www.xerces.org.

plant, but will accept many others, including hollyhock, mallow, and pearly everlasting. Larvae are spiny and vary in color, with black, yellow, and orange markings. They make a silk nest on the leaf where they are feeding. The chrysalis is light brown and bumpy.

The related **Red Admiral** (*Vanessa atalanta*) is black with orange bands and white dots at the wingtips. It darts into your garden, stopping to sip nectar from a butterfly bush, or amino acids from rotting fruit. Spiny larvae vary in color. They form a leaf shelter on nettle, their host plant. The knobby brown chrysalis hangs from a branch.

Sometimes called the alfalfa butterfly, the **Orange Sulphur** (*Colias eurytheme*) lays its eggs on clover, alfalfa, and other legumes. This medium-sized butterfly has orange wings with a wide black border. A common garden visitor, it takes nectar from a wide range of flowers and likes to sip minerals from wet sand. It basks with wings closed, angling toward the sun. Bright green larvae have a white stripe on each side; the chrysalis resembles a green leaf.

PACIFIC COAST

WARM OCEAN currents bring mild, rainy winters and cool summers to much of the region west of the Cascade and Sierra mountain ranges. While gardeners in southern California may enjoy butterflies almost year-round, Pacific North-westerners begin to look for them in early spring.

One of the first butterflies to emerge at that time is the **Spring Azure** (*Celestrina ladon*). This little butterfly has rounded, iridescent blue wings that catch the sunlight. The wings have a narrow fringe of white; their undersides are pale gray with rows of black dots. Spring Azures gather in "puddle clubs" to sip minerals from wet sand. Tiny green larvae feed on buds or flowers of dogwood, viburnum, or blueberry. They spend the winter as smooth chrysalides on twigs or in leaf litter.

Western Monarchs (*Danaus plexipus*) disperse from their winter sites along the California coast, where they cluster in eucalyptus or Monterey pine trees. Bright orange wings with black bands flash a warning to predators that Monarchs taste bad. As larvae, they ingest toxins from

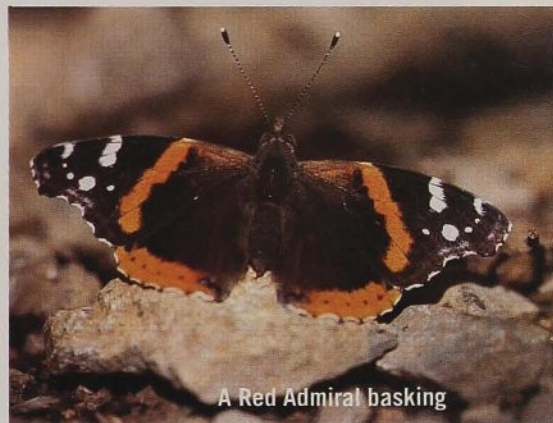
BUTTERFLIES AND MOTHS

Butterflies belong to the order Lepidoptera, which is dominated by moths. There are fewer than 20,000 species of butterflies and nine times as many moths. So what exactly is the difference between butterflies and moths?

Butterflies are day-flying; moths usually fly by night and are thus less commonly seen doing their important work—pollinating night-blooming flowers. In general, butterflies are large and colorful, while most moths tend to be small and drab. And while butterflies hold their wings vertically, moths usually hold them in a v shape.

The most reliable way to distinguish butterflies and moths, however, is the shape of their antennae. The antennae of moths may be shaped like feathers, ferns, or fine filaments, but they always taper to a point. Not so with butterflies, whose antennae thicken at their extremity, ending in blunt club-shapes.

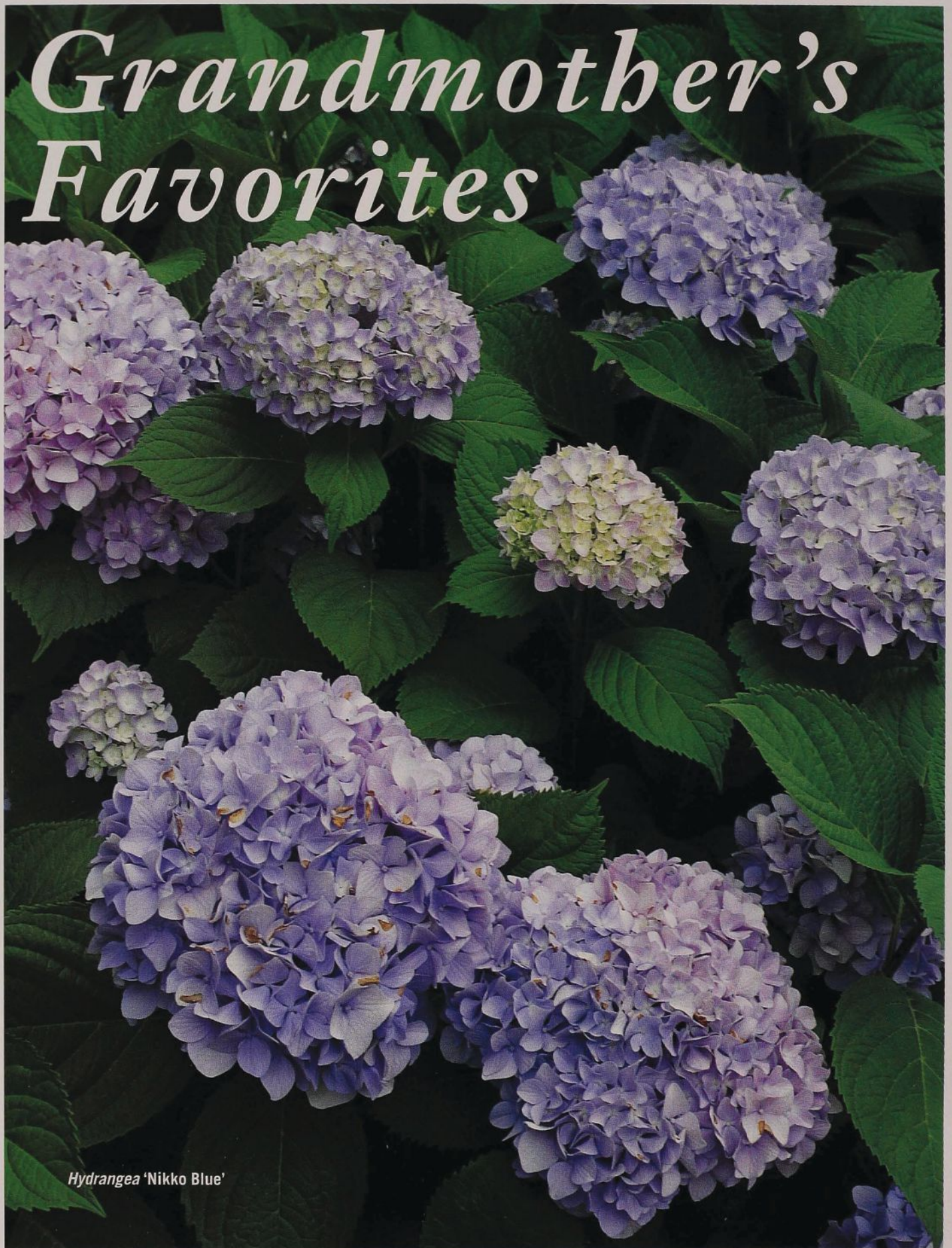
—Carole Ottesen, Associate Editor



A Red Admiral basking

their host plant, milkweed. Larvae, too, are boldly marked with black, yellow, and white stripes. Many nectar plants are visited by adults; be sure to provide fall-blooming asters and goldenrods for migrating Monarchs.

A Seattle resident, Claire Hagen Dole published *Butterfly Gardeners' Quarterly* for seven years and is guest editor of a new edition of the Brooklyn Botanic Garden's *Butterfly Gardens* book to be published next summer. She maintains a Web site at www.butterflygardeners.com.



Grandmother's Favorites

Hydrangea 'Nikko Blue'

JERRY PAVIA

10 Classic

These time-tested shrubs are worth a fresh look and breeders are introducing improved varieties better suited to modern gardens. BY PATRICIA ACTON

Summer-flowering Shrubs

Gardeners are usually interested in what's new and unusual in the plant world. Still, sometimes it pays to look to the past for inspiration. Most of the summer-flowering shrubs that my grandmother grew and loved remain fine garden plants. In fact, with the improvements that breeders have made, many are better than ever, with cultivars that offer more color selection, enhanced hardiness, compact size, or better disease resistance.

Almost without exception, these classic summer-flowering shrubs have two things in common: a long period of bloom and an undemanding nature. People who gardened 50 or 100 years ago didn't have the labor-saving devices we have today and were no more likely to want fussy plants with short-lived flowers than we are. In addition to their carefree, free-flowering nature, many of these old favorites also have fragrance, interesting bark, good fall color, or colorful fruit—frosting on the cake.

Unfortunately, some of these fine old shrubs aren't seen that much anymore. I don't know of a single person in my neighborhood who grows sweet shrub, for example, which is a pity. Perhaps your neighborhood is the same, in which case you could be the first on your block to grow this "rare and unusual" plant!

Sweet Shrub Another name for sweet shrub is Carolina allspice (*Calycanthus floridus*, USDA Zones 5–9, AHS Zones 9–1) and this plant is definitely no "Johnny come lately"; in fact, it's been appreciated since colonial days. Native from Pennsylvania and Ohio to Florida, sweet shrub has reddish-brown flowers with the delicious scent of a ripe fruit salad of strawberry, melon, and pineapple. The leaves and bark of sweet shrub are also aromatic; resourceful cooks substituted the bark for cinnamon.

The two-inch flowers start coming in May and bloom for up to four weeks, with sporadic blooms continuing until fall. It's best to buy the plant in flower because seed-grown plants are unreliable as to fragrance and may smell vinegary.

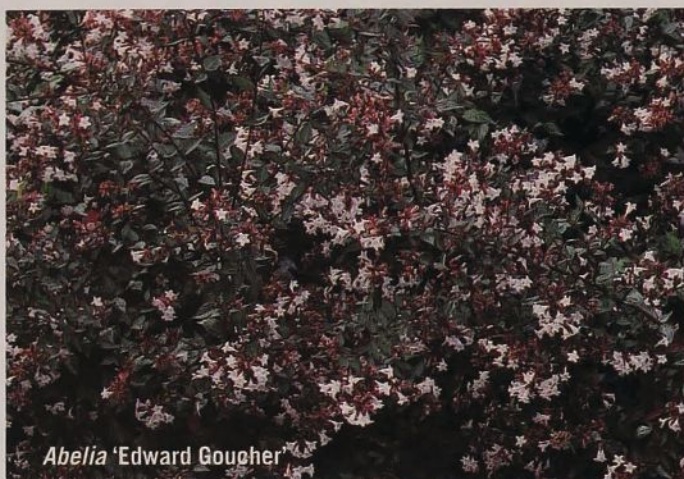
Sweet shrub foliage is glossy and dark green with yellow fall color. The habit is dense and rounded; it grows slowly to a good-sized shrub of six to 10 feet tall and up to 12 feet wide. It's adaptable in the garden, but grows best in well-drained, acid soil in full sun to part shade.

'Edith Wilder' has a generous initial bloom period, up to four weeks, with burgundy, pineapple-strawberry scented flowers. It grows to a rounded 10 by 10 feet, but may be pruned for a smaller profile. Another exceptional cultivar is 'Athens', which has excellent fragrance and yellow-green flowers—rather than the usual red-brown—on a six- to eight-foot plant.



Calycanthus floridus 'Athens'

Glossy Abelia Introduced into cultivation in Italy almost 150 years ago, glossy abelia (*Abelia ×grandiflora*, Zones 6–9, 9–1) is one of the few summer-blooming shrubs that is evergreen (in warmer climates) to semi-evergreen. While never flashy, this shrub has a lot to recommend it, including flowers from July to October. The 3/4-inch-long, bell-shaped flowers are white-tinged-pink and look elegant against the glossy, narrow, dark-green leaves which may turn purplish in winter.



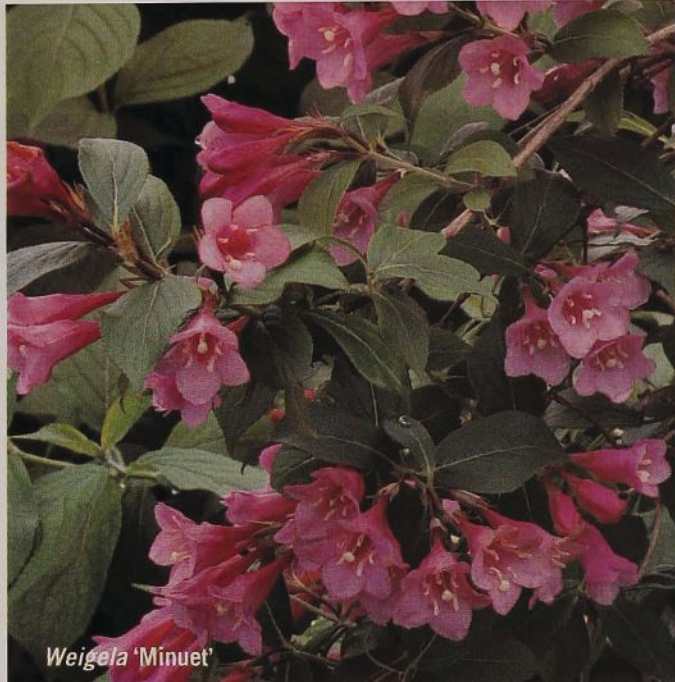
Abelia 'Edward Goucher'

Glossy abelia grows up to 10 feet tall and six feet wide, with dense, slender, arching branches. Easy-to-grow, it is satisfied with ordinary soils in full sun to part shade. Use in borders or—in warmer areas where it grows taller—as a hedge; smaller cultivars can be used as foundation plants.

As its name suggests, 'Prostrata' is a low-growing cultivar with small leaves that turn burgundy-green in winter. Another choice abelia, introduced in 1911, is 'Edward Goucher' (Zones 5–9, 9–1), produced from a cross between *A. ×grandiflora* and *A. schumannii*. The flowers are a lovely lilac pink with an orange throat on a three to five foot shrub; against a south-facing wall in my garden, 'Edward Goucher' begins blooming in June and continues until frost. New growth is bronze, changing to dark, glossy green. 'Canyon Creek'—a new introduction from University of Georgia horticulturist Michael A. Dirr—grows to six feet tall and wide, with exceptional copper-colored new growth that changes to soft yellow, then green, and persistent fall color of bronze and rose. Its pink flowers are fragrant.

Weigela With dozens of available cultivars, choosing an old-fashioned weigela (*Weigela florida*, Zones 4–8, 8–1) may be difficult. The species is a large plant with lavender-pink blooms, nondescript foliage, and coarse, arching branches. They bloom prolifically in May and June, then sporadically throughout the rest of the summer. The funnel-shaped, one-to two-inch-long flowers—favored by hummingbirds—come in an array of shades from white to red, sometimes with a yellow throat.

Weigelas have been popular for a long time, partly because they're easy to grow; they thrive in moderately fertile soil and full sun, but will tolerate poor soil and some shade. But breeders have made many improvements, producing smaller weige-



Weigela 'Minuet'

las in a variety of colors, some with variegated foliage and others with enhanced cold hardiness.

'Minuet', 'Rumba', and 'Tango' are part of a series of cold tolerant weigelas introduced from Canada. At just 30 inches tall, 'Minuet' is one of the smallest, featuring rose-purple blooms with yellow throats. 'Rumba' is a bit taller, to three feet, with dark red flowers with yellow throats; foliage is yellow-green with purple margins. Also diminutive is 'Tango', a two-and-a-half-foot plant with red flowers and deep purple foliage. A more recent introduction, 'Wine and Roses', is a compact plant with eye-catching burgundy leaves and hot-pink flowers.

Shrubby Cinquefoil Few shrubs flower longer than the extremely hardy shrubby cinquefoil (*Potentilla fruticosa*, Zones 3–7, 7–1), which begins blooming in June and continues until frost. Growing to only two to four feet high and wide, they serve equally well as foundation plants, edging plants, or in mixed borders. Native to the United States, they are also tough and adaptable, tolerating poor, dry soils and urban conditions. They flower best in full sun, although some of the orange- and red-flowered selections tend to fade in bright sunlight.

Their fine-textured foliage ranges from gray- or blue-green to bright or dark green, with a dense branching habit and dark brown bark. The five-petaled flowers—just over an inch in diameter—come in red, orange, yellow, white, or pink with yellow centers. 'Abottswood', which has large flowers and blue-green leaves on a three-foot plant, is considered one of the best of the white cinquefoils.



Potentilla fruticosa
'Primrose Beauty'

Other good cultivars include 'Pink Beauty', with semi-double flowers of rich pink; and 'Katherine Dykes', with lemon-yellow flowers and medium green leaves. An old favorite is 'Primrose Beauty', which has pale yellow flowers and silver-green foliage.

Crape Myrtle Rivaling the cinquefoil for length of bloom is the crape myrtle (*Lagerstroemia indica*, Zones 7–9, 9–7), which has graced southern gardens since at least the 19th century. In the 1960s, plant breeder Donald Egolf of the U.S. National Arboretum began crossing this native of China and Korea with *L. fauriei*, discovered in Japan by plant explorer John Creech. The resulting hybrids combined the best features of both: the lovely flowers of *L. indica* and the peeling, multicolored bark, mildew resistance, and slightly greater hardiness of *L. fauriei*, which is root hardy to USDA Zone 6.

Crape myrtle flowers are delicate-textured, like crape paper, on large, showy panicles. The bloom period, usually beginning in late June, is phenomenal. After flowering, shiny brown seedpods remain into winter. The foliage is shiny and dark green, often with excellent fall color in red, yellow, or orange tones. And crape myrtles are undemanding garden plants, thriving in ordinary soil and tolerating dry conditions once established. For best flowering, and to avoid legginess, plant them in full sun.



Lagerstroemia indica

Crape myrtles vary in size from small shrubs to small trees; larger plants make excellent specimens, while smaller types provide long-lasting color in borders. In addition to the hybrids released by the National Arboretum, there are a multitude of other *L. indica* selections available.

The big news in crape myrtles was the introduction by the National Arboretum of dwarf hybrids—derived from the late Egolf's work—beginning in 1997 with 'Chickasaw'. This miniature grows slowly to just 20 inches tall and about two feet wide, with lavender-pink flowers from midsummer to frost. Next came 'Pocomoke', similar to 'Chickasaw' but a bit larger, with deep rose pink flowers. Both have excellent mildew resistance.

Rose of Sharon Also known as shrub althea (*Hibiscus syriacus*, Zones 5–9, 10–3), this is an old-fashioned shrub that has come a long way. The species, native to China, has a relatively short bloom season and seeds all over the place, but breeders have made many improvements. Modern cultivars bloom from late June or July until fall, and the very showy flowers are sterile triploids that produce little or no seed.

Rose of Sharon flowers are similar to hollyhock in shape, in single or double forms up to six inches across in shades of pink, white, red, lavender, and almost blue. The leaves are dark green, two to four inches long and toothed, with not much in the way of fall color. Habit is upright, eight to 12 feet tall. Although naturally multi-stemmed, rose of Sharon may be trained to a tree form; use in the border, as an accent, or grouped as a cheerful, informal hedge. Rose of Sharon prefers a sandy loam and full sun, but will tolerate compacted soil, drought, and air pollution.

Good cultivars include 'Diana', with large, pure white flowers; 'Helene', white flowers with a maroon eye which feathers out along the veins; 'Aphrodite', pink flowers and a red eye; and 'Woodbridge', deep red flowers and a darker eye. The double flowers of 'Purpurea Variegata' are lilac-red, but bloom sparsely; this cultivar is most valued for its white-variegated leaves.



Hibiscus syriacus 'Diana'

Bigleaf Hydrangea I always associate bigleaf hydrangea (*Hydrangea macrophylla*, Zones 6–9, 9–3) with vacations at New Jersey or Virginia beaches, where these shrubs, tolerant of salt spray, can be seen on every block. There are two types of bigleaf hydrangeas: the sterile, mop-headed hortensias, distinguished by large, rounded flower heads; and the lacecaps, which have flat corymbs of fertile inner flowers surrounded by showy, sterile outer sepals. Bigleaf hydrangeas flower for about four weeks, beginning in June or July to August; some gardeners leave the spent flowers on the plant to provide winter interest. Both the lacecaps and hortensias have a similar rounded habit, reaching three to 10 feet in height, with lustrous medium to dark green, coarsely serrated leaves four to eight inches long.

Hydrangea flowers come in shades of white, pink, or blue; the acidity or alkalinity (pH) of the soil affects the flower color in some types, with blue flowers occurring in acid soils and pink in alkaline soils; sometimes both colors occur on a single plant.

Native to Japan and China, big leaf hydrangeas grow best in sun or part shade, in moist, rich, well-drained soil. Plants will supposedly tolerate drier soils once established but, after planting it eight years ago, the *H. macrophylla* 'Blue Billow' in my garden still visibly wilts in dry weather. Big leaf hydrangeas can be massed or used as specimens to spice up a mixed border.

There are now hundreds of cultivars from which to choose. The aforementioned 'Blue Billow' is a lacecap with intense blue

flowers, compact size—about three feet tall in my Maryland garden—and excellent hardiness, having shown no bud damage in trials at minus-3 degrees Fahrenheit. Other popular lacecaps include ‘Mariesii’, which grows to five feet tall with pink or blue flowers—depending on soil pH—and the related ‘Variegata Mariesii’, which has leaves outlined in white.

Among the hortensias, ‘All Summer Beauty’ has rich blue to pink flowers on a compact, three- to four-foot shrub. ‘Nikko Blue’ (see page 36) is an old favorite mophead with large, rich blue flowers on a shrub reaching six feet tall or more. The pink mophead flowers of ‘Forever Pink’ turn rose-red in autumn on a three-foot shrub. ‘Pia’ is one of the most compact mopheads, just two-and-a-half feet tall, with bright pink flowers.

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Deciduous Azaleas

While most azaleas bloom in spring, gardeners can extend their enjoyment by planting summer-blooming American native deciduous azaleas. These shrubs have the usual funnel-shaped azalea flowers, but offer added benefits such as good fall color, delicious fragrance, and disease resistance.

Tree azalea (*Rhododendron arborescens*, Zones 5–9, 9–4) can grow quite large, sometimes reaching 20 feet after many years, but usually much less in the garden. Also known as sweet or smooth azalea, this plant is native from New York to Alabama and west to

Tennessee. It has very sweet-smelling white or pink-tinged flowers from late June into July. A cultivar called ‘White Lightning’ has pure white flowers and red fall color.

Blooming around the same time, and with similar flowers, is swamp azalea (*R. viscosum*, Zones 3–9, 9–1). As its name implies, swamp azalea will tolerate poorly drained soil; it can grow up to 15 feet under ideal conditions. The cultivar



‘Betty Cummins’ has fragrant, deep pink flowers.

Native to moist streambanks and thickets in California and Oregon and at elevations to 7,500 feet, western azalea (*R. occidentale*, Zones 7–9, 9–7) has sweet, spicy smelling flowers, usually white to rose with a yellow blotch, and red to copper fall color. Blooms occur between May and June. Growing three to 10 feet tall or more, western azalea grows best in well-drained, acid soil in part shade but will take full sun, especially along the coast.

These deciduous azaleas can be used as specimens or along the edge of a woodland. Generally, azaleas prefer acid, moist, well-drained soil in light or dappled shade; too much shade may produce sparse flowering, while full sun may bleach the flowers.

Spireas

With almost 100 species in the genus, it's safe to say that there is a good deal of variation among spiraeas. Two cultivars of summer-flowering spiraea that have enjoyed enduring popularity are *Spiraea x bumalda* ‘Gold-flame’ (Zones 4–9, 9–1) and the Japanese spiraea (*Spiraea japonica* ‘Shirobana’, sometimes sold as ‘Shibori,’ Zones 4–8, 10–2).

Bumalda spiraeas are hybrids of *S. albiflora* and *S. japonica*; ‘Gold Flame’ is an old favorite whose new growth emerges red, orange, and copper, then turns yellow and finally yellow-green. Summer color varies; in shade and/or warmer areas, the leaves will be greener, while in sun and cooler climates, foliage will remain more yellow. Fall color may be red or bronze. Flowers are rose-pink, in

Other Classic Summer-flowering Shrubs

| Common/Botanical Name | Height / Spread (feet) | Flowers and Foliage | Origin | USDA and AHS Zones |
|--|---------------------------|--|------------------------------|-----------------------|
| <i>Aesculus parviflora</i> bottlebrush buckeye | 9-12 / 15 | spiky white flowers, yellow fall color | United States | 7-3, 8-4. |
| <i>Calycanthus occidentalis</i> western spicebush | 4-12 / 4-12 | reddish brown to maroon flowers, foliage has spicy scent when bruised | California | 6-9, 9-1 |
| <i>Carpenteria californica</i> bush anemone | 3-6 / 3-6 | white flowers with yellow centers, broadleaf evergreen | California | 9-11, 12-8 |
| <i>Ceanothus americanus</i> New Jersey tea | 3-4 / 3-5 | white flowers, glossy green leaves, red fruits | North America | 4-8, 8-4 |
| <i>Cephalanthus occidentalis</i> buttonbush | 3-10 / 3-10 | lustrous green leaves, white flowers | North America, Asia, Cuba | 5-11, 12-3 |
| <i>Fremontodendron</i> 'California Glory', flannel bush | 6-20 / 5-12 | red-orange flowers with yellowish interiors, broadleaf evergreen | United States | 8-11, 12-8 |
| <i>Hydrangea arborescens</i> 'Annabelle', smooth hydrangea | 3-5 / 3-5 | yellow-green flowers, maturing to white | eastern U.S | 3-9, 9-1 |
| <i>H. quercifolia</i> 'Snow Flake', 'Snow Queen', oakleaf hydrangea | 4-8 / 4-10 | white flowers, dark green, bold leaves | United States 5-9, 9-3 | 5-9, 9-1 |
| <i>Leucophyllum frutescens</i> Texas or purple sage | 2-8 / 2-6 | flowers white or violet-purple, silvery-gray evergreen leaves | Texas | 8-9, 9-8 |
| <i>Nerium oleander</i> oleander | 3-12 / 3-8 | flowers in wide range of colors, evergreen leaves | Mediterranean and Japan | 8-10, 12-1 |

flat corymbs up to six inches across, appearing in June to August. The plant stays compact, growing quickly to two or three feet.

'Shirobana' has lustrous, deep green leaves that turn bronze in fall—not as dynamic as the ever-changing foliage of 'Gold Flame', but perhaps more in harmony with the color of its flowers. 'Shirobana' is unusual in that its rose, pink, and white blooms are produced simultaneously. Growing 3 1/2 to 4 feet tall with a dense, rounded form, 'Shirobana' prefers acid, loamy soil and sun to light shade; like 'Goldflame', it tolerates dry conditions.



Spiraea japonica 'Gold Flame'

St. Johnsworts For a spot of bright, cheerful yellow in a sunny site, it's hard to beat golden St. Johnswort (*Hypericum frondosum*, Zones 5-8, 8-9). Native to the southeastern United States and west to Texas, golden St. Johnswort is a rounded shrub with rather stout branches relative to its size—three to four feet high and wide. The bark is brown and exfoliating, and foliage is an attractive, rich blue-green. The intense yellow flowers—up to two inches in diameter with a brushy mound of stamens in the middle—bloom from June or July to August.

The cultivar 'Sunburst' has larger flowers, about three inches across and semi-evergreen foliage on a three-foot plant. 'Sunburst' tolerates dry conditions and performs well in the Midwest.



Hypericum 'Hidcote'

Another popular hypericum is 'Hidcote' (Zones 6-8, 8-5), a fine plant with arching branches, semi-evergreen blue-green leaves, and large, bright yellow, cup-shaped flowers that bloom abundantly in June and sporadically into October. 'Hidcote' grows in a rounded shape to three to

five feet tall and prefers sun to light shade in well-drained soil; it will tolerate drought when established. Both 'Hidcote' and 'Sunburst' are effective in borders or facing down taller plants.

Whether you choose an older cultivar of a classic summer-blooming shrub or one of the latest introductions, it's hard to go wrong with any of these unfussy, free-flowering plants. They bring not only beauty, but a sense of continuity to your garden that your grandmother—or grandfather—would appreciate. Hopefully, your grandchildren will, too.

A free-lance writer, Patricia Acton gardens along the Chesapeake Bay in Deale, Maryland.

Inspired by the spirit of volunteerism and a passion for gardening, Master Gardeners are making the world better by spreading the gospel of gardening.

BY CAROLE OTTESEN

Master Gardeners

SCRATCH A Master Gardener (MG) and you'll get more than dirt. It takes more than mere gardening expertise to make a Master Gardener. Only those born with giving natures have what it takes to join this extraordinary cadre of volunteers. These are the folks who make public horticulture work—often behind the scenes and without fanfare, answering phones, solving gardening problems, and running the shows and the tours. They beautify our cities and towns, and, generally, make the world richer and more pleasant for others through gardening.

A Master Gardener is “a unique kind of person,” says David Gibby, who helped create the Master Gardener program three decades ago. In the early 1970s, Gibby was a county Extension agent for King and Pierce counties in western Washington State. His employer, the cooperative Extension service, is a joint effort between the U.S. Department of Agriculture, land grant universities, and local county governments. Its mission is to keep the public informed of the latest research in agriculture, natural resources, nutrition, and food safety. Gibby's responsibility was answering homeowners' gardening questions in an area when home gardening was booming. “There were several million people wanting information and only one person providing it,” he says.

In an effort to nip homeowners' questions in the bud, Gibby aired solutions to problems on local television and radio. However, each time a segment aired, he remembers, “the response was 20 times normal. As a result of the show,

people found problems they didn't know they had.”

Overwhelmed, he came up with the idea of training volunteers to help answer the phones. “At first there was quite a bit of opposition to the idea,” he recalls. Often, members of the Extension staff thought training volunteers would be an addi-



Top: Joan Betts and fellow Master Gardeners of Sonoma County, California, groom plants discarded by local nurseries so they can be later donated to school and community youth garden programs. **Above left:** AHS volunteer and Master Gardener Manette Lazear researches answers to member queries. **Above right:** Two Junior Master Gardeners plant vegetable seeds in a raised bed.

tional burden. "But the biggest concern was getting high quality volunteers." The latter fear turned out to be ungrounded. Of the initial 120 trainees—culled from 300 applications—notes Gibby, "Almost every one was an expert gardener." Even more important, they were willing and eager to volunteer.

The citizens of King and Pierce counties profited almost immediately. After graduation in 1973, the newly minted MGs began working with the public, holding plant clinics at local shopping malls. In that first year, 7,000 people attended. The MG experiment proved a complete success. And word spread quickly.

First to call was the Extension agent in Spokane, Washington, who wanted to start a Master Gardener program there. Next came a call from Corvallis, Oregon. County after county, state after state followed suit. Today, there are approximately 60,000 Master Gardeners working in programs in 50 states and four Canadian provinces.

ONE SIZE DOES NOT FIT ALL

NO TWO programs are exactly alike. "You tailor the program to meet the needs of the county," says Tarrant County, Texas, Extension agent Dotty Woodson. In Arizona, where water conservation is a big issue and the flora is distinct from other states, the MG manual includes chapters on cacti and irrigation. In Alaska, where some people live far from the places where courses are taught, they can learn by correspondence. In Galveston County, Texas, and in Minnesota, MGs learn gardening techniques that minimize polluting runoff into the bay and the lakes. Then they pass this information on to the gardening public.

Regional differences notwithstanding, programs across the continent are similar. In the United States, prospective Master Gardeners apply to a local cooperative Extension service; in Canada, they apply to the Ministry of Agriculture. Some programs are always on the lookout for new MG candidates; in others—Min-

nesota's Twin Cities, for instance—competition is so fierce that three to four applicants vie for each available space.

An MG trainee pays a nominal fee for instruction and course materials—ranging from \$60 up to \$120. Then, he or she must complete the course—from 40 to 150 hours of basic horticultural principles—taught by experts. The training includes classes in botany, composting, diagnosing plant problems, entomology, the care of ornamentals, vegetables, and lawns, organic gardening, pesticide use and safety, and soils and fertilizers. Course content has changed to keep pace with the times. Thirty years ago, chemical sprays were recommended for most pest and disease problems. These days there is a strong focus on environmentally sound gardening practices and integrated pest management (IPM).

Bill Alde, a retired engineer and University of Maryland MG who grows 150 roses, teaches IPM rose care to his class at the University of the District of Columbia in our nation's capital. Alde uses no insecticides. "I find that there are plenty of beneficials and other alternatives," he says. He describes the two-step process he recommends for dealing with coiled rose bugs on his plants as the "pick and stomp."

THINK YOU HAVE the right stuff to become a Master Gardener? To locate MG programs in your area, you can find links to individual state and local programs through the Master Gardener or AHS Web sites (see resources). Or look under "Cooperative Extension Service" or "Garden and Lawn Information" in the county government pages of your telephone book. It's a challenging but highly rewarding program that will allow you to make a difference in your community and in the lives of others.

Master Gardener *JOAN BETTS, Santa Rosa, California*

SEVENTEEN YEARS ago, when Joan Betts (also top, opposite page) became a Sonoma County, California, MG, she knew that she wanted "to work with seniors or children." Lucky for the children of Sonoma County, the first places she contacted were the schools. And the first thing she learned was that they didn't have money for plants.

Undaunted, she set about acquiring plants and gardening equipment for the children of Sonoma County. She recruited discards from nurseries and revived them. "I took whatever they were getting rid of—broken pots, ailing plants—and fixed them. And the schools came and got them." At Cinderella Nursery, as her seven-acre property is aptly called, Betts is the fairy godmother who, along with other MGs, works her magic on the discards of area nurseries to provide the raw materials for "any youth group—Scouts, 4-H."

"In Sonoma County," she says, "over 80 percent of the schools—from nursery school through college—get involved in gardening." In a week in spring, volunteers collect as many as 150 flats of plants per week from nurseries. These are nursed back to health, groomed, and made available to any school or youth group that requests them.

"The flowers and vegetables are all grown organically, so it's a hands-on experience for the kids and they get to see for themselves what happens if a plant isn't growing in proper soil or doesn't have enough water." Dead plants are composted and everything possible is recycled. "The only way to teach environmentalism," says Betts, "is to get kids to handle the plants. They'll be able to make better choices for our future."

Betts answers visitor questions at a public compost demonstration.



After they pass an exam on the material covered in their classes, new MGs pay back their education in hours of service. In several states, this is merely the same number of hours that they received in instruction. Other programs demand a yearly quota of volunteer hours for MGs to stay active—varying from 25 hours per year in Minnesota to 50 in Texas.

Hours spent serving the public add up to huge benefits for the states. Last year, 2,783 Master Gardeners in Oregon donated some 130,000 hours, the equivalent of 66 full-time employees—a benefit to the state of almost \$2 million. In 2000, 4,150 Texas MGs provided the equivalent of 105 full-time employees, estimated at \$3.1 million.

FROM HOTLINES TO GARDEN TOURS

IF YOU'VE EVER called your county Extension agent to ask for advice, an MG has probably helped you. Of the American Horticultural Society's gardening hotline—a service to members provided through the Society's Gardener's Information Service (GIS), Marianne Polito, GIS manager and volunteer coordina-



Master Gardeners in Snohomish County, Washington, maintain a mulch and cover trial bed as part of their demonstration garden.

tor, says, "Our members appreciate the depth of knowledge that Master Gardeners bring to answering their questions."

Manning gardening hotlines is only one of the many ways MGs serve their communities. For instance, Tarrant County, Texas, MGs disseminate pertinent information to the public via their speakers bureau. "Right now," says chairman Jo Ann Hahn, "we're pushing xeriscape in Texas because we have a problem with water, and it's only going to get worse." The speakers bureau made over 80 presentations last year. There is no charge for a speaker, but donations are cheerfully accepted because they finance new programs.

Technology has greatly enlarged the MG sphere of influence. Most states have a Web site with regional information, usually assembled by MGs. Colorado's site lists trees and shrubs suited to the High Plains. The Maine site offers a list of Extension publications, such as *Landscaping for Butterflies in Maine*, which can be ordered or downloaded. The North Carolina site describes the "Trees of Strength" program of planting trees in memory of those who died in the terrorist attacks on September 11, 2001.

Master Gardener **LEONA HAYES**, Washington, D.C.

THERE ARE MANY reasons why a person becomes a Master Gardener. For Leona Hayes of Washington, D.C., it was the result of a life-changing experience. Three years ago, Hayes was a legal assistant working for a law firm. Then, one terrible Thursday morning, she got a telephone call informing her that her son had been killed in a car accident. Her tidy world came apart at the seams, and she lost all interest in life. "I gave up my apartment and lived in a homeless shelter," she says of that period.

Her life turned around when she started working for a local Johnson's Flower and Garden Center. "Gordon Sheridan, the general manager, got me working outside," remembers Hayes, who found solace in fresh air, sun, and rain. As the days passed, Hayes gradually drew strength from the plants and flowers around her. "The flowers started making me feel good. They were healing me," she says, a big tear spilling over her cheek. A moment later, however, she is smiling again. "My whole life changed. I just got out here and I never looked back."

Hoping to build on this transformation, Sheridan suggested she take the Master Gardener course offered by the University of the District of Columbia. "He felt I could meet people and learn more about my job," says Hayes. Her favorite class was one on composting. "The man who taught the compost class had me sitting in the front of the class enthused like a kid in the seventh grade," she recalls.

With the confidence and skills the course instilled in her through training, Hayes has created what she calls her own little "Oz" in the backroom of her apartment. Like the strange and beautiful flower-filled land that Dorothy visited, the back bedroom is a lush, green world where Hayes has nursed ailing plants and her own psyche back to health.

The course also enhanced Hayes' performance and enthusiasm at her job. Now she wants to help others find their own Oz. "I love helping people," she says, "and since I went to the MG program, it's like I've got a sign on me and people come up to ask questions—sometimes I have as many as five lined up at a time." Smiling, she adds, "And now I can answer them all."

The therapeutic value of working with plants after a personal tragedy encouraged Leona Hayes to become a Master Gardener.



Master Gardener **JO ELLEN MEYERS SHARP**, Indianapolis, Indiana

AFTER WORKING fulltime for 20 years as a newspaper reporter, Jo Ellen Meyers Sharp cut back to writing a weekly garden column she had begun in 1989 for the *Indianapolis Star*. A self-described “seat-of-the-pants, trial-and-error gardener” at the time, she decided to “legitimize” her gardening experience by taking the Marion County, Indiana, MG program. In addition to bolstering her confidence, the courses acquainted her with the tremendous resources the program holds.

“For my volunteer commitment, I speak before groups about various garden topics. I also teach garden clinics for the county Extension office and answer e-mails one morning a week to the Master Gardener Answer line, work at a community garden, and try to promote and educate people about gardening wherever I go.”

Her services have earned Sharp the rank of Advanced Master Gardener.

Sharp demonstrates planting techniques as part of her Master Gardener commitment.

She has also continued to write. Along with Extension agent Tom Tyler, she published *The Indiana Gardener's Guide* in 1998. And her garden column appeared weekly in the newspaper's lifestyle section.

Then, in August 1996, she received a tremendous shock. “The new features editor called me to say the paper was no longer going to run my garden column,” she recalls. “It was going to run Martha Stewart instead. That September, I wrote my last column as graciously as I could and disappeared from the spot I'd had for seven years.”

But the readers missed her and they wrote, called, e-mailed, and faxed their displeasure to the newspaper. “I think the paper received between 500 and 600 pieces of correspondence,” says Sharp, “and I was brought back.” Stewart's column ran for about a year more before being dropped.



Master Gardener Jackie Goetz created a short course on butterflies and moths that can be accessed through the Johnson County, Kansas, MG Web site (www.oznet.ksu.edu/johnson). Her photos of eggs, larval stages, pupae, and butterflies will put to rest any doubts gardeners may have about what those caterpillars on the parsley are and what they will become.

Master Gardeners also sponsor or support garden tours. The Champaign, Illinois, MG tour nets “several thousand dollars annually,” says former Extension specialist Denny Schrock. Johnson County, Kansas, MGs sponsor one “that's different from most tours,” says MG Lyn Holiday. “We pick out an educational aspect to the garden being viewed and we have MGs stationed throughout to explain.”

A YOUTH MOVEMENT

AND MGS HAVE found a way to pass on their love of gardening and tradition of volunteerism to a new generation. At the In-

ternational Master Gardening Conference held in San Antonio in 1999, the Junior Master Gardening Program (JMG) was born.

“Master Gardeners had two passions,” explains Doug Welsh, Texas MG Coordinator at Texas A & M in College Station, “one, that kids learn tomatoes don't come from Safeway, and the other, a concern for—literally—a lost generation of gardeners.” Like its parent organization, the JMG grew swiftly. Today, there are 575 registered groups in 34 states and 4 countries, reaching approximately 900,000 youth each year. Like its parent organization, its motto is “Training, Service, Certification.” Unlike the MG program, which is administered regionally, the JMG has an international headquarters in College Station, Texas.

JMGs learn to respect and protect the environment. The Busy Bee chapter of fourth- and fifth-graders at Sunrise Drive Elementary in Suffolk County, New York, took part in the 16th International Coastal Cleanup Project last fall, gathering up trash and other debris from along the shoreline. In Greene County, Missouri, JMGs grow vegetables for home use and to share with others in need. In Volusia, County, Florida, JMGs play the Bug Game, learning to discriminate between beneficial and destructive insects—even the tricky look-alikes—so that fewer pesticides need to be used.

With the creation of the JMG program, Master Gardeners have bestowed the ultimate gift—the one that keeps on giving. They are imbuing a new generation with their passion for gardening, their stewardship of the earth, and their volunteering spirit. Now, around the country and around the world, the work they have begun—making the world a better place through gardening—can continue indefinitely.

Carole Ottesen is an associate editor of The American Gardener.

Resources

American Horticultural Society sponsors a listserv for Master Gardeners on its Web site at www.ahs.org. This site also contains links to MG programs throughout North America.

Master Gardeners, mastergardeners.com. Information about MG regional conferences and state and local MG programs.

Junior Master Gardeners, www.jmgkids.org.

All-American Herbs



For a non-traditional herb garden, try some of these attractive and intriguing American native plants that have a long history of medicinal or culinary use.

BY DONALD HUMPHREY

HISTORICALLY, people have relied on plants indigenous to their part of the world to improve their quality of life. Herbs, broadly defined as plants grown for some useful purpose, represent a multitude of species from very diverse plant families. They have found applications as medicines, dyes, insect repellents, fragrances, teas, and flavorings. A Chinese herbal, said to date to 2700 B.C., treats the health-giving and medicinal uses of herbs, a tradition that flourishes in China to this day.

Egyptians, Assyrians, and Greeks were interested in herbs and spices long before the Christian era. Arabs were also involved in the spice trade at an early date, and maintain the trade today—a walk through an Arab *sug*, or market, where herbs are sold is an olfactory delight. When Europe was plunged into the Dark Ages, the tradition of growing and propagating herbs was continued in monasteries by monks and by women in kitchen gardens. As a result, women in European cultures have had a long and abiding relationship with herbs.

The majority of herbs grown in American gardens originated in lands around the Mediterranean basin, the Near East, Turkey, and central Asia—areas that experience mild, wet winters and long, dry, and hot summers. As civilizations flourished around the Mediterranean, agriculture, grazing, and construction led to removal of forests, creating plant communities dominated by evergreen shrubs with aromatic foliage. Well-known herbs such as lavender, thyme, rosemary, and rue are but a few of those indigenous to the region.

NEW WORLD HERBS

IN WHAT is now the United States, no such pressure on the environment occurred in pre-Columbian times. Native Americans used the plants that inhabited their world for numerous purposes, and some of their knowledge was shared with European settlers. These settlers, however, had transported seeds of many of their traditional herbs with them across the ocean. With the rich

A trio of homegrown herbs. Above left to right: *Monarda didyma*, *Eupatorium perfoliatum*, and *Salvia clevelandii*.

panoply of Eurasian herbs, nurtured for over 2,000 years, American plants for the herb garden were largely ignored or overlooked.

I recently checked an extensive list of herbs in a well-known American garden book of the 1950s and found only two species listed that are native to the United States. But times and tastes are changing. In *The Big Book of Herbs* by Arthur O. Tucker and Thomas DeBaggio, published in 2000, and *The New Encyclopedia of Herbs and Their Uses* by Deni Moore, published in 2001, a sizeable number of native herb species are included.

Both of the texts mentioned above include a number of eastern wildflowers that have a history of medicinal use. Many have become more familiar as ornamental plants—we often grow them without regard to or knowledge of their herbal lore.

FAMILIAR NATIVES WITH A MEDICINAL PAST

SOME OF THE most important of these are the nine species of cone flower. The most desirable for herbal use is *Echinacea angustifolia* (USDA Zones 4–9, AHS Zones 8–5) from the Great Plains. Documented pharmaceutical uses go back to the 1880s, and prior to that time Native Americans used it for everything from snakebites to bathing burns. It is recommended as a stimulant to the immune system by many herbalists. With its long-lasting lavender-pink summer flowers, it is a welcome addition to sunny borders.

Bugbane or black cohosh (*Cimicifuga racemosa*, Zones 3–8, 12–1) has been used as an astringent, diuretic, and insect repellent. It was commonly employed by midwives for treating women's reproductive problems. Tall white spires of fuzzy spring and summer flowers and rich green foliage make it an attractive addition to the back of a perennial border.

Other native ornamental perennials that have a history of medicinal use include: rattlesnake master (*Eryngium yuccifolium*, Zones 4–9, 12–1) a purported remedy for snakebite, and Indian physic (*Porteranthus trifolius* and *P. stipulatus*, Zones 4–9, 9–1) used by American Indians and settlers as an emetic. Culver's root (*Veronicastrum virginicum*, Zones 3–8, 8–1), with its striking spires of white or pink summer flowers, has also been used as an emetic, and in smaller doses as a laxative. And a tonic has been made from that staple of the summer border, Joe-Pye weed (*Eupatorium purpureum*, Zones 3–9, 9–1). Its roots have been used to induce perspiration and a pinkish-red dye is derived from the seed heads. *Spigelia marilandica* (Zones 5–9, 9–2), a favorite wildflower of mine, goes by the name of worm grass, indicating its historic use as a treatment for intestinal worms.

SUN-LOVING AMERICAN HERBS

THE PLANTS treated in the remainder of this article are “children of the sun.” They are found across the United States, with



Top right: Airy spires of *Cimicifuga racemosa* tower over phlox in a summer border. Right: The delicate, starlike blooms of *Porteranthus* belie its tough, drought-tolerant nature.



the heaviest concentrations in the southeastern coastal plain, the Southwest and adjacent Mexico, and California. My interest in them is for their fragrant foliage, form, and flowers. Although most have not been studied sufficiently for their herbal uses to be generally regarded as safe, my own experience with them and that of others is mentioned where applicable.

Several of the 16 species in the genus *Monarda* are known both for their herbal and ornamental qualities. Perhaps the most familiar to gardeners is *Monarda didyma* (Zones 4–9, 9–2)—commonly referred to as Oswego tea, bee balm, or bergamot—which is found in rich wooded areas in the eastern United States and requires more moisture and a richer soil, and tolerates more shade, than most of the following herbs. The name “Oswego tea” comes from the use of the leaves for tea by early settlers in upstate New York. I use a few leaves of it and lemon verbena in my regular tea—the fragrance resembles that of the bergamot orange, used to flavor Earl Gray tea. The species has bright red summer flowers, but cultivars are available in an array of colors, all of which are magnets for bees, butterflies, and hummingbirds. Because it suckers freely, it may need containment in a small garden; mildew can also be a problem, especially in the South, but less susceptible cultivars are available.

Monarda fistulosa (Zones 4–9, 9–2) has pale lavender flowers and is known variously as horse mint or wild bergamot. The Spanish name *oregana de la sierra* suggests its use in the kitchen garden. Unlike *M. didyma*, it is drought resistant and makes a

WHERE TO SEE NATIVE AMERICAN HERB GARDENS

Most traditional herb gardens feature Old World herbs, commonly arranged in a formal style. The following locations have specialty gardens that feature native American herbs—including some of those covered in this article. A visit to one of these gardens will add to your appreciation of the history behind these plants and showcase the ornamental possibilities they can bring to your own garden.

The National Herb Garden at the National Arboretum*, Washington, DC 20002
(202) 245-2726

www.usna.usda.gov/index.html

■ Features 10 theme gardens including a garden of plants used by Native Americans, and another of plants used by the American colonists.

The American Indian Heritage Garden at the National Zoo, Washington, DC 20008. (202) 673-4950

natzoo.si.edu/index.htm

■ Located near the zoo's Small Mammal House. A zig-zagging boardwalk leads visitors through a wide variety of plants used by Native Americans for food and medicine.

The Mercer Reeves Hubbard Herb Garden at North Carolina Botanical Garden, Chapel Hill, NC 27599. (919) 962-0522
www.unc.edu/depts/ncbg/herb.htm

■ Includes a collection of Native American herbs. Other displays include poiso-



The Native American Garden is one of several theme areas in the National Herb Garden at the U.S. National Arboretum in Washington, D.C. The buttonbush (*Cephalanthus occidentalis*), foreground, was used by Native Americans to treat fevers, coughs, headaches, and toothaches.

nous plants, evergreen herbs, economically important herbs, and herbs that grow in shade.

The Robison York State Herb Garden at Cornell Plantations*, Ithaca, NY 14850. (607) 255-3020

www.plantations.cornell.edu/collections/botanical/herb.cfm

■ Consists of 17 theme beds. In addition to the collection of Native American herbs, plants are grouped according to their use, significance in

literature, and economic value.

North American Indian Garden at the 4-H Children's Garden, Michigan State University, East Lansing, MI 48824
(517) 353-6692

4hgarden.msu.edu/tour/22.html

■ The North American Indian Garden is one of six "Rainbow Gardens" at Michigan State University's 4-H Children's Garden. Included are plants grown by Native Americans for food, dye, and medicine.

*Participants in AHS's Reciprocal Admissions Program

good meadow plant. Less ornamental than the preceding species are wild bergamot (*M. menthifolia*) and the annual lemon mint (*M. citriodora*). Both are native to the central United States, have aromatic leaves, and have traditionally been used in teas.

Stone mint (*Cunila origanoides*, Zones 6–8, 8–6) is found from New York to South Carolina and west to Oklahoma in dry woodlands. It has a penchant for sloping, well-drained sites. I have found it within a few miles of my home in Virginia on a steep railroad cut, and it grows abundantly on road banks of shale along the Cacapon River in West Virginia. It has small, delicate leaves, and its branches ramify again and again, giving it a light and airy appearance. Growing to a foot or so in both height and width, it

is covered with small lavender flowers in late summer. I have used the leaves in cooking in the same manner as oregano and find the scent very pleasant. It may be short lived, so it is a good idea to save seeds. In winter, one occasionally sees wafer-thin sheets of ice extruded several inches above the ground over its roots. This phenomenon gives it the colloquial name of ice plant.

The modest little plants of the American genus *Hedeoma* bear a superficial resemblance to the Old World thymes. Most of the 20 or so species are found from Texas to Arizona, but *Hedeoma pulegioides* and *H. hispida* are found in the eastern United States, and *H. drummondii* ranges from Texas to Montana. Botanists differ on whether some species are annuals or perennials. *H. pule-*



The aromatic leaves of *Hedeoma pulegiodes* have been used as an insect repellent.

gioides (Zones 4–8, 8–3) is called American pennyroyal—its scent resembles that of *Mentha pulegium*, the pennyroyal of Europe. I recently found it growing on a shady road bank in western Maryland as a solid fragrant carpet. The only species I have grown is *H. hyssopifolium* (Zones 7–9, 12–6) from Arizona and New Mexico. The flowering stems grow to a foot or more and bear tiny lavender flowers. The evergreen winter growth is composed of numerous, short erect stems with closely spaced, four-ranked, tiny leaves.

The southeastern coastal plain and open pinelands in eastern Tennessee and Kentucky are home to a number of shrubby evergreen mints of the genera *Conradina* and *Clinopodium*. Several are endangered species. All are desirable in the garden and some are commercially available. Georgia basil (*Clinopodium georgianum*, Zones 7–8, 8–7) is a good example. Occurring from North Carolina to Mississippi, it is an upright shrub about 20 inches high, clothed in narrow green leaves. The numerous half-inch lavender flowers appear on the upper part of the stems in autumn. The crushed foliage has a subtle aroma. It has proven hardy in my garden in sunny, protected spots.

Southern Arizona and New Mexico are home to some of the finest plants to grace our gardens in recent years. The agastaches are in a fragrant foliaged genus containing some rather plebian species, but sunset hyssop (*Agastache rupestris*, Zones 7–9, 9–7) is a jewel. It is a subshrub that grows up to three feet tall and nearly as wide. It has numerous branches and the leaves are a soft gray-green, giving it a full, bushy appearance. The one-inch tubular, pink and orange flowers appear by mid summer and continue until hard frost and are very attractive to hummingbirds. The leaves have an exquisite root beer aroma. I've seen reference to their use as a tea and I intend to cautiously test them for that use next summer. It sets abundant seeds that are easy to grow. Since it flowers the first year if started early, it may be grown as an annual in colder climates. It has proven hardy in northern Virginia for over a decade in full sun and a well-drained soil. A winter mulch is helpful.



Clinopodium georgianum, a shrubby evergreen mint with delicate, lavender-pink flowers, is gaining popularity as a garden ornamental.

MARIGOLDS AND MORE

MOST OF the 50 species of marigolds are native from Mexico southward, but Arizona has its own choice species. *Tagetes lemmonii* (Zones 8–9, 12–1) is a slightly woody perennial, endemic to the mountains of southeastern Arizona where it grows in rich, moist canyon soils. It is a bushy plant with finely divided leaves liberally dotted with oil glands. It may grow to two feet or more in height and width. The slightest touch of its bright green foliage causes it to emit a penetrating fragrance. The abundant, soft yellow flowers are over an inch across and are also fragrant, but with a warmer, subtler scent. These bloom late in the year, beginning in late October in northern Virginia. A cold snap may freeze the flowers, but last year plants in my garden bloomed through November. In a greenhouse, *T. lemmonii* may flower until March. It is easily grown from seed so northern gardeners may enjoy the scent if not the flowers. Tucker and Debaggio note that it is reportedly used in Tex-Mex cooking.

A better-known marigold native from Sonora southward is *T. lucida* (Zones 8–11, 12–1). It is possibly root-hardy to USDA Zone 7 with ample mulching. Known as Mexican tarragon, it has a unique scent that I find both warm and sweet. Tucker and Debaggio mention that it flourishes in high summer heat, making it a practical substitute for French tarragon, which does not.

The plant bears little resemblance to typical marigolds in that its leaves are entire and untoothed, but its late autumn flowers, though small and insignificant, give it away. For northern gardeners, cuttings may be rooted in the fall and carried over winter indoors. No serious herb grower should be without it. Another interesting marigold is *T. micrantha* (Zones 9, 12–1), a small annual from west Texas and Arizona that has licorice-scented leaves. However, it does not

seem to be readily available in the trade as yet.



Tagetes lemmonii grows wider than tall, producing soft green, aromatic foliage topped with masses of daisylike yellow flowers.

A wonderful Mexican plant from the mountains of Nuevo Leon is called Mexican oregano or rosemary mint. It is a small, upright evergreen shrub growing to 20 inches in my garden. Reputedly hardy to Zone 8, it survived several Zone 7 Virginia winters but was lost last winter to persistent cold and wind. I knew it originally as *Poliomintha longiflorum* but it is now correctly titled *Poliomintha bustamanta* (Zones 8–10, 12–6). It blooms in fall, sporting rosy, inch-long flowers until the first hard frost. It

Resources

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Mints: A Family of Herbs and Ornamentals by Barbara Perry Lawton, Timber Press, Portland, Oregon, 2002.

The New Encyclopedia of Herbs and Their Uses by Deni Bown, DK Publishing, New York, New York, 2001.

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North American Rock Garden Society, P.O. Box 67, Millwood, NY 10546. www.nargs.org.

Northwest Native Seeds, 17595 Vierra Canyon Road #172, Prunedale, CA 93907, Catalog \$3.

Southwestern Native Seeds, P.O. Box 50503, Tucson, AZ 85703. Catalog \$2.

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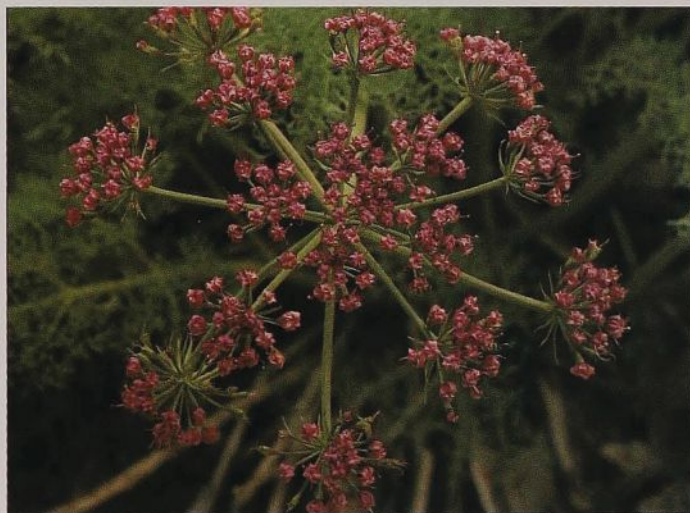
Joy Creek Nursery, Scappoose, OR. (503) 543-7474. www.joycreek.com. Catalog online or available for \$3.

Plants of the Southwest, Aqua Fria, Rt. 6, Box 11A, Santa Fe, NM 87501. (505) 438-8888. www.plantsofthesouthwest.com. Catalog \$3.50.

Woodlanders, Inc., 1128 Colleton Avenue, Aiken, SC 29801. (803) 648-7522. www.woodlanders.net. Catalog \$2.

apparently has long been used in Mexican cookery but I have never tried it. It is small enough that it may be grown in a pot on a sunny windowsill or greenhouse in winter.

There are over 100 species of *Cymopterus* and *Lomatium* in the western United States. Collectively called wild parsley or biscuit root, they are members of the tap-rooted carrot family and feature aromatic, finely divided, prostrate foliage. Native Americans and early settlers ate the roots of some species, particularly *Lomatium cous*, but roots of other species are said to be poisonous. Leaves of certain species have been used in salads and for teas. They are spring flowering with umbels of white, yellow, or purple flowers. Like spring bulbs, some become dormant by summer. *Cymopterus purpureus* has striking gray foliage topped by umbels of small purple flowers. Children of early Colorado settlers dug the roots for "spring candy." *Lomatium columbianum* (Zones 7–9, 9–7), which has beautiful, billowy, blue-green foliage topped by five-inch umbels of purple flowers, is a choice rock garden plant. These genera offer a host of exciting plants for adventurous herb growers and rock gardeners.



Lomatium columbianum produces umbels of purple flowers in spring.

The chaparral of San Diego County and adjacent Baja California is the home of Cleveland sage (*Salvia clevelandii*, Zones 9–11, 10–1). It resembles garden sage with its gray, puckered foliage, but appears more shrublike. Its whorls of blue-purple flowers attract bees, and the leaves have a sharp, heady fragrance that can be oppressive to some in enclosed spaces. It may survive in USDA Zone 8 in a well-drained, protected spot; for those in cooler regions, it makes an attractive pot plant for a sunny terrace and can be renewed by cuttings. Cleveland sage is known to hybridize with the larger salvias such as *S. leucophylla* and *S. apiana*, and plants from such crosses will have an altered aroma.

In researching this article, I have been reminded again of how many fine native plants exist in every region of our country. Many are already well-known but others are exciting, little-known plants that will add beauty and intrigue to our gardens.

Donald Humphrey is former garden manager of Green Springs Garden Park in Alexandria, Virginia, and an active member of the North American Rock Garden Society.

Rattlesnake Master

by Neil Diboll

STARTING WITH its evocative common name—which refers to its historic use by Native Americans for treating snakebite—everything about rattlesnake master (*Eryngium yuccifolium*) is unusual. I like it for its spiky, gray-green foliage, long-lasting creamy white flowers, and the way it complements other prairie natives. Even its family connections are surprising—based on its appearance, I would never have guessed it was a member of the parsley family (Apiaceae).

Rattlesnake master forms knee-high clumps of pointed leaves that resemble those of yuccas (hence the species name). But in the heat of summer the flower stalks soar four to six feet, the buds opening into constellations of white globes for a period of up to eight weeks. After the flowers come wonderful little brown seedpods that provide visual interest for the gardener and food for birds all the way into fall.

Rattlesnake master looks most natural in a meadow or prairie-style garden. A lot of people think of meadows as being predominantly yellow, but most contain a high percentage of white flowers. From a



gardening standpoint, the fact that rattlesnake master has white flowers allows you to mix it with plants bearing flowers with other, stronger colors. I like to combine rattlesnake master with prairie blazing star (*Liatris pycnostachya*), because the bright lavender-rose flowers of the blazing star usually bloom at the same time as rattlesnake master. In addition, there is a wonderful contrast of shapes between the spiky blazing star flowers and the suspended-in-air flower balls of rattlesnake master.

You can go one step further and make a truly spectacular combination by adding prairie dropseed (*Sporobolus heterolepis*) to the mix. The fine, cascading blades of this grass, like the leaves of the rattlesnake master, have a bluish-green tint. I like to space rattlesnake master and prairie blazing star about two feet away from the prairie dropseed. That way, they come up through the cascading leaves of

the grass and the combination looks very natural. Plant the rattlesnake master/prairie blazing star/prairie dropseed combination in full sun and well-drained loamy or clay soil.

On its own, rattlesnake master grows best in well-drained soil; avoid dry, sandy soil or a site that stays consistently damp. In my garden in Wisconsin, it grows quite nicely in a slightly alkaline site with a pH of 7.5 to 8. It is very heat tolerant and surprisingly drought tolerant once established, thanks in part to a waxy coating on its leaves.

Rattlesnake master is relatively easy to grow from seeds, which should be sown in fall to provide them with the extended exposure to cold, moist conditions needed to break seed dormancy. You can sow the seeds in pots and leave them outside, or you can sow the seeds directly in the garden so they will experience natural cold conditioning. Rattlesnake master can also be grown in a container, but select one at least 12 inches deep to accommodate the plant's long tap root.

And there's one more thing to commend rattlesnake master: The deer don't eat it! Here in Wisconsin, the "Serengeti of the Midwest," herds of deer literally live in our garden, chomping on the asters, the purple prairie clover, and the spiderworts, but rattlesnake master seems completely immune. Being a member of the parsley family, it probably has weird-tasting leaves, and perhaps the waxy coating also makes it less than desirable to deer.

Neil Diboll specializes in growing plants of the tall grass prairie. He is president of Prairie Nursery, P.O. Box 306, Westfield, WI 53964. (608) 296-3679. www.prairienursery.com. Catalog free.

At a Glance

Height: 4 to 6 feet in flower

Spread: to 2 feet

Form: Spiky, upright leaves

Flowers: White

Foliage: Pale, gray-green

Special features: Deer resistant

Uses: Specimen, meadow/prairie

Provenance: Eastern and central United States

USDA Hardiness and AHS Heat Zones: 4-9, 12-1

Book Reviews

The Bountiful Container.

Rose Marie Nichols McGee and Maggie Stuckey. Illustrated by Michael A. Hill. Workman Publishing Company, New York, 2002. 432 pages. Publisher's price, softcover: \$16.95.

The Potted Garden.

Scott Appell, editor. Handbook #168, 21st Century Gardening Series. Brooklyn Botanic Garden, New York, 2001. 111 pages. Publisher's price, softcover: \$9.95.

Gardening in Containers.

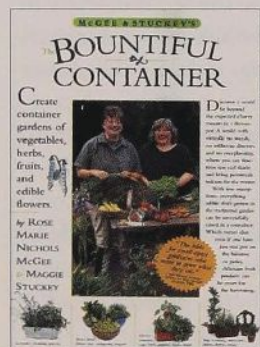
Fine Gardening Design Guides. Edited by Fine Gardening. The Taunton Press, Newtown, Connecticut, 2002. 176 pages. Publisher's price, softcover: \$17.95.

YESTERDAY I made the decision to try something I swore I would never do again; I planted two large Mexican urns with vegetables and herbs. I've tried this in the past and each time succeeded in raising only a few puny basil plants and the odd, extremely small tomato. But a handful of new books on container gardening inspired me to try again.

The book most geared to my project was written by two well-respected plantswomen, Rose Marie Nichols McGee and Maggie Stuckey. At 432 pages, including the efficient index, *The Bountiful Container* is an exhaustive and relentlessly upbeat

guide to creating container gardens of vegetables, herbs, fruits, and edible flowers.

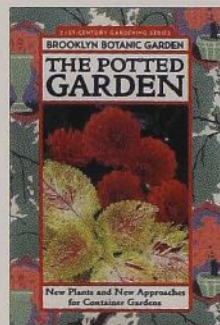
The first three chapters cover design, planting schemes for succession cropping, color, and so on. Chapters four to six address the practicalities of container gardening: types of containers, supports, tools, and the techniques involved in raising plants from seeds and keeping them healthy. The last four chapters form



the bulk of the book—information on 62 categories of vegetables, herbs, fruit, and edible flowers. The main text is punctuated with recipes, tips, and sidebars on theme gardens—which is how my pots became salsa gardens. The illustrations are cheerful black-and-white sketches that, for the most part, decorate rather than inform.

I've been devoted to the Brooklyn Botanic Garden's gardening manuals for many years; they've boasted some of our best gardeners and plantspeople as contributors and covered most aspects of gardenmaking. *The Potted Garden* is a good example. At 111 pages including the index, this slim paperback presents 14 essays written by seven different authors. Some topics are de-

sign-oriented, such as "Unusual, Antique, and Collectible Containers" by Scott D. Appell—although I question whether I'd use my precious Minton china cachepot as an outdoor container! Other essays are practical, such as Bill Shank's "Building Window and Planter Boxes" and Shila Patel's piece on overwintering potted plants.

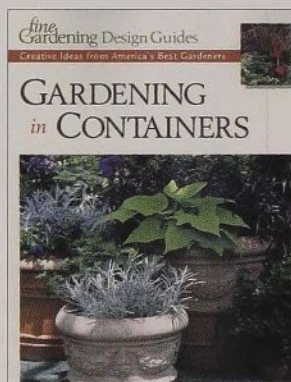


If there's one thing a container gardener can obsess about, it's watering, so Ellen Zachos' coverage of hardy cacti and succulent gardens and drought-tolerant plants for containers is helpful. And I was particularly intrigued by Appell's chapter on "Water Gardens in Small Containers." Although not every essay in here is as hardworking as its companions, the book provides plenty of knowledgeable

advice and a few inspirational color photographs.

The BBG advises us, "Anything that can hold soil can become a home for plants." *Gardening in Containers*, a compilation of articles that first appeared in *Fine Gardening*, suggests,

"Just about any plant will grow in a container." So seemingly, anything goes. And that to me is the essence of container gardening: The gardener has much greater control over variables than in the open garden; we can mix and match plants without reserve—we're not talking tasteful restraint here.



The expertly written text is illustrated with good, inspirational photographs of container gardens

and easy-to-comprehend step-by-step instructional photos. Divided into five parts, there are 27 articles covering subjects like container choice and design themes. I was drawn to Gary Heim's article on container gardens for shade; his nifty ideas for color and foliage combinations get close to the lavish presentation I favor. It was fun seeing Kate Hunter's hoop trellis constructed from willow branches, modeled on the plant supports seen in Renaissance paintings. Finally, Mark Kane's how-to on forcing bulbs gave me further encouragement to retry something else I'd sworn off for good. And what more can you ask of a gardening book than it should tweak your curiosity and get you out there in the garden, container, or otherwise?

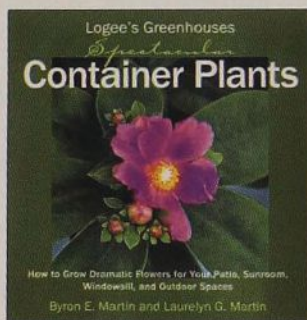
—Ethne Clarke

Frequent contributor Ethne Clarke has written several books on gardening. She lives in Austin, Texas.

Logee's Greenhouses Spectacular Container Plants: How to Grow Dramatic Flowers for Your Patio, Sunroom, Windowsill, & Outdoor Spaces.

Byron E. Martin and Laurelynn G. Martin. Willow Creek Press, Minocqua, Wisconsin, 2001. 199 pages. Publisher's price, hardcover: \$35.

IF YOU ARE SEEKING plants that are a bit more unusual for your patio or sunroom, you should check out *Logee's Greenhouses*



Spectacular Container Plants. The authors, Byron and Laurelynn Martin, who run Logee's Greenhouses, share their vast experience in growing tropical and exotic plants with the reader. Eighty genera of plants are covered in a well-organized, easy-to-grasp format. In addition to the cultural information necessary to growing a healthy specimen, from soil

preferences to the best time to prune, the book offers at least one—often several—good photos of each genus.

A comparatively small portion of the book addresses plant care and includes information on pruning, containers, pests and diseases, soils and fertilizers, and watering. Other than the pruning section, with its black-and-white illustrations that accompany the detailed instructions presented in the text, this portion of the book seems to be almost an afterthought, with limited, generalized information. But if it's ideas for nifty plants you are looking for, along with the details on how to grow them successfully, you will find lots to choose from between the covers of this book.

—Rita Pelczar

Rita Pelczar is an associate editor of *The American Gardener*.

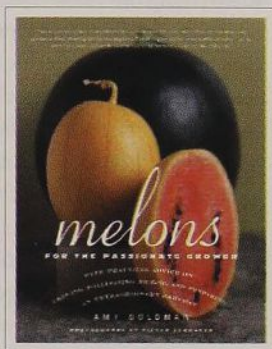
Melons for the Passionate Grower.

Amy Goldman. Artisan, New York, 2002. 160 pages. Publisher's price, hardcover: \$25.

AMY GOLDMAN'S dual passions are heirloom melons and what these plants represent. They are nothing less than our common heritage, brought to this country by immigrants, and they are now in danger of extinction. A gift of seeds from Kent and Diane Whealy, founders of the Seed Savers Exchange, ignited Goldman's desire to save this precious heritage. And whether we like it or not, she is out to seduce us into joining her in this grand endeavor.

Who knew there were so many melons—'Collective Farm Woman', 'Striped Snake', 'Noir des Carmes', 'Hollybrook Luscious', 'Schoon's Hard Shell'—and that they are so beautiful? Victor Schrager's photographs, at once austere and sensuous, are enough to make you want to plow up your flowers and plant vast fields of melons.

One hundred melons are pictured, many described in detail,



with snippets of history, botany, literature, and archeology thrown in. The book is scholarly without being pedantic. Goldman's passion shines through and enlivens every page. Like a teacher describing her pupils, she is unable to favor one variety over another. Melons come in all shapes and sizes, from zucchini-like to lumpy to satiny smooth. We learn that what we call cantaloupes are not cantaloupes, but are *reticulatus*. True cantaloupes are the mainly French melons without a reticulated or netted skin, like 'Charentais'.

Having hooked us with glorious photographs and engaging descriptions, Goldman tells us how to grow our own melons in all their green and gold, smooth, netted, and bumpy glory. Her instructions are straightforward and do not involve exotic manures or magical incantations. Growing a collection of melons seems eminently do-able. To further spur us on, she includes an extensive list of seed sources. So, you have been warned: Buy this book at your own peril. You may find yourself knee deep in homegrown melons next year, but it seems a wonderful fate.

—Norma Prendergast

An art historian and writer, Norma Prendergast gardens in Ithaca, New York.

Dirr's Trees and Shrubs for Warm Climates: An Illustrated Encyclopedia.

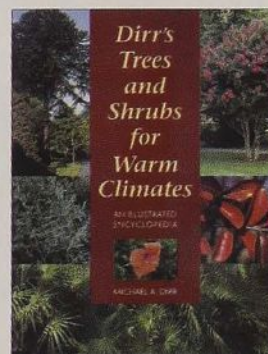
Michael A. Dirr. Timber Press, Portland, Oregon, 2002. 448 pages. Publisher's price, hardcover: \$69.95.

FOLLOWING IN the same path as *Dirr's Hardy Trees and Shrubs* (Timber Press, 1997), *Dirr's Trees and Shrubs for Warm Climates* is such a sumptuous feast for both eye and mind that if you live in a warm climate and grow woody plants, you *must* own it!

Exactly how does Dirr define warm-climate plants? In his words, they are "woody species that peacefully coexist in USDA Zone 7 to 9 gardens, with some growing into Zone 11." So if you don't know your zone, pull out your map—or open the book to page 433. The territory covered includes a wide swath of the Southeast from Texas all the way along to the East Coast to Cape Cod. For westerners, whose more variable topography results in a more complex arrangement of hardiness zones, you must pay close attention to your specific zones and microclimates.

If you've never read Dirr before, be prepared for opinions—for he has them and shares them readily. But though he can sometimes be a bit too garrulous, he is nearly always right! Take for example his notes on the Chinese tallow tree (*Sapium sebiferum*): "...with rampaging, self-seeding, noxious weed status in the coastal south.... I have seen it...where it has wreaked havoc upon the native vegetation." My experience concurs; it is a nasty weed.

The book is arranged alphabetically by genus and species, so if you're not familiar with scientific names, you'll need to get used to them. The index however, includes both scientific and



common name sections, so if you refuse to deal with botanical Latin, you can cross-reference by common name.

But I'll wager that most will do just as I have done and simply sit back and enjoy a casual stroll through the pages. This is a book that takes you on an imaginary tour of the garden you want to have, offering many wonderful ideas on its beautiful pages. Dirr includes plants that are found in just about every nursery and others you'll have to search to find—plants that are easy to grow and those that seem nearly impossible, such as Georgia plume (*Elliotia racemosa*), a plant I am currently trying to coax into surviving in my suburban Atlanta garden.

Another enviable thing about Mike Dirr: He seems to grow just about everything successfully—or digs it up right away. The first part of the book is an incredible photo essay called "Reflections on Garden-making in Georgia." A photo of his home in Athens just before completion in 1979 shows the garden looking somewhat like a nuclear-waste site. But as he reveals in a subsequent photo, there has been a "remarkable transformation in 14 years. Bonnie and I planted every tree, shrub, and perennial seen in this October 1993 photograph and loved them into being." Mike Dirr is exactly that kind of plantsman. He loves plants. Even the Chinese tallow tree.

—Scott Ranger

Scott Ranger is the editor of *Tipularia*, the journal of the Georgia Botanical Society, and past editor of "BotSoc News," the society's newsletter.

Mints: A Family of Herbs and Ornamentals.

Barbara Perry Lawton. Timber Press, Portland, Oregon, 2002. 272 pages. Publisher's price, hardcover: \$27.95.

BARBARA PERRY LAWTON knows how to translate botanese into plain accessible English: She is an award-winning writer, editor, and photographer, a former president of the Garden Writers Association of America, sometime publications manager for the Missouri Botanical Garden, and a weekly garden columnist for the *St. Louis Post-Dispatch*. *Mints* is her digestible survey of the botanical family known as the Lamiaceae or Labiatae, and according to Steven Still of Ohio State University's Department of Horticulture, it is the first such survey ever essayed.

One can see why. Although the genus *Mentha*, which we all think of as "mint," has only 25 species, the Lamiaceae at last count contained 5,600 species distributed unevenly among 221 genera. The sheer number of plants is enough to daunt the staunchest researcher, but Lawton took on the Herculean task and by and large has succeeded admirably.

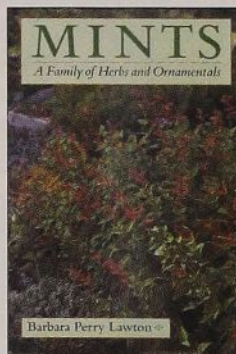
The first two-thirds of *Mints* features a general discussion of the history, science, and uses of labiate plants in the West. The chapters are entitled "Mints In History and Lore"; "Mints In Health and Home"; "Herbal Mints" (which Lawton distinguishes as those used in cookery, medicine, perfumery, and industry); "Ornamental Mints"; "Weedy Mints" (thugs every one); "Pests and Diseases"; and "Botany of Mints." The eighth chapter, "Catalog of Mints," is for me the best part of the book: an encyclopedic close-up of some of the most important genera in the family, from *Acinos*, *Agastache*, and *Ajuga* through *Leonotis*, *Leonuris*, and *Lepechinia* to *Thymus*, *Trichostema*, and *Westringia*. I particularly liked the sections on the dragonheads (*Dracocephalum*), the catmints (*Nepeta*), and *Sideritis* spp., three genera I've been tracking down seeds for with more or less success.

I did have a few gripes about this book: The survey of herb gardening that opens the first chapter seems like something brought in from a different book; it made me chafe with impatience. The color photographs and black-and-white line drawings that illustrate the book are pleasing, but I would have liked fewer pictures of the commoner species and cultivars and more pictures of the weirder ones. Some of the descriptions in the catalog section, though erudite, are as colorless as the floras from which they were excerpted. I also felt cheated by the scant cultural information given and the lack of a plant and seed source list.

Having said all this, I am grateful to Lawton for having undertaken such an enormous task, and I am glad to have this volume on my reference shelf.

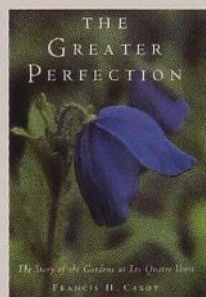
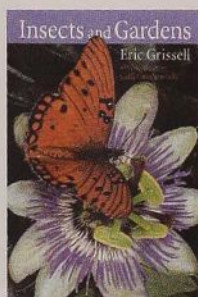
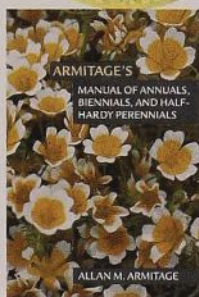
—Rand. B. Lee

Garden writer Rand B. Lee is president of the North American Cottage Garden Society. He gardens in Santa Fe, New Mexico.



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2002 AWARD WINNERS From Timber Press *Armitage's Manual of Annuals, Biennials, and Half-Hardy Perennials* by Allan M. Armitage • *Bulbs of North America* edited by Jane McGary • *The Cactus Family* by Edward F. Anderson • *Insects and Gardens: In Pursuit of Garden Ecology* by Eric Grissell. From W.W. Norton *The Greater Perfection* by Francis H. Cabot.

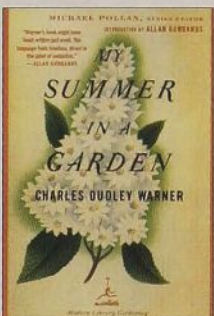
Gardeners' Books

Many classics of gardening literature are difficult to find because they are no longer in print. This issue we feature some classics that have recently been reprinted and are once again available.

My Summer in a Garden.

Charles Dudley Warner. Introduction by Allan Gurganus. Modern Library Garden Series editor, Michael Pollan. Modern Library, New York, New York, 2002. 100 pages. Publisher's price, softcover: \$11.95.

COMBINING ASTUTE observations with witty and well-crafted sentences, Charles Dudley Warner draws practical lessons from his garden and presents them with wry humor in this book first published in 1871. Warner guides readers through his gardening endeavors over the course of an entire growing season as he faces weeds, interlopers, and blisters, all with philosophical musings.



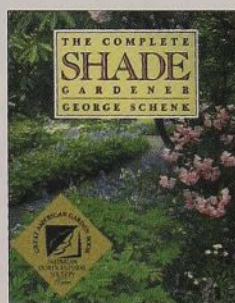
Other titles in this series, edited by Michael Pollan, include **We Made a Garden** by Margery Fish; **Green Thoughts: A Writer in the Garden** by Eleanor Perenyi; and **The Gardener's Year** by Karel Capek.

An Island Garden.

Celia Thaxter. Illustrated by Childe Hassam. Introduction by Tasha Tudor. Houghton Mifflin Company, Boston, Massachusetts, 2002. 128 pages. Publisher's price, hardcover, in slipcase: \$35.

APPLEDORE ISLAND, off the coast of New Hampshire and Maine, is the setting of this chronicle of a year of gardening activities and reflections. Thaxter entranced the renowned guests who visited her family's summer resort hotel with her colorful garden. Her elegant prose, illustrated with paintings by American Impressionist Childe Hassam, captures the spirit of this seaside retreat. This classic was originally published in 1894.

The Complete Shade Gardener.



George Schenk. Timber Press, Portland, Oregon, 2002. 311 pages. Publisher's price, softcover: \$22.95.

LONG CONSIDERED required reading for shade gardeners, this classic reference has been recognized by The American Horticultural Society as one of the "75 Great American Garden Books." The first part of the book covers both the

art and science of gardening in low-light areas. The second part is a discussion of recommended plants for the shade, organized by type (trees, shrubs, perennials, ferns, etc.). First published in 1984, an updated appendix has been added to this new reprint.

Nehrling's Early Florida Gardens.

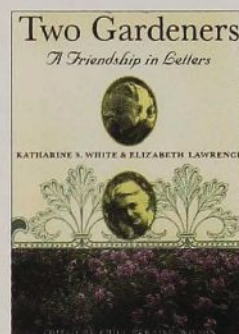
Nehrling's Plants, People, and Places in Early Florida.

Edited and abridged by Robert W. Read. Foreword by David Fairchild. University Press of Florida, Gainesville, Florida, 2001. 262 and 248 pages, respectively. Publisher's price, softcover: \$29.95 each.

THIS TWO-VOLUME set, originally published in the 1940s, represents a collection of environmental observations and botanical history about the gardens and plants of central and southern Florida. Accounts of "Curious and Interesting Plants" include many that were relatively new to western cultivation that have since gained substantial popularity, including dracaenas, anthuriums, and several genera of grasses. The set is a valuable reference on subtropical gardening and Florida history.

Two Gardeners: A Friendship in Letters.

Katharine S. White and Elizabeth Lawrence. Edited by Emily Herring Wilson. Beacon Press, Boston, Massachusetts, 2001. 271 pages. Publisher's price, hardcover: \$25.



THE ELOQUENT correspondence between *New Yorker* editor Katharine White and Southern garden writer Elizabeth Lawrence spanned nearly two decades and affords the reader an intimate glimpse of their relationship, their gardens, and their personal struggles. The last section, "Signs of Durability," are letters between Katharine's husband, E.B. White, and Lawrence after Katharine's death in 1977.

Garden Open Today.

Beverly Nichols. Illustrated by William McLaren. Timber Press, Portland, Oregon, 2002. 258 pages. Publisher's price, hardcover: \$24.95.

SEASONED WITH wit and humor, and punctuated with whimsical line drawings by William McLaren, this highly readable account covers Nichols' 30 years of practical gardening experience. First published in 1963, the title of the book was an invitation to Nichols' critics—who questioned whether the flamboyant British writer was a "real gardener"—to come see his garden and judge for themselves.

Seasonal Garden Goods SPOTLIGHT

Solar Garden Lights

by Rita Pelczar

Are solar lights the best way to illuminate your garden? Here's an in-depth look at their applications, advantages, and limitations. To help you test the waters, a sampling of products follows.

SOLAR lights consist of a solar cell panel that collects energy from the sun, a rechargeable battery that stores the energy, and a bulb that provides illumination, all housed in a fixture. They are easy to install and use: You don't have to dig and bury electric lines, their energy source is free, they can be relocated easily, and they turn off and on automatically, triggered by darkness.

But the truth is that solar lights are not for everyone.

A REALISTIC APPROACH

I was disappointed with my first solar garden light purchase, about 12 years ago. The unit I bought to light the steps in my front walkway was too dim and unreliable. Fortunately, there have been lots of improvements in solar lighting since that time. The bulbs are brighter, the solar panels are smaller and more efficient, and fixtures are available in a wide range of styles and sizes.

Having tested a variety of solar lights over the past 10 months, I have determined that all solar lights are not equal; understanding their differences can help you find the light that best suits your needs.

TYPES OF LIGHT

The dim incandescent light bulbs of years past have been replaced with highly improved LEDs (light emitting diodes), or fluorescent or halogen bulbs.

LEDs are extremely energy-efficient, but are not very bright. If highlighting a path or driveway is your aim, you won't see much beyond their immediate glow.

Solar LED models are available with either amber or white light. The white is a bit brighter, but the amber is gentler



LED-type solar lights like these are perfect for marking a path—as long as they are located in a sunny spot.

and reportedly attracts fewer insects.

Properly placed, solar units with LEDs can emit light for eight to 10 hours. They are useful for identifying the edge of a deck, patio, pond, or walkway. If the day has been sunny, the LED solar lights that mark my pathway at night are still glowing at 5 a.m. when I fetch my morning paper.

Fluorescent and halogen lights are far more powerful but use more energy. The typical four- or five-watt fluorescent bulb emits light equivalent to a 25-watt incandescent bulb. The one I tested provides sufficient light to cast shadows for about three hours after dark. Fluorescent solar lights are effective for lighting stairs and tricky turns in a path.

Among solar light options for landscapes, quartz halogen bulbs use the most

energy and provide maximum light, albeit for a shorter time. Their short/bright nature suits them perfectly for security lights that are triggered by motion sensors. Fixtures are available that combine LEDs with a soft light triggered by darkness, which, when properly charged, will remain on all night. The brighter halogen light, triggered by motion, remains on for about three minutes.

LIMITATIONS AND OPTIONS

The most obvious limitation of solar garden lights is their placement: Their batteries must be charged and continuously re-charged by the sun. Since the solar panel on nearly all units is fused to the fixture, the unit must be located in an exposed, sunny spot.

Exposed fixtures risk being damaged by wayward traffic: My rambunctious golden retriever inadvertently snapped the plastic stake supporting an LED fixture at the edge of a bed. Some units have more sturdy structures for support than others.

When skies are overcast, batteries do not fully recharge, and light is reduced. Many models feature an on/off switch, which allows you to store energy for later use. While "off," the battery continues to collect energy during daylight hours.

Because they receive less sunlight during the short days of winter than in summer, solar lights are not equally effective throughout the year. Some gardeners consider solar lights to be seasonal: useful only from March until October. Fortunately, that's when most of us spend more time in the garden, particularly in the evening. 🌿

Rita Pelczar is an associate editor of The American Gardener.

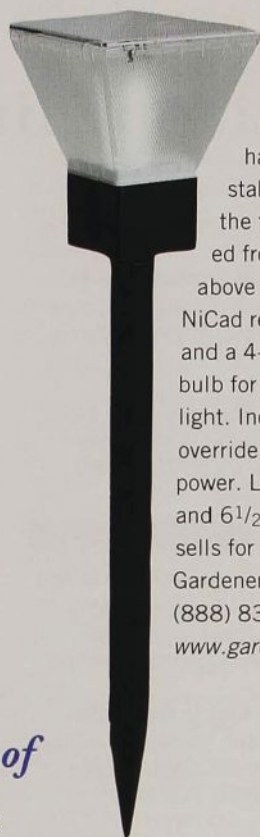
Designed for outdoor tabletop use, the **Solar Candle** is only 4½ inches high and 5¾ inches wide. Just leave it on the patio table for an automatic glow after the sun goes down. Retail for \$24.95. Alsto's, (800) 447-0048. www.alstos.com.



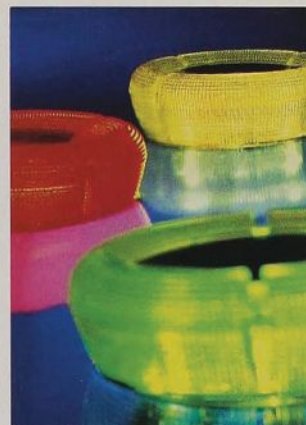
Gardeners have a variety of solar lights to choose from these days. Here is a sample of what's currently available from several mail-order sources.



Use the **Cypress Solar Light** in the ground or mount it on a deck or a wall. The 3½ inch-by-6½ inch unit is made of rustproof metal with frosted glass panes and stands 16 inches high, including the stake. Retail for \$49.50. Solutions, (800) 342-9988. www.SolutionsCatalog.com.



This **Wireless Solar Classic Coach Lamp** has a two-section stake so the height of the fixture can be adjusted from 6 to 14 inches above ground. Features two NiCad rechargeable batteries and a 4-watt fluorescent bulb for up to 4 hours of light. Includes a manual override switch to conserve power. Lamp is 8 inches high and 6½ inches wide and sells for \$54.99. Gardener's Supply Company, (888) 833-1412. www.gardeners.com.



Floating Solar Lights add festive color to a pool for nighttime entertaining. Each light is 1½ inch high and 6 inches wide, available in amber, green, or red for \$39.95. Alsto's, (800) 447-0048. www.alstos.com.



The three-way mounting system on this set of four **Solar Sundown Lights** can be used to add nighttime glow along a pathway, the railing of a deck, or the edge of a flowerbed. Each light measures 12 inches by 6 inches wide. A set of four retails for \$139. Solutions, (800) 342-9988. www.SolutionsCatalog.com.

☛ The **Hampton Solar Accent Light** shown on the opposite page has a classic lantern look. Mounting stakes hold the lamp about 18 inches off the ground. Sold in sets of four for \$129 from Solutions, (800) 342-9988. www.SolutionsCatalog.com.

Products profiled are chosen based on qualities such as innovative design, horticultural utility, and environmental responsibility; they have not been tested by the American Horticultural Society. Send new product information to New Products, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308.

Regional Happenings

NORTHEAST

JULY 11–AUG. 10. **Beatrix Jones Farrand: The Reef Point Legacy.** Exhibit of the landscape architect's drawings, photographs, and specimens. The Ethel H. Blum Gallery at College of the Atlantic, Bar Harbor, Maine. (207) 288-5015.

JULY 13. **The Fells Garden Tour.** Tour of eight private gardens in the New London/Sunapee area and afternoon tea. New London, New Hampshire. (603) 763-4789.

JULY 13. **Lenox Garden Club's 12th Annual Tour of Gardens and Houses in Southern Berkshire County.** Lenox, Massachusetts. (413) 232-0202.

JULY 20. **48th Open Garden Day.** Features seven gardens in Bar Harbor and Northeast Harbor. The Garden Club of Mt. Desert, Bar Harbor, Maine. (207) 244-0229.

AUG. 8–11. **28th Annual Summer Conference.** Northeast Organic Farming Association, Hampshire College, Amherst, Massachusetts. (978) 355-2853.

AUG. 17. **11th Annual Plant Sale.** The Fells, John Hay National Wildlife Refuge, Newbury, New Hampshire. (603) 763-4789.

MID-ATLANTIC

JULY 12, AUG. 9 & 23, & SEPT. 7. **Fireworks and Fountains.** Evening light display. Longwood Gardens, Kennett Square, Pennsylvania. (610) 388-1000. www.longwoodgardens.org.

JULY 13, 20, & 27. **Cool Kids in the Garden.** Children's entertainment, gardening, and art activities. Lewis Ginter Botanical Garden, Richmond, Virginia. (804) 262-9887.

JULY 19. **Sixth Annual Conference on Woody**

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

JULY 25–28. **23rd Annual Conference of the American Community Gardening Association.** Columbia University, New York, New York. (212) 788-6830. www.communitygarden.org.

JULY 28 & AUG. 25. **Jazz in the Garden.** Phipps Conservatory and Botanical Gardens in Schenley Park, Pittsburgh, Pennsylvania. (412) 622-6915.

AUG. 3 & 4. **Bonsai Demonstration.** U.S. National Arboretum, Washington, D.C. (202) 245-5898.

AUG. 13. **Plan a Winter Border.** Class. Norfolk Botanical Garden, Norfolk, Virginia. (757) 441-5830. www.viriniagarden.org.

Rose Fans Converge on Philadelphia

WHAT BETTER TIME to pay tribute to our national floral emblem than during the Year of the Rose? This year-long campaign, sponsored by The American Rose Society (ARS), is designed to increase public awareness and appreciation of the rose, our national flower.

In one of the highlights of the celebration, Philadelphia will host "Let Roses Ring," the ARS Fall National Convention and World Federation Regional Meeting to be held September 12 through 16 at Adam's Mark Hotel. The convention is hosted by the ARS's Penn-Jersey District, which includes the Philadelphia Rose Society and 12 other regional rose groups.

The City of Brotherly Love is the perfect venue for rose lovers to share their passion for the world's best-loved flower because it is the birthplace of American independence and the first official home of the American Rose Society. The five-day event includes a national rose show featuring rosarians and their prized blooms from around the world. Tours of historic Philadelphia stop at the Liberty Bell, Independence Hall, and the Betsy Ross House. Expert speakers will conduct seminars on various aspects of rose growing. Every Rosarian's Market Place will showcase an assortment of rose-related gardening supplies and other items. Take a guided tour of the Conard-Pyle Company's test gardens and stroll the magnificent grounds at the renowned Longwood Gardens. There will also be opportunities to tour many other rose gardens, including one at Morris Arboretum.

Amelita Kull's rose garden in Dresher, Pennsylvania, is among the scheduled stops on the 2002 ARS convention tour.



You don't have to be a member of a rose society to attend. A nominal gate fee allows public access to the rose show on Saturday and Sunday (September 14 and 15). Those wishing to exhibit roses or participate in special events, however, will need to submit a registration form and applicable fees in advance. The form and a list of events are available at www.pjdistrictrose.org. For more information, contact convention registrar Jeanne Wolff at (215) 345-0820 or by e-mail to gapeach@voicenet.com

—Paula L. Molino-Wolff, special to The American Gardener

AUG. 15. **By the Book: The Influence of Printed Material on the Design of Early American Gardens.** Historic garden symposium. Gunston Hall Plantation, Mason Neck, Virginia. (703) 550-9920.

AUG. 16 & 17. **North American Plants: Their Cultural History.** A biennial symposium sponsored by the Thomas Jefferson Center for Historic Plants. Monticello, Charlottesville, Virginia. (434) 984-9816.

AUG. 24. **Camellia Workshop.** Sponsored by the Virginia Camellia Society. Norfolk Botanical Garden, Norfolk, Virginia. (757) 441-5830. www.viriniagarden.org.

AUG. 25-30. **Mohonk Mountain House Garden Holiday.** Explore wildflower trails and see rare specimen trees and formal gardens. New Paltz, New York. (845) 256-2163. www.mohonk.com.

AHS. SEPT. 28. **AHS Gala: The Garden as Art.** American Horticultural Society. George Washington's River Farm, Alexandria, Virginia. (800) 777-7931 ext. 110.

SOUTHEAST

JULY THROUGH OCT. 27. **Terrific Treehouses.** Exhibition of spectacular treehouses. Cheekwood Botanical Garden and Museum of Art, Nashville, Tennessee. (615) 356-8000. www.cheekwood.org.

JULY 12-14. **10th Annual International Mango Festival.** Fairchild Tropical Garden, Coral Gables, Florida. (305) 661-8953. www.fairchildgarden.org.

JULY 20. **Conservation Greenhouse Tour: Care of Rare and Endangered Plants.** Atlanta Botanical Garden, Atlanta, Georgia. (404) 591-1551.

JULY 26-28. **The International Aroid Society 2002 Summer Extravaganza.** Lectures and guided tours of area gardens. Raleigh, North Carolina. (919) 881-2008.

JULY 27, AUG. 31, & SEPT. 28. **Orchid Care Clinic.** Atlanta Botanical Garden, Atlanta, Georgia. (404) 591-1551.

NORTH CENTRAL

JULY 13 & 14. **Garden Glory Walk.** Tour of pri-

AHS Events

Events sponsored or co-sponsored by AHS are indicated by an **AHS** symbol. Expanded and updated Regional Happenings listings can be viewed on the Society's Web site at www.ahs.org.

Chicago Symposium Focuses on Plants in Special Education

THE CHICAGO BOTANIC GARDEN (CBG) in Glencoe, Illinois, is presenting "The Power of Plants: Creating a Habitat for Learning," August 12 and 13. The symposium is primarily designed for special education teachers, therapists, and consultants, but parents or anyone else with a strong interest in special education are also invited to attend. Participants will learn to select and care for plants that can be successfully grown in classrooms, to incorporate plant-based activities into a variety of school curricula, and to use gardening activities or settings to enhance coping and stress management techniques for special ed teachers.

Welcoming remarks will be delivered by Gene Rothert, manager of CBG's Buehler Enabling Garden and horticultural therapy services, and Larry DeBuhr, CBG's vice president of education. Rothert and other horticultural therapy professionals will then lead individual sessions that focus on different aspects of integrating plant-based activities into special ed programs. Networking sessions and a tour of the Buehler Enabling Garden are also scheduled.

Teachers attending the symposium are eligible for one graduate credit from Aurora University and 12 Continuing Professional Development Units from the Illinois State Board of Education; for details, contact Marie Bernardy at (847) 835-8280. Symposia registration is \$129 through July 26, and the deadline to register is August 2. To register, or for more information, call (847) 835-8261 or visit www.chicagobotanic.org/symposia/horttherapy.html.

—Mary Chattuck, special to The American Gardener



Gene Rothert, manager of CBG's Buehler Enabling Garden, demonstrates how wheel-chair-bound gardeners can pursue their hobby using specially adapted tools.

vate gardens. Tour begins at Klehm Arboretum and Botanic Garden. Rockford, Illinois. (815) 965-8146.

AHS. JULY 18-20. **Ripe from Downtown.** Children's gardening symposium. Cleveland Botanical Garden, Cleveland, Ohio. Co-sponsored by AHS. (216) 721-1600. www.cb garden.org.

JULY 21. **44th Annual Dearborn Garden Walk and Heritage Festival.** Tours of private gardens. Glencoe, Illinois. (312) 632-1241.

JULY 27 & 28 & AUG. 24 & 25. **North Shore Iris and Daylily Show and Sale.** Chicago Botanic Garden. Glencoe, Illinois. (847) 835-8213.

JULY 31. **64th Annual Nisswa Garden Club Flower and Garden Show.** Nisswa, Minnesota. (218) 963-3370.

AUG. 3. **Madison Area Iris Society Iris Sale.** Olbrich Botanical Gardens, Madison, Wisconsin. (608) 246-4550. www.olbrich.org.

AUG. 10 & 11. **Wisconsin Daylily Society Daylily Sale.** Olbrich Botanical Gardens, Madison, Wisconsin. (608) 246-4550. www.olbrich.org.

AUG. 16-18. **Midwest Bonsai Show and Sale.** Chicago Botanic Garden, Chicago, Illinois. (847) 835-8213.

AUG. 24 & 25. **Badger State Dahlia Society Dahlia Sale.** Olbrich Botanical Gardens. Madison, Wisconsin. (608) 246-4550. www.olbrich.org.

AUG. 24 & 25. **Cactus and Bromeliad Show and Sale.** Chicago Botanic Garden, Glencoe, Illinois. (847) 835-8213.

SEPT. 1. **Northeastern Illinois Rose Society Show and Sale.** Chicago Botanic Garden, Glencoe, Illinois. (847) 835-8213.

SEPT. 14 & 15. **Dahlia Cut and Bloom Show and Sale.** Central States Dahlia Society. Chicago Botanic Garden, Glencoe, Illinois. (847) 835-8213.

SEPT. 14. **Landscape Connections: Celebrating the Union of Gardener's Gala and Festival of Color.** Nebraska Statewide Arboretum, Lincoln, Nebraska. (402) 472-2679.

SEPT. 22. **Tallgrass Prairie Workshop for Educators.** Sponsored by Wachiska Audubon Society. Edwin and Leona Wolters Tallgrass Prairie, Tecumseh, Nebraska. (402) 483-5656.

Looking Ahead: OCT. 4 & 5. (Registration deadline Sept. 1). **Landscape and Vision Seminar.** University of Illinois, Champaign, Illinois. www.landarch.uiuc.edu/vision/index.htm.

SOUTH CENTRAL

JULY 18, AUG. 15, & SEPT. 12. **Concerts in the Gardens.** 13th annual concert series at Botanica, The Wichita Gardens, Wichita, Kansas. (316) 264-0448.

AUG. 16-18. **The Nursery/Landscape Expo.** Managed by the Texas Nursery and Landscape Association, Austin, Texas. (512) 280-5182.

AUG. 23-25. **Annual Fall Texas Home and Garden Show.** San Antonio, Texas. (713) 529-1616.

Looking Ahead: SEPT. 22. **Oklahoma Horticultural Society Fall Meeting: Oklahoma's Old Growth Forests.** Stillwater, Oklahoma. www.okhort.org.

SOUTHWEST

JUNE 5 THROUGH AUG. 20. **2002 Summer Concert Series.** Denver Botanic Gardens, Denver, Colorado. (720) 865-3545. www.botanicgardens.org

JULY 20 & 21. **Iris Annual Sale.** Mitchell Hall, Denver Botanic Gardens, Denver, Colorado. (720) 865-3545. www.botanicgardens.org.

JULY 27. **Fort Collins Gardenfest.** An annual self-guided tour of six diverse gardens. Fort Collins, Colorado. (970) 498-4074.

AUG. 4 & SEPT. 1. **Summer Sunday Concerts.** Arboretum at Flagstaff, Flagstaff, Arizona. (928) 774-1442 ext. 108.

AUG. 31-OCT. 31. **Third Annual Corn Maze.** Chatfield Nature Preserve, Denver, Colorado. (720) 865-3545.

NORTHWEST

JULY 19-21. **Annual Lavender Festival.** Angel Farm, Sequim, Washington. (360) 779-8141.

JULY 27. **Dad Peak Wilderness Ecology Hike.** Meet at 8 a.m. at Bull River Country Store, Missoula, Montana. (406) 847-2040. trj@blackfoot.net.

JULY 27-AUG. 28. **Artful Environments. Weyerhaeuser's Pacific Rim Bonsai Collection Special Exhibit.** Federal Way, Washington. (253) 924-3153. www.weyerhaeuser.com/bonsai.

AUG. 24. **Bug Day.** Co-sponsored by Idaho Botanical Garden and Albertson College of Idaho. Insect-themed family activities and educational opportunities. Idaho Botanical Garden, Boise. (208) 343-8649.

WEST

AHS. AUG. 1-3. **10th Annual Children and Youth Garden Symposium.** American Horticultural Society, San Francisco, California. (800) 777-7931. www.ahs.org.

AUG. 3. **Gardening Fair.** Demonstrations and plants for sale. Strybing Arboretum and Botanical Garden, San Francisco, California. (415) 661-1316.

AUG. 14. **Orange County Plant Auction and Chili Cookoff.** California Association of Nurserymen, Orange County Fairgrounds, California. (949) 721-2100 ext. 451.

AUG. 17. **Third Annual Gala.** This year's event honors the memory of the late Paul Ecke Jr. Quail Botanical Gardens, Encinitas, California. (760) 436-3036.

AUG. 31-SEPT. 1. **Los Angeles International Fern Society Fern and Exotic Plant Show and Sale.** Arboretum of Los Angeles County, Arcadia, California. (626) 335-4600.

SEPT. 7. **Kendall-Jackson Sixth Annual Heirloom Tomato Festival.** Kendall-Jackson Wine Center, Santa Rosa, California. (707) 525-6217.

CANADA

JULY 27. **Summer Pruning—Trees and Shrubs.** VanDusen Botanical Garden, Vancouver, British Columbia. (604) 257-8666. www.vandusengarden.org.

SEPT. 7. **Botanical Hike to Burns Bog.** VanDusen Botanical Garden, Vancouver, British Columbia. (604) 257-8666. www.vandusengarden.org.

SEPT. 14. **University of Guelph Arboretum Auxiliary Plant Sale.** Guelph, Ontario. (519) 824-4120 ext. 2113.

Garden Market

CLASSIFIED AD RATES: All classified advertising must be prepaid. \$2.50 per word; minimum \$60 per insertion. Copy and prepayment must be received on the 20th of the month three months prior to publication date. To place an advertisement, contact Lori Houston at (563) 652-2824.

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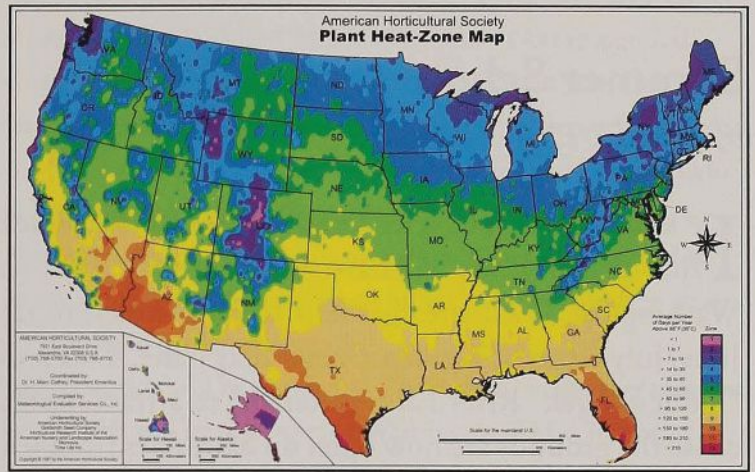
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Pronunciations and Planting Zones

Most of the cultivated plants described in this issue are listed here with their pronunciations, USDA Plant-Hardiness Zones, and AHS Plant Heat Zones. These zones suggest a range of locations where temperatures are appropriate—both in winter and summer—for growing each plant. While the zones are a good place to start in determining plant adaptability in your region, factors such as exposure, moisture, snow cover, and humidity also play an important role in plant survival. The zones tend to be conservative; plants may grow outside the ranges indicated. A USDA zone rating of 0 means that the plant is a true annual and completes its life cycle in a year or less. Many plants that are perennial in warm climates are grown as annuals in cooler zones. To purchase a two-by-three-foot glossy AHS Plant Heat-Zone Map for \$9.95, call (800) 777-7931.



A-L

Abelia × *grandiflora* uh-BEEL-yuh gran-dih-FLOR-uh (USDA 6-9, AHS 9-1)
A. schumannii A. shoo-MAN-ee-eye (6-9, 9-1)
Adiantum pedatum ad-ee-AN-tum peh-DAY-tum (3-8, 8-1)
Agastache rupestris ah-guh-STAH-she roo-PES-triss (7-9, 9-7)
Athyrium filix-femina uh-THIH-ree-um L-iks-FEM-ih-nuh (3-8, 8-1)
Calycanthus floridus kal-ee-KAN-thus FLOR-ih-dus (5-9, 9-1)
Cimicifuga racemosa sih-mih-SIF-yew-guh ras-eh-MO-suh (3-8, 12-1)
Clinopodium georgianum klih-no-PO-dee-um jor-jee-AN-um (7-8, 8-7)
Cunila origanoides ku-NIL-uh o-rig-uh-NOY-deez (6-8, 8-6)
Cymopterus purpurescens sim-OP-ter-iss per-per-ES-enz*
Dryopteris marginalis dry-OP-ter-iss mar-jih-NAL-iss (3-8, 8-1)
Echinacea angustifolia ek-ih-NAY-see-uh ang-gus-tih-FO-lee-uh (4-9, 8-5)
Eryngium yuccifolium ee-RIN-jee-um yuk-ih-FO-lee-um (4-9, 12-1)
Eupatorium purpureum yew-puh-TOR-ee-um per-PER-ee-um (3-9, 9-1)
Hedeoma drummondii he-de-OH-muh drum-MON-dee-eye*
H. hispida H. HISS-pih-duh*
H. hyssopifolium H. hiss-sop-ih-FO-lee-um (7-9, 12-6)
H. pulegioides H. pul-ee-jee-OY-deez (4-8, 12-2)
Hibiscus syriacus high-BISS-kus sih-ree-AH-kus (5-9, 10-3)
Hydrangea macrophylla high-DRAN-juh mak-ro-FIL-luh (6-9, 9-3)
Hypericum frondosum high-PAIR-ih-kum fron-DO-sum (5-8, 8-4)

Lagerstroemia fauriei lag-ur-STROH-me-uh FAR-ee-eye (7-9, 9-7)
L. indica L. IN-dih-kuh (7-9, 9-7)
Lomatium columbianum lo-MAY-she-um kol-um-bee-AN-um (7-9, 9-7)

M-R

Matteuccia struthiopteris muh-TEW-key-uh strew-thee-OP-tur-iss (2-8, 8-1)
Mentha pulegium MEN-tha pul-EE-jee-um (7-9, 12-2)
Monarda citriodora muh-NAR-duh sih-tree-o-DOR-uh (0, 8-1)
M. didyma M. DID-ih-muh (4-9, 9-2)
M. fistulosa M. fis-tyew-LO-suh (4-9, 9-2)
M. menthifolia M. men-thih-FO-lee-uh (3-9, 9-1)
Nicotiana glauca nih-ko-shee-AN-uh ah-LAY-tuh (0, 12-1)
Onoclea sensibilis on-o-KLEE-uh sen-sih-BIH-liss (4-9, 9-1)
Osmunda cinnamomea ahz-MUN-duh sin-uh-MO-mee-uh (3-9, 9-1)
O. claytoniana O. clay-toh-nee-AN-uh (2-10, 9-1)
O. regalis O. ree-GAL-iss (2-10, 9-1)
Poliomintha bustamanta pol-ee-o-MIN-thuh bus-tuh-MAN-tuh (8-10, 12-6)
P. longiflorum P. lon-jih-FLOR-um*
Porteranthus stipulatus por-tur-AN-thus stih-pyew-LAY-tus (4-9, 9-1)
P. trifolius P. tri-fo-lee-AY-tiss (4-9, 9-1)
Potentilla fruticosa po-ten-TIL-luh froo-tih-KO-suh (3-7, 7-1)
Rhododendron arborescens ro-doh-DEN-dron ar-bo-RES-enz (5-9, 9-4)
R. occidentale R. ahk-sih-den-TAL-ee (7-9, 9-7)
R. viscosum R. viss-KO-sum (3-9, 9-1)

S-Z

Salvia apiana SAL-vee-uh a-pee-AN-uh (0, 9-1)
S. clevelandii S. cleev-LAND-ee-eye (9-11, 10-1)
S. leucophylla S. loo-ko-FIL-uh (10-11, 12-1)
Spigelia marilandica spy-JEE-lee-uh mair-ih-LAN-dih-kuh (5-9, 9-2)
Spiraea albiflora spy-REE-uh al-bih-FLOR-uh (7-9, 9-6)
S. japonica S. jah-PON-ih-kuh (4-9, 10-2)
S. × bumalda S. boo-MAL-duh (4-9, 9-1)
Tagetes lemmonii tah-JEE-teez leh-MO-nee-eye (8-9, 12-1)
T. lucida T. LOO-sih-duh (8-11, 12-1)
T. micrantha T. my-KRAN-thuh (0, 12-1)
Verbascum blattaria ver-BAS-kum bla-TAR-ee-uh (6-9, 7-2)
V. bombyciferum V. bom-bih-SIF-ur-um (4-8, 7-2)
V. brevipedicellatum V. brev-ih-ped-ih-seh-LAY-tum (5-9, 9-5)
V. chaixii V. SHAY-zee-eye (5-9, 9-5)
V. densiflorum V. den-sih-FLOR-um (5-9, 8-4)
V. dumulosum V. doom-yoo-LO-sum (6-9, 9-4)
V. lychnitis V. lick-NY-tiss (0, 8-1)
V. olympicum V. o-LIM-pih-kum (5-9, 9-5)
V. phlomoides V. flo-MOY-deez (4-8, 8-1)
V. phoeniceum V. feh-NEE-see-um (6-8, 8-1)
V. roripifolium V. ror-ih-pih-FO-lee-um (4-8, 8-1)
V. spinosum V. spih-NO-sum (8-10, 10-8)
V. thapsus V. THAP-suss (3-9, 7-2)
Veronicastrum virginicum ver-on-ih-KASS-trum vir-JIN-ih-kum (3-8, 8-1)
Weigela florida wy-JEEL-yuh FLOR-ih-duh (4-8, 8-1)

Asterisk (*) indicates zones for this plant have not yet been established.



Notes from River Farm

Summer School for Gardeners

by David J. Ellis

IF YOU READ the AHS News section in this issue of the magazine (page 12), you will have seen that River Farm was among the Washington, D.C., area gardens recommended to travelers in the June/July issue of *Garden Design* magazine. Often described as a “hidden jewel,” River Farm is starting to attract more attention because the grounds are now open on Saturdays from 9 a.m. to 1 p.m.

In addition to opening up the grounds from April through October, the AHS horticultural staff have put together an exciting program special gardening programs on Saturdays this summer and fall. Gardening experts among the AHS staff and volunteers as well as special guest speakers are presenting the “Saturday Hort-Takes” programs, which kicked off in April and will continue into October (see schedule in box, far right).

According to Marianne Polito, manager of the Society’s Gardener’s Information Service and volunteer coordinator, the talks held so far have proven extremely popular, especially a hands-on session on building with bamboo presented by Ed Raduazo, who is an AHS volunteer. “Ed knows everything there is to know about bamboo and he has a knack for being able to pass his knowledge along to gardeners with all levels of experience,” says Marianne. “Participants in the program not only learned how to split bamboo to make a variety of gardening structures such as trellises, cages, and fences, they learned why some bamboos become invasive and how to select varieties that are easier to control.”



During a recent Hort-Takes on building with bamboo, AHS Volunteer Ed Raduazo discusses the plant’s potential invasiveness while displaying a section of bamboo roots.

Many of the upcoming programs tap into the expertise of Peggy Bowers, AHS Landscape Gardener, who has a particular interest in gardening with native plants and providing a garden environment that will attract beneficial wildlife.

Saturday Hort-Takes

All programs start at 9 a.m. and last for an hour. They cost \$8 for AHS members (\$10 for non-members) and tend to fill quickly, so make reservations early. For reservations, or to find out more about the upcoming programs, call Marianne Polito, Gardeners Information Service Manager, at (800) 777-7931 ext. 124.

July 13 “Nifty Native Plants”

by Peggy Bowers

August 10 “Design: What Works in the Landscape” by Peggy Bowers

August 24 “Maintaining Your Perennials” by Bill Johnson

September 21 “Attracting Birds to Your Garden” by Peggy Bowers

October 5 “Selecting Trees and Shrubs for Winter Interest” by Katie Burney

Her enthusiasm for gardening is contagious, and no one leaves one of her presentations without an extensive—and eventually expensive!—list of “must-have” plants. Bill Johnson, a horticulturist at Hillwood Museum Garden in Washington, D.C., will be a guest speaker on August 24, and additional programs are likely to be added; check the AHS Web site at www.ahs.org for details.

If you are planning to travel to the Washington, D.C., area this summer, please consider attending one of these sessions. In addition to the educational value, it’s a wonderful opportunity to tour one of the best-kept secrets in our nation’s capital—River Farm.

David J. Ellis is editor of The American Gardener.



YOU can help us celebrate the Great American Gardeners of today!



Author and former "Victory Garden" host Jim Wilson, left, receives his Horticultural Communication Award from AHS President Emeritus H. Marc Cathey, right, at the 2002 AHS Great American Gardeners Conference in Seattle.

SINCE 1953, THE AMERICAN HORTICULTURAL SOCIETY GREAT AMERICAN GARDENERS AWARD PROGRAM has recognized individuals and institutions that have made significant contributions to American horticulture. Nominations are now being accepted for 2003 and may be submitted by anyone. Nominate your "horticultural hero"—a memorable professor, a favorite garden book author, or a city's incredible community project! The award categories are listed below. Look them over and see if one of them brings to mind someone who has inspired *you* to garden greatness!

Award recipients will be profiled in *The American Gardener* magazine and their awards will be presented in Washington, D.C., in April 2003.

Nomination forms are available on the American Horticultural Society Web site at www.ahs.org or by calling (800) 777-7931. Or simply send us the nominee's name, title, address, telephone number, and a brief summary of their achievements along with your own contact information.

The deadline for nominations is September 15, 2002.

THE GREAT AMERICAN GARDENERS AWARDS

Liberty Hyde Bailey Award. The Society's highest award. The individual must reside on the North American continent and have made significant contributions in at least three of the following areas of horticultural activity: teaching, research, writing, plant exploration, administration, art, business, and leadership.

Luther Burbank Award. Recognizes extraordinary achievement in the field of plant breeding.

Commercial Award. Given to an individual and/or institution committed to the highest standards of excellence in the field of commercial horticulture.

G. B. Gunlogson Award. Given to an individual for the creative use of new technology in home gardening.

H. Marc Cathey Award. Recognizes an individual who has enriched horticulture through outstanding and notable research.

Horticultural Communication Award. Recognizes effective communication using media and

research techniques for the purpose of expanding horticultural awareness.

Horticultural Therapy Award. Recognizes significant contributions to the field of horticultural therapy.

Horticultural Writing Award. Given to a person whose excellence in writing has made a significant contribution to horticulture.

award categories

Landscape Design Award. Acknowledges an individual whose work had expanded the awareness of horticulture in landscape architecture.

Local Horticulture Award. Given to an individual or group who has contributed to the improvement of horticulture in the host city for the Society's Annual Meeting.

Meritorious Service Award. Awarded to a member or friend of the Society to recognize outstand-

ing and exemplary service in support of the Society's goals, services, and activities.

Frances Jones Poetker Award. Given for significant contributions to the appreciation of creative floral designs in publications, on the platform, and to the public.

Professional Award. Given to the director of an arboretum or botanical garden whose career achievements represent a significant contribution to horticulture.

Catherine H. Sweeney Award. Given for extraordinary and dedicated efforts in the field of horticulture.

Teaching Award. Recognizes an individual whose ability to share his or her knowledge of horticulture has contributed to a better public understanding of plants and their impact on man.

Urban Beautification Award. Given to an individual and/or an institution for significant contributions to urban horticulture.

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—Brian E. Holley, Director, Cleveland Botanical Garden

"AHS is a remarkable organization with *an extraordinary mission to share with all Americans the joy of gardening* and the crucial role gardeners play in stewardship of the Earth."

—Katy Moss Warner, AHS President and CEO



Garden Calm at River Farm

the American Horticultural Society

"I believe there is a moral dimension to horticulture: *Gardening makes us better people, and gardens make our communities better places to live.* That's why I and all gardeners should be supporting AHS."

—Duane Kelly, Producer of the Northwest and San Francisco Flower & Garden Shows



connects people to gardens.



The American Horticultural Society relies on the generous gifts of donors to fulfill its mission *to educate and inspire people of all ages to become successful and environmentally responsible gardeners by advancing the art and science of horticulture.* AHS fosters the human connection with plants, the environmental value of SMARTGARDEN™ practices, and an appreciation of beauty in the environments we create.

Contact Joe Lamoglia at (800) 777-7931 ext. 115 to find out how you can help.