

# The American GARDENER

The Magazine of the American Horticultural Society November/December 2006

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## ON THE ROAD WITH AHS

I REALLY LOVE color in the garden. And clearly I am not alone in this because there is a significant trend in American gardening to use bright colors. Flowers, foliage, sculpture—all offer endless creative expression with color. These past few months I have been inspired by the artistry of the bold and dramatic color effects I have seen in gardens across the country.

My color tour started with Fashion in Bloom, where the leaders in the horticultural industry put on a series of amazing displays this past September at six sites in the mid-Atlantic, including the AHS's headquarters at River Farm. The gardens were spectacular for a second year in a row, with impressive displays of flowering bedding plants, perennials, shrubs, and trees from the five participants (for more on Fashion in Bloom, see page 12).

Following Fashion in Bloom, on my way to the America in Bloom Awards Symposium in Eureka Springs, Arkansas (see page 15), I stopped to visit AHS members Bob and Marilyn Bogle in Bentonville, Arkansas. As great believers in flower color, they have made a major contribution to their community by creating parks filled with petunias, roses, and impatiens. This joyful exuberance is there for all to enjoy.

Thanks to AHS Board member Allan Armitage of the University of Georgia and our good friends at the Ball Horticultural Company, I was able to participate in the Perennial Plant Production Conference in Indianapolis, Indiana. During a break in the program, Allan and I toured a couple of private gardens. I have never seen such enthusiasm for bold foliage color; one garden included nearly 20 varieties of coleus.

Then, on a trip to the Pacific Northwest, I stayed with author and plantsman Dan Hinkley, who received the AHS 2006 Liberty Hyde Bailey award. Dan and his partner, Robert Jones, took me to the garden of artists George Little and David Lewis in Bainbridge Island, Washington. Using colored concrete—in hues of cobalt blue, turquoise, and purple—as their sculptural medium and tropical plants as habitat, these two artistic geniuses have created a garden with the feel of an archaeological discovery in a Mexican jungle.

I would be remiss if I didn't share with you one of the most spectacular displays of color I have experienced in a garden—the Niki de Saint Phalle exhibit at the Atlanta Botanic Garden. The garden's executive director, Mary Pat Matheson, spearheaded the project to bring together the world's largest exhibition of the late artist's outdoor sculptures. Many of the pieces are large enough to walk inside—see me in the photo above—and every piece is brilliant with color and sparkle. Be on the lookout if this collection comes to a public garden near you.

As I write this column, I am back at my childhood home in Garrison, New York, where the brilliant fall color of the sugar maple leaves in the Hudson Valley rivals all that I saw on my travels. Now, sated with color, I can anticipate with pleasure the muted hues of winter.

May you all be surrounded by much joy and love during this holiday season.



—Katy Moss Warner, AHS President Emeritus



## Annual American Horticultural Society Gala 2006

THE FRIENDS OF RIVER FARM and the AHS Board of Directors presented the AHS's Annual Gala on Saturday, September 23. An artistic sensibility prevailed throughout the festive evening, styled "America's Garden Celebration," as guests strolled amidst the colorful displays of the Garden Centers of America's Fashion in Bloom (see page 12) and viewed the botanically-themed photography of **Amy Lamb**, which was on display in River Farm's Estate House.

A raffle and silent auction to benefit River Farm and the AHS included a wide variety of donated objects and services. A live auction presided over by AHS President Emeritus **Katy Moss Warner** and Gala Co-Chair **Skipp Calvert** included several one-of-a-kind and priceless items. One of the most sought-after of these was "An Afternoon with **James van Sweden**," the renowned landscape architect.

"The AHS was so pleased to have James van Sweden join us for this incredible evening," says Katy, "not only as the gala's honorary chair, but as someone who supports the AHS's mission of making America a nation of gardeners and a land of gardens."

"The gala was the exclamation mark at the end of a story that began last winter," says AHS Interim President **Tom Underwood**, "and has included an unbelievable number of projects we've accomplished this year."

Funds raised from the gala will help further the mission of the AHS and contribute to the success of River Farm as a site representing the best in American gardening.



**Above:** During the gala, AHS President Emeritus Katy Moss Warner shares a moment with landscape architect James van Sweden. **Right:** Photographer Amy Lamb chats with Timothée Sallin of Cherry Lake Tree Farm.



## Changes to the AHS Board

**MICHEL SALLIN**, president and CEO of Cherry Lake Tree Farm, is the most recent addition to the AHS Board of Directors. Based in Groveland, Florida, Cherry Lake has been an AHS Corporate Partner since 2004. The company specializes in growing large, boxed ornamental trees for use by landscape developers and a wide range of corporate and private clients (see page 13 for a description of Cherry Lake's Fashion in Bloom display at River Farm). When Michel purchased the company's Florida property in the 1980s, the primary crop was citrus trees. Over time he converted the company's operations to the production of large ornamental trees such as magnolias, bald cypresses, crape myrtles, palms, and pines.



**Michel Sallin**

Stepping down from the Board are **Felder Rushing**, a leading garden writer and radio show host from Mississippi, **William A. Pusey**, an attorney from Richmond, Virginia, and **Joel Goldsmith**, president and CEO of Goldsmith Seeds in Gilroy, California. "We greatly appreciate all the time and energy Felder, Bill, and Joel have devoted to the AHS over the last several years," says AHS Interim President **Tom Underwood**. "Their experience and passion for gardening have helped advance the AHS's mission and extend our national outreach."

## Makeover for Fairytale Garden

THIS SUMMER, magical changes occurred in River Farm's Fairytale Garden. The AHS was lucky to have **Molly Turner** volunteering her time and effort toward the restoration of this part of the Children's Garden. Molly conceptualized this project to earn her Girl Scout Gold Award, which must be accomplished by the end of a high school student's senior year.



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American Horticultural Society

# Washington Blooms!

April 2–28, 2007

Join us this April for *Washington Blooms!* at River Farm. Nothing compares with the beauty of the early spring blooms in the National Capital area. Cherry blossoms, daffodils, and tulips herald the coming of spring in an explosion of color. Mark your calendar and plan to visit River Farm and the National Capital area this April—you'll find a variety of spring delights with something for every gardener and garden enthusiast, no matter what your passion!

Visit [www.ahs.org](http://www.ahs.org) or call (703) 768-5700 for more information.



## 2007 *Washington Blooms!* Events at River Farm

- April 7 • Spring Garden & Bulb Tour
- April 14 • Spring Garden & Bulb Tour
- April 20 • Members-Only Preview Night for Friends of River Farm Plant Sale
- April 21 & 22 • Friends of River Farm Plant Sale
- April 28 • Spring Garden & Bulb Tour

## Ongoing for the month of April at River Farm

- Thousands of spring blooms!
- AHS Garden Shop
- Botanical art exhibit

## More reasons to visit the National Capital Area in April

- National Cherry Blossom Festival (March 31 – April 15)
- Historic Garden Week in Virginia (April 21 – 28)

## 61st Colonial Williamsburg Garden Symposium CELEBRATING THE AMERICAN GARDEN: ENGLISH INFLUENCES ON AMERICAN GARDENS



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She says the River Farm Children's Garden had a formative effect on her as a child, and she "loved the opportunity to give back to the community."

The Fairytale Garden is designed to engage children's imaginations and introduce them to gardening through stories and fantasy-play. Molly's detailed proposal for the rejuvenation included replacing struggling plants, building a wrought-iron enclosure to distinguish this "garden within a garden," and improving the pathway that leads through it.

Molly surpassed the required 50 hours of volunteer time while working around her paid summer job. **Nancy Busick**, AHS youth programs coordinator, says that the necessary work to realize the Fairytale Garden's potential "would not have been possible for several years without Molly's initiative and offer to help."



Girl Scout Molly Turner puts the finishing touches on the Fairytale Garden at River Farm.

## YourOutDoors is Newest AHS Corporate Partner

**YOUROUTDOORS, INC.**, makers of the "Perfect Garden Tool System," is the newest member of the AHS's Corporate Partner program. The Florida-based company's innovative garden product includes 17 tools in one, featuring just about any tool the home gardener could ever wish for! The interchangeable tool system is designed for superior ergonomics, functionality, and durability.

As a testament to the company's commitment to charitable causes, a portion of the proceeds from all tool sales benefits the **World Craniofacial Foundation** and non-profit garden clubs across the country. To watch a video demonstration of the Perfect Garden Tool System and learn more about the AHS's newest corporate partner, visit [www.perfectgardentool.com](http://www.perfectgardentool.com). For information about the AHS's Corporate Partner program, contact **Barry Goodinson**, director of development, at (800) 777-7931 ext. 125 or [bgoodinson@ahs.org](mailto:bgoodinson@ahs.org).

## APGA Annual Conference Coming to Nation's Capital

THE U.S. BOTANIC GARDEN and the Smithsonian Institution will host the 2007 American Public Gardens Association (APGA) Annual Conference, which will be held in Washing-



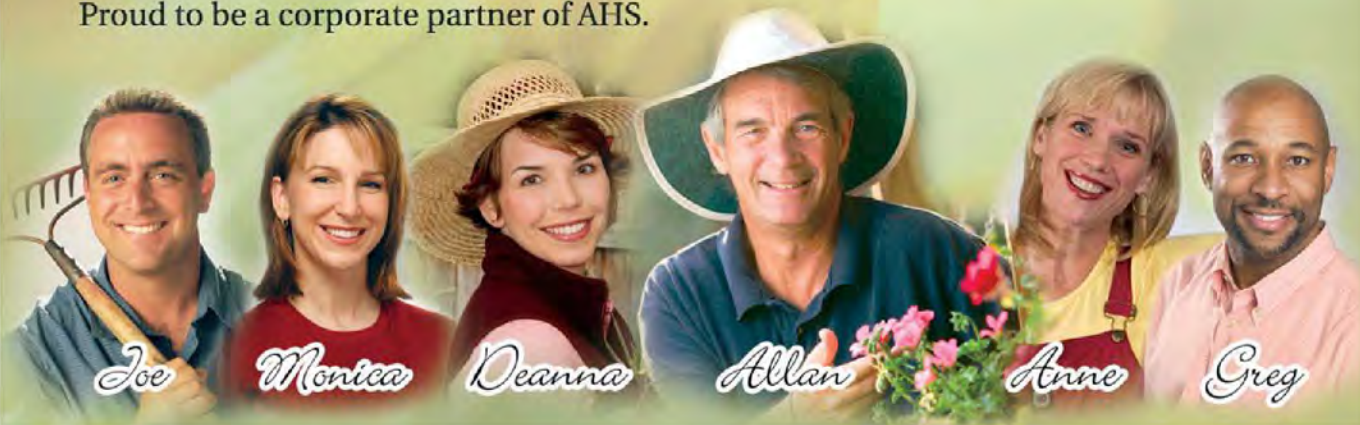
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## AHS NATIONAL EVENTS AND PROGRAMS

# 2006-2007 CALENDAR

Mark your calendar for these upcoming national events and programs that are sponsored or cosponsored by the American Horticultural Society.

### 2006

- DEC. 1–22. **Holiday Trees Display at River Farm.** George Washington's River Farm, Alexandria, Virginia.
- DEC. 14. **Friends of River Farm Holiday Reception.** George Washington's River Farm, Alexandria, Virginia.

### 2007

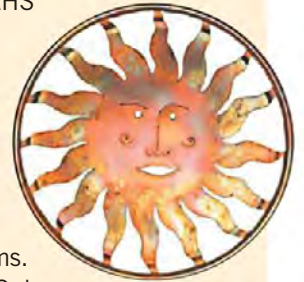
- FEB. 14–18. **AHS Green Garage® Exhibit at the 2007 Northwest Flower & Garden Show.** Seattle, Washington.
- APR. 2–28. **Washington Blooms!** George Washington's River Farm, Alexandria, Virginia.
- APR. 9–12. **AHS President's Council Trip.** Charlotte, North Carolina.
- APR. 13–JUNE 3. **Epcot International Flower & Garden Festival.** Lake Buena Vista, Florida.
- APR. 21 & 22. **Friends of River Farm Plant Sale.** George Washington's River Farm, Alexandria, Virginia. (Please note: Member's-only preview sale is from 4 p.m. to 8 p.m. on April 20.)
- APR. 26 & 27. **AHS Garden School.** "After Dark in the Garden." George Washington's River Farm, Alexandria, Virginia.
- APR. 29–MAY 2. **Colonial Williamsburg Garden Symposium.** Williamsburg, Virginia.
- MAY 4. **Magic of Landscapes.** Lake Buena Vista, Florida.
- MAY 20. **Friends of River Farm Family Picnic.** George Washington's River Farm. Alexandria, Virginia.
- MAY 31. **Taste of River Farm.** George Washington's River Farm. Alexandria, Virginia.
- JUNE 1. **Great American Gardeners Award Ceremony and Banquet.** George Washington's River Farm. Alexandria, Virginia.
- JULY 19–21. **National Children & Youth Garden Symposium.** Chaska, Minnesota. Hosted by the Minnesota Landscape Arboretum Public Policy Programs.

For more information about these events, call (800) 777-7931 or visit the AHS website ([www.ahs.org](http://www.ahs.org)).

## Gifts for Gardeners at [www.ahs.org](http://www.ahs.org)

When it comes to tools, clothing, plants, and decorative items, gardeners have myriad options. Fortunately, help for the well-intentioned gift-giver is just a mouse-click away at [www.ahs.org](http://www.ahs.org). Through our AHS Marketplace link, you'll find a wide array of gifts available through alliances with companies such as **Gardener's Supply Company** and **Garden Artisans**. A percentage of the proceeds from all sales placed through the website goes toward supporting AHS educational programs.

Look for discounts in the Members-Only area (see password on page 4), and tell your family and friends how much you would appreciate a gift from [www.ahs.org](http://www.ahs.org).



ton, D.C., from June 26 to 30, 2007. The conference theme will be "Defining Your Garden's Culture," with sessions addressing public garden identity as characterized by staff and community, landscape, and other factors. The AHS will be one of several partnering organizations, along with the American University, Brookside Gardens, Green Spring Gardens, Hillwood Museum & Gardens, and the U.S. National Arboretum. Visit [www.publicgardens.org](http://www.publicgardens.org) to learn more about the event.

## All's Well at River Farm

SEPTEMBER MARKED a momentous occasion for the Society's River Farm headquarters: the construction of a new well! All of the property's potable and irrigation water needs have been met by two aging wells for many years. In late 2005, one well failed, leaving the property in a potentially precarious position

**A new well at River Farm means more water is available for expanding gardens.**

should a problem develop with the remaining functioning well. At its June meeting, the AHS Board of Directors allocated funds to drill a new well behind the Carriage House to replace the one that failed. The drilling machine, with its dinosaurlike proportions, elicited much curiosity from young visitors to the adjacent Children's Garden.

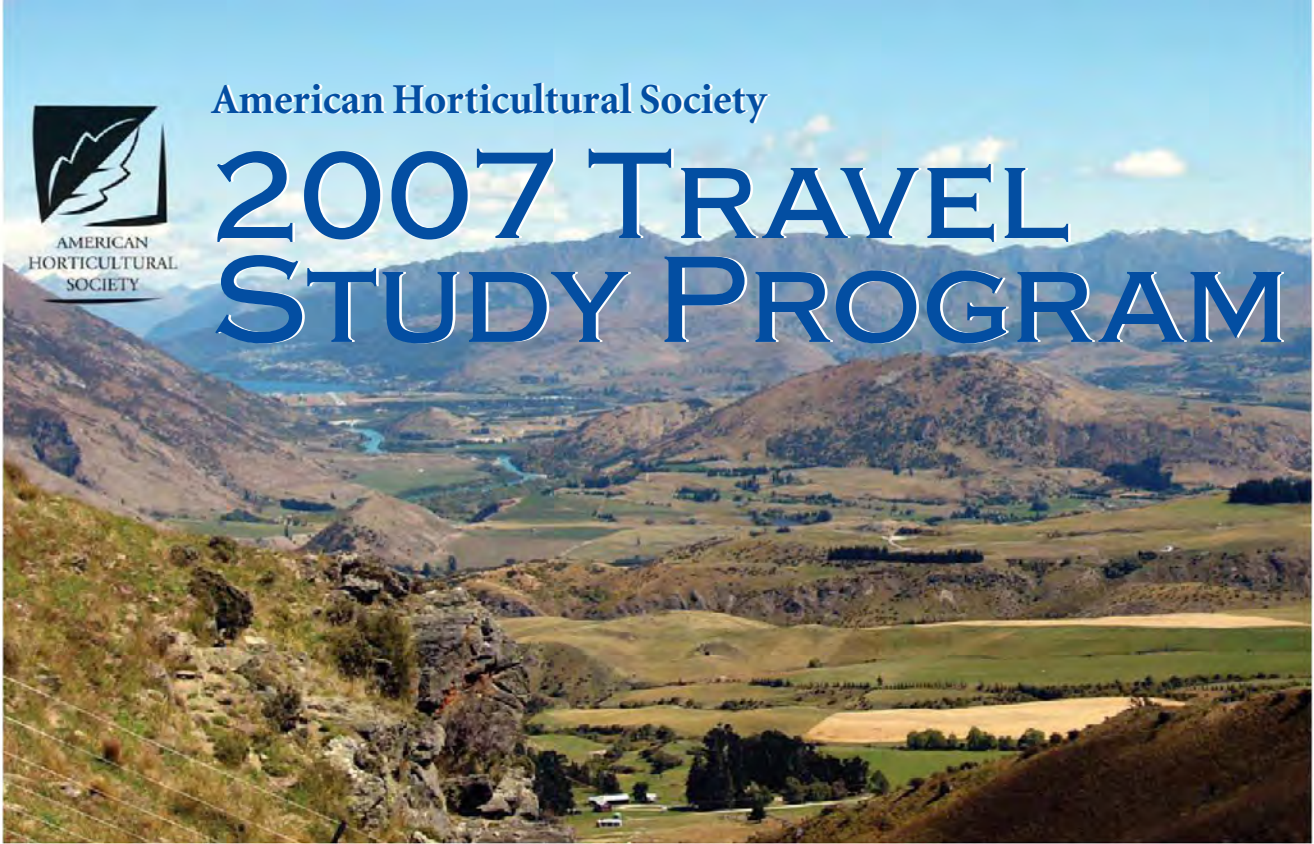


News written by Editorial Intern Heather Robbins.



American Horticultural Society

# 2007 TRAVEL STUDY PROGRAM



Journey with America's premier travel team—the AHS and the Leonard Haertter Travel Company—to some of the world's most beautiful destinations. Since 1985, we have offered extraordinary travel study programs to exceptional private and public gardens led by knowledgeable and experienced guides. Exciting opportunities await you this year!

## 2007 TOUR SCHEDULE

JANUARY 12–26, 2007 **Summer Coastal Gardens of New Zealand, M/V Clipper Odyssey**  
AHS Hosts: Kurt and Hannah Bluemel

FEBRUARY 10–17  
**Wilderness Gardens of Nicaragua and Costa Rica, M/V Wind Star**  
AHS Host:  
Katy Moss Warner



MAY 7–17 **Gardens of Piedmont and Liguria**  
AHS Host: Arnold Steiner

MAY 10–26 **Spring Gardens of Japan, M/V Clipper Odyssey**  
AHS Hosts: Bill and Jessica Barrick

MAY 15–25 **The Great Gardens of Scotland and the Royal Chelsea Flower Show**  
AHS Host: Carol Morrison

JUNE 4–15 **Gardens of the Hill Towns of Umbria and Tuscany**  
AHS Hosts: Susie and Bruce Usrey

SEPTEMBER 25–OCTOBER 4  
**Gardens of Majorca and Catalonia**  
AHS Hosts: Mac and Wickie Plant

OCTOBER 26–NOVEMBER 5  
**Gardens of Portugal and the Island of Madeira**  
AHS Hosts: Jim and Judy Corfield

Additional trips are being considered. Please check the AHS website ([www.ahs.org](http://www.ahs.org)) for updates.



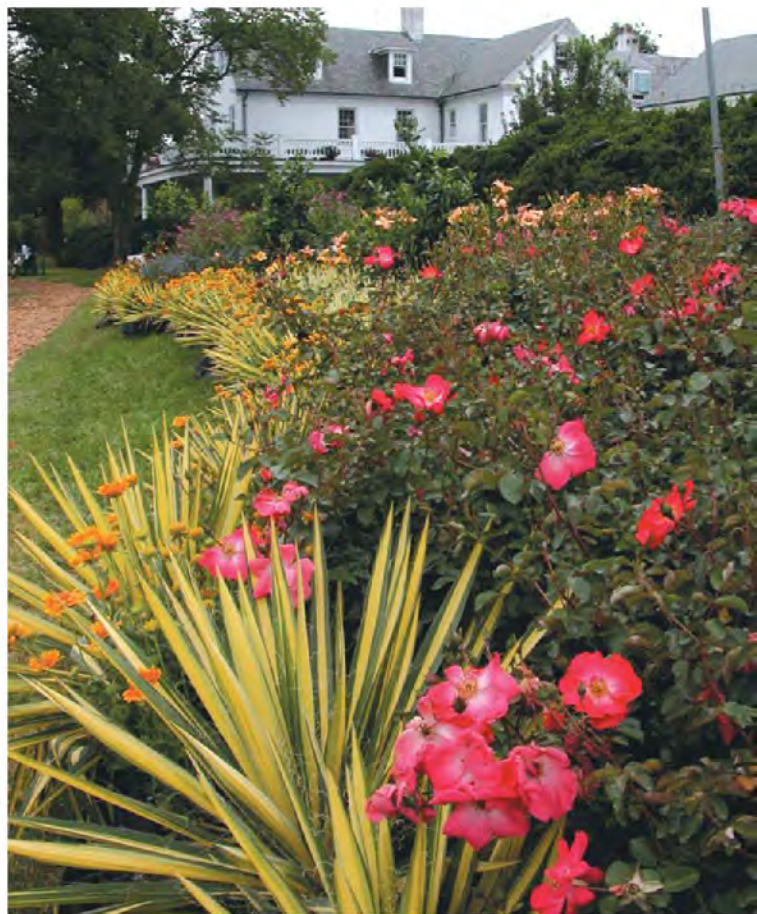
For detailed tour information, brochures, or to make a reservation, call the Leonard Haertter Travel Company at (800) 942-6666 or visit [www.haerttertravel.com](http://www.haerttertravel.com)

No member dues are used to support the Travel Study Program. Calendar, AHS Hosts, and Tour Directors are subject to change.

# *Fashion in Bloom 2006*

New plants for spring 2007 debuted at River Farm in September.

**D**URING FOUR days of invigorating autumn weather and equally gorgeous plant displays, the American Horticultural Society's River Farm headquarters was one of six host sites for the second annual Garden Centers of America's preview event, this year named "Fashion in Bloom: Collection 2007." From September 20 to 23, green industry professionals and the public previewed some of the hottest new plants and gardening trends for next spring.



Left: Goldsmith Seeds' relaxing "Family Gathering" vignette is tucked among an array of colorful annuals. Above: 'Color Guard' yucca provides a dramatic edging for Centerton Nursery's display of pink roses and 'Oranges and Lemons' gaillardia.

Preparation for the event, in conjunction with the AHS's annual gala on September 23, involved transforming several areas of River Farm. This was accomplished through the efforts of a dedicated team of AHS staff and volunteers, who worked with River Farm's five partnering companies to create vignettes in keeping with the site's theme of "America's Garden Celebration: Decorating Inside Out." The

vignettes—a series of "outdoor rooms"—were designed by landscape architect **Carla Shuman**, while **Phyllis Kennedy** of The Enchanted Florist coordinated the furnishings and accessories. With a dash of whimsy and an abundance of color, the partnering companies at River Farm surrounded each of their vignettes with a mixture of their most successful offerings and new introductions for spring 2007.

"It was hard to imagine we could improve on last year's event," says **Tom Underwood**, AHS interim president. "But thanks to the efforts of all our partners, friends, and staff—and cooperation from the weather—the displays were even more spectacular."

Fashion in Bloom attendees at River Farm began their visit in front of the Estate House, welcomed by beds of **Proven**



Above left: A tree-lined pathway led visitors to Cherry Lake Tree Farm's "Welcome Home" vignette. Left: Goldsmith's 'Sparkler Rose' cleomes make a pink splash. Above: Saunders Brothers offers ideas for "Dining Alfresco."



**Winners**® plants in shades of red, white, and blue. Large mixed containers of annuals and grasses framed a "Company's Coming" vignette where the plants' warm fall colors stood out against the white wicker furniture.

Proven Winners® is a marketing consortium owned by three U.S. propagators: Euro American in California, Four Star Greenhouse in Michigan, and Pleasant View Gardens in New Hampshire. Collectively, these companies put the Proven Winners® label on high-performance plants available at garden centers across the country.

Next, visitors followed a circular gravel path through an allée of large containerized trees from **Cherry Lake Tree Farm**, leading to its "Welcome Home" vignette. The trees on display included some of the company's best selections, such as Miss Chloe® magnolia and Hightower® willow oak. **Timothée Sallin**, director of business and marketing development for the Florida-

based company, pointed out that the trees are available year round and can be planted anytime. "They have a hundred percent of their root systems and won't experience the transplant shock associated with balled and burlapped trees," he commented.

Overlooking River Farm's meadow and the Potomac River, **Centerton Nursery, Inc.**'s display comprised an undulating mass of container and wildlife-friendly plants that led to a "Relaxing Retreat" complete with a bathtub full of deep red Home Run™ roses. The container-grown perennial display included *Gaillardia aristata* 'Oranges and Lemons', whose range of splashy orange hues created a sunburst effect against the variegated spikey foliage of *Yucca flaccida* 'Color Guard'.

**Saunders Brothers Nursery's** elegant "Dining Alfresco" vignette complemented their display of boxwood cultivars. For last year's GCA event, Saunders Brothers installed rows of several different boxwoods, all of which are thriving despite extremes of drought, deluge, cold, and heat that have characterized the past few seasons in northern Virginia.

"We have many different cultivars instead of straight American or English types," commented **Beth Scott**, a company sales representative. "This allows for a

range of uses, from formal to cottage garden; boxwoods are a lot more versatile and long-living than people often think."

**Goldsmith Seeds** created colorful swirls surrounding a "Family Gathering" vignette. The California-based company, whose focus is on new and novel flowers, selectively breeds for disease-resistance and hardiness in popular bedding plants such as zinnias. Goldsmith has produced 22 All-America Selections winners, including the 'Zowie! Yellow Flame' zinnia, whose bold orange-to-red blooms are sturdy and upright, ideal for cut flower arrangements that "bring the outdoors in," according to Retail Manager **Faith**



'Supertunia Bordeaux' petunias and 'Creme Brulee' heucheras from Proven Winners® mix well with other plants in this container.

**Savage.** “Our breeding makes petals reflex downward slightly so the water won’t pool inside blooms, though they appear the same as old-fashioned varieties,” she explains.

The AHS also had a display of its award-winning Green Garage®, first featured at the 2006 Philadelphia Flower Show. The free-standing garage showcases earth-friendly gardening tools and equipment, such as a composter, rain barrel, and solar-powered fountain. Plantings provided by **Mon-**

**rovia** nursery completed the appealing and educational setting with regionally appropriate (USDA Zone 7, AHS Heat Zone 7) selections. Attendees commented on the attractiveness of the display itself, as well

as the multitude of innovative ways to conserve resources in the home garden. (Turn



**Above:** Visitors to the Saunders Brothers area discuss the nursery’s new boxwood offerings. **Left:** The AHS’s Green Garage® featured regionally appropriate plantings and a display of earth-friendly gardening equipment.

to page 50 for this issue’s “Green Garage” recommendations.)

Another extensive educational display addressed the history of propagating new plants with descriptions of all five Fashion in Bloom companies participating at the River Farm site.


Photographer **Amy Lamb**, whose exquisitely detailed botanical photographs were on display in the Estate House during the event, remarked that Fashion in Bloom “makes this fall feel like spring.”

To experience some of the excitement Fashion in Bloom generated for the 2007 growing season, visit [www.fashioninbloom.com](http://www.fashioninbloom.com). In addition to providing information about the Garden Centers of America and the participating companies and their plants, the website features a blog, or web diary, that highlights the day-to-day activities at all six mid-Atlantic sites during the event. ☺

*Heather Robbins is editorial intern for The American Gardener.*

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## AHS NEWS SPECIAL

# America In Bloom's 2006 Award Winners

by Heather Robbins

FOR THE FIFTH year, America in Bloom (AIB) recognized the efforts and accomplishments of garden-oriented communities across the country at its 2006 Educational Symposium and Awards Gala. The event took place from September 28 to 30 in Eureka Springs, Arkansas, a Victorian-era town nestled in the Ozark Mountains.

In accordance with the host city's quaint setting, the symposium's theme this year was "Life in the Past Lane," with presenters and some participants getting into the spirit and donning Victorian finery for the Gala and Awards Ceremony, at which 17 major awards were presented in a variety of categories (see box below).

AIB is a non-profit organization seeking to increase community gardening in this country and a fitting partner for the AHS, which sponsors the Community Involvement Award. For the second year in a row, Logan, Ohio, won the AHS Community Involvement Award by accumulating more than 500,000 hours of



Eureka Springs, Arkansas



Lincoln Square, New York City



Award-winning Eureka Springs, Arkansas, top left, and Lincoln Square in New York City, top right. Above: AHS President Emeritus Katy Moss Warner, right, with AIB participants from the town of Logan, Ohio, shown at right.



Logan, Ohio

volunteer work to fulfill its blooming potential. "It is impressive to see so many cities across America proudly sharing what they have done to beautify their

communities, care for their environment and get their citizens involved. Each of these cities is a winner," says AHS President Emeritus, **Katy Moss Warner**, who is on the AIB's Board of Directors.

AIB judges base population category and special awards on ratings for each of eight criteria: floral displays, landscaped areas, turf and groundcover areas, urban forestry, environmental awareness, tidiness, heritage preservation, and community involvement. All participants benefit from the program, whether they win an award or not. As AIB President **Marvin Miller** notes, studies from the University of Illinois have shown clear links between the "greening" of cities and positive trends such as crime reduction and improved academic performance.

For more information about the 2006 Awards, a list of all participating communities, and guidelines and registration for the 2007 competition, visit [www.americainbloom.org](http://www.americainbloom.org) or call (614) 487-1117.

*Heather Robbins is editorial intern for The American Gardener.*

### POPULATION CATEGORY AWARD WINNERS

- |                            |  |
|----------------------------|--|
| ■ under 5,000              | Eureka Springs, Arkansas                   |
| ■ 5,001–10,000             | Oberlin, Ohio                              |
| ■ 10,001–15,000            | Wickliffe, Ohio                            |
| ■ 15,001–20,000            | Greenfield, Indiana                        |
| ■ 20,001–50,000            | Columbus, Indiana                          |
| ■ 50,001–100,000           | Fayetteville, Arkansas                     |
| ■ Medium business district | Lincoln Square, New York City              |
| ■ Small business district  | Columbus Avenue, New York City             |
| ■ University campus        | University of Missouri, Columbia, Missouri |

### SPECIAL AWARD WINNERS

- America in Bloom Tidiness Award *Bartlett, Tennessee*
- American Horticultural Society Community Involvement Award *Logan, Ohio*
- Ball Horticultural Company Floral Displays Award *Gallipolis, Ohio*
- Gardens Alive! Environmental Awareness Award *Buffalo, Minnesota*
- J. Frank Schmidt & Son Urban Forestry Award *Ocala, Florida*
- Meister Media Worldwide Heritage Preservation Award *Eureka Springs, Arkansas*
- Project Evergreen Landscaped Areas Award *Columbus, Indiana*
- Scotts Miracle-Gro Turf & Groundcovers Award *Tipp City, Ohio*

# from Backyard to BIG TIME

You don't have to be a plant breeder to enjoy ownership of a new best-selling garden plant.  
Fortuitous finds can yield significant rewards.

BY DOREEN G. HOWARD





**N**OT ALL NEW plant introductions are the results of sophisticated breeding programs. Many illustrious plants were serendipitously discovered in someone's garden or among a batch of seedlings potted up at a nursery.

If you have found an unusual seedling or a "sport"—a genetic mutation that exhibits very different characteristics from the parent plant—in your backyard, it's quite possible you could profit from your discovery, or at least have the satisfaction of knowing that your plant's special qualities will grace the gardens of likeminded enthusiasts.

Plant breeding is "the purposeful, goal-directed application of genetic understanding to a crop's improvement," explains Richard Lighty, former director of the Mt. Cuba Center for the Study of Piedmont Flora in Greenville, Delaware.

Plant selection, on the other hand, may or may not involve breeding. Some plants are simply selected when a gardener notices an unusual trait—a compact form, variegated leaves, flowers of an unusual color, or a tolerance to heat when others of the same kind languish. "Most introductions by amateurs," says Lighty, "are simple selection of possibly worthwhile horticultural variants—sort of a serendipitous spin-off from gardening." The key to such discoveries, he notes, is keen observation.



**Opposite:** Walt Stackman discovered the Golden Shadows® dogwood in his garden. **Above:** Rita's Gold™ Boston fern was a chance find by nursery owner Rita Randolph.

## RECOGNIZING OPPORTUNITY

An overnight trip to buy plants is a vacation for Rita Randolph, second generation owner of Randolph's Greenhouses in Jackson, Tennessee. It was on one of these jaunts in the early 1980s that she first spotted an attractive Boston fern (*Nephrolepis exaltata*) with golden fronds. The fern caught her eye again a dozen years later at a small nursery in the middle of Tennessee. The nursery soon went out of business, but Randolph had already bought the ferns and was propagating them. "Every time I showed the gold fern at lectures and slide shows, I was amazed at how many true plant nerds had never seen it before," Randolph says. "This happened over and over; even professional horticulturists and those who travel abroad extensively had not seen it." She knew she had a winner, and now Rita's Gold™ (named by University of Georgia horticulturist Allan Armitage, who trialed it for Randolph) sells briskly at numerous garden centers and through the mail from Randolph's Greenhouses.

"Any industry lives and dies on innovation. That's why new plants are so valuable to the horticulture industry," says Brian Corr, new crops development manager at Ball Horticultural Company.

Dan Heims, president of Terra Nova Nurseries, Inc., in Tigard, Oregon, knows this, too. When he spotted a variegated Jacob's ladder (*Polemonium caeruleum*) under a greenhouse bench as Floyd McDonald showed him around Morning Glory Farms in Fairview, Tennessee, Heims recognized a unique plant with profit potential. 'Snow and Sapphires' Jacob's ladder has been a mainstay in Terra Nova's catalog since 1999. McDonald, a motorcycle enthusiast, made enough money from the royalties to fulfill the dream of owning a fully equipped Harley-Davidson motorcycle, before his death in 2005.

Walt Stackman found Golden Shadows® pagoda dogwood (*Cornus alternifolia* 'Wstackman') in his Illinois garden, where he hybridizes daylilies. It was introduced by Spring Meadow Nursery, Inc., this year.

The 'Sweet Dreams' tickseed is a sport that Mark Leonard, a nursery



'Snow and Sapphires' Jacob's ladder, top, a variegated cultivar of *Polemonium caeruleum*, was spotted under a greenhouse bench by Dan Heims, above, of Terra Nova Nurseries.

owner in Loomis, California, spotted in a bed of *Coreopsis rosea*. Instead of tossing out the strange-looking stem, he took cuttings and planted it in a separate container to observe its growth. When the plant bloomed, the white flowers, touched with raspberry, were larger and more colorful than those on the mother plant. On the advice of a former college professor, Leonard partnered with Blooms of Bressingham to introduce and market the plant.

These success stories didn't happen automatically. Each gardener proceeded cautiously to protect his or her find and recruited a commercial partner to propagate and market the plant. Randolph entered into agreements with large wholesale growers to propagate and distribute Rita's Gold™ Boston fern. McDonald traded ex-

clusive rights for development and distribution of his find in return for royalties. So did Stackman and Leonard.

## PLANTS OF DISTINCTION

If you think you've found a unique selection, take a realistic look at your discovery and evaluate just how distinct and desirable it actually is. Tim Wood, product development manager at Spring Meadow Nursery, says he gets at least 10 phone calls a year from gardeners who have found a shrub with variegated or yellow foliage instead of the normal green. "It takes more than yellow or variegated leaves to be commercially viable," he says.

"It takes more than one superior characteristic for a winner," agrees Jim Berry, formerly of Plant Development Services, Inc., a company that offers market assessment and plant introduction services to breeders. Berry distills the characteristics of a distinctive plant to three F's—foliage, form, and flowers. Does the foliage have a distinct shape or color and is it disease resistant? Does the plant develop an unusual shape, narrow growth habit, smaller stature, or weeping form that sets it apart? How about the flowers? Are they more intense in color than others, or does the plant bloom more frequently or profusely?

Gary Gosset, product development manager at Terra Nova Nurseries, says that among the attributes he seeks in new plants are "variegated and gold foliage that does not burn, red to purple leaves on normally green plants, new bloom



*Coreopsis rosea* 'Sweet Dreams' was discovered by nursery owner Mark Leonard.

colors, dwarf forms of tall plants, and better branching patterns of normally floppy plants."

Once you feel confident that you've found something worth sharing, it's time to find out how many gardeners might agree with you.

## ASSESSING THE MARKET

"Is your plant right for the mass market or does it appeal only to plant nerds? That's the first question to ask yourself," says Corr. If you want to make money, wide distribution is the only way to do it.

Beautiful plants sold in small quantities to collectors may be satisfying, he adds, but their royalties are a fraction of those paid on plants bought in every garden center across the country. Plants with mass market potential must meet several standards, however.

People buy plants with which they are familiar. They may have different colored flowers or foliage, or a different shape, but familiarity breeds sales. Among annuals, top sellers every spring are impatiens, pelargoniums, petunias, and members of the viola family, including pansies, according to Corr.

Consumers seek perennials that are survivors and thrive in a wide range of conditions. Those that sell briskly include coreopsis, heucheras, daylilies, and coneflowers. Many customers will purchase a breakthrough cultivar of a flower they know such as Wave™ petunias or 'Sweet Dreams' coreopsis, but fewer are likely to buy a new cultivar of a less common perennial such as bear's breeches (*Acanthus mollis*).

If your plant falls into the "less common" category, go to someone like Tony Avent, owner of Plant Delights Nursery, Inc. "I'm the person who sells to plant nerds," he says. "If the big breeders turn you down, come to us." He adds, "Any new plant you offer has to fit within the current trends, however. Timing is everything in plant production. Otherwise, your plant has no commercial value."

New plants for mass markets must also fit well into a grower's production regime in order for a plant company to make a profit—and you royalties. Seeds or vegetative cuttings are the preferred method of propagation. Tissue culture adds cost and time. However, its profit potential may offset the expense.

## FIND THE RIGHT PARTNER

If you decide your plant has mass market potential, the least stressful path to profit is to partner with a large plant company that is experienced in plant protection, trialing, production, and marketing. So how does a novice go about finding the right commercial partner? "Trust your gut, but get the specifics in writing," Corr says.

Start with a Trialing Agreement or Material Transfer Agreement. (See "Protect



Tissue culture, a technique in which plants are rapidly propagated from tiny cuttings or tissue samples, can speed the process of bringing new plants to market.

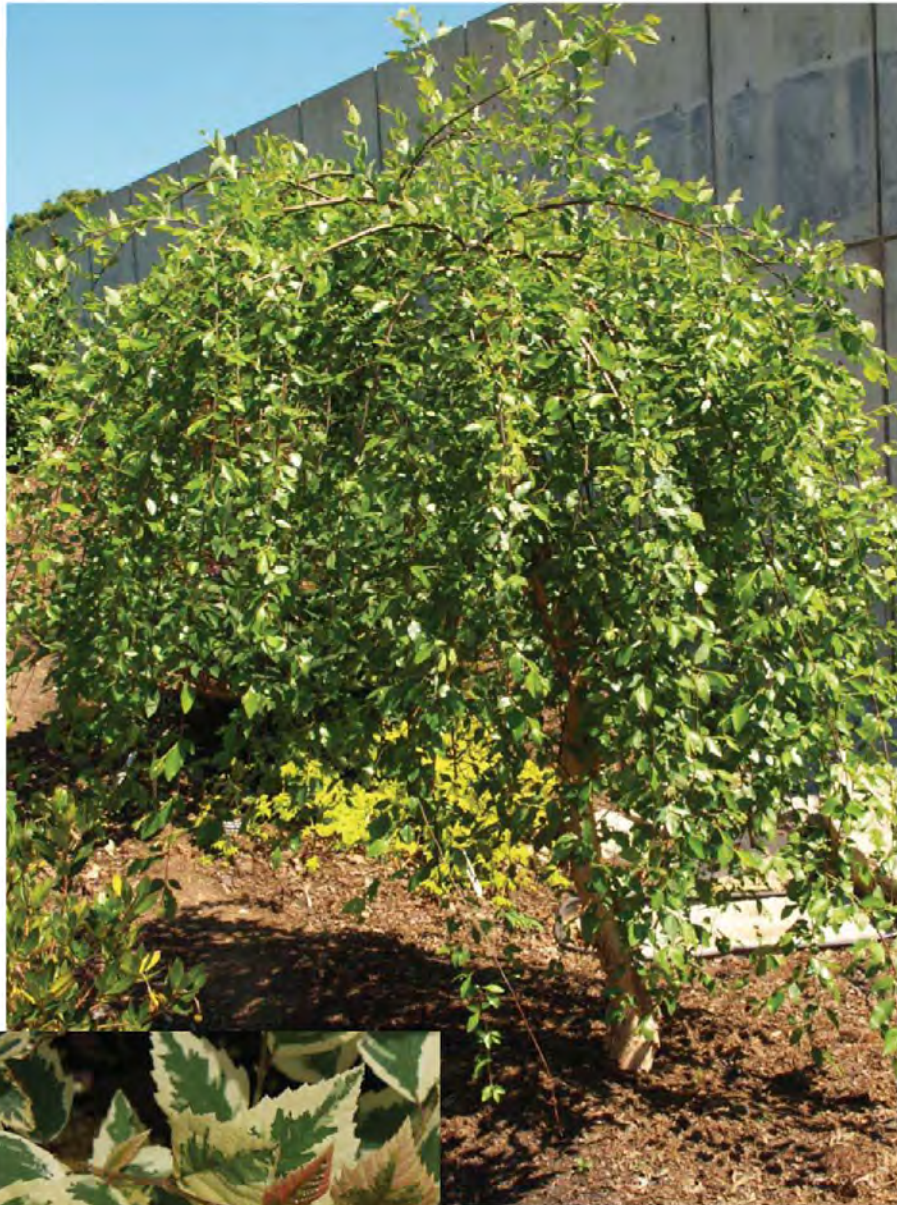


Your Plants” on page 20 for details on these legal documents.) Most plant companies will draw up the agreement for you if they are interested in your plant. Terra Nova Nurseries routinely does so and follows up with all other legal protections required, such as the plant patent. “We even pay the postage,” says Heims. Costs, including the patent, are deducted from your first royalties. It usually runs about \$2,500, he says.

Never send a plant to a company without a contract, Wood cautions. Send a photograph of it first to determine if there is interest. “Include the disclaimer that this is not an offer for sale,” he says. That way the clock is not ticking on patent limitations. You only have a year from the first time a plant is offered to the public until a patent application must be filed. After you reach an agreement, then it’s time to send your plant to your partner. “Don’t send us just a single plant. We need at least three divisions to prove it will propagate,” Heims explains. “You should retain plant material, too, in case what you send is lost or damaged.”

Put some effort into naming the plant, too. A bad name can kill sales, Berry says. “Don’t name it after a relative. This is a consumer culture in which the right name will get people to spend money on a plant with an appealing or clever name.” *Euphorbia* ‘Tasmanian Tiger’ and *Hosta* ‘Diana Remembered’ are good examples of marketable names.

Interview plant companies just as you would a potential employee or a babysitter for your children. Ask for references from other individuals who have partnered with them. Make sure the company has the production experience to handle any problems that may arise. Choose one that has demonstrated success with your type of plant, such as a shrub or bedding plant producer. And, most importantly, make sure there is excellent two-way communication between you and a potential commercial partner.



Two new river birches (*Betula nigra*)—weeping ‘Summer Cascade’, above, and variegated ‘Shiloh Splash’, left—were discovered by John and Danny Allen of Shiloh Nursery.

vices. Plants like ‘Hillside Black Beauty’ clematis, Encore Azaleas®, and ‘Blueberry Sachet’ nemesia have come to market through breeder services.

Another alternative is to partner with a university to get your plant to market. This is the route John and Danny Allen of Shiloh Nursery in Harmony, North Carolina, took when John discovered a couple of river birches with unusual features in the nursery. He transplanted and observed them for a while. “John has a very keen eye and is always on the lookout for

Another option for getting your plant to market is to employ a breeder service. Such companies do all the work to put your plant into commerce. They assess its market value, test and trial it, secure patents and other legal protections, and license the plant to wholesale growers for distribution to consumers. These agents take a commission from sales for their ser-

## PROTECT YOUR PLANTS

Until a newly discovered or created plant is legally protected, do not exhibit it at shows, on the Internet, in print, or offer it for sale. Doing so shortens your timeline for legal protection. You have a year from the first time it is offered to the public for sale until the patent application must be filed. Here are the types of plant protection available:

**U.S. Plant Patent** For new and distinct varieties of asexually reproduced plants except tubers. The patent holder has sole authority to propagate and sell the patented plant or to assign those rights to others. It is good for 20 years from the date of application. For more information about plant patents, visit the National Association of Plant Patent Owners website at [www.anla.org/industry/patents/index.htm](http://www.anla.org/industry/patents/index.htm).

**U.S. Utility Patent** To obtain utility patent protection on a plant, people must have had a hand in the creation of the new variety that generally involves more than a mere crossing of two parental varieties. This form of protection can be expensive to obtain; however, it can have multiple claims of varying scope, including method claims.

**Trademark** If the anticipated returns on the plant are not likely to offset the expenses involved, an alternative is to trademark the plant name. Only the owner of the trademark can market the plant under that name, although he or she does not control propagation or sale of the plant under any other name. A patented plant can also have a trademarked name, affording significantly more protection. A trademark registration is good for 10 years and it is renewable. Be careful to ensure that the mark you choose is not identical or similar to a varietal name for the same plant or related varieties.

**Plant Breeders' Rights (foreign plant protection)** To protect your plant in foreign markets, you will need to comply with the regulations of each country. In order to be viable, applications for protection must be made in a timely manner (the time varies from one country to another). The grace period allowed before filing for patent protection in the United States is not as generous as the grace periods available in most foreign countries.

**Plant Variety Protection Act (PVPA) Certificate** Used for sexually produced plants, especially open-pollinated ones and hybrids other than F<sub>1</sub> generations, and tubers. It is most commonly used for seed-produced vegetable and agronomic crops. The new variety must be distinct, uniform, and stable. A Certificate of Protection remains in effect for 20 years from the date of issuance. The cost of obtaining this certificate may be considerable.

**Trialing Agreement or Material Transfer Agreement (MTA)** This contract aims to protect your rights before or during the patent process—which can take longer than a year—when granting permission to a grower to trial the plant. The document outlines what is expected of both parties, denotes when the trial will begin and end, protects confidentiality, and designates what reports will be made. The agreement should stipulate that the grower cannot photograph, publicize, or sell your plant.

**License Agreement** Growers of patented plants must seek a license from the patent holder and pay a royalty fee. It's up to the patent holder or a representative to monitor and enforce these agreements. —D.H.

something new,” says Tom Ranney, the horticulture professor at North Carolina State University whom John contacted about five years ago to take a look at his selections. Ranney agreed that the two birches—one with a weeping habit, one with variegated leaves—were worth trialing. He facilitated the introduction process by securing patents for ‘Summer Cascade’ and ‘Shiloh Splash’ and connecting the nursery with potential licensees across the United States and in several other countries. In return, says Ranney, the Allens, “have been kind enough to donate half their royalties on these trees back to the university to support further research.”

### GOING IT ALONE

If your plant isn't right for mass marketing or you want to control the process, find a patent agent and a marketing specialist. You will still need experts to navigate legal and distribution hurdles. Barry Glick, owner of Sunshine Farm & Gardens in Renick, West Virginia, used Proprietary Rights International to get the plant patent on *Euphorbia* ‘Jessie’, an interspecific cross he selected and developed. Such companies take your plant through the entire legal process and protect it during every step. They draw up trialing agreements for you if others test your plant, obtain patents, secure protection for foreign markets, and prepare documents to license your patent to growers in exchange for royalties. In Glick's case, costs ran about \$2,500 for a U.S. Plant Patent.



*Euphorbia* ‘Jessie’ was selected and introduced by nursery owner Barry Glick.

COURTESY OF BARRY GLICK

## TO MARKET, TO MARKET

Getting a plant to market is not a fast process. It will take up to five years, according to all the experts interviewed. "Some companies push to market in a bit over a year," says Gossett, "but to do a good job of production, greenhouse, and in-ground trials and production quantity ramp-up, it takes two-and-a-half to three-and-a-half years. That is with an easy plant."

Your one plant will have to be increased to 100,000 plants or more for introduction. If your plant is disease-free and easy to propagate, as was 'Sweet Dreams' coreopsis, it can be on the mar-



Randolph, who participated in the 2005 conference. "I learned that plants aren't just thrown out there. There are recognized steps in getting your plant to market," she says. "The conference helped me see more clearly down the road and meet the people I wanted to work with." If you go, bring an array of photographs of your plant and create a summary sheet about the plant's history and propagation in order to receive feedback from industry experts. For more information, visit the conference website at [www.conference.ifas.ufl.edu/IPBC](http://www.conference.ifas.ufl.edu/IPBC).

"There's a big need for new plants," says Buddy Lee, an independent plant breeder who developed the Encore Aza-




Plant breeder Buddy Lee, right, developed 'Autumn Chiffon', left, and other Encore Azaleas®, which bloom in spring just like other azaleas, then rebloom in the midsummer to fall.

ket in less time. "Gardeners should know that it takes time to build up numbers of plants to evaluate and to develop marketing plans," says Wood.

## NETWORKING

The annual Independent Plant Breeder's Conference in Orlando, Florida, which is being held this year from November 17 through 19, helps amateurs learn how to profit from their plant discoveries. Hobby breeders of any horticultural crop meet plant producers, patent experts, scientists, and product development professionals representing companies such as Sakata, Ball Horticultural, and Proven Winners®. It's an excellent networking environment that has paid dividends for people like

leas® and works closely with Plant Development Services, Inc. Lee encourages gardeners to keep their eyes open for new plants, and to get those that are worthwhile to market. "Some of the best plants in the world may have withered in somebody's backyard because the gardener didn't recognize their potential," says Lee.

Introducing a new plant can be lucrative and satisfying if the business end is handled correctly. Your plant with potential may end up paying dividends sooner than you think. 

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*Formerly garden editor for Woman's Day, Doreen Howard is now a freelance writer and editor. She breeds new tomato varieties in her Roscoe, Illinois, garden.*

## Resources

### PLANT PRODUCERS

*These companies consider new plants and have guidelines for submission on their websites.*

**Ball Horticultural Company,**  
[www.balldiscoveries.com](http://www.balldiscoveries.com).

**Blooms of Bressingham,**  
[www.bobna.com/breeders.asp](http://www.bobna.com/breeders.asp).

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# *Rocky Mountain Haiku*

A Denver bonsai garden pays homage to nature, culture, and family.

ARTICLE AND PHOTOGRAPHS BY TOM JENKINS



PHOTO OF BOB KATAOKA COURTESY OF LILY UYEDA



**E**XCEPT FOR ITS rows of large windows both front and rear, the Kataoka house looks like all the other mid-20th-century ranch-style homes in its modest Denver, Colorado, neighborhood. The landscaping, however, sets it as far apart from the others as, say, East and West. From the carefully placed rocks and artfully pruned trees out front to the collection of bonsai trees and the 18-foot-long pond complete with footbridge in the back, even the most casual viewer can see this is the work of a horticultural master.

The privately owned half-acre garden is a legacy of the late Bob Kataoka, who, with

his wife, Mary, moved into the west Denver home in 1956 and began transforming it into a unique blended landscape that, though distinctly influenced by Japanese culture, is at the same time in harmony with its Rocky Mountain setting.

Born in Japan in 1906, Kataoka emigrated to the United States in the 1930s, settling first in California, and then, in the 1940s, moving with Mary to Colorado, where he worked in a furniture factory. A widely recognized self-taught bonsai expert, Kataoka spent his spare time and, later, his retirement working in his garden and training his beloved bonsai trees. He was a founding member of the Rocky Mountain Bonsai Society (RMBS) in the late 1960s, which honors him by presenting the Bob Kataoka Memorial Award to a rising bonsai artist at its annual bonsai show at the Denver Botanic Garden.

Although Bob Kataoka died in 1986 and Mary died earlier this year, his vision is very much alive in the garden that their daughter, Lily Uyeda, now cares for using the skills he taught her. “Dad designed and built all of it,” she says. “He con-

structed the pond, made the stone lanterns, cast and built the bridge, and planted all of the trees and shrubs.”

### A LIVING TRIBUTE

The Kataoka garden is mostly devoid of showy ornamentation. Bob chose the placement of his plants with great care to achieve a simplicity and minimalism that is both beautiful and serene. His bonsai specimens are considered among the best in the country; examples of his work have been displayed at the U.S. National Arboretum in Washington, D.C., and at Weyerhaeuser’s Pacific Rim Bonsai Collection in Washington State.

Panayoti Kelaidis, director of outreach at Denver Botanic Gardens, who used to live a few blocks from the Kataokas recalls, “I would frequently walk by to enjoy the garden. It was a stunning collection of bonsai, exquisitely displayed.”

In the front yard, large beds of sand-colored pebbles contrast with the green lawn. Planted in the beds are large trees that have been pruned and trained to look like large-scale bonsai specimens. Stone



**Left:** Bob Kataoka training a ponderosa pine (*Pinus ponderosa*) in the early 1980s. **Top:** The Kataoka front garden includes ponderosa pines, Douglas firs (*Pseudotsuga menziesii*), and a juniper in the shape of a bird. **Opposite:** This juniper is estimated to be 900 to 1,000 years old.

lanterns provide an unmistakable Asian flavor, while a juniper pruned into the shape of a bird adds a touch of humor.

The bulk of Kataoka's bonsai trees are in the backyard, placed around the large pond that is spanned by a low, arched bridge. The bridge provides shade to resident goldfish and access to the back of the garden, where soil from the excavation of the pond was used to build a berm. Planted with blue spruce (*Picea pungens*) and Scotch pine (*Pinus sylvestris*), the berm

## CREATING A BONSAI TREE

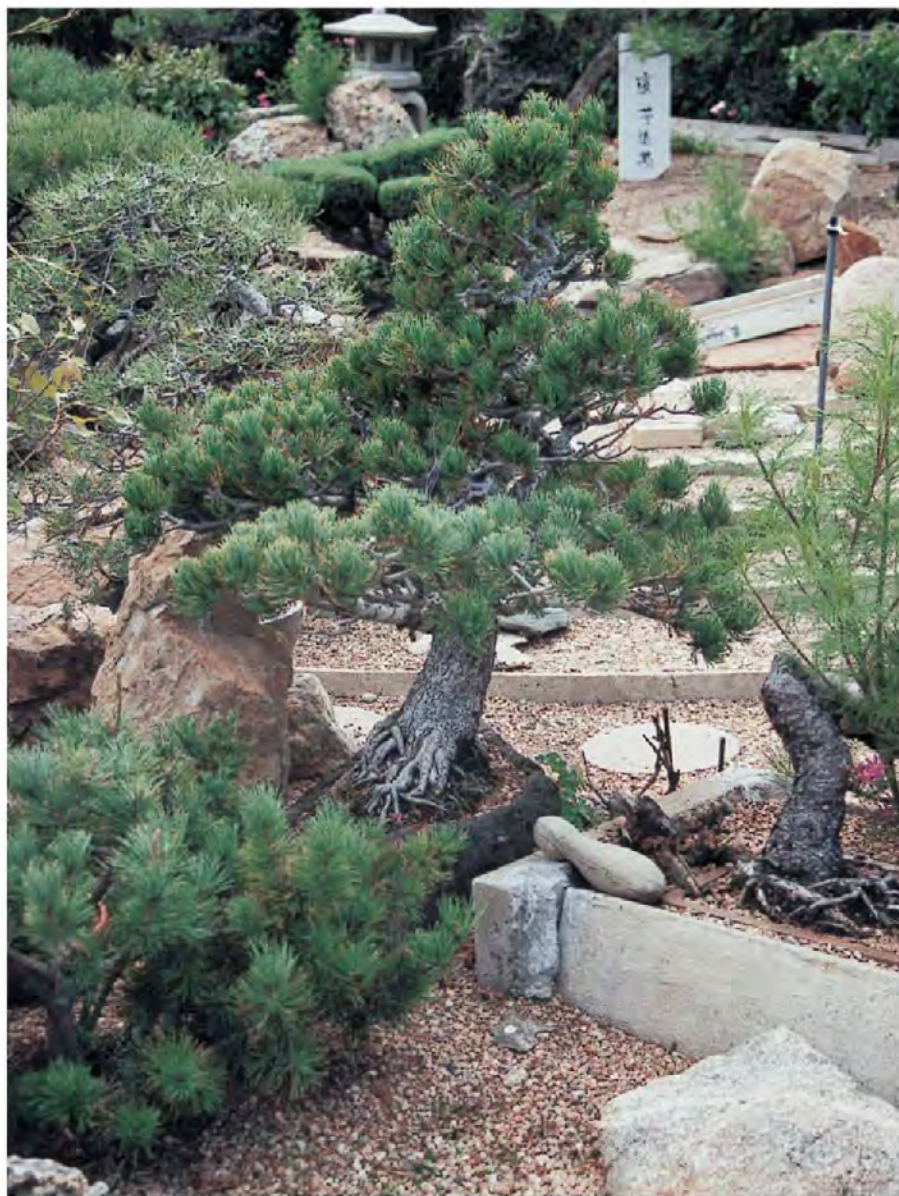
Originating in China, bonsai (pronounced BONE-sigh) is the technique of growing and training trees and shrubs in containers so that they maintain a miniature size even at maturity.

In bonsai, pruning is the single most important technique. To maintain her father's collection, Lily Uyeda says, "I use different tools, including various shears and snippers for pruning and thinning the needles and sometimes the branches to limit the amount of growth each year. This keeps the tree small without harming it."

In addition to careful pruning, bending and wiring some trees create an ancient, weathered look, even the illusion that with the right perspective, a tiny tree resembles a giant in the forest. It is vital to clean out the roots and repot bonsai trees a minimum of once every seven years to keep them healthy. A properly cared-for bonsai specimen can live for centuries. —T.J.

provides privacy and a backdrop for rocks and numerous ponderosa pines (*Pinus ponderosa*).

Throughout the yard, the permanently planted trees are interspersed with those placed in traditional bonsai trays and pots. Although some of the plants in the Kataoka garden are species from Japan, such as the five-needle pine (*Pinus parviflora*), it is the native junipers and limber (*Pinus flexilis*) and ponderosa pines that make this garden special. These naturally tough trees can withstand Colorado's harsh winters and remain outdoors year round, while the less-hardy Japanese trees must be



Above: This five-needle pine (*Pinus parviflora*) is a Japanese tree that is not hardy in Colorado and must be brought indoors each winter. Top: In addition to the many bonsai specimens, the back garden features a large pond and a stone bridge, both hand-built by Bob Kataoka.



## INSPIRED BY NATURE

The bonsai creative process seeks to capture the spirit of nature in miniature. In Bob Kataoka's time, when conservation regulations were less rigorous, this included the practice of transplanting trees and shrubs growing in the wild into a pot or tray in a home garden. Taken from its setting

high in the Rockies of the western United States, a bristlecone pine, ponderosa pine, limber pine, or juniper is often naturally stunted and dessicated from exposure to wind, temperature extremes, and arid soil.



Above: This ponderosa pine bonsai in the Kataoka garden has been trained to convey the windswept look of trees—like the bristlecone pine, left—growing wild in the mountains.

Over the years, high wind shapes the tree, bending it earthward, stripping off its bark from the windward side, reducing the growth of its foliage and restricting its size. After the tree is relocated to a garden or greenhouse, the bonsai artist seeks to maintain its natural symmetry as it is kept miniature in size by bonsai training.

Because collecting plants from the wild is generally illegal—unless the collection is done on private property with permission—today's bonsai artists tend to train selected nursery-grown trees and shrubs to look like wild trees that have been shaped by the elements. This requires detailed observation of wild trees, skill, and patience. A bonsai specimen can be “in training” for decades before the desired effect is realized. In either case, nature is always the source of inspiration. —T.J.

moved into the greenhouse in the backyard to overwinter.

### COLORADO GROWN

According to longtime RMBS member and family friend Allan Hills, one of the most important lessons Kataoka imparted to him was how to make bonsai North American. “He was a guiding light for our bonsai society for many years,” says Hills. “Bob read many of the Japanese bonsai magazines, which had a lot of information on how to train Japanese black pine [*Pinus thunbergii*]. He showed us how to adapt those techniques for our native trees, such as the ponderosa pine.”

In fact, the Rocky Mountains offer a wealth of opportunities for practicing bonsai. “Colorado has such ideal trees—especially the pines and junipers—for the bonsai process of taking stress and staying alive despite periodically severe weather,” says Uyeda. “Most of our specimens were collected in the 1950s and '60s, when getting a permit was no problem. Dad went to the mountains, sometimes to high



Lily Uyeda carefully prunes one of her father's prized ponderosa pines.

ridges and remote ravines, to get them.”

When Kataoka and other fellow hobbyists collected trees in the wild, they were able to estimate their age by counting tree rings in similar, nearby trees. Many of the trees in the Kataoka garden are ancient. Alongside the 200- and 400-year-old ponderosa pines are junipers with large dead portions of trunk and branches but still

stubbornly alive; a 28-inch-high juniper is estimated to be 1,000 years old; and another 29-inch-high specimen is estimated to be 600 years old. “My father would spend hours looking at the structure of the old trunks of his junipers with silent admiration,” Uyeda remembers.

The collecting and successful transplantation of wild trees was a creative act requiring knowledge of and respect for a plant's natural habit. As Bob Kataoka once said, replanting a young tree into a bonsai pot can be likened to “capturing the spirit of the wilds in a controlled setting.” (See “Inspired by Nature,” above.)

The bonsai trees are now Uyeda's connection to her father. Maintaining them, she admits, “takes constant attention,” but it has its rewards. As she cares for the trees, each one seems to emanate a quiet serenity that speaks to her. “My dad used to say, ‘It happens because I talk to the trees in Japanese.’”

*Tom Jenkins is a freelance writer living in Centennial, Colorado.*

Divinely scented and beautiful in flower, plants in the genera *Brugmansia* and *Datura* are also steeped in legend and lore.

BY RAND B. LEE

**A**NGEL'S TRUMPETS—members of the genera *Brugmansia* and *Datura*—are the sexiest members of the nightshade family (Solanaceae), an interesting and diverse group that includes among its ranks food plants such as peppers (*Capsicum* spp.), tomatoes (*Lycopersicon* spp.), and potatoes (*Solanum* spp.); plants with medicinal or pharmaceutical characteristics such as tobacco (*Nicotiana* spp.) and belladonna (*Atropa belladonna*); and ornamentals such as petunias, chalice vine (*Solandra* spp.), and Chinese lantern (*Physalis alkekengi*).

The soft, voluptuous textures, exuberant growth, and lusciously night-fragrant flowers of angel's trumpets make them stand-outs in the garden and as house plants. They are also extremely dangerous, when ingested, to humans and livestock (for more on this, see the article "Dangerously Pretty," page 36).



# Angel's Trumpets &

Angel's trumpets do not belong in gardens frequented by toddlers, vegetation-noshing pets, or dimwits seeking what they imagine will be a cheap high. The rest of us may indulge ourselves, however, for nothing under the moon is as magnificent as a garden of angel's trumpets in full, intoxicating bloom.

## BRUGMANSIA OR DATURA?

Originally all angel's trumpets were classified in the genus *Datura*. Now they are divided into two groups that I distin-

guish by thinking of them as the little, sprawly, upward-facing ones and the big, honking, dangly ones.

For the more technically minded, daturas are generally lax, sprawling herbaceous annuals or tender perennials with upward-facing flowers and prickly seed pods that are dehiscent (they split open when ripe), while brugmansias tend to be taller and more upright, semi-woody plants with drooping flowers and generally smoother seed pods that remain intact at maturity.

Plants now included under the umbrella of *Brugmansia* are definitely native to the Americas, but botanists disagree over where daturas originated. Current opinion is that they also probably evolved in the New World, because the greatest variety of wild species occurs in Mexico and Central America. Others suggest that some species, at least, arose in the vicinity of the Caspian Sea, arriving in Europe in the Middle Ages by way of Africa and Asia. Certainly this would explain the very well documented presence of *Datura* in

Unlike most other brugmansias, red angel's trumpet draws pollinators with its bright reddish-orange flowers rather than by fragrance.



ered in downy hairs. The seed pods tend to be egg-shaped or elongated.

The eight- to 12-inch-long flowers, which dangle from their branch-ends, come in a broad spectrum of colors from white to red. They tend to deepen in color as they age, so that in many cultivars several shades are displayed on the plant simultaneously. Brugmansias tend to bloom in monthly flushes, followed by three- to six-week resting periods. The blossoms open at night and most release a fragrance that is described as jasminelike with an undertone of lemon. The exception is *Brugmansia sanguinea*, which, like most of nature's red bloomers, relies on color rather than scent to attract pollinators.

One of the largest brugmansia groups is *B. ×candida*, which includes both natural and contrived hybrids of *B. aurea* and *B. versicolor*. Generally speaking, these hybrids get six to 15 feet tall and five to eight feet wide, bearing long, toothed or smooth, wavy-edged leaves and foot-long, pendulous, very fragrant, white, soft yellow, or pink flowers, each with winged spurs accenting its flared mouth. The flowers come in singles, doubles, and triples.

Among the many intriguing cultivars are 'Enchanted Double White,' which bears fully double, hose-in-hose flowers; 'Double White,' which bears large white flowers with frilled centers that are quick to bloom and repeat; the apricot flowered 'Grand Marnier,' which earned an Award of Garden Merit from the Royal Horticultural Society (RHS); and 'Herrenhauser Garten,' featuring triple to quadruple white flowers maturing to bright orange.

*Brugmansia ×cubensis* is a small group that includes some of the most decorative brugmansia hybrids; their forebears are *B. aurea*, *B. suaveolens*, and *B. versicolor*. Among the standouts in this group are 'Charles Grimaldi' and 'Dr. Seuss'. The former grows to six feet, bearing numerous, moderately fragrant, strongly recurved, luminous bright yellow flowers aging to orange. A moderate grower, it is great for containers. 'Dr. Seuss' is a vigorous grower bearing many large, pendant, highly perfumed, pale pink flowers shading to creamy yellow at the throat. "This is the one brugmansia to have if

# Thornapples

the Old World centuries before Europeans set foot in the Americas.

## BRUGMANSIAS

Brugmansias—"brugs" to aficionados—are the more fashionable and respectable of the two genera. These are the big, tropical, woody, evergreen, shrubby or treelike angel's trumpets, about six species in all. Most are root-hardy, with protection, to about USDA Zone 8, but their foliage and flowers are very sensitive to frost and they will only thrive growing

outdoors year-round in Zones 10 and above. In temperate regions, most gardeners grow them in containers that can be moved inside for the winter (see sidebar, page 29). They are generally very heat tolerant (AHS Zones 12–1) as long as they receive adequate watering.

In cultivation, most species and hybrids top out at anywhere from six to 15 feet tall by eight feet in diameter (some of the taller species grow to 30 feet in the wild). Their leaves are large and dark green; most are smooth, but a few are cov-

The upward-facing flowers of *Datura metel* 'Double Yellow' help to identify it as a thornapple, as do the round, spiny fruits that follow the blooms.



Left: Planted at the edge of a low wall, *Brugmansia* 'Charles Grimaldi' is at the perfect height for passersby to enjoy its fragrant flowers. Above: Fast-growing and floriferous 'Frosty Pink' is a hybrid angel's trumpet that developed from crosses between *Brugmansia suaveolens* and *B. versicolor*.

you can only have one," says Earl Mathews of Valley Grow Nursery (see "Sources," page 31). "It has a very intense and wonderful fragrance, is very easy to root and grow, grows very large, and blooms heavy and often."

Another large hybrid group is *Brugmansia*  $\times$  *insignis*, which involves crosses between *B. suaveolens* and *B. versicolor*. These plants tend to stand four to six feet tall in containers and bear 10- to 16-inch-long, dangling flowers with little or no petal recurve, followed by elongated pods that resemble okra fruits. The best of the pink-flowered cultivars is probably 'Frosty Pink', a natural hybrid considered one of the fastest and easiest brugs to grow. It bears huge, flaring blooms that open yellow, maturing to white and silvery rose.

Blooming in the yellow to orange range are 'Jamaica Yellow', which bears six- to nine-inch lemon-colored flowers that do not fade to orange; 'Jean Pasco', which bears numerous 10- to 12-inch, candy-scented, golden yellow blooms, rarely edged orange (a natural hybrid from Ecuador, it is one of the first to bloom in spring outdoors in warm climates); and 'Orange', which bears beautiful golden orange trumpets. Notable among the whites is 'Frosty White Falcon', which bears immense flowers covered in minute hairs.

From 10,000 feet in the Andes comes *B. arborea*. This species is rare in cultivation; indeed most plants sold under its name are actually *B. versicolor* or hybrids related to *B.  $\times$ candida*. The real McCoy is a stout-stemmed, six- to 15-foot tall shrub or small tree that bears pairs of downy, sometimes toothed, narrowly egg-shaped leaves. Nodding, musk-scented white (rarely pinkish) blossoms with six- to nine-inch long tubes and spectacularly pointed lobes are followed by fat, egg-shaped fruits. A cultivar, 'Knightii', which bears double, pure white, hose-in-hose blossoms, earned an Award of Garden Merit from the RHS.

Another lofty Andean native is golden angel's trumpet (*B. aurea*), which will grow 15 to 30 feet tall if conditions allow. It bears six- to 10-inch long, smooth-edged, egg-shaped leaves and eight- to 10-inch-long white to golden yellow trumpets. 'Aurea Pink' is pale pink outside, snow white within, with long recurving petal-points; when half-open, the blooms make perfect, pink-bordered, white stars.

One of the most unusual brugmansias is red angel's trumpet (*B. sanguinea*). Another Andean species, it reaches eight to 12 feet in cultivation, bearing at the ends of its rather fragile branches clusters of

downy, toothed to smooth-edged, shining green leaves that are paler beneath. Its long, dangly, unscented blossoms are orange to deep red with yellow veins, tinged with green toward the base. The turban-shaped fruits are three to five inches long. This is one of the hardiest brugmansias, but it is not as heat tolerant as others, so provide shelter from afternoon sun.



*Brugmansia* 'Betty Marshall' is a lovely white-flowered cultivar with a low-growing habit.

Perhaps the most strongly scented brugmansia is *B. suaveolens*. First described by Europeans in 1733, it is native to southeastern Brazil, Bolivia, and Peru. It grows 10 to 15 feet tall and half as wide, with egg-shaped, pointed leaves. Its long white, yellow, or pink trumpet-shaped blossoms have a delightful fragrance that intensifies at dusk. The flowers are followed by five-inch-long, spindle-shaped pods resembling okra.

*Brugmansia versicolor* is a small tree, eight to 15 feet tall, bearing smooth-edged leaves and large, dangling, 12- to 18-inch, highly night-fragrant trumpets with long, flaring, recurved lips, opening white and aging to apricot or peach-pink. Cultivars include 'Alba', with flowers that stay white a long time before aging to pink; 'Apricot' and 'Ecuador Pink' bear—as you might expect—apricot and rich pink flowers, respectively.

While flowers are the primary reason for growing brugs, several cultivars also offer variegated leaves. Among these are the green and white *B. ×candida* 'Maya' (white blossoms maturing to soft peach); 'Peaches and Cream' (four to six feet, with peach and white blossoms borne spring to fall); *B. suaveolens* 'Variegata' (three to four feet in pots with foot-long white blossoms); and the white flowered *B. ×candida* 'Variegata'. More unusual is *Brugmansia* 'Axelrose', which bears large serrated leaves that emerge yellow-tinged and mature to variegated green and blue-green. Its nodding, 14-inch flowers bloom in shades of peach and apricot. New on the scene is *B. ×cubensis* 'Snowbank', which has peach-colored blossoms and intricately patterned foliage featuring two shades of green set off by cream-colored margins.

For brug lovers with limited indoor space, several cultivars are either naturally dwarf or can be induced to flower happily when pruned to about three feet tall. They include the white-flowered *Brugmansia* 'Betty Marshall'; 'Cypress Gardens' (white, maturing to light salmon); 'Golden Lady' (double white blossoms maturing to soft yellow); and 'Rosabelle' (white blossoms maturing to light pink). 'Inca Sun' is a two- to six-foot hybrid bearing fragrant, smallish, light golden peach blossoms; unlike most brugmansias, this new cultivar blooms nearly continuously through the growing season.

## GROWING AND CARING FOR BRUGMANSIAS AND DATURAS

Brugmansias can be propagated from six-inch cuttings planted directly in sandy soil over bottom heat or rooted in water. Brugmansias and daturas also can be started from seed sown indoors in late winter or early spring, at the time you would normally start tomatoes. Use a sterile, just-moist sowing mix, and place the starter pots over bottom heat until they germinate. Prepare to be patient. While some species can sprout within one to eight weeks from sowing, others can take up to nine months. Species will come true from seed, but hybrids may not.

Once seedlings emerge and have developed two sets of true leaves, feed them with half-strength fertilizer at every watering. When the roots touch the bottom of their seedling containers, transplant them to four-inch pots. They can go outdoors once the soil has warmed (at the same time you would plant tomatoes). Daturas develop a fleshy taproot as they grow, so it's best to transplant them while they are quite young, or grow them in peat pots to be set straight into the ground.

Brugmansias are best overwintered indoors in most of the continental United States. Kept in a sunroom or greenhouse, they require daily watering, and, during their flowering periods, weekly meals of a balanced fertilizer. Most angel's trumpets can be kept flowering happily in a 15-inch pot, but I plant mine in half-barrels, pruning them into standards.

Since I don't have a sunroom in which to keep my brugs going through the winter, I lug my barrels into the cellar in fall (an attached garage is also suitable, as long as temperatures stay above 40 degrees). At that point I stop all fertilizing and reduce watering to once a month, which causes the leaves to drop. Come spring, I bring them out of hibernation, replace the old soil with fresh, prune off any yucky bits, and resume a regular watering and feeding schedule.

Gardeners in the Deep South, the Pacific Northwest, Puerto Rico, and Hawaii can enjoy their brugmansias and perennial daturas outdoors year round. They thrive in full sun to part shade, but in very hot climates high mountain brugs such as *B. arborea* and *B. sanguinea* may need protection from the worst of the afternoon sun. Give them a rich, deep, well-drained, loamy soil; space them far enough apart—five feet at least—to accommodate their eventual size; and stake them until their trunks get strong enough to support their considerable upper growth. Water daily in the hottest weather and feed weekly while in active growth.

Despite their toxicity to mammals, angel's trumpets and thornapples are food plants to many insects. Flea beetles and tomato hornworms—the larvae of the major angel's trumpet pollinator, the hawk moth—are frequent pests outdoors, while whiteflies and spider mites can become troublesome when the plants come in to the dry air of centrally-heated homes during winter. Keep air moist with a humidifier and treat infestations with insecticidal soaps.

—R.L.



Angel's trumpets such as *B. suaveolens* will thrive outdoors year-round in frost-free regions.

## DATURAS

*Datura* contains the herbaceous tender perennial or hardy annual angel's trumpets, sometimes called thornapples. While datura plants are sensitive to frost, Wayne Winterrowd points out in his book, *Annuals and Tender Plants for North American Gardens* (Random House, 2004), that datura seed "is surprisingly winter-hardy, so that several species are naturalized in Europe and in North America as far north as [USDA] Zone 5." There are eight to 15 species in all, depending on which reference you consult, but, unlike the brugmansias, they have not attracted much attention from hybridizers.

One reason for this, perhaps, is that several daturas have proven weedy in temperate to tropical countries worldwide, where they are reviled as poisoners of livestock and poultry. Prejudice against daturas may also relate to their long use as ritual and medicinal plants in non-Christian societies, which earned them such common names as *herbe aux sorciers* (sorcerers' herb), *concombrezombi* (zombie cucumber), devil's weed, and devil's trumpet.



Although it has a tendency to be weedy, *Datura innoxia* subsp. *quinquecuspidata*, which bears very fragrant, opalescent white flowers, can be an asset in the evening garden.



Well-suited to growing in a container both indoors and outdoors, *Datura metel* 'Flore Pleno' produces large, frilly, lavender-and-white double flowers and purple stems.

Daturas can stand anywhere from one to five feet tall by two to four feet wide. Their large, grayish-green, alternate leaves are lobed or toothed at the edge, sprouting from rubbery branches. The leaves are hairy and soft to the touch, but give off an unpleasant odor if bruised or crushed.

The funnel- or trumpet-shaped flowers, which emerge from the leaf axils, are night-blooming and intoxicatingly fragrant. And it is not only humans who find the perfume seductive. Most mornings during flowering season, I find stupefied insects sleeping it off deep within the still-open blossoms of my plants.

The color range for datura flowers, which are held more or less upright, is more limited than that for brugs: datura blossoms can come in white, white tinged lilac, or, more rarely, pale yellow. But what they lack in color range they make up for in size and shape. Depending on the

species or cultivar, datura trumpets can get four to eight inches long and up to seven inches broad at the mouth, with single, double, triple, and even quadruple layers of petals. And though the flowers usually last only one day before wilting, they are quickly replaced, particularly if the developing fruits are cut off as they appear.

The datura's highly decorative fruits are oval to rounded and spiny (hence the common name thornapple), and they split open when ripe, loosing a flood of seeds. Unless you want volunteers, this is another reason to deadhead the seed pods.

Despite the lack of recognition from breeders, there are some very lovely and unusual datura species and selections. *Datura ceratocaula*, a two- to three-foot, fleshy annual first noted by Europeans in Cuba in 1805, has thick, purplish, hairy-based, forking stems (the species name means "horn-stalked") and toothed,

lance-shaped, narrow green leaves, felted on their undersides. Its large white flowers possess five rosy stripes in their throats and pale lavender edges; they are followed by smooth, egg-shaped pods. Often semi-aquatic (the only angel's trumpet to exhibit this inclination), *D. ceratocaula* was a favorite of British garden designers Gertrude Jekyll and William Robinson.

By way of contrast, desert thornapple (*D. discolor*) is perhaps the best datura for very dry, well-drained soils in full sun. Native to low altitudes in the Colorado Desert, Arizona, southeastern California, and Mexico, this one-and-a-half-foot-tall, upright annual bears broad, rounded, gray-green leaves and white flowers flushed purple or indigo in the throat, followed by nodding spiny pods.

Much more widespread in its range than the previous two species is the downy thornapple, (*D. innoxia*, syn. *D. meteloides*). Classified as a noxious weed by the USDA, this sprawling annual, which grows two to three feet tall and up to twice as wide, may have originated in Mexico or Central America. Nowadays it is found throughout the Southwest, the north central states, and east to New York, where it plagues cattle ranges. It is very pretty, with downy, green, six- to eight-inch long, pointy, broad leaves sometimes wavy at their edges and large, fragrant, five-lobed, funnel-shaped trumpets that open cream and age to pink or pinkish lavender.

A variant, *D. innoxia* subsp. *quinquecupidata* (syn. *D. wrightii*), is native to western Texas, Colorado, and northern Mexico. Sometimes called sacred datura, it has grayer leaves than the species and open-faced, fragrant white or pale violet blossoms that open from the leaf axils in summer. It comes up every year all over my Santa Fe garden, and at night the huge flowers open wide, like luminous UFOs.

The datura best known in Europe and Asia is *D. metel*. It is a fast growing, downy, two- to six-foot-tall annual with large, dark green leaves. It bears four- to eight-inch-long, erect, single to double, delightfully fragrant white flowers, sometimes tinged lavender or pale yellow. The flowers are followed by round, knobby or spiny pods. Drought tolerant, frost resistant, and thriving in full sun and deep, well-drained rich soil, *D. metel* is the species most often grown in the United

States as a house plant, blooming continually in pots at only two to three feet tall.

There are a number of interesting color forms. 'Double Black Currant Swirl' is an exotic beauty with its frilled, fully double, mauvy purple blossoms. 'Aurea', from southwestern China, bears fragrant single to double yellow blossoms on compact, two- to three-foot-tall plants. 'Cornucopaea,' the purple horn-of-plenty, gets two to three feet tall in pots and bears purple and white, hose-in-hose trumpets. 'Double Purple' bears large, scented, dark purplish-red trumpets, with double, triple, or quadruple



A garden pariah, jimsonweed is of interest for its curious role in American history.

rows of petals; 'Flore Pleno' bears foot-long double lavender trumpets; and 'Triple Yellow' bears fully triple pale yellow flowers.

Although not in the least gardenworthy, the most notorious datura—at least in the United States—has got to be *D. stramonium*. A cosmopolitan annual weed found in most of the continental states and in other temperate areas worldwide, its common names include jimsonweed, stinkweed, and mad apple. It bears four- to eight-inch, oval, toothed leaves and four-inch, funnel-shaped, white or purplish trumpets, which appear in the leaf-axils. These are followed by round, prickly brown seed pods.

The extravagant toxicity of this species has become legendary through a story first documented by Robert Beverly in his *History and Present State of Virginia* (1705). According to Beverly, in 1676, British soldiers sent to Jamestown, Virginia, to quell Bacon's Rebellion suffered a bit of a setback

## Sources

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**Karchesky Canna Collection**, California, PA. (724) 466-0979. [www.karcheskycanna.com](http://www.karcheskycanna.com). Catalog online.

**Logee's Greenhouses**, Danielson, CT. (888) 330-8038. [www.logees.com](http://www.logees.com). Catalog online.

**Prejean Nursery**, Lake Charles, LA. [www.prejeannursery.com](http://www.prejeannursery.com). Catalog online.


**Valley Grow Nursery**, DeFuniak Springs, FL. (850) 951-0951. [www.valleygrow.com](http://www.valleygrow.com). Catalog online.

## Resources

**American Brugmansia & Datura Society, Inc.**, [www.abads.net](http://www.abads.net).

**Brugmansia and Datura: Angel's Trumpets and Thorn Apples** by Ulrike Preissel, Hans-Georg Preissel. Firefly Books, Buffalo, New York, 2002.

**Nightshades: The Paradoxical Plants** by Charles B. Heiser. W.H. Freeman and Co., San Francisco, California, 1969 (reprinted 1987).

when an enterprising cook loaded their mess with what he thought were nutritious local wild greens. It turned out to be *D. stramonium*, and under its influence the men began behaving like such lunatics that, wrote Beverly, "they would have wallowed in their own excrements if they had not been prevented." When the madness passed, it left the soldiers without the slightest memory of the previous 11 days; and thus the Jamestown weed entered the vernacular as the American devil-herb, "jimsonweed." 

*Garden writer Rand Lee grows angel's trumpets in his Santa Fe, New Mexico, garden.*

# Growing *for* Show

An award-winning exhibitor offers a personal perspective on the thrill of preparing entries for major flower show competitions—and tips for success.

BY RAY ROGERS



Reaching peak bloom a few days after the Philadelphia Flower Show, this amaryllis, top, is one of a few near-misses for competitor Ray Rogers, above.

**F**OR THOSE of us “bitten by the bug” of competitive flower shows, the year doesn’t begin on January 1: it starts on opening day of the Philadelphia Flower Show, which traditionally falls on the first weekend of March. That’s when I drop off the first of my several plant entries for the show’s individual competitive classes.

Preparing entries for the flower show is actually a year-round process, but my activity kicks into higher gear when the show schedule arrives in September, and then it really starts to hum in mid January, when many plants are waking up in response to the lengthening days after the winter solstice. Others respond to the manipulation of bloom time I accomplish by subjecting plants to changing temperature, moisture, and light conditions.

I’ve always been involved with gardening, by both profession and avocation, but competing in the Philadelphia Flower Show elevates my gardening to a new level, and allows me to concentrate my efforts on a big, very public forum for my passion. After 17 years of competing, I have won hundreds of ribbons, and each year I go back into the fray seeking more.



## CATCHING THE BUG

So how did I evolve from amiable horticulturist to fierce flower show competitor? Well, in 1980, my first week as an intern at the Morris Arboretum in Philadelphia happened to be the week before the opening of the Philadelphia Flower Show. At that time, the Morris Arboretum routinely created prize-winning educational and display exhibits, so as an intern I was expected to help with installation and staffing. I had some free time to wander around and take in the Show. I eventually found myself in one of the far ends of the Show, where exhibitors and volunteers were poring over begonias and cacti and giant topiaries and tables full of spring-blooming bulbs.



Judges review the hundreds of plant entries in the Philadelphia Flower Show's Horticourt.

This was my first taste of the Horticourt, where hundreds of gardeners of every stripe vie for ribbons, rosettes, and perhaps a measure of horticultural celebrity.

The following year, a friend invited me to serve as a passer, one of the quality-control volunteers at the show. That stint led to more than 15 consecutive years of passing, which also gave me time to closely observe the beautifully grown and meticulously groomed entries throughout the Horticourt and meet many of the regular competitors.

## FROM OBSERVER TO COMPETITOR

The next phase of my conversion to show competitor came in the late 1980s, when

I settled in central New Jersey and discovered Atlock Farm, a local nursery. I became friends with the owner, Ken Selody, who provided me with a space in his greenhouses to experiment with my first plants for the show.

Among the first entries I made, at the 1990 Philadelphia Flower Show, were a curly-leaf kale (yes, the vegetable) and a good-sized specimen of the shrubby Australian mint bush (*Prostanthera rotundifolia*), which I had coaxed into bloom the night before in a very warm bathroom. To my great surprise, both of them won blue ribbons.

Buoyed by that success, I have continued to enter plants each year. I don't specialize in any particular group, but favorites

include hardy bulbs (particularly daffodils), non-hardy bulbs (most notably amaryllis), cacti and other succulents, herbs, and geraniums (*Pelargonium*).

The most entries I have made in any one show was 175, in 1993, when I won Sweepstakes for the most award points. In recent years I've averaged about 60 entries throughout the week of the show.

## THE VOICE OF EXPERIENCE

I hope that perhaps some of the lessons I've learned along the way will inspire you to grow and enter plants at a show in your area, or at least to gain a deeper appreciation for what goes into preparing the entries at shows you visit.

## PLANTS FOR NOVICES

A plant doesn't need to be big, rare, covered with flowers, or difficult to grow to be considered a potentially good show plant. And you don't have to have a greenhouse or other specialized growing environments to produce winning plants.

Often, an unassuming but well-grown little plant can win awards. Plants I would recommend for someone considering entering a flower show for the first time include African violets (*Saint-paulia* spp.), amaryllis (*Hippeastrum* spp.), cane stem begonias (*Begonia* spp.), coleus cultivars, especially standards (*Solenostemon scutellarioides*), English ivy (*Hedera helix*), and geraniums (*Pelargonium* spp.).

I have also had good success with cacti and other succulents, many of which—prickly pears (*Opuntia* spp.), aloes (*Aloe* spp.), haworthias (*Haworthia* spp.), and *Crassula* spp., for instance—are quite easy to grow.

—R.R.

**Success is often born of failure.** Flowering bulbs stored at the wrong temperature, plants allowed to grow lopsidedly toward the light (yes, this can happen in greenhouses, too), flowers ruined in bud by thrips, cacti and other succulents permanently marred by oil-based pesticides, top heavy plants packed thoughtlessly for a long, sometimes bumpy trip to the Show—need I go on? I like to believe a lesson can be learned from every failure, if only to reinforce the certainty that future meltdowns await.

**Do your homework.** No matter what specific plant or plant group you choose to grow (see box above for some suggestions for beginners), make sure you research—and test out under your own growing conditions—the cultural requirements your plants need to look their best.

For example, feeding variegated pelargoniums with a high-phosphorus fertilizer during the two or three months leading up to a late-winter show can turn up the color volume. And placing a succulent in a warmer, sunnier spot than usual at the

## GROOMING PLANTS TO LOOK THEIR BEST

If you're planning to enter plants in flower shows, you should put together a tool kit to carry with you at all times to make your plants look their best. My basic kit includes pruners, fine scissors, tweezers, scalpel, a soft-bristle paintbrush, cotton swabs, a cotton rag, and various "pokers and prodders," such as heavy-gauge needles and even dental tools. All cutting tools should be razor sharp so you make clean cuts.

Even minor grooming can make a great improvement on a plant's appearance, as illustrated by the *Haworthia viscosa* pictured on the near right. Although the specimen shown is well-grown, it needs some grooming to make it show quality. The dead flower stalks must be removed, and the plant needs to be better centered in a clean, unobtrusive, complementary pot.

Another good strategy is to use water-resistant, relatively heavy topdressings such as coarse sand, gravel, or pebbles. They won't show wet and dry spots and won't float if watered at the last



minute. The addition of the gravel to the pot, shown below, completes the transformation of the haworthia to show plant status.

### OTHER GROOMING TIPS

Don't procrastinate! Complete all but the finest touches of your grooming *before* arriving at a show. Before beginning a grooming session, be sure to test out your methods on an area that won't be seen by the judges (inside the plant or at the back).

You may find, for example, that pulling up on a leaf may produce no visible scar, but pulling down will leave a bull's-eye spot on the stem.

Give yourself some time to evaluate your work properly. Do

some grooming, walk away, and then go back to look at the entry with fresh eyes. Sometimes a second or third session—plus some last-minute grooming before finally handing the plant off for judging—is needed to make the plant look its very best.

—R.R.



right time may produce a flush of new growth and maybe even some flowers.

**Keep records.** It's important to keep track of your successes and failures. You might not be able to exactly reproduce a successful result the next time around, but at least you'll have a reminder to begin forcing a particular kind of daffodil five weeks ahead of the show instead of two, or you'll remember that keeping a cactus in a cold spot in January and February makes the difference between a judge-seducing flowering entry and a plainer Jane out of bloom.

**Put your best foot forward.** If you have more than one example of a given plant, choose the one that makes the most attractive presentation. Pay attention to the individual parts, namely the foliage, flowers and fruits—if any—and stems. Are they fresh and healthy-looking, and are the coloration and shape typical? Then make an overall assessment of the form of the

plant. Is it nicely balanced and representative of a well-grown specimen? Finally, check the position of the plant in the pot. In most cases, it should be as close to the center as possible, especially for formal standards and plants trained on forms such as hoops and spheres.



Colorful fruits and flowers helped win a ribbon for this *Mammillaria prolifera* specimen.

**Don't neglect grooming.** Even a less-than-perfect plant can shine if you have good grooming techniques and an arsenal of helpful tools at your disposal (see the box above for more grooming tips).

Make sure the leaves and other parts are clean; if not, spend some time removing dirt, white stains from fertilizer residues or hard water, and off-color parts. Anything moldy, holey, broken, or conspicuously altering the main outline of the plant must go.

**Dress for success.** Even though the plant is the most important part of most competitive entries, the judges will actively—or at least subliminally—consider the pot as well as any topdressing used to cover the potting mix. A clean, intact terracotta or dark-toned plastic pot in a simple, complementary shape provides a frame of sorts for the plant. As a finishing touch, "mulch" the top of the container with an even layer of unobtrusively colored pebbles, gravel, coarse sand, or bark used as topdressing.

## Resources

**The Philadelphia Flower Show: Celebrating 175 Years** by Adam Levine and Ray Rogers. Harper Collins Publishers, New York, New York. 2003.

**American Daffodil Society**, <http://daffodilusa.org>.

**American Orchid Society**, <http://orchidweb.org/aos/events>.

**Philadelphia Flower Show.** For information on how to enter plants for competition, visit [www.theflowershow.com/attractions/exguide.html](http://www.theflowershow.com/attractions/exguide.html) and download the Exhibitor's Guide. (There's also a Beginner's Guide for first-time entrants.)

**Northwest Flower & Garden Show.** For information on the children's container garden contest (and other juried competitions) visit [www.gardenshow.com/nw/exhibitors5.html](http://www.gardenshow.com/nw/exhibitors5.html).

**Learn from others.** Even the most experienced and accomplished exhibitors can learn new tricks, but a novice can learn volumes by studying other entries. Make notes on plants you might want to try growing and any special qualities of entries that catch your eye. And be sure to try to speak with other exhibitors. Horticultural skill, along with long-lasting friendships and good-natured rivalries, can develop from admiring entries and asking questions about them.

**Push the envelope.** Whether you begin as a general competitor or as a specialist (in categories such as flowering bulbs, geraniums, or orchids), after a while you may want to extend yourself and attempt to produce something exceptional. Try forcing an unusual daffodil cultivar or other flowering bulb you've never seen entered into competition, or let a *Pelargonium* grow as it will instead of trying to prune it into a perfect mound. Another way to push the envelope is to concentrate on achieving a superlative characteristic, such as the biggest hanging-basket fern you've ever seen or the most tulips ever in a given-sized pot. Judges and the public will take notice of obviously exceptional entries.

**Above all, have fun.** Accept failure, rejoice in serendipity, and remember that good and bad luck will probably even out in the long run.



**This pelargonium—entered in the 2006 Philadelphia Flower Show—garnered two more award ribbons for the author.**

No matter what happens, enjoy the camaraderie with other show participants. Flower shows are social events that happen to feature competition, but The Game doesn't need to be the only thing on your mind. Whether the scope of your relationship with other exhibitors is restricted only to show time or extends throughout the year, competition at shows can become the basis of a decades-long friendship. And remember, just as in outdoor gardening, there's always next year. 🍀

*Garden writer and editor Ray Rogers has won hundreds of ribbons for his plant entries at the Philadelphia Flower Show. His next book, Pots in the Garden, will be published in spring 2007 by Timber Press.*

## FINDING THE COMPETITION

Most major regional flower shows offer juried competitions for a variety of plant and cut flower categories, so no matter where you live you can probably locate a place to show off your prized plant.

If you want to test the competitive waters before entering a major city flower show, a good place to start is your local garden club. "Most clubs sponsor some sort of flower show at least once a year—some hold mini-shows at their club's monthly meetings," says Arabella Dane of Center Harbor, New Hampshire, who is immediate past chair of the AHS Board of Directors.

Dane, who is a master judge for flower shows, says that garden clubs try to hold their flower shows at public places such as libraries, museums, and botanical gardens. And while garden club members are usually the primary participants, in most cases all or part of the competition is open to the public.

In addition to the local garden club shows, Dane says certain regional shows are held every other year in many cities. "These major shows usually include a variety of juried classes such as horticulture (live plants in containers, cut flowers, fruits, vegetables, and other seasonal material), flower arranging, garden photography, and children's events," she says.

A number of plant societies host flower shows at their regional and national meetings. The American Daffodil Society, for instance, has a very active flower show program, as does the American Orchid Society, which sponsors shows hosted by regional orchid societies throughout North America. These shows offer competitive classes for specialists in the various categories or divisions of these plant groups.

Some flower shows also host competitions in categories such as floral design, bonsai, and floral art. And in many cases there are events designed for children. At the Northwest Flower & Garden Show in Seattle, Washington, children can design and enter their own small container gardens.

—David J. Ellis, Editor

# Dangerously Pretty

Warnings about plant toxicity are sometimes overstated, but here are a few truly poisonous plants that you should know about, especially if you have children or pets. BY KRIS WETHERBEE

**Y**OU COULD SAY I first learned about poisonous plants at the tender age of six. A shrub bearing beautiful white berries caught my eye one day while I was playing in the front yard. I reached out to pick a few, but was stopped short of putting them in my mouth by my sharp-eyed mom. Although I've never been sure, the shrub was likely a native snowberry (*Symphoricarpos albus*), the berries of which can cause serious intestinal distress. Thankfully I didn't have to learn about poisonous plants the hard way.

Most adults do not haphazardly eat plants in their garden. But curious children and pets sometimes do. The Poison Control Centers in the United States receive over 100,000 calls annually concerning potential plant and mushroom poisonings.

The vast majority of plants are relatively harmless. Some are only mildly toxic, with exposure or ingestion producing symptoms ranging from skin rashes or mild diarrhea to slight stomach upset. But a small percentage are truly toxic if eaten, with symptoms ranging from severe digestive upset to convulsions—and in some cases, even death.

## ASSESSING TOXICITY

More than 700 plant species grown in the United States are known to be poisonous, but the degree of toxicity varies according to the type and quantity of toxic substances each species contains.

Poisonous plants are generally classified as being mildly, moderately, or highly toxic. Some plants contain allergenic or irritant compounds and produce skin irritation and/or rash after contact with the plant. For example, many of us are sensi-

**As Agatha Christie knew, all parts of foxgloves (*Digitalis* spp.) are highly toxic if ingested.**





**Calla lilies, left, and elephant's ears and caladiums, right, contain calcium oxalate. If ingested, these microscopic needlelike crystals can irritate sensitive tissue in the mouth and throat. Contact with the plant sap can cause skin irritation.**

tive to poison oak or poison ivy to varying degrees, but some people also react to boxwood (*Buxus* spp.) or chrysanthemums (*Chrysanthemum* spp.) with mild dermatitis. And while poinsettias are not poisonous, if you have a sensitivity to latex, contact with them can result in a skin rash. In addition, there are photosensitizing compounds possessed by plants such as marigold (*Tagetes* spp.) and yarrow (*Achillea millefolium* and hybrids) that make the skin more sensitive to the sun.

The potential for problems increases when a poisonous plant is ingested. At the “mild” end of the scale are plants that typically produce localized mouth or throat pain, or limited digestive distress. Calla lilies (*Zantedeschia* spp.), caladiums, and elephant's ear (*Colocasia esculenta*) contain calcium oxalate crystals that can pierce cell walls in the mouth and throat causing serious pain and swelling. Elephant's ear—also known as taro or dasheen—is a curious case, however, because its tuberous roots and young leaves are staple food items in many tropical regions. Apparently the cooking process breaks down the poisonous compounds.

Many other plants cause nausea, vomiting, and/or diarrhea if they are ingested. Common examples include holly (*Ilex* spp.), four-o'clock (*Mirabilis jalapa*), and soapwort (*Saponaria officinalis*).

The amount ingested influences the severity of symptoms. For instance, daffodils and dahlias are toxic only if consumed in large quantities. Highly toxic plants, however, cause a host of debilitating symptoms even in small doses. Azaleas and rhododendrons contain a toxic compound called andromedotoxin, a hydrocarbon present in many conifers and



**Children should be warned to steer clear of the attractive orange to red fruits of daphnes, which contain poisonous glycosides.**

plants in the heath family (Ericaceae) that can cause a variety of symptoms—the most extreme being paralysis or coma. Plants with berries containing certain glycosides or alkaloids—such as deadly nightshade (*Atropa belladonna*), privet (*Ligustrum* spp.) or daphnes—may even prove fatal if eaten.

“The true toxicity depends on what body tissue they impact,” says Sharon M. Douglas, a plant pathologist with the Connecticut Agricultural Experiment Station. Different plant toxins may affect the spinal cord, brain, heart, liver, kidneys, or nervous system. “The level of a particular toxic compound may also be quite variable within a plant or plant family,” Douglas adds. Take the nightshade family (Solanaceae), for example. Tomato fruits are non-toxic, and potato tubers are a culinary staple, but the leaves, vines, sprouts, and green berries are highly toxic and may even be fatal. All parts of deadly nightshade are highly toxic.

### FACTORING IN THE VARIABLES

As potatoes demonstrate, one part of a plant may be edible, while other parts are toxic. Rhubarb is another classic example—the stems are edible but the leaves are highly poisonous. The fruits of apricot, peach, nectarine, and cherry are absolutely delicious, but the seeds, twigs,

## TRULY TOXIC GARDEN PLANTS

Poisonous plants can vary in their toxicity and the type of reaction they produce. The truly toxic cause serious problems—even death—if ingested. Take special note of the following common garden plants.

### CASTOR BEAN (*Ricinus communis*)

Annual with large, attractive leaves growing six to 15 feet tall. Ornamental fruit capsule is large, prickly, and bright red and contains beanlike seeds.

**Poisonous parts:** Seeds are highly toxic if ingested, leaves to a lesser extent.

**Toxic principle:** Contains ricin, a highly toxic protein, and ricinine, an alkaloid.

**Symptoms:** Nausea, vomiting, abdominal pain, bloody diarrhea, convulsions, coma; also gastrointestinal, kidney and liver damage; can be fatal. Contact with broken seeds may produce severe dermatitis in some individuals.

**Comments:** Carefully store seeds prior to planting; cut off flower stalks before they set seed.



### DAPHNE (*Daphne spp.*)

Evergreen, semi-evergreen, or deciduous shrubs with clusters of typically fragrant flowers followed by red or yellow fruit.

**Poisonous parts:** All parts are poisonous, especially fruits.

**Toxic principle:** Diterpenoid (mezerein).

**Symptoms:** Swelling and ulceration of mucous membranes in mouth, throat, and stomach; nausea, vomiting, internal bleeding, kidney damage, coma, may be fatal; leaves contain irritant chemicals that may cause burning or blisters on exposed skin; ingesting berries can be fatal.

**Comments:** All *Daphne* species are toxic, particularly *D. cneorum*, *D. genkwa*, *D. gnidium*, *D. laureola*, *D. mezereum*, and *D. odora*.



### DATURA, JIMSON WEED, COMMON THORNAPPLE (*Datura spp.*)

Nightshade family annuals with erect, funnel-shaped flow-

ers followed by spiny fruit capsules containing many seeds. Angel's trumpet (*Brugmansia spp.*), a closely related and similarly toxic tropical species, has drooping flowers and fleshy fruit.

**Poisonous parts:** All parts are highly toxic.

**Toxic principle:** Tropane alkaloids.

**Symptoms:** Hallucinations, headache, delirium, rapid and weak pulse, convulsions, coma; can be fatal.

**Comments:** Cut off spent flowers to prevent formation of seeds, which are particularly toxic.

### DELPHINIUM, LARKSPUR (*Delphinium spp.*)

Annuals, biennials, or perennials with upright spikes of elongated flower clusters growing three to seven feet tall; smaller species grow to 12 inches tall.

**Poisonous parts:** All parts, especially young plants and seeds.

**Toxic principle:** Potent alkaloids, including delphinine and ajacine.

**Symptoms:** Burning and numbness of mouth and throat, intense vomiting and diarrhea, muscular weakness and spasms, respiratory system paralysis, convulsions; can be fatal.

**Comments:** Most species are also poisonous to cattle.

### FOXGLOVE (*Digitalis spp.*)

Biennial or short-lived perennial with showy tubular flowers on elongated spikes growing two to eight feet in height.

**Poisonous parts:** All parts, including water from vases containing cut flowers.

**Toxic principle:** Cardiac or steroid glycosides.

**Symptoms:** Nausea, vomiting, diarrhea, stomach pain, severe headache, dangerously irregular heartbeat, mental confusion, tremors, convulsions; can be fatal.

**Comments:** Source of pharmaceutical digitalis, a potent heart medication.

### LILY-OF-THE-VALLEY (*Convallaria majalis*)

Creeping perennial groundcover to nine inches tall, with white or pale pink sweet-scented, bell-shaped flowers, sometimes followed by bright red berries in fall.

**Poisonous parts:** All parts, including water



from vases containing cut flowers.

**Toxic principle:** Cardiac glycosides and saponins.

**Symptoms:** Irregular heartbeat and pulse, abdominal pain, diarrhea, mental confusion.

**Comments:** Contains cardioactive toxins similar to those in foxglove; glycoside compounds are a source of pharmaceutical heart medications.

### **MONKSHOOD (*Aconitum spp.*)**

Perennial or biennial with showy hooded blue, purple, or yellow flowers that rise above handsome clumps of lobed or deeply cut leaves; plants are two to six feet tall.

**Poisonous parts:** All parts.

**Toxic principle:** Potent alkaloids, including aconitine.

**Symptoms:** Burning of mouth and numbness of throat; paralysis of the respiratory system; nausea, vomiting; muscular weakness and spasms; convulsions; can be fatal.

**Comments:** Avoid planting near vegetables which produce edible underground crops to avoid accidental harvesting of the toxic tuberous root.

### **OLEANDER (*Nerium oleander*)**

Ornamental evergreen shrubs or small trees with leathery leaves and funnel-shaped, typically fragrant flowers clustered at tip of twigs or branches.

**Poisonous parts:** All parts are extremely toxic, green or dry, including smoke from burning branches or water from vases containing cut flowers.

**Toxic principle:** Cardiac glycosides, saponins.

**Symptoms:** Nausea, vomiting, stomach pain, diarrhea, dizziness, irregular heartbeat; can be fatal.

**Comments:** Do not use the stems or branches as skewers for food; a single leaf may be highly toxic if ingested.



### **PIERIS (*Pieris spp.*)**

Attractive evergreen shrubs with drooping clusters of white, pink, or reddish urn-shaped flowers.

**Poisonous parts:** Leaves and nectar from flowers.

**Toxic principle:** Andromedotoxin.

**Symptoms:** Nausea, vomiting, diarrhea, hypersaliva-



tion, abdominal pain, weakness, convulsions, coma, cardiovascular collapse; can be fatal.

**Comments:** Andromedotoxin is a neurotoxin also found in the nectar of certain species of rhododendron (*Rhododendron spp.*) and other members of the heath family.

### **WISTERIA (*Wisteria spp.*)**

Twining, woody vines with pealike flowers born on elongated, pendent clusters of blue, white, or pink blooms followed by velvety, pealike pods.

**Poisonous parts:** Seeds (most toxic), pods, and bark.

**Toxic principle:** Glycoside wisterin and a toxic resin.

**Symptoms:** Severe digestive disorders; nausea, vomiting, stomach pain, diarrhea, dehydration.

**Comments:** Though no fatalities have been reported, the seeds can seriously poison a child.



### **YEW (*Taxus spp.*)**

Evergreen, coneless shrubs or trees are dioecious (male and female flowers on separate plants), with females producing red, fleshy berrylike fruits—each containing a single green seed.

**Poisonous parts:** Bark, leaves, seeds.

**Toxic principle:** Alkaloid taxine, a cardiac depressant.

**Symptoms:** Nervousness, trembling, slow heart rate and pulse, breathing difficulties, abdominal pain, vomiting, convulsions, cardiac failure; can cause sudden death.

**Comments:** The red, fleshy part surrounding the seed (called the aril) is sweet and edible, though the single seed it contains is highly toxic, along with the rest of the plant.



Photos: Opposite page, top left and bottom right: David Cavagnaro; bottom left: Mark Turner. This page, top left: Saxon Holt; bottom left: Jerry Pavia; top right: Susan A. Roth; bottom right: David Cavagnaro

and foliage contain varying levels of cyanogenic glycoside, a highly toxic compound that can produce cyanide when plant cells are damaged. Be forewarned: don't use any branches or twigs of these trees as kebab skewers or roasting sticks.

The plant species, condition of the plant, stage of its growth, and the environment all play a part in the levels of toxins present within plants. Other variables can influence the degree of reaction and sever-



**Children should be warned about all toxic plants, particularly those such as rhubarb, shown here, which have edible stems but poisonous leaves.**

ity of symptoms, such as a person's health status, age, and weight in relation to how much is ingested. Small children are particularly at risk because they have a lower body mass than adults and can be affected by smaller doses of toxins. Individual reaction can also vary according to a person's diet, metabolism, and medications.

### AVOIDING DANGER

One of the most effective ways you can avoid the hazards of plant poisoning is to identify your plants both indoors and outdoors and learn their toxic potential *before* a poisoning occurs. Indoor plants that are within reach of children can be particularly hazardous. "We receive about 1,600 to 1,700 calls about plant ingestion per year," says Henry Spiller, director of Kentucky's

## Resources

**The AMA Handbook of Poisonous and Injurious Plants** by Kenneth Lampe, Mary Ann McCann, and American Medical Association. American Medical Association, Chicago, Illinois, 1985.

**Animal Poison Control Center**, (888) 426-4435. [www.asPCA.org/apcc](http://www.asPCA.org/apcc). Note: A consultation fee may be charged.

**Canadian Poisonous Plants Information System**, <http://sis.agr.gc.ca/pls/pp/poison>.

**Common Poisonous Plants and Mushrooms of North America** by Nancy J. Turner and Adam F. Szczawinski. Timber Press, Portland, Oregon, 1995.

**Cornell University Poisonous Plants Database**, [www.ansci.cornell.edu/plants](http://www.ansci.cornell.edu/plants).

**Handbook of Poisonous and Injurious Plants** by Lewis S. Nelson, Richard Shih, and Michael Balick. Springer Publishing, New York, New York, 2006.

**National Capital Poison Center**, (800) 222-1222. [www.poison.org](http://www.poison.org).

**Poisonous Plants of the United States** by Walter Conrad Muenscher. Macmillan Publishing, New York, 1972.

Regional Poison Center. "[Calls about] indoor plants are far more common, by a 3 to 1 ratio." If you're unsure as to the identity of a particular plant, bring a sample to your local nursery or county Extension agent for proper identification.

Be sure to educate everyone in your family about the potential dangers of plant poisonings. Teach kids to take a "hands

off" approach to plants that have the potential for contact dermatitis. Never use any plant parts for any food purposes unless you are absolutely sure they are safe. Young children especially should be taught never to eat any outside or inside plant—fruit, leaves, stems, seeds, flowers, or otherwise—without asking first. (Plants comprise 6.9 percent of poison exposure



**Dumb cane (*Dieffenbachia* spp.), left, and lilies, right, are among the common indoor plants that are often implicated in poisonings of pets.**




for children under the age of six.) And be sure to keep bulbs and seeds out of their reach by storing them in a safe location.

Should a situation arise where someone has eaten a potentially poisonous plant, stay calm and act quickly. First, remove any plant parts from the person's mouth. If it's a life-threatening emergency, immediately call 911. Otherwise, call the National Capital Poison Center (NCPC) at (800) 222-1222 and you will be connected to the poison control center nearest you. "The poison center will ask questions about what plant was ingested, information on the person who swallowed the plant, how



**Delphiniums are striking garden flowers, but all parts of the plant are poisonous.**

much and what part was ingested, when it happened, and if they are having any problems," explains Rose Ann Soloway, a clinical toxicologist with the NCPC in Washington, D.C. "We will then make a specific treatment recommendation."

While a plant may be toxic, it's important to keep things in perspective. Ripping out plants or avoiding new plantings because of potential toxicity is unrealistic. After all, part of the enjoyment of gardening is growing a diversity of plants, and the vast majority of plants are not poisonous. Just heed those that are. 

*Writer Kris Wetherbee specializes in gardening, wildlife and environmental issues. She and her husband, Rick, a photographer, recently collaborated on Attracting Birds, Butterflies & Other Winged Wonders to Your Backyard (Lark Books, 2005).*

## KEEPING PETS SAFE

Dogs, cats, and other pets are not immune to the effects caused by toxic substances in certain plants. Pets like to nibble—sometimes on shoes and newspapers, and other times on indoor and outdoor plants. Plants that are poisonous can cause reactions ranging from mild nausea to seizures, coma, or even death. Just as with humans, the effects can vary depending on the size, weight, and age of the animal, time of year, plant species, and plant parts consumed.

Plants that are poisonous to humans are also generally poisonous to pets, with castor bean, yew, oleander, mistletoe, rhododendron, rhubarb leaves, wild black cherry, daphne berries, and jasmine berries rating among the most toxic. Bulbs like tulips, daffodils, and autumn crocus can cause seizures and damage the heart. And when the bulbs smell like onions, which some do, they can be

quite appealing to certain dogs. The bark, leaves, and flower buds of hydrangea

**Many pets, like the author's Bengal cat, like to nibble grass and other vegetation.**

contain hydrangin, a cyanide-type toxin that, when ingested, induces a very quick onset of symptoms that may even result in death. Other potentially poisonous plants include those grown indoors, such as cyclamen, kalanchoe, azalea, peace lily (*Spathiphyllum* spp.), schefflera, dracaena, dieffenbachia, philodendron, and pothos (*Epipremnum* spp., syn. *Scindapsus* spp.).

Plants that are non-toxic or only mildly toxic to humans can still be deadly to pets. For example, heavenly bamboo (*Nandina domestica*) may cause seizures, respiratory failure and death in both dogs and cats. All parts of lilies (*Lilium* spp.) and daylilies (*Hemerocallis* spp.)—from the stamen to the root—are highly toxic to cats, resulting in kidney failure and death. (Dogs only get stomach irritation.) "The vast majority of ingestions are with lilies that have been brought indoors," notes Dana Farbman, spokesperson for the Animal Poison Control Center run by the ASPCA.

Mulch, too, can be just as poisonous as it is appealing—at least when it comes to cocoa bean shells and dogs. If large amounts are ingested, this by-product of chocolate production can cause symptoms similar to those seen with canine chocolate poisonings. Last year the Animal Poison Control Center received calls for around 170 cases involving cocoa bean shell mulch. The most common symptoms that occurred following ingestion were hyperactivity, muscle tremors, and vomiting, although the cocoa bean shells may be lethal if consumed in large enough amounts. There is slightly less of the toxic principle, theobromine, in the processed mulch (0.19 to 2.98 percent) than in unprocessed cocoa beans (1 to 4 percent), but it's best to be on the safe side and avoid using this mulch around dogs with indiscriminate eating habits.

In fact, it's also best to play it safe when it comes to pets and potentially poisonous plants—especially if you have a pet that is curious or likes to nibble. That can mean simply supervising pets as they explore, keeping house plants out of your pet's reach, putting a barrier between poisonous plants and your pets, or using a commercial pet deterrent. However, Farbman says they have yet to find a deterrent that is consistently effective against all animals. "With the extremely high toxic potential that lilies have, I wouldn't feel secure with using a pet deterrent," she adds. That said, you may find the best solution is to get rid of the plant altogether.

—K.W.



## Rosalind Creasy, Edible Landscaping Trailblazer

by Doreen Howard

“EPIPHANY” IS THE only word to explain why Rosalind Creasy set out to change suburban landscaping forever. On the plane trip home after visiting an Israeli kibbutz in 1975 with her late husband, Robert, she pondered gifts squandered. The Israelis spent seven years and \$20,000 to create one acre of soil only one foot deep to grow food, and she was blessed with 20-foot-deep alluvial soil in California’s



Santa Clara Valley, which was being covered with buildings and pavement at the alarming rate of 20 acres a day. With open space dwindling fast, she felt the fertile soil would be better used to grow food, rather than lawns and azaleas. Combining her passion for beautiful vegetables with ecologically sensitive landscaping practices, Creasy began mixing edibles with ornamentals.

In 1982, she published her first award-winning book, *The Complete Book of Edible Landscaping*. It’s still in print today and considered the bible of her ground-breaking concept—“edible landscaping”—a term that quickly became part of the American lexicon.

“Ros Creasy has also been influential in Europe since the 1980s,” says garden writer Graham Rice, editor-in-chief for the just-released *AHS Encyclopedia of Perennials*.

“Her book influenced my ideas for using vegetables in the garden in creative ways, ideas which I’ve been developing for many years and are the basis for my latest book, *The All-in-One Garden*.”

Creasy has written 17 books on edible landscaping and inspired gardeners worldwide in the last three decades. She recently talked with Doreen Howard about using fruits and vegetables in the garden.

**Doreen Howard:** When you decided that your yard would be better used to grow edibles, how did you start?

**Rosalind Creasy:** I had shade in my backyard, so I could only plant vegetables in the front, where they had to look good. Nobody complained, so I took out the lawn and planted more. The only grass left is in front of the chicken coop so kids can sit on it. It’s a five-by-six-foot patch.

**Name three easy ornamental edibles suitable for every garden.**

Rainbow chard is gorgeous. All lettuces

are good choices, especially the leaf types. They can be used all winter in mild climates, because they are cool-season plants. Also, ever-bearing strawberries are beautiful and tasty. ‘Tristar’ is the best variety for taste and production throughout the season.

**What are some of your favorite combinations of edibles and flowers?**

Pink chard and pink petunias make an especially beautiful pairing that visually pops. And all the salad greens are great mixed with edible flowers such as nas-

turtiums, calendulas, and violets. They provide a large array of colors and textures that you can play with to create endless combinations.

**Can edibles be used to solve landscaping problems in the garden?**

Yes! There are edible plants for every landscape situation, except for steppable groundcovers. A good example is using blueberries as a low hedge to hide an eyesore or soften a wall or fence. They also offer waxy bell-like blossoms, pretty fruit, and beautiful fall foliage. There are

other options depending on where you live. In Florida, you can use citrus trees for hedging; if you live in the desert, try pomegranates. Espaliered apples are wonderful in cold areas like the upper Midwest and New England.

**Give gardeners a couple of tips to succeed with ornamental edibles.**

Start simple and keep it manageable. Most people forget when they plant edibles that they also have to factor in time for harvesting.

The easiest way to start mixing edibles with ornamentals is to grow them together in wine barrels. I think every family in the country should have a barrel. It holds plenty of soil so there is ample room for planting, and the volume of soil prevents it from drying out too fast. Try one planted with culinary herbs by the kitchen door to enhance your cooking. Their fresh taste will make your meals go from black and white to HDTV!

*Doreen Howard, former garden editor at Woman's Day, gardens in Roscoe, Illinois.*



Above: Pink chard and pink petunias are one of Ros Creasy's favorite combinations. Right: This path at Creasy's home is lined with petunias, sunflowers, bush beans, zucchini, parsley, and thyme. A metal arbor at the end of the path supports cherry tomatoes.



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# the Southwestern Deserts

*Dryland gardens can be beautiful and fruitful.*

**D**RYLAND REGIONS in the American Southwest include three distinct vegetation habitats: the Chihuahuan, Sonoran, and Mojave deserts. Temperature extremes, low moisture, and hardpan soils make dryland gardening a challenge—and a good reason to use native plants. The following guidelines and plant suggestions will help you create a naturalistic and reasonably low-maintenance landscape that will attract many wildlife visitors.

## DRYLAND GARDENING TIPS

Desert plants are typically slow-growing, so whether you are starting a new garden or renovating an existing landscape, retain as much of the native vegetation as you can. Some desert plants—such as creosote bush (*Larrea tridentata*), and velvet mesquite (*Prosopis velutina*)—do not transplant well, so existing plants are worth incorporating into your design. Many cacti, succulents, grasses, and wildflowers, however, can be easily transplanted.

Most native desert plants prefer full sun, low water, and well-drained, alkaline soil. To ensure adequate drainage of storm water during seasonal monsoons, contour your garden to create mounds and swales. Channel the swales into an arroyo or small pond to prevent flooding.

Use on-site or local topsoil: Your native plants will do best in a low-nutrient environment. Fertilizer encourages leggy growth that is poorly suited to extreme climate conditions. Supplemental water, however, is worth considering. A drip irrigation system helps new plants become established and survive extended periods of drought. Plants may need two years to develop sufficient root systems to survive on their own. To save water, group plants according to their water needs—the least drought tolerant near the house and the most tolerant on the garden periphery.

## MOJAVE DESERT REGION

Joshua tree (*Yucca brevifolia*) is the signature plant of Nevada's Mojave Desert. Its seeds and flower buds are nutritious food for humans as well as small mammals and birds. The yucca moth is its sole pollinator, however, and flowers must be pollinated for fruit to form. Good companion plants include creosote bush, eastern Mojave buckwheat (*Eriogonum fasciculatum*), purple sage (*Salvia dorrii*),

catclaw acacia (*Acacia constricta*), and bush muhly (*Muhlenbergia porteri*).

All the above contribute nesting sites and food for birds. The misty pink flowers of bush muhly complement the leathery foliage of creosote bush. Catclaw acacia has small showy yellow flowers that attract bees, butterflies, and other insects; many mammals eat its protein-rich seeds.

In a very small garden, plant the moisture-loving, showy desert willow (*Chilopsis linearis*) in a swale or near a small pool.



Saguaro cactus, ocotillo, prickly pear cactus, and Mexican bush sage provide contrasting textures and forms in this Arizona garden.



Often reaching 30 feet tall, the Joshua tree is America's largest native yucca.

Surround the tree with two or three native shrubs and a red-flowered hedgehog cactus (*Echinocereus coccineus* var. *gurneyi*) for a visually striking combination that provides water, shelter, and food for wildlife. Hummingbirds will appreciate the scarlet cactus flowers and the desert willow's trumpet-shaped pink-to-purple blooms.

## CHIHUAHUAN DESERT REGION

The Chihuahuan Desert spans southwestern New Mexico, with slight incursions into Arizona and Texas. Desert willow does well in this region, along

## Sources

**Desert Gardens Nursery**, Phoenix, AZ. (602) 569-1300.  
[www.desertgardensnursery.com](http://www.desertgardensnursery.com). Catalog online.

**Great Basin Natives**, Holden, UT. (801) 795-2236.  
[www.greatbasinnatives.com](http://www.greatbasinnatives.com). Catalog online.

**High Country Gardens**, Santa Fe, NM. (800) 925-9387.  
[www.highcountrygardens.com](http://www.highcountrygardens.com). Catalog free.

**Plants of the Southwest**, Santa Fe, NM. (505) 438-8888.  
[www.plantsofthesouthwest.com](http://www.plantsofthesouthwest.com). Catalog \$3.50.

**Western Native Seed**, Coaldale, CO. (719) 942-3935.  
[www.westernnativeseed.com](http://www.westernnativeseed.com). Catalog free.

## Resources

**Arizona Native Plant Society**, <http://aznps.org>.

**Growing Desert Plants: From Windowsill to Garden** by Theodore B. Hodoba, Red Crane Books, Santa Fe, New Mexico, 1995.

**Native Plant Society of New Mexico**, <http://npsnm.unm.edu>.

**Native Plants for Southwestern Landscapes** by Judy Mielke, University of Texas Press, Austin, Texas, 1993.

**Nevada Native Plant Society**,  
<http://heritage.nv.gov/nnps.htm>.

with the yellow-flowering desert olive (*Forestiera pubescens*), which attracts birds with its blue-black berries. Flameleaf sumac (*Rhus lanceolata*) sports white summer flowers and flaming fall leaf color followed by showy red fruits. All three trees are suitable for small gardens.

Four-wing saltbush (*Atriplex canescens*) is a deciduous shrub whose seeds attract Gambel's quail; the seeds of indigo broom (*Psoralea scoparius*) attract quail and doves. Fruiting plants for wildlife include pale wolfberry (*Lycium pallidum*), common hackberry (*Celtis occidentalis*), and yellow-flowered Engelmann prickly pear (*Opuntia engelmannii* var. *engelmannii*).

Birds love the seeds of blanketflower (*Gaillardia pulchella*) and prickly poppy (*Argemone pleiacantha*); the latter is a ri-

parian plant that combines well with desert willow. Grasses such as bush muhly and alkali sacaton (*Sporobolus airoides*) provide cover and nesting sites. Attract hummingbirds with *Penstemon superbus*, red-flowered hedgehog cactus, and ocotillo (*Fouquieria splendens*).

### SONORAN DESERT REGION

Occupying southwestern Arizona and a corner of southeastern California, the Sonoran Desert is so rich in plant and animal life that a portion of it—the Organ Pipe Cactus National Monument—has been designated a World Biosphere Reserve. The large cities of Palm Springs, Phoenix, and Tucson are located in this region, and Tucson offers especially fine examples of native desert landscaping.

The Sonoran is both the hottest and wettest of America's deserts, which accounts for its rich diversity of flora and fauna. One of its most striking plants is the saguaro cactus (*Carnegiea gigantea*), which is now federally protected. Saguaro fruit is one of the few summer food sources in the desert and is eaten by humans and wildlife. Each fruit produces as many as 2,000 seeds; one plant produces as many as 40 million seeds in its lifetime. Whitewing doves, bats, and insects drink the saguaro's flower nectar, and its trunk provides nesting sites for owls, Gila woodpeckers, gilded flickers, and cactus wrens. These cacti grow slowly, reaching only three feet tall after 30 years, but they are available from nurseries in various sizes.

A great small tree for Sonoran gardens, velvet mesquite is a leguminous soil nitrogen fixer, as is the shrubby catclaw acacia, a superlative nesting and food source for birds. Surround these with red wolfberry (*Lycium berlandieri*), spiny hackberry (*Celtis ehrenbergiana*), and beavertail prickly pear (*Opuntia basilaris*)—fruiting plants that attract hosts of birds and small mammals. Colorful chiltepin peppers (*Capsicum annuum* var. *glabriusculum*) are favored by mockingbirds, thrashers, cardinals, pyrrhuloxias, and house finches. ☺

*Joanne Turner Wolfe is a contributing editor for The American Gardener. This is the final installment in Wolfe's 12-part regional habitat gardening series, which debuted in the January/February 2005 issue of this magazine.*



Flowers provide seasonal color to the desert garden. *Gaillardia pulchella*, above left, and *Opuntia basilaris*, above right, produce abundant yellow-and-red and dark pink blooms, respectively.

## Horticultural News and Research Important to American Gardeners

### HOLIDAY TREES GET NEW LIFE IN SAN FRANCISCO STREETScape

Live trees are a treasured holiday tradition for many, with 25 to 30 million of them sold in the United States each year, according to the National Christmas Tree Association. Tapping into this demand, the San Francisco Department of the Environment and the Friends of the Urban Forest (FUF) have launched the “Dreaming of a Green Christmas”

croclimates. The trees will be delivered to peoples’ homes, and at the end of the season, the trees will be picked up and planted in the city’s most tree-deficient neighborhoods. Last year’s inaugural program resulted in 100 trees being planted throughout the city. This year, FUF hopes to double that number.

As Bieg explains, “Most urban areas in the United States have a 21 percent tree canopy, on average, but San Francisco



Thanks to an innovative new program, living broadleaf evergreen trees help brighten up the holidays, above left, and, later, beautify the streets of San Francisco, above right.

program, which gives residents an alternative to cut trees for the holidays while helping to fund street tree planting in San Francisco neighborhoods.

“We’re trying to bring about a paradigm shift,” says Amber Bieg, campaign coordinator for FUF. “Instead of cutting down trees, let’s plant trees.”

Starting in December, San Francisco residents can buy containerized trees, which will include a variety of species such as fruitless olives (*Olea europea*) and Brisbane box (*Lophostemon confertus*), known to do well in the city’s many mi-

has only 12 percent.” FUF, which is celebrating its 25th year, is a nonprofit organization that works to remedy that by getting communities involved in planting and caring for trees. The “Dreaming of a Green Christmas” program will help to raise needed funds and create awareness of the importance of trees in urban environments. For more information, visit [www.fuf.net](http://www.fuf.net).

### CRAZY FOR CATMINT

Each year, the Perennial Plant Association (PPA) chooses a Perennial Plant of the Year



‘Walker’s Low’ catmint makes a striking combination with ‘Moonshine’ yarrow.

based on adaptability, low maintenance needs, multiple seasons of interest, and ease of propagation. The 2007 Perennial Plant of the Year is *Nepeta* ‘Walker’s Low’. “As a landscape plant it is certainly a very durable selection that grows almost everywhere, and success is usually guaranteed,” says PPA Executive Director Steven Still.

Contrary to popular belief, the cultivar name does not refer to the height of the plant, but rather to the garden in which it was discovered in the 1970s. While various sources list a range of height anywhere from 10 to 22 inches, this cultivar actually grows up to 36 inches tall and 36 inches wide.

‘Walker’s Low’ has aromatic silver-green foliage and produces clusters of small, dark blue flowers on upright stems in late spring. If cut back after the first blooms fade, it will rebloom in summer. Bees and butterflies love this catmint’s flowers, but deer find the plant unpalatable. It grows in USDA Hardiness Zones 3 to 8 and AHS Heat Zones 8 to 1. To view previous Perennial Plants of the Year, visit [www.perennialplant.org](http://www.perennialplant.org).

**FROM AUSTRALIA WITH LOVE:  
THE WOLLEMI PINE**

American gardeners now can own a piece of prehistory in the form of the WOLLEMI™ pine tree (*Wollemia nobilis*). This rare conifer belongs to a plant family thought to be extinct for the last two million years, until living trees were rediscovered near Sydney, Australia, in 1994. This holiday season, National Geographic has partnered with Floragem®—a brand-marketing company comprised of greenhouse growers and marketing professionals—to offer a limited number of these trees for sale (see “Gifts for Gardeners,” page 52). In the spring of 2007, the trees also will be available at select garden centers around the country.

A relative of the Norfolk Island pine (*Araucaria heterophylla*), the Wollemi pine tree grows up to 65 feet tall and prefers full sun. It has pendulous, dark green foliage and its distinctive bark has been likened to bubbling chocolate. It grows in USDA Hardiness Zones 7 to 11 and AHS Heat Zones 11 to 1, but can be grown indoors as a houseplant as well.



A Wollemi pine growing in the Australian wild.

A portion of the sales will go to National Geographic’s mission programs and Wollemi Pine International Pty. Ltd., whose mission is to “conserve the Wollemi Pine for future generations and to raise awareness of conservation internationally.” For more information, visit [www.wollemipine.com](http://www.wollemipine.com).

**BOOZING UP YOUR BULBS**

For those thinking of growing paperwhite narcissus (*Narcissus tazetta*) bulbs this winter, you might want to break out the hard liquor. Recent research from Cornell University’s Flower Bulb Research Program revealed that one way to solve the common problem of paperwhites growing too tall and flopping over is to grow them with a little alcohol.

Plant your paperwhite bulbs as usual in a bowl of gravel or other stones and add plain water. After the bulbs have sprouted roots and about one or two inches of shoots, pour off the water. Then mix one part 40 percent distilled spirits such as gin, vodka, whisky, or rum with about seven parts of water to make

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## PEOPLE and PLACES in the NEWS

### Anna Ball and David Lemon Receive Top Honors from All-America Selections

This past August, All-America Selections (AAS), a non-profit organization dedicated to testing and promoting new seed varieties, presented **Anna Ball**, president and CEO of Ball Horticultural Company, with its 2006 Medalion of Honor. AAS gives this award to “a person who contributes to the advancement of horticulture or the garden seed industry in an exceptional manner.” Among her many achievements, Ball strongly supports AAS by allocating considerable space for AAS trials at The Gardens at Ball. Additionally, PanAmerican Seed, a division of Ball, has bred or marketed 19 AAS award-winning varieties in the last 15 years.

AAS also awarded **David Lemon**, a plant breeder at the Paul Ecke Ranch in Encinitas, California, with the 2006



Breeders' Cup for his lifetime achievements in breeding superior plant varieties. In particular, his work with marigolds, geraniums, and sweet peas has set new standards for these plants. Lemon was also president of AAS from 1981 to 1982, and has served on numerous AAS committees.

### Chicago Botanic Garden Receives Garden Excellence Award

The Chicago Botanic Garden (CBG) received the 2006 Award for Garden Excellence, given by the American Public Gardens Association (APGA) and sponsored by *Horticulture* magazine. This annual award goes to a public garden that “exemplifies the highest standards of horticultural practices” and is committed to “supporting and demonstrating best gardening practices.” The 385-acre garden, located in a northern suburb of Chicago, opened in 1972. Since then, it has become the second most visited public garden in the United States, and enjoys the largest membership of any botanic garden in the nation.

a five percent alcohol solution. Rubbing alcohol will also work, but one part of it should be mixed with 10 parts of water. Then add this solution to your bulbs and use it whenever you need to top off the water level.

William Miller, director of the Flower Bulb Research Program, says that what you will get is a shorter plant—up to half as high—that won't require support but with flowers that are just as large and fragrant as paperwhites grown without alcohol. He cautions that “as with humans,

paperwhites can also suffer alcohol overdoses,” so it is important to keep your alcohol solution in the four to six percent range to avoid undesired physiological changes.

### AILING ASPENS

Stands of quaking aspen trees (*Populus tremuloides*) in western states have been in decline for decades, under pressure from grazing, competition with conifers, drought, and other factors such as pests and diseases. But they seem to have taken

a turn for the worse in recent years. Trees have been dying off at an accelerated rate, leaving large swathes of dead trees from Arizona to Alberta, Canada.

“We have two things going on,” explains Dale Bartos, aspen ecologist with the USDA Forest Service Rocky Mountain Research Station in Logan, Utah. “The decline, which we have been talking about for the past 30 to 35 years, and the ‘die-off’ of whole clones.”

Aspens regenerate from their roots, sending up new clonal shoots when the main trunk dies back. The recent die-off has scientists concerned because affected mature trees are dying quickly, within a year or two, and new shoots are not replacing it. This indicates that the root systems are dying, but no one's sure what exactly is causing the root death.

This past September, more than 100 researchers convened at Utah State University for “Restoring the West: Aspen Restoration” to discuss the problem. The conference focused on a variety of restoration projects that are planned or underway throughout the Intermountain West. Additionally, “in the near future, the Rocky Mountain Research Station will get 25 to 30 of the top names in aspen research and management together to better define the problems and to discuss what kinds of research are needed,” says Bartos.



The percentage of alcohol in the water used to force paperwhites has a marked effect on the plants' height. In this photograph, the four pots on the far left contain only water; the other groups, from left to right, contain two, four, and six percent alcohol.

Written by Assistant Editor Viveka Neveln.



Emily Dickinson's  
Herbarium



*A Facsimile Edition*

# EMILY DICKINSON'S HERBARIUM

*A Facsimile Edition*

EMILY DICKINSON

Introduction by Richard B. Sewall

Foreword by Leslie A. Morris

Preface by Judith Farr

Appendix by Ray Angelo

In a letter from 1845, the 14-year-old Emily Dickinson asked her friend Abiah Root if she had started collecting flowers and plants for a herbarium: "it would be such a treasure to you; 'most all the girls are making one.'" Emily's own album of more than 400 pressed flowers and plants, carefully preserved, has long been a treasure of Harvard's Houghton Library. This beautifully produced, slipcased volume now makes it available to all readers interested in the life and writings of Emily Dickinson and in New England botanical history. Each page of the album is reproduced in full color at full size, accompanied by a transcription of Dickinson's handwritten labels. Introduced by a literary and biographical essay, and including a complete botanical catalog and index, this volume will delight scholars, gardeners, and all readers of Emily Dickinson's poetry.

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## Managing Your Load with Wheelbarrows and Garden Carts

by Rita Pelczar

**N**OBEL PEACE PRIZE winner and former Polish president Lech Walesa once admitted to being lazy. “But,” he said, “it’s the lazy people who invented the wheel and the bicycle because they didn’t like walking or carrying things.” It probably wasn’t long after the wheel’s invention that savvy gardeners understood its applications in the garden.

Wheelbarrows and garden carts are two simple machines combined: a wheel (or two) and a pair of levers (handles) whose fulcrum is the wheel itself. A bed or bucket holds the load and a stand supports it while at rest. Altogether, these components provide the ability to transport far more weight over greater distances than otherwise possible, since the wheel assumes a significant share of the load.

Positioning a load directly over the wheel axle offers the best combination of load lightening and control; too far forward, the load is more difficult to control, and too far back and it’s harder to lift.

While all wheelbarrows and carts are designed to transport loads, not all loads are equal. Some styles suit certain tasks—and certain gardeners—better than others. Among the most obvious differences are: size, number, and type of wheel; size and material of the bed or bucket; and style and length of the handles. Some carts and wheelbarrows offer additional features that suit specific tasks or needs.

When selecting a wheelbarrow or garden cart, think about what you will be hauling and over what kind of terrain. Consider how easy it is for you to lift and move a full load, how stable it is on the surfaces upon which you are likely to travel, whether it can maneuver through the spaces where you will need it, and how well it will hold up to rough use.

### WHEELS: ONE, TWO, OR FOUR

The distinction between wheelbarrows and garden carts can be a bit blurry, but in general wheelbarrows have a single wheel and



Jeep’s wheelbarrow features flat-rib tires that eliminate the need to periodically inflate them.

garden carts usually have two. Some wheelbarrows, like Jeep’s “dualie” models, actually have two wheels providing added stability. They are spaced fairly close together, under the bed. Some carts have four wheels—similar to a wagon.

The wheelbarrow’s single wheel has the advantage of maneuverability: it can travel over very narrow spaces. For example, if you need to ford a creek or cross a ditch with your load, all you need is a plank of wood to span the distance and some balance. The multi-wheeled garden cart, on the other hand, is more stable; it’s less likely to tip over, even if the load is unevenly distributed. But a cart requires wider pathways.

Typically, the tires of both wheelbarrows and carts are inflatable, and keeping them properly inflated will enable you to use either piece of equipment more efficiently. “Most homeowners never bother to fully inflate their tires so they end

up with a wheelbarrow that wobbles, particularly when heavy loads are carried,” says Curt Feick, director of marketing for Jeep Wheelbarrows. Jeep has developed a practical alternative to the inflatable tire—a sturdy flat rib tire that is guaranteed to be flat-free for life.

The tires of some carts, like the DollyCart™ and Vermont Garden Carts, are mounted on heavy-duty, wire-spoked wheels, which are particularly easy to maneuver uphill or over rough terrain, and they take a lot of the strain out of hauling heavy loads such as firewood or soil.

### BEDS OR BUCKETS

Usually constructed of steel, which is very durable but heavy, or rugged polyethylene, which is lighter, beds or buckets can also be made of aluminum, wood, nylon, or canvas. They vary in capacity with respect to both volume and weight. If leaves will be your main load, volume is important, but if you plan to haul rocks and soil, weight capacity is a more significant issue. For harvesting vegetables, smaller buckets fit more easily between rows than wide bed carts.

The soft but strong canvas bucket of the Low Rider Cart from Lee Valley Tools lowers directly to the ground for easy loading and is particularly handy for collecting leaves and grass clippings that can be raked right into the bucket. It is ergonomically designed to reduce strain on the lower back and shoulders and can carry up to 350 pounds.

If your storage space is at a premium, consider a folding cart. Most of these have soft, collapsible beds: the Low Rider Cart

## Sources

DR® Power Equipment, Vergennes, VT. (800) 687-6575. [www.drpower.com](http://www.drpower.com).

Jeep Wheelbarrows, Port Chester, NY. (914) 934-9833. [www.jeepwheelbarrows.com](http://www.jeepwheelbarrows.com).

Lee Valley Tools, Ltd., Ogdensburg, NY. (800) 871-8158. [www.leevalley.com](http://www.leevalley.com).

The Original Wheelbarrow Screener, Rome, OH. [www.originalwheelbarrow-screener.com](http://www.originalwheelbarrow-screener.com).

Plow & Hearth, Inc., Madison, VA. (800) 494-7544. [www.plowhearth.com](http://www.plowhearth.com).

Rittenhouse, Inc., St. Catharines, ON, Canada, (877) 488-1914. [www.rittenhouse.ca](http://www.rittenhouse.ca).

Yardiac, Greenville, SC. (864) 288-1661. [www.yardiac.com](http://www.yardiac.com).



Rittenhouse's cart folds flat for easy storage.

and WheelEasy beds are heavy canvas, others are nylon. The Folding Utility Cart from Rittenhouse has a rectangular aluminum bed that folds nearly flat.

### FEATURES AND ACCESSORIES

Some wheelbarrows and carts have additional features, and there are a few nifty accessories available that compound their utility. The DollyCart™ from Plow and Hearth converts from a garden cart to a dolly by flipping the handle, folding in the legs, and removing the tailgate. It has an optional tow bar so you can attach it to a tractor for use as a small trailer.

For increased control when carrying heavy loads downhill or unloading on a slope, Jeep makes wheelbarrows with patented disc brakes. The hand-operated brake levers are ergonomically designed. And if physical strength is your weakness, you might want to try DR® Power Equipment's NEUTON™ Garden Cart. Electrically

powered and self-propelled, it is equipped with a rechargeable 12-volt battery.

The Wheelbarrow Screener from Yardiac is a handy device. Constructed of steel mesh surrounded by a heavy-duty plastic frame, it fits atop most wheelbarrows so you can sift rough soil or compost into the bucket as roots, twigs, and other debris are left behind. The sifted soil or compost in the bucket is ready for delivery to your beds.

A good wheelbarrow or garden cart eases the strain on your back and helps

Reconfiguring the handle and a side slat, the DollyCart from Plow and Hearth, shown here as a dolly, converts into a cart.



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Rita Pelczar is contributing editor for The American Gardener.

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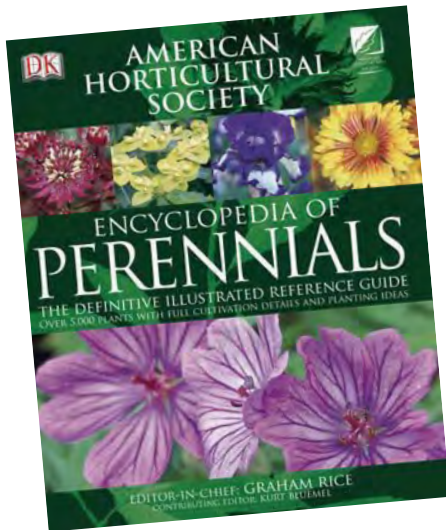
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## GIFTS FOR THE GARDENER

*No matter what the season or for what reason, the following items make perfect gifts for the gardeners in your life.*



### *AHS Encyclopedia of Perennials*

Hot off the presses, this new encyclopedia from the AHS, developed in partnership with DK Publishing, contains thousands of close-up plant portraits and detailed horticultural information for more than 6,000 individual species and cultivars of perennials—including the newest introductions. Available to AHS members for \$25 at [www.ahs.org](http://www.ahs.org); retail price is \$40.



### *AeroGarden*

Satisfy winter cravings for fresh herbs and salad greens with this attractive and easy-to-use countertop hydroponics system. Each unit comes with starter plant plugs and an instruction manual. \$149.95 in black or white at [www.theaerogarden.com](http://www.theaerogarden.com).

### *Teacup & Saucer Planter*

Add a dash of childhood fancy to your garden or home with this terracotta planter that comes with a drainage hole and glazed saucer. From Garden Artisans for \$16.95. (410) 721-6185. [www.gardenartisans.com](http://www.gardenartisans.com).



## Soapstone Pot Maker

This mold allows you to make your own recycled newspaper seedling pots that biodegrade when planted directly into soil. A great children's gift as well. A Gardener's Supply Company exclusive for \$9.99. (800) 427-3363. [www.gardeners.com](http://www.gardeners.com).



## Wollemi Pine

Perfect for someone who likes unusual plants with intriguing stories. Believed to be extinct for millions of years, this "fossil" tree was rediscovered in Australia in 1994 and is now available to home gardeners in North America for the first time. Ten-inch plants for \$99.95 via the shop at [www.nationalgeographic.com](http://www.nationalgeographic.com) or by calling (800) 437-5521.

## Leatherman® Hybrid™ Gardening Pruners

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## Freeplay™ Eyemax AM/FM Radio

This solar- or hand-crank-powered radio combined with a flashlight provides earth-friendly gardening enjoyment and comes in handy during power outages. AC adapter included. Retail price is \$49.99 from U.S. distributor at [www.ordertree.com/freeplay](http://www.ordertree.com/freeplay) or (866) 697-7529.

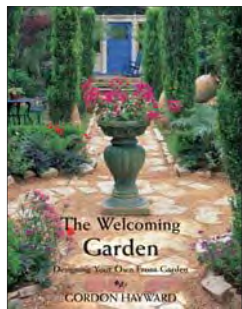
Products profiled are chosen based on qualities such as innovative design, horticultural utility, and environmental responsibility; they have not been tested by the American Horticultural Society. Listed prices are subject to change. Send new product information to New Products, *The American Gardener*, 7931 East Boulevard Drive, Alexandria, VA 22308, or e-mail to [editor@ahs.org](mailto:editor@ahs.org).

## Recommendations for Your Gardening Library

### The Welcoming Garden: Designing Your Own Front Garden

Gordon Hayward. Gibbs Smith, Salt Lake City, Utah, 2006. 144 pages. Publisher's price, hardcover: \$29.95.

"THE NEW AMERICAN garden," writes author Gordon Hayward, "is about walking among our plants, not walking past them." This statement captures the spirit of his new book on front gardens, *The Welcoming Garden*. Hayward is in favor of surrounding the house with a garden, of living inside a garden instead of adjacent to it. In this spirit, he has created a practical and inspiring guide to re-thinking the front yard.



Although this is not entirely a rip-out-your-lawn book—many of the gardens pictured in the book have retained some lawn—it certainly comes at a

time when many Americans are rethinking the value of their lawns. As lots get smaller and water restrictions become a way of life in many parts of the country, people are looking for alternatives to lawns. A front garden can provide shade, act as a wildlife habitat, and encourage a connection with neighbors. As Hayward explains, there's a front garden to meet every need.

He encourages gardeners to develop an overall style, a plan to guide the development of the garden. Consider sight lines for motorists and pedestrians. Think about whether you'd like to sit in your front garden. Decide how the garden will relate to the architectural style of the house. To help with these decisions, he offers color photographs and encourages readers to interpret those photographs in ways that might apply to their situation.

Fortunately, this is not a book that showcases sprawling mansions and gardens designed on an unlimited budget. Hayward deals very effectively with the reality of ordinary front gardens, devoting a chapter to driveways and garages, another to deciding how much lawn to keep, and another to planting in sidewalk strips and around mailboxes.

My favorite part of the book was a section at the end in which he describes a front garden that runs the entire length of the block, extending across the front yard of every home on the street. This shared garden reflects the kind of community spirit that is possible when neighbors come together, and it shows just how welcoming a front garden can be.

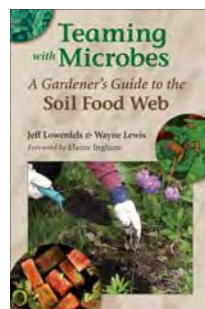
—Amy Stewart

*Amy Stewart is the author of Flower Confidential: The Good, the Bad, and the Beautiful in the Business of Flowers.*

### Teaming With Microbes: A Gardener's Guide to the Soil Food Web

Jeff Lowenfels and Wayne Lewis. Timber Press, Portland, Oregon, 2006. 196 pages. Publisher's price, hardcover: \$24.95.

A BREAKTHROUGH book both for the field of organic gardening and for its authors, *Teaming with Microbes* takes the empirically based, common sense approach that has characterized good gardeners since time immemorial and provides a solid scientific background for their practices.



The authors start with a basic but solid discussion of the microbial life of the soil—the real organic material of organic gardening—that is a marvel of clarity. There is just enough nomenclature to make the relationships between each group of soil dwelling organisms clear, without getting bogged down in the taxonomic detail—

and controversy—that burdens some specialist texts.

They then discuss the effect of chemical fertilizers and pesticides on the microbial community, and how methods and materials that work with, rather than overrule, that community help to create a garden and landscape that is not only healthier, but also requires less maintenance. These are not new ideas; they have been around longer, in fact, than the high-tech alternatives prevalent over the last 50 to 100 years, but Lowenfels and Lewis do a great service by putting the time-tested truisms of organic gardening into a form that ought to be convincing to even the most beaker-wielding and lab coat-clad skeptic.

The practical solutions they offer for gardens that have been ruled by the now debunked chemical paradigm are simple: compost and compost tea. The passion one man may feel about wines, Lewis and Lowenfels clearly feel about compost tea. They go into great detail about how to make and apply both tea and compost.

The book includes a short "seasonal task list" chapter as well as an appendix that lists 19 "Soil Food Web Gardening Rules," which, while useful, is not as coherent or well-organized as the rest of the book. A resource list and index are also provided, and plenty of sharp color photographs back up the book's jargon-free (but still Latin-rich) text.

All in all, *Teaming With Microbes* is a book well worth owning and reading. No comprehensive horticultural library should be without it.

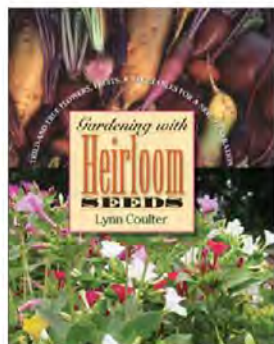
—Shepherd Ogden

*Shepherd Ogden is director of Heritage Organics in Doylestown, Pennsylvania, and a former associate editor of this magazine.*

**Gardening with Heirloom Seeds: Tried-and-True Flowers, Fruits, and Vegetables for a New Generation**

Lynn Coulter. The University of North Carolina Press, Chapel Hill, North Carolina, 2006. 328 pages. Publisher's price, hardcover: \$34.95.

THIS PLEASANT BOOK leads us cheerfully and invitingly through the seasons, sowing and growing heirloom plants. Lynn Coulter's light, informative style makes this book good reading



for both new gardeners and those already smitten with seed sowing and heirlooms. Although written from a southeastern gardener's viewpoint, nearly all the information applies even in my cold garden in northern Michigan. Attractive color photographs, historic catalog illustrations, and seed packet covers illustrate the text, while wide margins encourage note-taking by the gardener.

Accounts of annual flowers and vegetables—alphabetized by common names—form the backbone of the text, supplemented by a few classic perennials such as pinks and columbines. I was pleased to find some of my favorites listed, such as 'Emperor William' cornflowers, edible-pod radishes, and 'Black Prince' snapdragons, and excited to read about other heirlooms I have not yet tried. Next year I shall sow 'Yellow Twilight' four

o'clocks, 'Countess Cadogan' sweet peas, and 'Cinderella's Carriage' pumpkins.

When I was a kid, I loved the towering hollyhocks in my grandma's Iowa garden that reached eight or nine feet in bloom. Thanks to this book, now I know they were an heirloom strain, 'Outhouse Hollyhocks', which was often used to shield outdoor privies from view. And now I know that the 'Oxheart' carrots on our cheese-and-veggie sandwiches from the co-op at college—one huge, thin, sweet slice per sandwich—were heirlooms as well.

Of more practical interest are seed-sowing and seed-saving tips, brief yet adequate cultural instructions for growing the plants, and a list of commercial sources for the seeds.

My only complaint about the book is minor: The title implies that the book covers fruits as well as flowers and veggies, and although technically tomatoes and pumpkins are fruit, I was a bit disappointed to find no mention of berries, stone fruits, and so on. Most of the plants that produce these types of fruit, of course, will not come true from seed, so the problem lies not with the book, but with the title.

*Gardening with Heirloom Seeds* is delightful to peruse with morning coffee, with evening tea, or anytime the gardener needs a break from daily cares. Whether you read it straight though or in bits and pieces, you'll find it informative and diverting.

—Nancy McDonald

*Freelance writer Nancy McDonald gardens with her husband, dog, and horse in Michigan's Upper Peninsula.*


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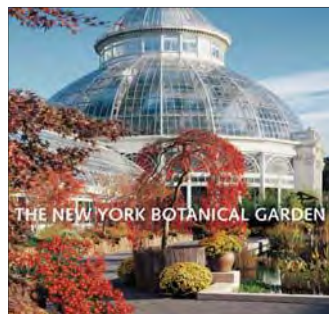
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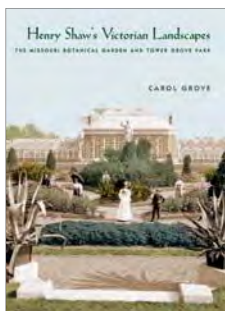
## American Gardens for the Public

**P**UBLIC GARDENS serve as places of beauty, inspiration, research, learning, and conservation. Many have unique and fascinating histories, and have become a highly valued part of our horticultural heritage. These gardens often sponsored expeditions to bring back new plants and freely borrowed design ideas from other parts of the world, but the end result, as the following recently published books will attest, is something uniquely American.

While many of the first botanical gardens in Europe initially focused on the collection and study of medicinal plants, the “most significant contribution made by Americans to the concept of botanical gardens is that they have become, above all, educational institutions,” according to *The New York Botanical Garden* (Abrams, 2006, \$50). Edited by NYBG’s President and CEO Gregory Long and New York Public Library Editor Anne Skillion, this book takes the reader on a tantalizing tour of one of the world’s leading botanical gardens through well-written text and stunning photographs. Sections on the plant collections, research collections, and educational programs describe this 250-acre garden’s many resources and contributions to botany and horticulture.



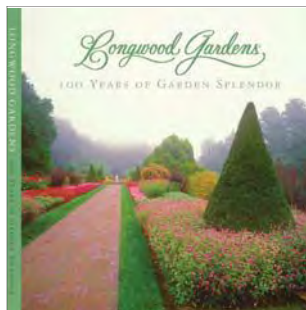
Beginning in the 18th century, botany became an increasingly popular “field of inquiry,” explains author Carol Grove in *Henry Shaw’s Victorian Landscapes: The Missouri Botanical Garden and Tower Grove Park* (University of Massachusetts Press, 2005, \$39.35). English-born businessman Henry Shaw caught the botanizing bug, resulting in another one of America’s prominent public gardens, the Missouri Botanical Garden in St. Louis, which he founded in 1859, and later, nearby Tower Grove Park. Published in association with the Library of



American Landscape History, the book takes a fascinating historical look at the establishment of these two landscapes and their development over the ensuing years.

Another business tycoon, Pierre du Pont, also gave America a premier public garden, described in *Longwood Gardens: 100 Years of Garden Splendor* (Longwood Gardens, 2006, \$19.99). In this volume, Longwood’s historian, Colvin Randall, chronicles the garden’s development from its origins as Quaker farmland in Pennsylvania to the 1,050-acre display of horti-

cultural grandeur it is today. Published in honor of Longwood’s centennial, the 124-page book describes how the garden took shape under du Pont’s ownership as he built fantastic fountains, a grand conservatory, and many other features that are still part of the garden. The book then explains how, after du Pont’s death in 1954, Longwood transitioned from a private estate into a public display garden that has welcomed millions of visitors over the years.



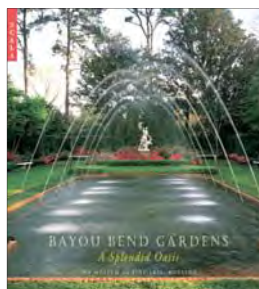
Color and black-and-white photographs of the garden and the people who influenced its development round out the text.

*A Paradise in the City: Cleveland Botanical Garden* by Diana Tittle (Orange Frazer Press, 2005, \$39.95) tells the story of a public garden in Ohio that began as a civic project in 1930 to preserve a small collection of gardening books and horticultural references.



The book leads off with a brief history that includes a handful of black-and-white photographs depicting the garden’s origins as the Garden Center of Greater Cleveland. The rest of the book’s pages are filled with lively descriptions and interesting tidbits about the garden, along with color photographs by Ian Adams and Jennie Jones that showcase the beautiful urban haven the Cleveland Botanical Garden has become.

*Bayou Bend Gardens: A Southern Oasis* (Scala Publishers, 2006, \$45) is also about a public garden with its origins in the early part of the 20th century.



“Bayou Bend represents an outstanding example of the neo-antebellum garden of the ‘Southern Garden Renaissance,’” writes author David B. Warren, “and an extraordinarily well-preserved example of American gardening that accompanied the final stage of the Country House Movement.” Warren infuses his account of the gardens’ history

with an intimate familiarity you might expect from his 38-year career at Bayou Bend, which included serving as the director. Modern and historical photographs also help to bring this garden in Houston, Texas, to life.

—Viveka Neveln, Assistant Editor





## REGIONAL HAPPENINGS

# Horticultural Events from Around the Country

### NORTHEAST

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

**RAP** THROUGH JAN. 7. **Buried Treasures: The Nature and Art of Bulbs.** Exhibition. New York Botanical Garden. Bronx, New York. (718) 817-8700. [www.nybg.org](http://www.nybg.org).

**RAP** DEC. 2. **Seasonal Spices.** Workshop. Wave Hill. Bronx, New York. (718) 549-3200. [www.wavehill.org](http://www.wavehill.org).

DEC. 4. **50 Great Native Plants for the Northeast.** Lecture. New England Wildflower Society and Conway School of Landscape Design. Conway, Massachusetts. (508) 877-7630. [www.newfs.org](http://www.newfs.org).

#### Looking ahead

FEB. 6–8. **New England Grows!** Conference and exposition. Boston, Massachusetts. (508) 653-3009. [www.NEGrows.org](http://www.NEGrows.org).

### MID-ATLANTIC

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

THROUGH NOV. 25. **Chrysanthemum Display.** Brookside Gardens. Silver Spring, Maryland. (301) 962-1451. [www.mc-mncppc.org/parks/brookside/xperience\\_intro.shtm](http://www.mc-mncppc.org/parks/brookside/xperience_intro.shtm).

**RAP** NOV. 19. **South Jersey Orchid Society Auction.** Wenonah, Pennsylvania. (856) 482-2713. [www.pennsylvaniahorticulturalsociety.org](http://www.pennsylvaniahorticulturalsociety.org).

**RAP** DEC. 22–31. **Bonsai Winter Silhouettes.** Exhibit. U.S. National Arboretum. Washington, D.C. (202) 245-2726. [www.usna.usda.gov](http://www.usna.usda.gov).

#### Looking ahead

**RAP** JAN. 24. **Invasive Plants Workshop.** U.S. National Arboretum. Washington, D.C. (202) 245-2726. [www.usna.usda.gov](http://www.usna.usda.gov).

### SOUTHEAST

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

**RAP** THROUGH MAY. **Beauties and Beasts: Tropical Exhibition.** Naples Botanical Garden. Naples, Florida. (239) 643.7275. [www.naplesgarden.org](http://www.naplesgarden.org).

**RAP** DEC. 5. **Plant Selection and Planting Procedures.** Presentation. Daniel Stowe Botanical Garden. Belmont, North Carolina. (704) 825-4490. [www.dsbgo.org](http://www.dsbgo.org).

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

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

#### Looking ahead

JAN. 4 & 5. **Mid-States Horticultural Expo.** Louisville, Kentucky. (502) 848-0055. [www.knla.org](http://www.knla.org) or [www.sna.org/midstates](http://www.sna.org/midstates).

JAN. 19–21. **Southern Gardening Symposium.** Callaway Gardens. Pine Mountain, Georgia. (800) 225-5292. [www.callawaygardens.com](http://www.callawaygardens.com).

JAN. 20. **Garden Gurus IX.** Purchase Area Master Gardeners. Symposium. Paducah, Kentucky. (270) 554-9520. [www.pamga.org](http://www.pamga.org).

**RAP** JAN. 20 & 21. **Camellia Show.** Harry P. Leu Gardens. Orlando, Florida. (407) 246-2620. [www.leugardens.org](http://www.leugardens.org).

### NORTH CENTRAL

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

THROUGH APRIL 1. **Gregor Mendel: Planting the Seeds of Genetics.** Exhibit. The Field Museum. Chicago, Illinois. (312) 922-9410. [www.fieldmuseum.org](http://www.fieldmuseum.org).

**RAP** DEC. 10. **Gardens by Candlelight.** Fellows Riverside Gardens. Youngstown, Ohio. (330)740-7116. [www.millcreekmetroparks.com/riversidegarden.htm](http://www.millcreekmetroparks.com/riversidegarden.htm).

**RAP** THROUGH JAN. 6. **Carnivorous Plants.** Exhibit. Bolz Conservatory, Olbrich Botanical Gardens. Madison, Wisconsin. (608) 246-4550. [www.olbrich.org](http://www.olbrich.org).

#### Looking ahead

JAN. 17–19. **Mid-America Horticultural Trade Show.** Lakeside Center at McCormick Place. Chicago, Illinois. (847) 526-2010. [www.midam.org](http://www.midam.org).

### SOUTH CENTRAL

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

**RAP** NOV. 25. **Fall Wildflower Walk.** Crosby Arboretum, Mississippi State University Extension Service. Picayune, Mississippi. (601) 799-2311. [www.msstate.edu/dept/crec/camain](http://www.msstate.edu/dept/crec/camain).

DEC. 6. **Poinsettia Open House.** Oklahoma State University Research Greenhouses. Stillwater, Oklahoma. (405) 744-7361. [www.okhort.org](http://www.okhort.org).

#### Looking ahead

JAN. 5 & 6. **Horticulture Industries Show.** Holiday Inn City Center. Fort Smith, Arkansas. (405) 744-6460. [www.okhort.org](http://www.okhort.org).

### SOUTHWEST

AZ, NM, CO, UT

**RAP** NOV. 27. **Gardeners' Ecology.** Class. Denver Botanic Gardens. Denver, Colorado. (720) 865-3500. [www.botanicgardens.org](http://www.botanicgardens.org).

**RAP** DEC. 2. **Principles of Pruning.** Class. Denver Botanic Gardens. Denver, Colorado. (720) 865-3500. [www.botanicgardens.org](http://www.botanicgardens.org).

#### Looking ahead

**AHS** JAN. 12–14. **Maricopa County Home & Garden Show.** Phoenix, Arizona. (602) 485-1691. [www.maricopacountyhomeshows.com](http://www.maricopacountyhomeshows.com).

**RAP** JAN. 20. **Vegetable Gardening Through the Seasons.** Desert Botanical Garden. Phoenix, Arizona. (480) 941-1225.

### WEST COAST

CA, NV, HI

DEC. 11. **Tray Gardens and Cookie Exchange.** San Diego Horticultural Society. Del Mar Fairgrounds, San Diego, California. (760) 295-7089. [www.sdhortsoc.org](http://www.sdhortsoc.org).

DEC. 13. **Urban Garden Talks: Winter Pruning.** Urban Garden at Walt Disney Concert Hall. Los Angeles, California. (213) 972-3688. [www.musiccenter.org](http://www.musiccenter.org).

#### Looking ahead

**AHS** JAN. 5–7. **South Bay Spring Home and Garden Show.** Santa Clara Convention Center. Santa Clara, California. (800) 321-1213. [www.southbayhomeshow.com](http://www.southbayhomeshow.com).

**RAP** JAN. 13 & 14. **Pacific Camellia Society Show.** Descanso Gardens. La Cañada Flintridge, California. (818) 949-4200. [www.descansogardens.org](http://www.descansogardens.org).

**RAP** JAN. 26. **Urban Oases: Creating Garden Sanctuaries in the City.** Design symposium. *Horticulture* magazine and Strybing Arboretum. San Francisco, California. (415) 661-1316. [www.sfbotanicalgarden.org](http://www.sfbotanicalgarden.org).

#### NORTHWEST

AK, ID, MT, OR, WA, WY

##### Looking ahead

JAN. 19–21. **Clark County Home & Garden Show.** Clark County Exhibition Hall. Ridgefield, Washington. (253) 756-6898. [www.otsusa.com](http://www.otsusa.com).

**AHS** JAN. 31–FEB. 4. **Tacoma Home and Garden Show.** Tacoma Dome. Tacoma, Washington. (253) 756-2121. [www.tacomahomeandgardenshow.com](http://www.tacomahomeandgardenshow.com).

#### CANADA

##### Looking ahead

JAN. 16. **Conifer Workshop.** The Arboretum, University of Guelph. Guelph, Ontario. (519) 824-4120. [www.uoguelph.ca/arboretum](http://www.uoguelph.ca/arboretum).

## New Hardy Palm Collection in Texas

IN OCTOBER, a new hardy palm research and display area was completed in approximately one acre of the Dallas Arboretum's trial garden. The Hardy Palm and Tropical Plant Collection, which owes its initial vision and funding in large part to the First Men's Garden Club of Dallas, showcases two dozen palm varieties, as well as other subtropical and "tropical-type" plants such as ginger, oleander, cestrums, hardy bananas, crinums, and bamboo.



Dallas is a borderline USDA Hardiness Zone 7/8 region, and many of the palms arrived from international locations by way of Texas-based palm broker Horticultural Consultants, Inc. "Some of our plants are coming to us from Florida, California, and South America to make sure we get the hardiest varieties, such as *Washingtonia filifera* (California fan palm)," says Jimmy Turner, director of research at the arboretum.

Turner has worked closely with landscape architect Johnette Taylor, president of Roundtree Landscape, to create a plan that incorporates the pathways and other design elements of a garden with the goals of a research facility. Plants in the trial garden are evaluated for their aesthetic appeal, hardiness, growth, and adaptability. "We want to demonstrate to home gardeners that this is a look they can achieve," notes Turner.

The trial garden is open to the public seven days a week. For more information on the hardy palms project, visit <http://dallasgardeners.org> or [www.dallasplanttrials.org](http://www.dallasplanttrials.org).

—Heather Robbins, Editorial Intern

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- Vines and Climbers**: "Climbing and Rambling Roses," M/J, 16.
- Weeds**: "Getting a Grip on Weeds," J/F, 24. 🌿

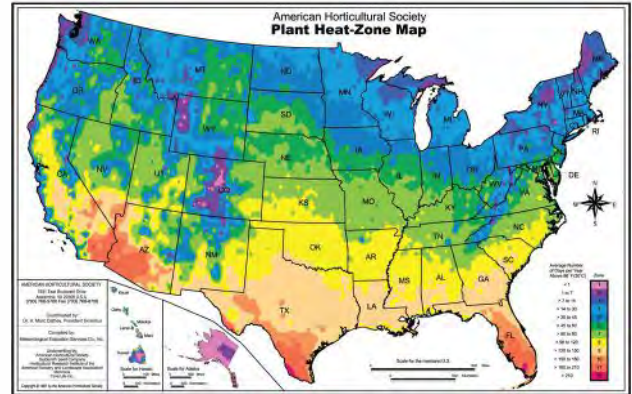
*Index compiled by Elaine Lee.*

# 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 codes tend to be conservative; plants may grow outside the ranges indicated. A USDA zone rating of 0-0 means that the plant is a true annual and completes its life cycle in a year or less.

To purchase a two-by-three-foot glossy AHS Plant Heat Zone Map for \$9.95, call (800) 777-7931 or visit [www.ahs.org](http://www.ahs.org).



## A-C

- Acacia constricta** uh-KAY-shuh  
kon-STRICK-tuh (USDA 9-13, AHS 12-10)
- Acanthus mollis** uh-KAN-thus MOL-lis  
(7-9, 10-7)
- Achillea millefolium** ah-kih-LEE-uh  
mih-lih-FO-lee-um (3-9, 9-1)
- Araucaria heterophylla** ah-raw-KAIR-ee-uh  
het-ur-o-FIL-luh (9-11, 12-8)
- Argemone pleiacantha** ar-JEM-o-nee  
plee-uh-KAN-thuh (6-8, 9-5)
- Atriplex canescens** AT-rih-pleks kuh-NES-senz  
(3-9, 9-4)
- Brugmansia arborea** brug-MAN-see-uh  
ar-BOR-ee-uh (10-13, 11-7)
- B. aurea** B. AW-ree-uh (11-15, 12-8)
- B. sanguinea** B. sang-GWIN-ee-uh  
(10-12, 11-7)
- B. suaveolens** B. swa-vee-O-lenz (11-12, 11-7)
- B. versicolor** B. vur-SIK-uh-lur (11-15, 12-8)
- Capsicum annuum var. glabrusculum**  
KAP-sih-kum AN-yew-um var. glab-ree-us-  
KYEW-lum (9-11, 12-4)
- Carnegiea gigantea** kar-NAY-gee-uh  
jy-gan-TEE-uh (8-11, 12-9)
- Celtis ehrenbergiana** SEL-tiss air-en-bur-gee-  
AN-uh (7-9, 11-7)
- C. occidentalis** C. ahk-sih-den-TAL-iss  
(2-9, 9-1)
- Chilopsis linearis** ky-LOP-siss lih-nee-YAR-iss  
(8-9, 9-8)
- Convallaria majalis** kon-val-LAIR-ree-uh  
muh-JAY-lis (2-7, 7-1)
- Coreopsis rosea** kor-ee-OP-sis ro-ZAY-uh  
(4-8, 8-1)
- Cornus alternifolia** KOR-nus al-tur-nih-FO-lee-uh  
(4-8, 8-1)

## D-N

- Datura ceratocaula** duh-TOOR-uh seh-rah-toh-  
KAWL-uh (10-11, 11-4)
- D. discolor** D. DIS-kul-ur (0-0, 12-3)
- D. inoxia subsp. quinquecupidata** D. ih-NOK-  
see-uh subsp. kwinq-kwuh-kusp-ih-DAY-tuh  
(10-11, 12-4)

- D. metel** D. MET-el (10-11, 12-4)
- Echinocereus coccineus var. gurneyi** eh-kee-no-  
SEER-ee-us kok-SIN-ee-us var. GURN-ee-eye  
(12-15, 12-10)
- Eriogonum fasciculatum** air-ee-OG-o-num  
fas-sik-yew-LAY-tum (8-10, 10-8)
- Forestiera pubescens** for-es-tee-AY-ruh  
pyew-BESS-enz (5-9, 9-5)
- Fouquieria splendens** foo-kee-AIR-ee-uh  
SPLEN-denz (7-11, 12-6)
- Gaillardia aristata** gay-LARD-ee-uh  
ahr-iss-TAY-tuh (3-8, 8-1)
- G. pulchella** G. pul-KEL-uh (10-11, 12-1)
- Haworthia viscosa** ha-WORTH-ee-uh  
vis-KO-suh (12-15, 12-10)
- Hedera helix** HED-er-uh HE-lik (5-11, 12-6)
- Larrea tridentata** LAR-ree-uh try-den-TAY-tuh  
(8-11, 12-8)
- Lophostemon confertus** lo-FO-stee-mon  
kon-FUR-tus (10-11, 12-10)
- Lycium berlandieri** ly-SEE-um bair-lan-  
DEER-eye (6-8, 9-7)
- L. pallidum** L. PAL-ih-dum (5-9, 9-6)
- Mammillaria prolifera** mam-ih-LAIR-ee-uh  
pro-LIH-ur-uh (8-9, 9-8)
- Mirabilis jalapa** mih-RAB-ih-liss jah-LAP-uh  
(9-11, 12-1)
- Muhlenbergia porteri** mew-len-BUR-jee-uh  
PORT-ur-eye (5-10, 10-6)
- Narcissus tazetta** nar-SIS-sus tuh-ZET-uh  
(3-9, 9-1)
- Nephrolepis exaltata** neh-FRO-lep-is eks-al-TAY-  
tuh (13-15, 12-1)
- Nerium oleander** NEE-rih-um o-lee-AN-der  
(9-11, 12-1)

## O-R

- Olea europaea** O-lee-uh yew-ro-PEE-uh  
(8-10, 10-8)
- Opuntia basilaris** o-PUN-shuh bas-ih-LAIR-iss  
(5-10, 11-6)
- D. engelmannii var. engelmannii** O. en-gul-MAN-  
ee-eye var. en-gul-MAN-ee-eye (6-9, 10-7)
- Penstemon superbus** PEN-steh-mon  
soo-PUR-bus (6-9, 9-6)

- Physalis alkekengi** FY-sal-iss al-keh-KENJ-eye  
(3-9, 8-1)
- Picea pungens** PY-see-uh PUN-jenz (3-8, 8-1)
- Pinus flexilis** PY-nus FLEKS-ih-lihs (3-7, 7-1)
- P. ponderosa** P. pon-deh-RO-suh (5-8, 8-5)
- P. sylvestris** P. sil-VES-triss (3-7, 7-1)
- P. thunbergii** P. thun-BER-jee-eye (5-8, 8-5)
- Polemonium caeruleum** pahl-eh-MO-nee-um  
see-ROO-lee-um (4-9, 9-1)
- Populus tremuloides** POP-yew-lus trem-yew-  
LOY-deez (1-7, 8-1)
- Prosopis velutina** pro-SO-piss vel-oo-TEEN-uh  
(7-9, 10-7)
- Prostanthera rotundifolia** pro-stan-THER-uh  
ro-tund-ih-FO-lee-uh (11-15, 12-5)
- Psoralea scoparius** saw-ro-THAM-nus  
sko-PAR-ee-us (6-8, 9-6)
- Rhus lanceolata** RUS lan-see-o-LAY-tuh  
(6-8, 9-7)
- Ricinus communis** rih-SY-nuss com-YEW-niss  
(0-0, 12-1)

## S-Z

- Salvia dorrii** SAL-vee-uh DOOR-ee-eye  
(7-10, 10-7)
- Saponaria officinalis** sap-on-AIR-ee-uh o-fiss-ih-  
NAL-iss (3-9, 9-1)
- Solenostemon scutellarioides** so-len-O-stee-mon  
skoo-tuh-LAIR-ee-OY-deez (11-12, 12-1)
- Sporobolus airoides** spor-OB-o-lus air-OY-deez  
(4-10, 10-4)
- Symphoricarpos albus** sim-fo-rih-KAR-poz  
AL-bus (3-7, 7-1)
- Washingtonia filifera** wash-ing-TOH-nee-uh  
fih-LIF-ur-uh (8-11, 12-8)
- Wollemia nobilis** wol-LEEM-ee-uh NO-bil-iss  
(7-11, 11-1)
- Yucca brevifolia** YUK-uh breh-vih-FO-lee-uh  
(9-15, 12-10)
- Y. flaccida** Y. FLAS-sih-duh (5-9, 9-5)

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