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# U.S. National Arboretum News and Notes

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News and Notes is issued three times a year, in January, May, and September, to stakeholder organizations to keep them informed about recent arboretum accomplishments and activities. Stakeholders are encouraged to use material from this document in reports to their members. Please send comments to:

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## Research Unit Releases New Variegated Beautyberry

For the gardener looking for something different to brighten up the garden, the National Arboretum has an exciting new offering: A variegated beautyberry, 'Duet', was just released by the [Floral and Nursery Plant Research Unit](#). This sport of *Callicarpa dichotoma* var. *albafructus* has medium green leaves with distinct yellow margins. Small white fruit appear in late summer and persist through mid-autumn. 'Duet' is a small, rounded shrub that is well suited to a variety of landscape uses. It is hardy in USDA zones 5 to 8 and performs best in light shade.

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*Callicarpa dichotoma* var. *albafructus* 'Duet'

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‘Duet’ was discovered by two researchers working at Tennessee Technological University in Cookeville, Tennessee. Impressed by the attractive foliage and stability of the variegation pattern, these researchers felt the plant would have a place in industry, but did not have a mechanism available for evaluation and cultivar release. They partnered with Dr. Sandra Reed, a plant breeder at the arboretum’s research unit worksite in McMinnville, Tennessee. Dr. Reed propagated the plant and distributed it to cooperators throughout the U.S. for evaluation. Based on input from those cooperators, the arboretum, in cooperation with Tennessee Technological University, released the cultivar in November 2006. It is the first cultivar released by the arboretum’s ornamental breeding program at McMinnville. ‘Duet’ is being propagated by growers for expected retail availability in 2008.

## Greenhouse Construction Begins

The aging greenhouse located near the Administration Building is being razed to make way for a modern energy efficient greenhouse. In this phase of



construction, new greenhouses will be rebuilt in the same location as the existing ones. The total space under glass will be less than that of the old greenhouses, but will be configured for much more efficient use of the space. Venting, shading, and other systems will be computer controlled in the new structure. Future plans call for the construction of a new headhouse facility to service the greenhouse facility and conversion of the existing headhouse into upgraded laboratory, office, and storage space. The current phase is expected to be completed before Fall 2007. Plant materials are being held in polyhouses, cold frames, and the lath house during the construction period.

## Korean Daylily Germplasm Distributed

Six public gardens throughout the country received daylily divisions from the arboretum’s [Perennial Collection](#). The daylilies were collected in 1984 on several islands off the coast of Korea by arboretum staff. They searched among the more unusual species and genetic variants of *Hemerocallis* species that had been cultivated there for centuries. The ones they brought home have

been growing in a long bed along Bladensburg Road in the [Boxwood and Perennial Collection](#). Most of the remaining daylilies in this part of the Perennial Collection will be moved to a nursery area adjacent to the greenhouse facility for further evaluation and germplasm preservation. This bed will be developed into a perennial and shrub border with a greater diversity of plants in coming years.



The flower stalk on this Korean *Hemerocallis coreana* has an astounding 79 buds. With the average modern daylily hybrid producing between 15 to 30 flowers, the strength and breeding potential of this Korean one is significant.

## Domestic Germplasm Collection Efforts Add to Holdings of the Woody Landscape Plant Germplasm Repository

In continuing efforts to acquire new plant accessions for the [Woody Landscape Plant Germplasm Repository](#) (WLPGR), Floral and

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Nursery Plants Research Unit Agricultural Research Technician Martin Scanlon spent three days in October exploring the Delaware State Park System. "To concentrate more on domestic collecting has always been on our to-do list," says Kevin Conrad, Curator of the WLPGR, "in order to complement our international collection activities. Martin's efforts this fall were a major first step towards expanding our domestic collections and preserving important germplasm." In collaboration with the Delaware State Park Authority, Scanlon gained the necessary permits to collect seeds. This first effort, although late in the season due to the lengthy permitting process, was very successful. It resulted in the addition of a number of new wild-collected species to the WLPGR inventory, including *Clethra alnifolia* (sweetspire) and two species of *Myrica* (bayberry). Arboretum WLPGR staff are planning additional trips to the mid-Atlantic region to take advantage of the locally rich flora. Negotiations are underway with the Delaware and Maryland Chapters of the Nature Conservancy and the Maryland Department of Natural Resources to prepare for sampling the plant diversity available in their land holdings.

## Arboretum Scientist Travels to China to Collect Rare Maple Species

This past fall, Dr. Mark Roh, arboretum research scientist, joined staff from the Quarryhill Botanic Garden and scientists from the Chengdu Institute of Biology,



*Acer pentaphyllum* showing bright red fall color.

Chengdu, China, on a botanical expedition to Sichuan to conserve an endangered maple species, *Acer pentaphyllum*. Dr. Roh participated in the trip at the invitation of William McNamara, Executive Director of the Quarryhill Botanic Garden, Glen Ellen, California; the trip was supported by the National Geographic. *Acer pentaphyllum* is a strikingly beautiful, yet rare, tree native to western Sichuan. It was first discovered and collected from Sichuan by Joseph Rock in 1929; there are now only three known populations with fewer than 200 individuals.

The survival of the maples is severely threatened by habitat loss, fragmentation, cutting for fuel, and intensive grazing. Because of the grazing, regeneration is almost non-



Landslide area in Sichuan where one population of *A. pentaphyllum* grows. At the most, the number of trees does not exceed 20–25 per location.

existent—the collecting team observed fewer than 30 seedlings, which were grazed or buried under cut tree stems. Some of the populations will soon be submerged due to the construction of dams and placement of pipes for a hydropower plant.

Under the direction of the Chengdu Institute of Biology of the Chinese Academy of Sciences in Chengdu, projects to conserve this rare *Acer* species include educational



Road construction caused exposure of the roots of this *Acer pentaphyllum*; it is unlikely to survive.

programs and working closely with villagers and forestry and government officials in areas near the remaining maple populations to install fences to protect the trees, harvest seeds, and grow seedlings.

Seeds, herbarium specimens, and seedlings will be shared with botanic gardens in China for research and *ex situ* conservation. The arboretum's [Floral and Nursery Plants Research Unit](#) will

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assist by conducting a population study of *A. pentaphyllum* utilizing DNA samples collected from the three wild populations in China. This information will be useful to trace the origins of *A. pentaphyllum* currently maintained at the various botanical gardens and arboreta and in the trade.



Participants of the *Acer* expedition: William McNamara (rear, second from the left), Executive Director of the Quarryhill Botanical Garden, and organizer of the trip; an old Chinese gentleman (rear, middle), who was 6 years old when he met original collector Joseph Rock; Mark Roh (front, second from the left); and Joanna Welti (front, second from the right), Quarryhill Botanical Garden; and host scientists and staff at the Chengdu Institute of Biology.

## Research Unit Welcomes New Tree Breeder

Dr. Richard Olsen joined the [Floral and Nursery Plants Research Unit](#) in April 2006 as a Research Geneticist. His responsibilities include the breeding of shade trees—continuing the work of Dr. Denny Townsend—and initiating a project to breed and select trees for use in street planting. Much of the emphasis of this work will be the development of smaller street trees suitable for planting under utility lines, an application important

for both aesthetic purposes and to minimize power outages due to conflicts between tree branches and power lines.

Dr. Olsen received his PhD in Horticultural Science from North Carolina State University (NCSU), under the direction of Dr. Tom Ranney, for research on ‘Utilizing Polyploidy for Breeding Improved Landscape Plants’. He had earlier earned his Master’s degree in Horticulture from the University of Georgia after a BS in Horticultural Science and Landscape Design from NCSU. He came to the arboretum with a broad horticultural background and many contacts in the nursery industry, and has already made several invited presentations, including talks at the annual meeting of the American Society for Horticultural Science, the Southern Nursery Association research conference, and the Maple Society. He also made a presentation on “Unexplored Diversity within *Catalpa* and Related Taxa: Breeding Novel Urban Trees” at the METRIA (Metropolitan Tree Improvement Alliance) meeting,



and was elected METRIA vice-president.

Olsen will continue the work at the arboretum on breeding *Catalpa*, *Chilopsis*, and intergeneric  $\times$ *Chitalpa* hybrids that he initiated with Dr. Ranney at NCSU. He will also continue work begun by Dr. Townsend to introduce tolerance in hemlocks to the hemlock wooly adelgid, and will work with various maple (*Acer*) species as well as other types of trees.



## Dr. Fare Receives Award from International Plant Propagators Society

Research Horticulturist Dr. Donna Fare received the Sidney B. Meadows Award of Merit from the Southern Region International Plant Propagators’ Society at the 2006 annual meeting in Charlotte, North Carolina. The Award of Merit is the highest award made by the society to individuals who have made an outstanding contribution to the society, and is dedicated to

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the ideals of the society to "seek and share." Dr. Fare is based at the McMinnville, Tennessee, worksite (the Nursery Research Center of Tennessee State University), where she works on nursery production issues, including efficiency of water and fertilizer usage, especially relating to tree production in containers.

## Librarian Attends Rare Book School

The arboretum's librarian, Robin Everly, attended a week-long course in October to learn more about conserving and providing access to the arboretum's collection of Japanese illustrated books on ikebana and bonsai. The course was offered through the University of Virginia's prestigious Rare Book School. Entitled "Japanese Illustrated Books, 1615-1868," the course was held in the library of the Smithsonian's Freer Gallery of Art and Arthur M. Sackler Gallery in Washington, D.C., and was taught by Professor Ellis Tinios, a scholar on the subject and an honorary lecturer at the University of Leeds in England.

The course focused on the Edo period (1603-1867) in Japan and how the culture influenced the production of woodblock illustrated books. Lectures and discussions covered the woodblock print process, the publishing and marketing industry, famous books and famous artists, conservation and cataloging of books, and how to locate other libraries and museums with collections. Students viewed collections of Edo period books

owned by the Freer and Sackler Galleries, Library of Congress, and National Library of Medicine. Twelve students came from the United States, Canada, and the United Kingdom; all had backgrounds in or work experience with rare book conservation, cataloging, and Japanese art museum curatorship.



Color woodblock illustration from a 1684 Japanese ikebana book in the arboretum's library.

Everly plans to use the information she learned from the course to further document the history and significance of the arboretum's ikebana and bonsai books published during the Edo and Meiji (1868-1912) periods. The arboretum's library holdings may be found in the National Agricultural Library's AGRICOLA cataloging database by visiting <http://agricola.nal.usda.gov>.

## Staff Appear on National Geographic Sociology Curriculum

National Geographic filmed staff working in the gardens

and collections and interviewed Gardens Unit Leader Scott Aker for a sociology curriculum designed for use by high school students considering their career path. The curriculum delves into the subject of the stigma attached to various professions and the factors that cause different people to choose different professions. Footage was filmed in the [Asian Collections](#), [National Herb Garden](#), [National Bonsai & Penjing Museum](#), and the Introduction Garden. Aker spoke about the satisfaction provided by careers in horticulture.

## Fall Chinese Moon Festival a Success

The [U. S. National Arboretum](#) co-hosted its second Chinese Autumn Moon Festival in collaboration with the [Friends of China Garden at the U. S. National Arboretum](#). The 2006 festival took place during the first two weekends of October and included art exhibits, children's workshops, and demonstrations presented by experts from the Shanghai Botanic Garden and Linyi, Shandong Province, People's Republic of China.

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Visiting delegations from Linyi (left side) and the Shanghai Botanic Garden (right side) with Friends of China Garden at the U.S. National Arboretum executive director Rita Shan (7th from right); Linyi Vice Mayor Xiaoman Wang (7th from left) and Shanghai Botanic Garden director, Mingfang Shen (6th from right).

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The festival opened with an evening of events featuring a traditional Chinese banquet and moon viewing. Four hundred guests enjoyed a variety of activities: narrated tram tours, a scavenger hunt for children in the [National Herb Garden](#), a penjing demonstration, zither performances by the Washington Guzheng Society, and dances by performers from the Silver Star Dance Center and the Sports and Health Dance Studio.

A program following the banquet began with opening remarks from Dr. Joseph Jen, Chairman of the Friends of China Garden at the [U.S. National Arboretum](#), and words of welcome from Dr. John Hammond, Acting Director of the arboretum. Official greetings were delivered by Dr. Gale Buchanan, USDA Undersecretary for [Research, Education and Economics](#); Mr. Qiu Xuejun, Consul General of the Embassy of the People's Republic of China; and Mr. Sam Mok, Chief Financial Officer of the U.S. Department of Labor representing Elaine Chao, Secretary of the Department of Labor.



Floral artist Luchang Wang from the Shanghai Botanic Garden instructs Christine Hambach during a flower arranging workshop. Friends of China Garden board member Christina Chang, left, volunteered as interpreter.



The hands-on calligraphy children's workshop appealed to all ages.

In the weekend following the banquet, the festival continued with two days of demonstrations and children's workshops in a variety of Chinese arts and crafts, including paper cutting, paper folding, calligraphy, flower arranging, and penjing. Artisans and horticulturists from the city of Linyi, Shandong Province, and the Shanghai Botanic Garden shared millennia-old arts and crafts. Festival visitors were also treated to an exhibit of Chinese painting, sculpture, and paper cutting art—one of which was 30 feet long!—showing both traditional and modern use of media and subject matter. A brochure describing herbs used in Asian cultures guided visitors through the sights and smells of the herb garden.

## Research Scientist Presents Talks in Colombia and Italy

In September 2006 Dr. Rob Griesbach of the [Floral and Nursery Plants Research Unit](#) spoke on the development of *Phalaenopsis* orchids for the mass-market at the XXX Colombian International Symposium on Floral Trade in Pereira, Colombia, at which he was the only speaker from the United States. In

addition to the symposium, there was a flower show and trade fair. Discussions with growers and Asocolflores (the Colombian Association of Flower Exporters) focused on the need for new ornamental crops and for a closer interaction between Colombian and U.S. growers.

Later in September, Dr. Griesbach traveled to San Remo, Italy, to present a talk on the genetic regulation of flower color patterning at the XXII International Eucarpia Symposium on Ornamental Plant Breeding. The symposium broke attendance records with scientists from over 84 countries, though only two U.S. researchers. Some of the foreign scientists who attended do not travel to the United States or publish in English language journals, thus their research is largely inaccessible for researchers in the U.S. This symposium provided a valuable opportunity for American scientists to learn about their work.



Petunias from Dr. Griesbach's research show the "star" and "picotee" patterns, both examples of differential anthocyanin gene regulation.

## Arboretum Turf Scientist's Work Included at the Crop Science Society of America Meetings

Dr. Scott Warnke attended the annual meetings of the Crop

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Science Society of America in Indianapolis, Indiana, in November and presented a poster in the turfgrass science section entitled *SSR Based Analysis of Tall Fescue Genetic Diversity*. This research will help turfgrass breeders identify plant material that can be used to improve disease resistance and reduce fungicide input on this important turfgrass species. In addition, information developed from this work can be used by the turfgrass seed industry to improve the quality of seed sold to consumers.

## Scientist Observes Plant Sanitation Practices in Guatemala

[Floral and Nursery Plants Research Unit](#) scientist Dr. Qi Huang traveled to Guatemala in September to gain firsthand experience in sanitary procedures used in offshore geranium production to prevent accidental introduction to the United States of a bacteria that causes brown rot of potato and bacterial wilt of geranium. The bacteria, *Ralstonia solanacearum* race 3, biovar 2 (r3b2), is listed by USDA as a Select Agent plant pathogen and subject to the strictest eradication requirements and the most stringent security regulation, since it poses a potential threat to the U.S. potato industry. The accidental introductions into the U.S. of r3b2 in latently infected geranium cuttings over the past several years have resulted in heavy economic losses to the ornamental industry,



Geranium cuttings for export to the United States are grown in greenhouses in Guatemala under strict sanitation measures to ensure a pathogen-free production. The measures include use of water from a deep, sealed well to water the plants, and the use of footbath, wash station, and wearing protective clothing by the employees before entering to the facility.

including dissolution of one major geranium company.

Together with a two-member USDA/APHIS inspection team, Huang toured the nurseries of Floricultura and Kapok Plants SA, subsidiaries of Ball FloraPlant and Syngenta, respectively. Both of these nurseries propagate geranium cuttings for shipment to the U.S. In addition, the group visited Orofarms, a nursery that propagates various ornamental crops such as *Argyranthemum*, *Vinca*, and *Canna* for local, European, and Japanese markets, as well as Popoyan, a nursery that propagates vegetable crops such as tomato and pepper. Dr. Huang also visited an Ecke production facility in Guatemala that supplies approximately 80% of the poinsettia plants sold in the U.S., and Orquideas de Guatemala, a nursery that produces various orchid plants for local market and neighboring countries.

Visits to nursery production facilities helps keep arboretum scientists like Dr. Huang in touch with the practicalities and scale of commercial production, and aids in the understanding of how development of new techniques can disrupt the disease cycle to

maintain plant health and productivity. Huang is a plant pathologist who works with bacterial diseases of importance to the floral and nursery industry. She seeks ways to prevent or reduce the economic damage these diseases cause to ornamental crops, and associated threats to agricultural production.

## Tree Planting Honors Patriotism

The [National Capital Area Garden Clubs, Inc.](#) (NCAGC) partnered with the National Arboretum to plant a tree in the Friendship Garden as part of the Patriot Trees Program. Begun in 2005 by the National Garden Clubs, Inc. (NGC), this special program encourages the planting of trees to honor those who have served our country in a patriotic way either through civilian or military life. Members of both the NCAGC and NGC joined project coordinator Ellen Spencer, NGC president Kitty Larkin, and arboretum Gardens Unit leader Scott Aker to plant a Persian ironwood, *Parrotia persica*, along the sidewalk leading to Arbor House. This small- to medium-

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A 50-year-old *Parrotia* in the Asian Collections.

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sized tree, which was funded by the NGC, adds to the Friendship Garden's four-season interest with its outstanding fall color and interesting exfoliating bark.

## National Capitol Columns Landscape Gets a Facelift

Major refinements have been made to the area around the [National Capitol Columns](#) in the wake of completion of the construction of the Flowering Tree Walk and the renovation of the columns' reflecting pool. The elliptical walkway to the east of the columns was regraded to smooth the landscape and make more of the base of the columns visible from the eastern approach. The work included adding tons of compost and top soil and planting a mixture of winter wheat and crimson clover to bind the soil, improve its fertility, and provide seasonal interest next spring and summer. Funds designated for improvement of the arboretum's gardens and collections held by the Friends of



the National Arboretum helped support this project. Gardens Unit appropriated funds are being used to remove dead and dying trees and clear invasive plants in the meadow surrounding the columns.

## Research Unit Microbiologist Retires

Research Microbiologist Dr. Hei-ti Hsu retired from the Research Unit at the end of December 2006 after a distinguished career. He joined what was then the Florist and Nursery Crops Laboratory in 1985, after cooperating with USDA-ARS for the previous ten years as Curator of the Plant Virus Collection at the American Type Culture Collection. During his time with the Research Unit, Dr. Hsu developed virus-specific polyclonal antisera and monoclonal antibodies that have been used for the detection of plant viruses, and especially viral diseases affecting ornamental plants; some of these antibodies were licensed and utilized in commercial virus detection kits. He has collaborated with other FNPRU scientists and colleagues from other institutions to develop tests for the detection and identification of various plant viruses, and to express viral and anti-viral genes in transgenic plants to obtain resistance against viral infection. He also



developed insect cell tissue culture techniques to examine the relationships between tospoviruses and their thrips vectors.

Hsu collaborated extensively with colleagues in Japan and Taiwan, as well as with scientists at the International Institute of Tropical Agriculture (Nigeria); the International Rice Research Institute (The Phillipines); the Asian Vegetable Research and Development Center (Taiwan); the Malaysian Agricultural Research and Development Institute; and Institute of Vegetable and Flower Crops at the Chinese Academy of Agricultural Sciences (China), among other international activities. He spent six months as a visiting scientist at the National Agricultural Research Center of the Ministry of Agriculture, Forestry and Fisheries in Tsukuba, Japan, and two periods as a visiting scientist at the Department of Plant Pathology, National Chung-Hsing University, Taichung, Taiwan.

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