



U.S. Department of Agriculture
Agricultural Research Service

U.S. National Arboretum News and Notes

Winter 2006

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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New Ornamental Pepper Wins Prestigious Award

A new ornamental pepper cultivar 'Black Pearl', developed by arboretum [Floral and Nursery Plants Research Unit](#) scientist Rob Griesbach and John Stommel of the Agricultural Research Service's Vegetable Laboratory, was designated an All-American Selections (AAS) winner for 2006. AAS Trials were initiated in 1932 to promote new garden seed varieties with superior performance as judged in impartial trials in North America. One look at 'Black Pearl', and it is easy to see why it won this award. The compact, upright plants bear distinctive semi-glossy, deep purple to black leaves, complemented with scores of shiny round black-purple "pearls" of fruit that mature to bright red. 'Black Pearl' performs well as either a bedding or pot plant, where it offers a vibrant accent to home gardens throughout the summer and fall seasons. This selection also offers nursery growers a new crop to add to their inventory of landscape plants. Ornamental peppers have the highest per unit value of any pepper product and have become a profitable crop for greenhouse pot plant and transplant production, as well as an innovative way for small farmers to produce a high-value alternative crop.



Seed of 'Black Pearl' is available only from the Pan American Seed Company, 622 Town Road, West Chicago, Illinois 60185, and through many seed catalogs.



New ornamental pepper cultivar 'Black Pearl'.

Flowering Tree Walk Planting Underway

With the construction phase of the Flowering Tree Walk completed, planting along the broad new pedestrian path may now begin. Some trees will go in this winter if weather allows, but most of the trees will be planted in Spring of 2006. The design is ready for the initial planting along most of the walkway and for the bio-retention ponds located in the meadow and adjacent to the handicapped-accessible parking lot. Efforts are underway to obtain quality specimens of the specified trees. New benches installed along the path offer comfortable resting places. The Flowering Tree Walk provides an important handicapped accessible link between key collections and other attractions at the arboretum.



New benches installed along the Flowering Tree Walk.

They also planted sedges to improve the swale's aesthetic quality and to help filter out pollutants carried by runoff from the road. The project represents an innovative and attractive approach to storm water management that staff will study carefully to determine if the concept may be applied successfully elsewhere.

New Entrance and Trail System for Native Plant Collections

The [Fern Valley Native Plant Collection](#) has been a visitor favorite since the [National Capital Area Federation of Garden Clubs](#) began work with arboretum staff to develop the collection almost fifty years ago. Its cool, forested stream valley offers respite in the heat of summer, and its prairie and old-field meadow are a colorful treat in late summer. The garden's main entrance is at the edge of Crabtree Road, an area that currently

handles substantial vehicular and pedestrian traffic. A new entrance and path system is being designed by Baltimore-based Mahan and Rykiel Associates that will provide a safer pedestrian entrance at the northwest side of the collection. This new location ties [Fern Valley](#) to the [National Capitol Columns](#) and the Flowering Tree Walk, moving the main access point away from the more heavily traveled road. The design includes upgraded paths and bridges and a uniform bench style. A portion of the path will be handicapped accessible and is an integral part of the development of a consistent pedestrian access system throughout the grounds of the arboretum.

New Facilities Use Rules Now in Effect

The National Arboretum has entered a new era in fund raising. For the first time, the arboretum will be permitted to rent out some of its facilities in order to increase operating funds. Private functions may be held in selected facilities and locations on the grounds of the Washington, D.C., campus for an established fee. This includes such areas as the [National Herb Garden](#), [National Bonsai & Penjing Museum](#), [Friendship Garden](#), and [National Capitol Columns](#). The auditorium and classroom are also available. Weddings and associated receptions will be allowed, but only in the more intimate [Dogwood Collection](#).

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The new rules that permit this use and the associated fee schedule were published on September 23, 2005 in the Combined Federal Register, Volume 70, No. 184, pages 55706-55711. The ruling went into effect October 24, 2005. Watch the web site for further information and for the guidelines that govern these fee-based events. People interested in reserving space in 2006 may contact the Special Events Coordinator at 202-245-4565 or via e-mail to weddings@ars.usda.gov.

Stakeholder Workshop for Gardens and Education Units Planned for March

The National Arboretum has invited over 60 stakeholder organizations and societies to an important two-day workshop on March 16 and 17, 2006. The workshop will focus on the activities of the Education and Visitor Services Unit and the Gardens Unit and provides stakeholders with an opportunity to learn about these units' recent accomplishments and developments as well as how the units fit into the vision of the arboretum. Most importantly, the interactive sessions with the audience will help staff plan and establish priorities for the future. The annual workshop serves as an important mechanism for the arboretum to receive comments and feedback from the widely varied audiences that it serves.

A constructive suggestion from a workshop held three years ago was to create a regular electronic newsletter to help improve communication; thus, News and Notes was born.

Stakeholders Help Shape Action Plan for Arboretum Research

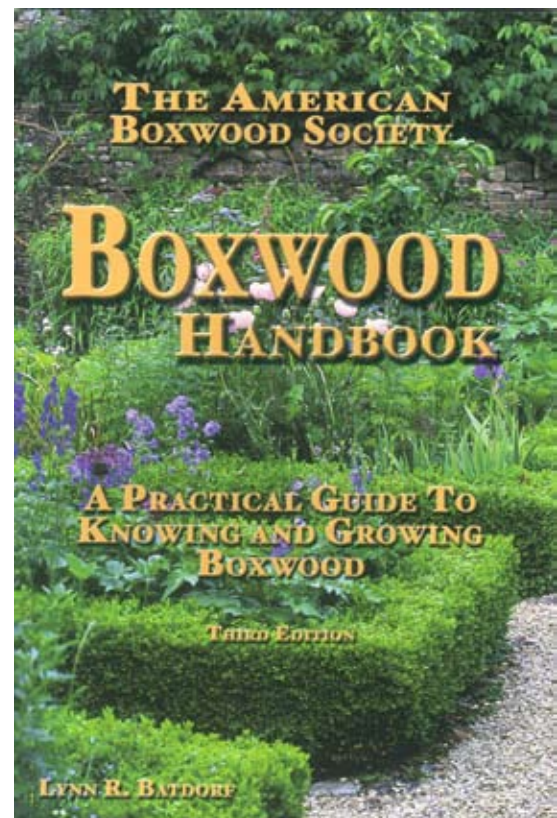
ARS stakeholders, partners, administrators, and scientists from across the country assembled in Baltimore this past fall to participate in a workshop aimed at assessing accomplishments and determining direction for future ARS research related to plant genetic resources, genomics, and crop improvement. The workshop established an excellent foundation for shaping this research area, known as National Program 301, for the next five years. The three-day workshop took place October 31 – November 2, 2005, and included talks by stakeholder panels and scientists, assessment of ARS impact by a stakeholder review team, and breakout sessions to determine lessons learned in the past five years and priority research needs for the next five years. The most important purposes of the workshop—to obtain an outside perspective on the Program over the past five years and to learn the high-priority research needs of ARS customers, stakeholders, and partners—were met. The suggestions for improvement and the identified high-priority needs will be translated into a new action plan that will guide National Program 301 research during the next five years.

This new plan is especially important to the National Arboretum, as the objectives of the Gardens Unit, Education and Visitor Services Unit, and a significant proportion of the Research Unit all fall under this program area.

Boxwood Curator Revises Popular Handbook

[National Boxwood Collection](#)
Curator Lynn Batdorf recently completed work on the third edition of his very popular *Boxwood Handbook: A Practical Guide to Knowing and Growing Boxwood*. Published by the American Boxwood Society, it has become

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a standard reference for boxwood growers and gardeners. This third edition is larger, with 24 more pages and 39 more color photographs than the second edition. Batdorf updated and enlarged the chapters on culture, pests, diseases, and recommended plants. He also added a new commercial boxwood production section and expanded the appendices. The handbook comes in a 6" by 9" format with 123 pages and 91 color photographs that describe and illustrate what is necessary to successfully select and propagate boxwood, control its pests and diseases, and provide proper cultural conditions for its growth. The handbook may be purchased at the [Arbor House Gift Shop](#) or from The [American Boxwood Society](#).

New Bonsai Curator Appointed

James Hughes, Assistant Curator of the [National Bonsai & Penjing Museum](#), was promoted to Curator in early November. Hughes served as assistant curator for three years prior to his promotion, and acted as curator of the museum after the resignation of the former curator last summer. He brings a wide variety of career experiences to the arboretum, having worked as a teacher and in the information technology field. During his time as assistant curator, Hughes played a key role in the import of pines



from Japan and in preparations for the Fifth World Bonsai Convention. He also spent several weeks last spring at Shanghai Botanical Garden sharpening his penjing skills to better ensure the integrity of styling of the museum's penjing.

Supervisory Horticulturist Joins Arboretum Staff



Angela Treadwell Palmer joined the Gardens Unit staff in mid-November. She will serve as Supervisory Horticulturist and will be responsible for development and maintenance of the Introduction Garden. Palmer will also schedule work projects in the [National Boxwood Collection](#), [Friendship Garden](#), [Azalea Collections](#), [National Herb Garden](#), [Native Plant Collections](#), [National Grove of State Trees](#), and Flowering Tree Collection. She will manage the Arboretum's Elite Plant Introduction Program and will be responsible for

distributing promising cultivar material to nurseries for evaluation. Palmer previously worked for Conard-Pyle, leading their plant introduction efforts, and led the Chicagoland Grows plant introduction program in a similar position she held at the Chicago Botanic Garden. Most recently, she worked as a buyer at Homestead Gardens in Davidsonville, Maryland. Palmer is one of two Supervisory Horticulturists that are key to the restructuring of the Gardens Unit. These positions will allow the Gardens Unit to integrate and prioritize work projects and address work outside the bounds of the curated collections.

Herbarium Taxonomist Named Editor-in-Chief of Scientific Journal

Alan Whittemore, a research plant molecular taxonomist who oversees the arboretum's [herbarium](#), has been appointed the next editor-in-chief of the prestigious scientific journal *Systematic Botany*. In this role, Dr. Whittemore will oversee the editorial staff that is responsible for the review and editing of all manuscripts submitted for publication, as well as setting policy for the journal and replacing outgoing editors. *Systematic Botany* serves the scientific community with timely, high-quality articles on taxonomic research.

Arboretum Scientist Describes Origins of Pine Native to China

[Floral and Nursery Plant Research Unit](#) scientist Mark Roh has concluded a study of *Pinus sylvestris* var. *sylvestriiformis* to determine its correct name and parentage. Based on the genetic data Dr. Roh obtained from this pine and those of presumed close relationship, he concluded that *Pinus sylvestris* var. *sylvestriiformis*

is the result of multiple hybridizations, thus is most properly referred to with the hybrid formula, *P. densiflora* x *P. sylvestris* rather than with the name currently recognized. Roh had noted that the morphological description of *Pinus sylvestris* var. *sylvestriiformis* was not well documented in relation to a presumed hybrid origin and possible parental taxa. For example, some differences in branch-forming characteristics were observed from about 300-year old plants (Fig. 1). Some plants had short and densely spaced compact shoots resembling *Pinus densiflora* var. *densiflora*, while others had long shoots forming sparsely distributed terminal branches resembling *Pinus sylvestris* var. *sylvestris*. Roh used DNA fingerprinting techniques to sort out the relationship of the subject pine with the others with which it is associated. *Pinus sylvestris* var. *sylvestriiformis* occurs in a very limited region around Baihe, Jilin Province, China, where it grows partly overlapping with the habitat of *Pinus densiflora* var. *densiflora* and with *Pinus sylvestris* var. *sylvestris*. A paper describing Dr. Roh's research in detail will be published in the journal *Forest Genetics*.

Arboretum Pines Reveal Clues to Longevity

Several years ago, Gunther Kletetschka of Catholic University collected samples of various pines in the arboretum's collections for cellular research aimed at finding out why some living things live much longer than others. Pine

species are noted for a marked variability in life span—loblolly pines are relatively short lived and live no more than 100 or 200 years, while bristlecone pines have the ability to live for more than two thousand years. Pines were chosen for this work because of this variability. Kletetschka worked with Barry Flanary of the Department of Neuroscience at the McKnight Brain Institute at the University of Florida College of Medicine to examine the cells of various pine species to determine any differences in them. They found that the increased telomere length and telomerase activity found in bristlecone pine and other long-lived species were correlated with the increased longevity. Telomeres are the long end sequences of a DNA strand that occur at the tips of chromosomes. During DNA replication, small parts of the telomere are lost with each cycle. Scientists think that this loss may be related to the aging process. Telomerase is an enzyme found in the telomeres of certain chromosomes that is active in cell division.

Arboretum Co- Sponsors U.S.- Russian Botanical Conference

A U.S.-Russian Botanical Conference jointly sponsored by the U.S. National Arboretum and the U.S. Fish and Wildlife Service was held at Wilson College in Chambersburg, Pennsylvania, on September 20-23, 2005.

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Fig. 1. Morphological characters of *Pinus sylvestris* var. *sylvestriiformis* trees resembling *Pinus densiflora* var. *densiflora* (A), and *Pinus sylvestris* var. *sylvestris* (B).

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Group photo of U.S.-Russian Botanical Conference participants.

The conference brought together 36 botanical specialists from Russia and 40 botanists from the United States to confer on subjects relating to biodiversity conservation, international agreements, flora, educational outreach, and promoting the sustainable use of plants. The participants discussed and planned cooperative research efforts, exchanges, and educational activities to pursue in the coming years. This conference was the result of a long-standing botanical exchange program between the two countries under a bilateral agreement on environmental protection. Arboretum Director Dr. Thomas Elias has coordinated the botanical exchange portion of this agreement for over 25 years. During that time, dozens of Russian and American scientists traveled and worked in Russia or the U.S. The exchange program brought botanists from the two countries together for collaborative research efforts. As a result, plant collecting expeditions were staged, research papers published, and botanical information exchanged. The conference in Chambersburg was a forum for participants to chart the future of the botanical exchange program and to identify specific areas of cooperation.

American participants included representatives from the Agricultural Research Service, Fish and Wildlife Service, universities, botanical gardens, and arboreta. Long-time collaborators

Dr. Lev Andrev (academician who heads the Russian delegation) and Dr. Elias presented their perspectives on the exchange program during the opening plenary presentations.

Arboretum Participates in 9th Biennial Southern Plant Conference

The National Arboretum's plant breeding programs were featured at the 9th biennial Southern Plant Conference, a unique learning opportunity of featured talks and tours, held this year in Louisville, Kentucky. Sponsored by the Southern Nursery Association in conjunction with the host state's nursery and landscape association and local businesses, the conference is designed to increase communications of new plant varieties and decrease the average time needed to bring them to market. At the 2005 conference, speakers from the U.S. and Europe talked about new plants, marketing strategies, and breeding programs and techniques, all with the aim of providing insight into the future of horticulture that growers can use for their business.

Arboretum Scientists and Research Staff Promote Arboretum Work Through Busy Schedule of Meetings and Travel

Throughout the past several months, members of the arboretum's [Floral and Nursery Plants Research Unit](#) participated in a variety of national and international scientific meetings and trips: Dr. Alan Whittemore traveled to the Holden Arboretum, Kirtland, Ohio, to attend the annual meeting of the North America-China Plant Exploration Consortium (NACPEC); Mr. Kevin Conrad, Curator of the Woody Landscape Plant Germplasm Repository, attended the National Plant Germplasm System 'Curator Workshop' in Chicago. Mr. Martin Scanlon, Research Technician in the Woody Landscape Plant Germplasm Repository, participated in a month-long NACPEC plant collection trip to the Gansu province of China in collaboration with staff from the Beijing Botanical Garden. The trip also included a visit to the Beijing Botanical Garden. A future article will detail this trip and some of the germplasm collected.

Dr. Donna Fare (based in McMinnville, Tennessee) attended the Gainesville, Florida, meeting of the International Plant Propagators Society and presented a talk entitled "Should potting depth be a common concern with container grown trees?"

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during the Root Depth Symposium at the Morton Arboretum in DuPage, Illinois. Dr. Scott Warnke attended the annual meeting of the Crop Science Society of America in Salt Lake City, giving a talk on “Intron spanning polymorphisms for comparative mapping of creeping bentgrass and rice”.

Dr. Mark Roh visited South Korea to discuss results from a project that has been funded by the Korean Rural Development Agency with collaborators at the National Horticultural Research Institute in Seoul. He also visited the Dongsan Botanical Garden in Daejeon, the Hantaek Botanical Garden in Cheonan, and Seoul National University, where he presented a talk on the “Woody Landscape Plant Germplasm Repository Research Program at the National Arboretum.” Dr. Roh also organized collection of hydrangea germplasm for the Woody Landscape Plant Germplasm Repository, which will also benefit the hydrangea breeding program of Dr. Sandra Reed (McMinnville).

Dr. Hei-ti Hsu attended the Symposium on Agricultural Sciences and Technology of TECRO/AIT Cooperative Programs, in Taipei, Taiwan, where he presented “A scientist’s view of experience gained from USDA FAS-Taiwan COA joint research program: accomplishments and impact on management of viral diseases of ornamental plants.” He also visited colleagues at the Taiwan Agricultural Research Institute in Taichung.

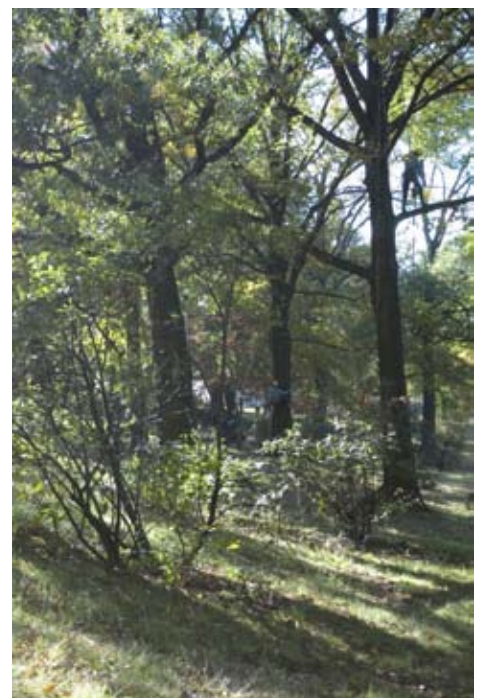
Arboretum Director Dr. Thomas Elias also traveled on behalf of the arboretum this past fall.

He was an invited speaker at an International Congress of the European Arboricultural Council in Riccione, Italy, where he spoke to the 350 attendees about the value of trees and the role of the arboretum in developing and introducing new and improved ornamental trees and shrubs to the American public. Following the convention, Elias presented an illustrated lecture in Florence, Italy, to the national Association of Italian Stone Appreciation. The lecture focused on chrysanthemum stones. The National Arboretum has the finest examples of these stones in the United States. They and many others are part of the collections in the [National Bonsai & Penjing Museum](#).

Bartlett Trains Workers, Donates Tree Services

The F. A. Bartlett Tree Expert Company returned to the National Arboretum on November 2 to help maintain some of the specimen trees on the Arboretum’s Washington, D.C., campus and provide training for company employees in the mid-Atlantic region. Forty-three employees participated in the one-day workshop during which they performed a variety of tree services valued at over \$15,000. The workshop provided Bartlett employees the opportunity to apply the newest arboricultural techniques to preserve the health of some of the arboretum’s mature

maples, conifers, and oaks. Among the new techniques demonstrated was the use of the Cambium Saver, a new sling that wraps around climbing ropes to reduce the chance of bark injury to trees with thin bark. Trainers also employed the latest ANSI (American National Standards Institute) A300 Tree Care Standards to ensure only the highest quality workmanship. Work was completed in and around the [Azalea Collections](#) and the [Conifer Collections](#). Dead, diseased, and broken branches was removed to improve the health and appearance of the trees as well as to reduce the risk of falling branches. A few of the trees received a special root excavation treatment, which loosens compacted soil, enables greater root growth, and reduces the potential of vascular disorders. “The Arboretum serves as a reflection of what residential and urban forests can achieve,” said John Smithmyer, local manager of Bartlett’s St. Michaels office, and one of the workshop’s coordinators.



Barlett workers prune trees near Bladensburg Road.

Agricultural Research Service Hosts Successful Press Day

Local garden writers and reporters were given an opportunity to talk to Agricultural Research Service (ARS) scientists one-on-one, visit field sites, and take home high-quality images during Press Day on September 27, 2005. The event, organized by ARS' Information Staff, was held in Beltsville, Maryland, and attracted reporters from as far away as Pennsylvania who were inspired by new plants from the [Floral and Nursery Plants Research Unit](#) of the National Arboretum as well as Beltsville's Fruit Laboratory and Vegetable Laboratory. The arboretum's newest crapemyrtle introductions, 'Arapaho' and 'Cheyenne' and award-winning ornamental pepper 'Black Pearl' (see cover story) were highlighted. ARS hopes to hold more of these events to help publicize new plants and related research to the general public. The U.S. National Arboretum is an institute within ARS.

Arboretum Shares Tree Planting Techniques with Neighbors

Gardens Unit Leader Scott Aker demonstrated tree planting techniques to neighbors from the Carver Terrace and Langston neighborhood on November 20. Despite a cold, drenching rain, Aker planted a flowering cherry

tree at the end of 19th Street, NE, near the arboretum's fence. Aker, on behalf of the arboretum, also presented an assortment of maples and flowering cherries to Kathy Henderson of the Advisory Neighborhood Commission for the Carver Terrace and Langston communities. Community members who attended the meeting will plant the trees in public spaces throughout the neighborhood.



Scott Aker demonstrates tree planting techniques to arboretum neighbors.

Walk and Fun Run Raises Funds for Youth Garden

Over 100 people registered for the first run/walk fund raiser held at the National Arboretum. "Dig in Your Heels" was planned and successfully held on November 6 by the [National Capital Area Federation of Garden Clubs](#) "Green Dreams" team led by Federation member Betty Mosher. Organizers hope to encourage healthy living as well as to raise funds and awareness for the [Washington Youth Garden](#) a youth

gardening education program co-sponsored by the [Friends of the National Arboretum](#) and the National Arboretum. The walk began with a ribbon cutting ceremony attended by Betty Mosher, Dee Smith for Ward 5 Council Member Vincent Orange's office, WUSA-TV Channel 9 meteorologist Howard Bernstein, President of the [National Capital Area Federation of Garden Clubs](#) Dale DeFeo, President of the Friends of the National Arboretum Kathy Horan, Director of the U.S. National Arboretum Dr. Thomas S. Elias, Governor of Slow food DC Marsha Weiner, Interstate Worldwide Relocation representative Kevin Frye, and Joan Bishop of Booz/Allen/Hamilton. Regie Thornton, host of Gospelrobics, a fitness program promoting health for the body, mind, and spirit, energized participants with warm-up exercises done to gospel and jazz music; he also participated in the ribbon cutting. Support for Dig In Your Heels was also provided by numerous individual donors and from several corporate sponsors including PEPCO, Booz/Allen/Hamilton, Interstate Worldwide Relocation, and the Rust Insurance Agency.





Ipomoea carnea ssp. fistulosa (bush morning-glory).

New Program Offered Through Partnership with Local Horticultural Magazine

The National Arboretum and the Washington Gardener magazine will partner on January 28 to hold a seed exchange workshop at the arboretum. Participants may trade the seeds they bring for those brought by others or donated by seed companies. In addition to the seed swap, attendees will hear lectures by experts on seed-related topics, including seed collection, storage, and propagation as well as the value of heirloom varieties and seed banks. The Washington Gardener magazine focuses on D.C. area gardening.

Washington Youth Garden Receives New Shed

The [Washington Youth Garden](#) upgraded its storage facility this

Arboretum to Sell Surplus Koi

The koi—Japanese carp—in the Administration Building pool have prospered greatly in recent years. Improvements in nutrient management along with the addition of extra vegetation that serves as a food source and protects the fish from predators has led to a significant population increase. The pool will be drained in mid April, and the koi will be culled to reduce the population to a more sustainable level. Hundreds of small koi, many of which are approximately four inches in length, will need to find new homes. They will be sorted



according to their value and placed in holding tanks on the east terrace of the Administration Building. Prices will depend on markings and size. The sale, open to the public, is expected to take place on the afternoon of April 15. Watch the arboretum web site for more details.

fall with the installation of a new shed. The shed was built by Beiler's Structures in Burtonsville, Maryland, and represents a major increase in storage space for the Youth Garden.

It replaces two decaying sheds that were torn down last summer. The new shed was funded by the Gardens Unit and site work was financed with arboretum repair and maintenance funds. The [Washington Youth Garden](#) is a

collaborative effort between the National Arboretum, the [Friends of the National Arboretum](#), and the [National Capital Area Federation of Garden Clubs](#).



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