New Trees on Campus!

In the last few issues it seems we have been reporting nothing but bad news about tree damage from winter storms, high winds, lightning strikes, etc. Last year’s late October snowstorm was yet another devastating blow. However, we are now delighted to be reporting some good news. Insurance should cover the heavy losses from the October storm. This has enabled us to secure replacements, including many trees that are much larger than we would usually be planting. It has also allowed us to use contractors to help get the work done, and it is partially funding an arboriculture intern for the summer—Nicolas Borcy, a student from the Stockbridge School of Agriculture at the University of Massachusetts, Amherst. One of his responsibilities will be to ensure that all the new trees are properly watered throughout the summer.

Landscape Manager Jay Girard orchestrated multiple contractors to install over 50 new trees. This is the largest planting of trees on campus in a very long time. With a mature landscape, we normally do not plant so many specimens at one time, but the last several years have seen the removal of many large trees. This spring’s planting lineup includes 11 trees moved onto campus from our Fort Hill and Capen nurseries, plus 40 trees purchased from nurseries in the region. An additional 30 smaller trees were purchased and planted in our two nurseries for future use on campus. We have been able to find some very interesting species and cultivars not already in our collection.

Additionally, we received over 50 rather unusual woody plants from the Morris Arboretum. When our director, Michael Marcotrigiano, conducted research on tree introductions, he found an article about the North America–China Plant Exploration Consortium (NACPEC), a partnership formed in 1991 between American and Chinese institutions to organize and carry out plant explorations in China. Its goals include broadening the genetic pool of species already in cultivation, with
Syretha Brooks ’08 began working in the horticulture department at Wave Hill, New York Public Garden and Cultural Center, last summer and after just four months was promoted to the position of gardener for the Wild Garden. Syretha began working at the Smith Botanic Garden in 2006 as a work-study student. She was mostly outdoors with arborist John Berryhill and continued working for us for two years until she graduated. She followed up that experience with an internship at the Arnold Arboretum. Syretha is also an incredible artist, and we are delighted she is following her horticultural interests in a place that is very supportive of the arts. The Wild Garden at Wave Hill is an informal garden that had become overgrown with many non-native plants over the past few years. Her bosses thought she would be a good person to help restore the Wild Garden to its former glory.

Syretha wrote, “It will definitely be a challenge, both in terms of the amount of work needed to make it look good again and in terms of the huge volume of plant species (I have my winter reading cut out for me), but I am so excited and ready for it!”

Former horticulture student Katy Ryan ’11 will be attending the Taubman College of Architecture and Urban Planning at the University of Michigan, pursuing a Master of Urban Planning degree. She intends to concentrate on Land Use and Environmental Planning, looking at issues concerning sustainability, land management, and resource management.

Elisabeth Wolfe ’10, a Botanic Garden work-study student and 2009 summer intern, has returned to the Northampton area to launch The Rooted Kitchen, offering design, installation, and maintenance services for residential, commercial, and school properties interested in growing food and herbs.

As a work-study student at the Smith College Botanic Garden for the last three years, I am excited to continue my work in public horticulture after graduation. This June, I will be relocating to Philadelphia to start work at the Morris Arboretum of the University of Pennsylvania, where I have been hired as the next Natural Lands Intern, a one-year position. The Morris hires nine interns each year in fields ranging from urban forestry to education. I will receive training in all aspects of garden development and in the care of the living collection, with special regard to the Bloomfield Farm property. Bloomfield Farm is a largely naturalistic landscape consisting of several cultivated areas, research plots, community gardens, and the Arboretum’s composting facility. Over the course of the year, I will refine my horticulture skills, develop integrated pest management skills, learn arboriculture techniques, and gain supervisory skills by directing the activities of volunteers and part-time staff. With the guidance of my supervisor, I will identify and complete an independent study project in garden planning and management. After my time at the Morris, I plan to pursue an advanced degree in plant science and/or public horticulture, with the ultimate goal of combining my passion for plants, research, and public gardens.
emphasize on extending cold hardiness and increasing vigor, improving adaptability to stressful environments, and increasing insect and disease resistance. They also hope to conserve rare species, select improved ornamental forms, and introduce appropriate new species. Many of the participating U. S. institutions have Chinese plants from NACPEC collecting trips that they are looking to further distribute to other botanic gardens. Anthony Aiello at the Morris Arboretum was happy to share plant material from the China expeditions, as well as collecting expeditions in Asia Minor and Japan, with the Smith Botanic Garden. The plants are small in size and for now will go into the nursery at Capen Garden. More than half of the 25 species from the Morris Arboretum are new to our collection. We are particularly excited to be adding wild collected material that has complete documentation about where it was collected. This information makes these specimens much more valuable for future research in genetics and conservation.

Some new species from the Morris Arboretum, grown from seed collected in the wild (planted at Capen Nursery):

- **Acer diabolicum**, devil maple or horned maple, is not often seen in cultivation. Although we currently have two males in our collection, we are hoping one of the two new ones will turn out to be a female. Collected in Japan in 2007 on Mt. Akagi: In sun on dry gravel on an east-facing flat roadside embankment in open mixed woodland with *Abies firma, Acer shirasawanum*.

- **Abies nordmanniana**, Nordmann fir or Caucasian fir, is according to Michael Dirr “the handsomest of firs.” Collected in 2004 in the Republic of Georgia: Racha: Near Nikortsminda. 1197 m, 42.46964 deg N, 43.06111 deg E. 30 deg slope; NE-facing.

- **Acer sterculiaceum** ssp. *franchetii*, Franchet’s maple, is very rare in cultivation. Collected in 2008 in China: Shaanxi Province: Chang’an: Wu Tai, Nan Wu Tai. N-facing; rocky, roadside edge soil. Dry, mixed deciduous forest. Several trees in this area, but only one with fruit.

- **Hovenia dulcis**, raisin tree, is named for the fleshy stalks of the fruit, which are edible. Collected in 2002 in China: Shanxi Province: Yang Cheng Xian: Mang He Zhen, Shu Pi Gou, in core area of nature preserve. 3085 ft., N-facing; rich organic soil. Mesic, mixed deciduous forest; shady slope.

Some new trees from nurseries (locations on campus in parentheses):

- **Xanthoceras sorbifolium**, yellowhorn, is a native of China and according to Michael Dirr, “A virtual unknown in American gardens.” (Wright Hall)

- **Pinus wallichiana**, from high altitudes, is a cold-hardy race of Himalayan pine. (Ainsworth)

- **Ulmus ‘Morton Glossy,’ Triumph™ elm, (See the article on page 9 to learn about trademarks) is a tough elm bred at the Morton Arboretum for pest and disease resistance as well as drought tolerance. As its name implies it has glossy leaves. (Campus Center lawn and behind Admissions)

- **Cornus kousa ‘Champions Gold’** is a new cultivar of the kousa dogwood. It is grown for its foliage, which emerges green and turns yellow and then pink. (146 Elm Street)

- **Quercus dentata ‘Pinnatifida,’** cut leaf Daimyo oak, is unlike any other oak you’ve seen with its finely dissected leaves that give it a feathery appearance. (138 Elm Street)

- **Tilia cordata ‘Winter Orange,’** winter orange littleleaf linden, hails from Holland. Its bright orange winter bark makes it an amazingly unique tree. (Lamont)

If you are interested in knowing the locations of all the new trees on campus, you can view a GIS-generated map online at [http://bit.ly/HEeQmq](http://bit.ly/HEeQmq). Just click on the individual dots for details of the trees planted there.

While we miss the trees we’ve lost, we are excited to watch the new additions grow. It is hoped that all of them, whether currently on campus or to be moved from the nursery in the future, will grow into mature trees and grace the campus for many years to come.
If you are very lucky in life, you meet someone, perhaps a teacher, who changes your life just by being who they are. Phil Reid did that for me. I met “Mr. Reid” in a class on cell biology, and before I knew it, I was in his lab watching him demonstrate how you could grind up petioles, extract cellulase and measure its activity. So cool! By the end of that year, I asked to be his honors student and embarked on a year of research on the effects of an herbicide on *Coleus*. It turned out that the wetting agent was a more potent stimulator of activity than the herbicide itself, and I asked if I could do some electron microscopy of the petioles to see what was happening at the cellular level. This gave me an opportunity to collaborate with my father, an electron microscopist, and in January, I returned to Smith with a folder of photos. Phil was so excited because he had been led to believe that electron microscopy of plant tissue was pretty much impossible. We had an exciting spring wrapping up the project while I waited for replies from graduate schools. Phil was delighted that I wanted to go to University of California, Davis, and work with another prominent investigator on abscission. I was very busy and very poor during graduate school, so Phil and I didn’t see each other a lot, but we kept in touch. He wrote me a letter of recommendation for my first job, visited me while I had that job, counseled me when I wanted to get another job, and was my very first “sabbatical guest” when he visited my lab in San Diego in the early 1990s. He was writing a manual on a technique called “tissue printing” and we spent many happy hours in the lab testing the technique, which is still widely used — and included in the first laboratory of my Plant Physiology course.

One of the special pleasures of being a member of the Botanic Garden Friends Advisory Committee was the opportunity to visit Phil, initially in his lab and in more recent years at his home. We reminisced, talked about family, and always compared our vegetable gardens. It made me smile each time he remarked that he still had the horseradish plant that my father had shared with him years ago. It is my hope that, as I teach my classes, I am able to share and to spread the enthusiasm for plants and for life that Phil Reid shared with me.

Lisa Baird graduated from Smith in 1976 — as Phil always noted when making introductions: summa cum laude with highest honors in the Biological Sciences. She earned an M.S. (1978) and Ph.D. (1980) in Botany from the University of California, Davis, working with Barbara D. Webster (Smith MA, 1953). Lisa is currently Professor of Biology at the University of San Diego and serves as the chair of the Friends of the Botanic Garden Advisory Committee.

Michael Marcotrigiano

In 1999, when there was no permanent director of the Botanic Garden, Phil called me up at the University of Massachusetts, where I was a professor in the Department of Plant and Soil Sciences. Two lunches later Phil had convinced me to apply for the vacancy at Smith and the rest is history. My life has been changed for the better and hopefully I have brought something to the Botanic Garden that Phil saw in me when he personally recruited me. Besides being a scientific resource for the Botanic Garden, Phil was a supporter in other ways. He had great insights into what makes the college tick and shared his thoughts helping me out whenever I needed advice. As our relationship grew to friendship, my wife and I dined with Phil and his wife Cathy (not often enough!) and Phil and I enjoyed many UMass hockey games, lunches, and plant-centered conversations. His impact on his hundreds of students and colleagues will last forever. The Smith community has lost a long-time friend and supporter.

Lisa Baird ’76

Philip D. Reid, the Louise C. Harrington Professor Emeritus of Biological Sciences, died peacefully at home with his family on March 4, 2012, after a heroic struggle with cancer. He earned his master’s degree from the University of Missouri, his doctorate from the University of Massachusetts Amherst, and did his postdoctoral work at the University of California, Riverside. He joined the Smith College faculty in 1971 and was elected as a Fellow of the American Association for the Advancement of Science in 1994. He retired from Smith in 2002.

Photograph by Chuck Kidd

Professor Reid with a student in the lab in 1980. Courtesy of the Smith College Archives.

Lisa Baird graduated from Smith in 1976 — as Phil always noted when making introductions: summa cum laude with highest honors in the Biological Sciences. She earned an M.S. (1978) and Ph.D. (1980) in Botany from the University of California, Davis, working with Barbara D. Webster (Smith MA, 1953). Lisa is currently Professor of Biology at the University of San Diego and serves as the chair of the Friends of the Botanic Garden Advisory Committee.
Learning African History in the Lyman Conservatory

Sarah Hardin

Genevieve Ward-Wernet '13J, Hanna Mogensen '14, Victoria Dunch '14, and Sarah Hardin in the Succulent House in the Lyman Conservatory.

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tudyng history requires imagination. Since we cannot go back to the past to see for ourselves what happened, we have to find other ways to envision how the past unfolded. When looking for ways to introduce students to African environmental history, I considered Smith’s Lyman Conservatory. At first glance, Victorian-style conservatories—and ornate palm houses in particular—convey to me the legacy of Western imperialism over the tropics. Yet in my course, History 299: Ecology in Africa,¹ I wanted to show students the perspectives of Africans rather than of the Europeans who colonized the continent. I hoped that the plants, rather than just the building, could open a window into African history. In discussions with Botanic Garden Curricular Enhancement Consultant Nancy Rich, we quickly identified ways to offer students both perspectives. Students would look closely at particular plants and be encouraged to ask fundamental questions such as, “Why would anyone want this plant?” “What did people know about it?” “Was the plant difficult to grow?” Together the class learned of the opportunities and limitations plants have presented to human beings, a core concept of environmental history. Students’ research revealed fascinating and important aspects of African environmental history, particularly the significant role played by human knowledge.

Inside the Lyman Conservatory, students physically experienced distant climates, if not distant times. They could see, smell, and touch the plants that have influenced the histories of many countries such as cotton, coffee, cacao, banana, rice, rubber, and sisal. Additionally, many samples of tropical hardwoods from Africa are featured in the Woods of the World installation at the Lyman Plant House. Nancy Rich and I introduced the class to these plants and how they were related to social and economic developments in Africa and the African Diaspora in the Americas. Under the guidance of Rocco Piccinino, associate director of Branch Libraries and Head of Young Science Library, students conducted more detailed scholarly research on the plants’ physical characteristics and involvement in human history. Students then led their own tour of the Plant House and shared with their classmates what they had learned about how people had used the plants over centuries. Students documented their research and wrote reviews of one another’s presentations.

Students quickly recognized that many of the assigned plants in the Conservatory were not of African origin and that the plants’ origins revealed important stories. For example, the conservatory housed an American variety of cotton. It was this variety that Western markets desired and that Europeans, in the late nineteenth century, introduced to Africa. Well into the twentieth century, European colonizers forced their African subjects to cultivate the American variety, which was not well-suited to African climates, even though African varieties grew more easily.² Yet Westerners did not ignore all African plants or African agricultural knowledge. According to historian Judith Carney, it was West Africans’ expertise in rice cultivation that in part contributed to Europeans’ decision to enslave West Africans in particular on American plantations.³ In the twentieth century, Asian rice, the variety currently on display in the Lyman conservatory, was introduced to West Africa. While the Asian varieties produced higher yields, they could not tolerate climatic changes as well as could the local varieties.⁴ Despite the disruptions of the trans-Atlantic slave trade, Western imperialism, and more recent versions of globalization, West African women have continued to select and maintain their own varieties of rice to cultivate in case of climatic crises and for ceremonies to honor ancestors and ensure prosperity.⁵

Researching African plants, students found interesting applications. For example, many of the African hardwoods in the Woods of the World display came from trees used for the medicinal properties of their bark, sap, leaves, fruit, and seed.⁶ In another example, East Africans adopted the banana plant, which Southeast Asian seafarers brought to the African continent in the first millennium of the common era. By 1500 CE, a system of intensive cultivation had contributed to the development of the kingdom of Buganda in present-day Uganda. From the book Landed Obligation by Holly Hanson, a professor of history at Mount Holyoke College, students learned how intensive banana cultivation changed gender roles in Buganda. Wives

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became responsible for cultivating and cooking bananas. This new responsibility was highlighted in a marriage ceremony in which the bride weeded her in-laws’ banana grove until her mother-in-law brought her a knife to cut down the bananas. In recent years, banana production has increased in East Africa as the plant is used to make medicines, beer, and baskets. On hearing this presentation, a student commented, “When I think of bananas, I imagine their cultivation on neocolonial plantations. They therefore symbolize oppression and the inequitable global market. To be educated on bananas’ long history and use in East Africa by East Africans is another viewpoint entirely and a welcome one.”

Students also researched the current state of production of the plants in Africa today. Here are some of their findings and comments:

Sadly, it has been shown that much of the labor used for cacao production in West Africa is slave labor. . . . Fair trade is an attempt to better the situation. However, . . . [we should] take pause when we so frequently and carelessly indulge in our ‘simple pleasures,’ i.e., chocolate.

Hearing the history of Coffea arabica transformed the small tree in the Lyman Conservatory into an object with immense power. Katie’s presentation taught me that to only see plants for their biological properties not only does a disservice to the plant’s role in human history, but also harms those who have built their lives around the production of this plant.

During World War II, the United States needed rubber. The U.S. therefore patronized a Firestone plantation, factory, and airstrip in Liberia. Later, during the Cold War, the U.S. continued to pay attention to Liberia. Once synthetic rubber was developed, however, the U.S. began to ignore its former ally.

In South Africa, women pick the fruit of the marula tree to make beer to sell locally. People around the world also drink Amarula, which is a liqueur manufactured by a South African company. Marula seed oil is also becoming a popular ingredient in skin care products.

Our study of African history was greatly enhanced by access to living plants used in African economies. As a visiting faculty member I was impressed by the many different academic courses that have benefited from this wonderful resource that makes Smith a unique place to study plants. Keep up the good work!

Notes:
Beyond Smith and Kew: Conserving Landscape and Biodiversity

My younger sister Emily Moir ’06 last year sent me photos of the Smith Botanic Garden that she took during her 5 year Smith College reunion. It seems like yesterday that I, as a senior in the fall, was eagerly introducing my sister, a first-year, to the wonders of Smith College. At the top of a long list—running trails, study corners in the library, specimens in the Science Center, the newest computer labs—was the Botanic Garden. I hoped that, like me, she might develop the same love for the gardens as I had throughout my time at Smith.

Starting as a Biological Sciences major in 1999 I was immediately drawn to the gardens, first for the abundant flowers that late summer brought, but this matured into a better appreciation for the order, grouping, and diversity of the Rock Garden and Lyman Conservatory. I spent my winter downtime wandering the Cool Temperate House and Palm House watching bananas grow, strolling through cacti and succulents from different continents, and inhaling the sweet, distinct smells of the scented geraniums. In the spring I’d rejoice in the renewed sunshine and picnic with a stack of books under one of the many flowering trees in the campuswide arboretum.

During my sophomore year I secured a job with the Botanic Garden, where I worked part time for the remainder of college. Three days a week I immersed myself in the gardens, the greenhouses, in plant databases, and even in warm soapy water washing pots (a less than exciting job that at least was out of the snow in February). The Bulb Show brought with it welcome color and fragrance, a reminder that spring was on its way and the cycle of plants continued. Paralleling my deepening love for the Botanic Garden, I focused my studies in plant ecology and environmental studies. Professor John Burk guided me through my years at Smith and helped me realize some of the practical applications of my studies. My junior year he suggested I apply for the internship at the Royal Botanic Gardens, Kew. I jumped at the opportunity.

My summer in London for the 2002 Kew Internship was a huge part of my education outside of Smith. My project focused on mapping the genetic diversity of gorse species (genus *Genista*) as they radiated across the Iberian Peninsula. This consisted mainly of lab work at the Jodrell Laboratory. Using DNA from tiny pieces of plant material, I mapped small segments of genes to determine how the species were related. By the end of the summer I had sequenced DNA for over 50 species.

I had, however, done much more than that. I spent entire days exploring the extensive Kew Gardens, picnicked with friends from the lab in fields of flowers next to the River Thames, walked miles along the old streets of London and explored miles of world famous museums, took trains to the English countryside, hiked and swam in the Lakes District, road-tripped through the Scottish Highlands and Isles, camped and toured in Ireland, climbed Mount Snowdon in Wales, visited ornate castles scattered around England, walked among the ancient Stonehenge, and made friends that I keep in touch with to this day. Above all, I developed the skills to work with a diverse group of people and to accomplish work that brings everyone together with a common goal. In this case it was cracking the nut of mapping DNA.

Through my work at Kew’s Jodrell Laboratory I met professors from Colombia and Brazil working with their Ph.D. students, students from London working on their own genetics projects, lab technicians working directly for Kew Gardens, and scientists from Spain and Portugal. A common thread in everyone’s work was the genetic diversity found all over the world, and the underlying urgency to better understand this diversity, get it down on paper, and, inevitably, figure out how to conserve the ecosystems that provide such diversity.

Returning to Smith for my senior year, the urgency of conservation work fascinated me and I suddenly understood where I wanted to focus my work. There is an innate right for plants and genetic diversity to exist in the world and at this time in human history it is our job to protect and conserve the ecosystems that provide this amazing diversity of life. After graduation I earned a master’s degree in Conservation Science and Policy at Duke University’s Nicholas School of the Environment. I then secured a postgraduate fellowship with Mesa Land Trust, a regional, nonprofit land conservation organization in western Colorado.

Seven years later, in a full-time position at the Land Trust, I couldn’t be happier. My job entails working with an array of landowners

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Global Warming?
New Hardiness Zone Map

While there are those who still doubt climate change, the proof is in the plants! The United States Department of Agriculture (USDA) has acknowledged as much by releasing a new Hardiness Zone Map. This map is the standard that gardeners and growers use to determine which plants are most likely to survive the winter in any given area. The map rates regions of the country based on the average annual minimum winter temperature. There are now thirteen zones, each with a 10°F range that is further divided into two 5°F bands designated as “A” and “B.”

The new map is an update of the previous version created in 1990, and uses weather-station data from 1976 to 2005 (the previous version was based on statistics from 1974 to 1986). The new map presents a more accurate picture, not only because it is based on more recent climate data, but also because it uses data collected over a longer time and from many more weather stations. The results also provide more detail. It is important to understand that the hardiness zones are based on the average annual extreme minimum temperature during a 30-year period, not the lowest temperature that has ever occurred. (Equally important for the grower to understand is that winter hardiness is not the only factor affecting whether a plant will do well in your area.)

The map is no longer in a print version, but it is available online as an interactive GIS-based map, based on zip code or by state, and it can also be downloaded from the USDA website: http://planthardiness.ars.usda.gov.

The redrawn zones show that climate change is a real phenomenon all over the country. Compared to the 1990 version, zone boundaries have shifted in many areas. Although a few areas were reclassified as cooler than before, the new map is generally a half-zone warmer (5°F) throughout most of the United States. This is true for our area as well. Formerly Zone 5b, Northampton is now Zone 6a, which means the winter minimum temperature average is –10°F to –5°F (an increase of 5°F). So, if you have been yearning to grow a palm tree in your back yard, we’re not there yet in New England (thankfully), but you can try some of those things you thought were only marginally hardy.

To see the new map, go to www.planthardiness.ars.usda.gov

(Continued from page 7)
**It’s All in a Name, or Is It?**

Before Carolus Linnaeus (1707–1778) developed an efficient system for the naming of plants (the field now known as nomenclature), the process of naming plants, as in his *Species Plantarum* (1753), was clumsy at best. No one had fathomed that so many plants would be discovered and that there would be so many species closely related to one another. Before Linnaeus, there was no universally accepted convention for naming new plants, so plants with adjective names, more akin to botanical descriptions, were shown, collected, and traded. Linnaeus, realizing the shortcomings of the existing naming protocol, advocated a binary name standard be accepted. To this day the binomial is the standard for both plants and animal species—a *genus* name followed by a *specific epithet*. Together the genus name and the specific epithet make up the species name. So, for example, a human being is a *Homo sapiens*, which combines our genus *Homo* with our specific epithet *sapiens* to form our species *Homo sapiens*. Our native red maple is *Acer rubrum*, *Acer* being the maple genus and *rubrum* the epithet reserved for this single species of maple. When unique, desirable individuals arise in domestication within a species (through breeding, seedling selection, or mutation) they can be given a “third” name called a cultivar name (*cultivar* being the word fusion of “cultivated” and “variety”). Using *Acer rubrum* as an example, we have *Acer rubrum cv.* October Glory (also written as *Acer rubrum* ‘October Glory’), which is cloned by grafting because it has excellent and late fall color. The cultivar *Acer rubrum cv.* Bowhall is the same species as the cultivar October Glory but was selected for its upright growth habit. By vegetatively propagating a single desirable individual, uniformity is achieved for the desirable trait. All members of vegetatively propagated plants are merely copies (clones) of the original.

Nomenclature has rules and regulations (*the International Code of Nomenclature for Cultivated Plants*) that dictate how proper scientific names are to be created for newly introduced plants. It is an orderly process that is accepted pretty much worldwide and is a far better means of communicating a plant’s identity than the use of common names, e.g., “yellow pine.” There are often many common names for a single plant, because common names develop regionally. Even worse, the same common name can also be used for two different species. All botanists and serious horticulturists know that using the scientific name is the best way to communicate about plants since there is only one scientific name given to a plant.

In order to encourage the development of new cultivated plants in commerce, the U.S. Plant Patent Act was enacted in 1930 to give exclusive rights to those developing vegetatively propagated cultivated plants (except tubers—potatoes, a food crop, would not be included). The act provides “that any person who invents or discovers a new and distinct variety of plant shall be given by patent the exclusive right to propagate that plant by asexual reproduction but not by seeds.” In 1970 the Plant Variety Protection Act extended patent rights to cultivated plants that are seed propagated and breed true (inbred maize, tomatoes, etc.). These two acts fueled investment and development of improved plants. Patents do expire in 20 years, however, and there are significant legal costs associated with obtaining them. Even so, thousands and thousands of patents have been submitted and granted to companies, universities, and individuals, such that new plants are introduced in great numbers each year.

Just when we thought all was manageable in the plant naming field, someone got the idea of trademarking plants. Trademarking can be used to get around the patent issues. Trademark names are submitted to the U.S. Patent and Trademark Office and become “registered.” They are owned by an individual or a company and are valid for 10 years; unlike a patent, they can be renewed indefinitely.

Although the rules of nomenclature state that the chosen cultivar name must be “a word (or words) in a modern language,” this is often purposely ignored, even at the Plant Patent Office! This has resulted in nonsensical cultivar names, generated by profiteers to purposely redirect the consumer to a more memorable trade name. This has become a bane for botanists and serious horticulturists because it is the name that is trademarked and not the specific genetic makeup of the plant associated with the name. A trademark is not a part of a scientific botanical name. In fact, technically speaking, a trademark name does not have to stay attached to the same plant indefinitely. If the owner of the trademark decides to make a switch, for marketing reasons, they can associate their trademark name with a different plant! Yet, the rules of nomenclature do dictate that a new plant must receive a new botanical name even if it is to be marketed under a trademark name.

It gets uglier. Since any nonpatented plant can be multiplied and sold by anyone for profit using the correct botanical name, a company...
Names continued

(Continued from page 9)

that does not patent a new plant has no exclusive rights. It can, however, protect the trademark name that it associates with the plant in its marketing campaign. This has led many breeders to intentionally choose a cultivar name that is something less memorable than a name like ‘October Glory,’ as they want competitors to have difficulty selling the same plant with a botanical cultivar name that is cumbersome at best and often nonsensical.

In addition, since the trademark name is not legally attached to an individual plant, anyone can throw a different trademark name on the same exact plant that the originator is selling (of course, one cannot change the botanical name). That being said, the originator of the plant does not seem to care about this threat; after all, the plant is marketed heavily with the trademark name. Competitors would have little time to increase the numbers of the plant to a marketable level and do the public relations to sell the same plant under another trademark name. By the time a new competitor gears up, the public is so familiar with the first trademark name they would pay little attention to subsequent attempts to market the plant.

Where does this leave us? It is messy and ugly, and, without education, potentially misleading to the consumer. What is my advice? All plants sold with an associated trademark still need to have their botanical name on the label even if it is printed in a tiny font. Remember, there is only one botanical name for the plant. You should make sure you know the botanical name of the plant you are looking for because if you buy a plant by trade name you are buying a name, not necessarily a particular plant. Some would argue this is semantics but it is not. Trademark names are specific names but not specific plants, and while they may be associated indefinitely with a specific plant, that is not binding.

Botanical gardens generally use the scientific name on the label. They also want to include a popular common name so that visitors that are unaccustomed to using scientific names can relate to the plant. When a plant is trademarked, it is the trademark name that is often used as the common name, especially if the cultivar name is nonsensical. At Smith College we have reluctantly taken such an approach, even though to some extent this condones a plant trademarking system. We feel there is little alternative, even though a company can move a trademark to another plant and create two plants with the same common name. After all, if we choose to use the cultivar name as a common name we’d wind up with some very odd common names that would be difficult to remember. For example, *Agapanthus orientalis* cv. Benfran, which is trademarked as Baby Pete™ lily of the Nile, would have a common name of Benfran lily of the Nile, rather than Baby Pete™ lily of the Nile. Even worse, *Magnolia grandiflora* cv. MGTIG trademarked as Greenback™ southern magnolia would have a common name of MGTIG southern magnolia rather than Greenback™ southern magnolia. The cultivar name is in direct violation of the codes for nomenclature because it is not a word, never mind one in a modern language. To date there has not been much legal action to prevent the continued use of nonsense names as cultivar names.

If you are interested in court cases (and some of the legal issues) surrounding trademarking in plants, see the article by Tony Avent, owner of Plant Delights Nursery:


I know this article was not an easy read, but trademarking is a confusing issue thanks to capitalists and lawyers. If you do your homework, at least you will get what you want when shopping for that plant that is “all the rage.”

Labels at Smith College show how the Botanic Garden uses the trademark name as the common name, although it is not part of the plant’s scientific name. For the elm, although the cultivar name is ‘Morton Plainsman’ it is usually sold under the trademark name Vanguard™. Note how the *Hypericum* has a nonsensical cultivar name, making it more likely that people will use the trademark name.
The Hybrid Dogwoods: East Meets West

When I was in graduate school at the University of Maryland in the 1980s, one of the major issues for gardeners was the decline of the native dogwood, *Cornus florida*, also called flowering dogwood. When I arrived at Smith College in 2000, I began looking at some archival images, and they showed continuous waves of dogwoods flowering on the edge of the woodlands below the President’s Residence. Our database indicates that 31 flowering dogwoods were planted since 1971 and of those, 11 have died. What happened to all the dogwoods? While there are some mature dogwoods scattered about, over the past three or four decades, one by one, mature dogwoods have fallen ill in most American landscapes. Mostly when you see a flowering dogwood in the landscape you see young trees that appear to be added to landscapes and perform well for a while before they succumb.

Intuitively one might think that native plants are less likely to be afflicted by a disease outbreak than introduced plants. But this is often not the case. Since the mid 1970s native dogwood has been plagued by a few fungal diseases. One of the most common diseases that often leads to decline and death is anthracnose, which is caused by the fungus *Discula destructiva*. With this disease leaves can get blotches on them (often with purple rims). As the water-conducting stem tissue gets damaged, water sprouts (rapidly growing shoots) often erupt from the trunk below the injury. Borers often enter wounded trunk tissue, and the tree can die in a few years or linger on looking very sad. Drought and/or poorly drained soil increase the severity of the infection and the decline of the tree.

While pathologists tried to figure out how to stop the disease from spreading through native dogwood populations and to determine what conditions led to spread of the disease, Dr. Elwin Orton, Jr., of Rutgers University was concerned that the only dogwoods left in large numbers in eastern U.S. landscapes were the introduced and heavily planted Asian species. It turns out that the Asian dogwood *Cornus kousa*, kousa dogwood, is very resistant to anthracnose. I have never seen a kousa dogwood succumb to it. Moreover, the kousa dogwood is an excellent plant that has been thoroughly embraced by American gardeners. Its attractive flowers (actually bracts) are borne later in the season than the native dogwood, when the tree already has leaves. It can have beautiful multicolored bark (with age) and has odd but attractive red fruit that can be used to make preserves. The architecture of the kousa dogwood is different from flowering dogwood. It tends to be more thickly branched and can appear more like a giant shrub than a small tree. And, it is not as American as apple pie.

Dr. Orton wondered if the two species could be hybridized, and what the hybrids would look like. The perfect scenario would be an anthracnose-resistant hybrid with an American dogwood appearance. Breeding did not work out that way but the result was still remarkable. The hybridization resulted in several promising seedlings that with time turned into excellent trees (keep in mind tree breeding takes a long-term commitment and is not for the impatient). The hybrids are disease resistant, as Orton had hoped, but like their Asian parent they flower along with emerged leaves. The flowering time is somewhat in between the early flowering *C. florida* and the later *C. kousa*. The bracts do not have the terminal notch typical of flowering dogwood but in most cultivars are wider in profile than the kousa dogwood. At Smith, the hybrid flowers closer to commencement than either parent, making them particularly useful for the Botanic Garden. In a side by side growing test near the President’s Residence, the hybrid is

(Continued on page 12)
Dogwoods continued

(Continued from page 11)
growing more vigorously than *C. kousa*
while the specimens of *C. florida* are not
doing well.

Rutgers is marketing the hybrid trees for
profit. They are patented but also
trademarked (see this issue, p. 9). The
patent was granted after the trees had
already been released with proper botanical
names, somehow switching the cultivar
names into trademark names. They
renamed most of the cultivars with
nonsensical names (don’t ask me how this
could happen, as it is in violation of the
*International Code of Nomenclature for
Cultivated Plants*). See the table for the
“final” botanical names (nonsensical) and
the trademark market names under which
each cultivar is sold.

As is often true with interspecies
hybrids (which are considered “wide”
hybrids since the plants are related,
but not closely related), the hybrids
are sterile, just as mules are, being
crosses between donkeys and
horses. The sterility means that no
unwanted seedlings are found, but
unfortunately the hybrids produce
no pretty red fruits. Yet, because
the trees are fruitless and seedless, the
bracts do not fall off (perhaps they are
still “trying to attract pollinators”); in my yard the bracts of Constellation™ are
still showy in September!

I highly recommend trying the hybrid dogwoods, especially if you have noted
that in your location the native flowering dogwoods seem to languish or fail.
The hybrids appear to do best if they receive shade for part of the day, but they
are definitely more tolerant of full sun than *Cornus florida*. Their availability is
spotty. This is not because there is a shortage of them in production; rather, most
garden centers take a long time to make changes and without education the
American public do not become aware of new choices or request them when
they shop for trees.

While I am not a fan of Rutgers’ approach to marketing the plants with
trademark names in addition to patents, I consider the dogwood breeding
program to have resulted in one of the most significant breakthroughs for the
American landscape. While many breeders are cranking out new plants just
because they look slightly different (e.g., witness the plethora of hosta and
daylily cultivars that are introduced each year), Dr. Orton’s work resulted in
vigorous, beautiful trees and this reduces, at some level, the amount of
pesticides the landscape industry uses. That’s a good thing.

For purists, there is one promising native *Cornus florida* cultivar that has
finally reached market. It is ‘Appalachian Spring.’ The parent tree was found
growing wild in heavily shaded forest understory in Maryland. ‘Appalachian
Spring’ has demonstrated resistance to dogwood anthracnose. Unlike hundreds
of other *Cornus florida* seedlings, it survived an intentional inoculation with the
disease. We just acquired a few of these and are hopeful they will persist in the
landscape without becoming infected.

Michael Marcotrigiano

Horticultural Lingo

*Reading horticulture can be* problematic if you are not up to speed on
the jargon. Here are some phrases you’ll
often see and an explanation of what they
mean:

**True to seed** If a plant has offspring that
have the desired traits passed down in the
next seed generation it is said to come
to “true to seed.” Most hybrids and many
mutations do not. Example: Norway
maples that have purple leaves, e.g.,
‘Crimson King,’ generate many green
seedlings, so the purple variety does not
come true to seed.

**Heeling in** When there is no time to
plant a specimen in its permanent place
before winter comes, one can dig a
trench anywhere in the soil and put the
root system of the plant in the trench.
Then you fill the trench with soil and gently use your heel to tamp down the
soil, thereby “heeling in” the plant. The next spring, before it leafs out, the
plant can be exhumed and put in its proper location.

**Straight species** When a plant is not a particular cultivar or mutation but,
rather, is similar to or collected from wild plants, it is often called the “straight
species.” For example, *Pinus strobus*, eastern white pine, gives rise to seedlings
of the straight species but would not produce *Pinus strobus* ‘Fastigiata,’ the
upright form of eastern white pine.
The Arnold Arboretum of Harvard University and the Smith College Botanic Garden are public botanical gardens designed and used for learning (see Fall 2011 newsletter, p. 11). The Arnold Arboretum and the Smith Botanic Garden have been collaborators from the beginning.

The Ames family early on formed an important human bridge between the two institutions. Members of the wealthy and prominent Ames family numbered among the early benefactors of the Arnold Arboretum. The Ames family were part of a strong Boston tradition where wealthy and educated families built up public cultural institutions such as museums, symphonies, and botanical gardens. Oakes Ames had been the director of the Harvard Botanical Garden and a professor of botany when he was named supervisor of the Arnold Arboretum after the death of Charles Sargent in 1927. His wife Blanche Ames had been an art major at Smith College and president of the class of 1899 when she gave the commencement address. She was a gifted botanical illustrator and produced hundreds of drawings to illustrate her husband’s studies of orchids.

Orchidaceae: Illustrations and Studies of the Family Orchidaceae (Ames Botanical Laboratory, North Easton, MA, 1905–1922) featured Oakes’ scholarship and Blanche’s artwork. Still in use today are the Ames Charts they developed, which use watercolors to illustrate the phylogenetic relationships of the major plants useful to humans.

During his 8 years as supervisor at the Arnold, Oakes Ames broadened the scope and capacity of research in areas of plant breeding and pathology, strengthened the taxonomic staff, and vastly increased the herbarium holdings. Blanche’s illustrations were often used in the Arnold’s Bulletin of Popular Information in the 1920s and 1930s. The accomplished plant breeder and Arnold director Karl Sax in 1939 selected a crabapple and in 1955 named it in honor of Blanche. Michael Yanny, secretary of the International Ornamental Crabapple Society, described the tree as “beautiful and unique... I have seen few trees that rival Malus ‘Blanche Ames’ for beauty and elegance.”

Kim E. Tripp was a Katharine H. Putnam Research Fellow at the Arnold from 1994 to 1996 before coming to Smith, where she was the director of the Botanic Garden from August 1996 to February 1999. At the Arnold, she conducted research on resource allocation as it affects survival in the landscape in woody plants, as well as plant propagation and woody plant evaluation. By special arrangement, Kim’s research at the Arnold continued after she took the Smith position, prompting Peter Del Tredici, Arnold’s director of living collections, to remark that she wasn’t really leaving the Arnold, just “making a slightly longer commute.” At Smith, she was involved in implementing the landscape master plan prepared by Cornelia Hahn Oberlander ’44 and Shavaun Towers ’71. After Smith, Kim was vice president for horticulture of the New York Botanical Garden and in 2005 was appointed director. Afterward, she turned to a new career in osteopathic medicine at the University of New England in Biddeford, Maine.

Conservatory Manager Rob Nicholson came to Smith in 1992 after 15 years at the Arnold Arboretum. Rob worked his way up to assistant plant propagator at the Arnold, earning a master’s degree in visual and environmental studies from Harvard along the way. Rob has long been involved with the ongoing project to conserve and save from extinction the stinking cedar, or Florida nutmeg, Torreya taxifolia, which is in the yew family, Taxaceae. Of five to seven known species worldwide, only two, T. taxifolia and T. californica, are native to North America. The rare and endangered T. taxifolia is known to exist only in a restricted area along the border of Florida and Georgia known as the Apalachicola ravines. Originally cultivated in the 1830s, it thrived for a century as far north as the mid-Atlantic states. Beginning in the 1950s, however, the native stands began a steep decline. Wild populations once estimated at between 300,000 and 600,000 individuals dwindled to about 500. Today, no large trees remain in the native habitat. A fungal disease was identified as the cause of the decline, and major efforts were commenced by the Arnold Arboretum in the 1980s to save the species from extinction through off-site or ex situ conservation. Rob and his wife Ida Hay collected cuttings for the Arnold in Torreya State Park in Florida in 1985, and in 1989, Rob led a team of botanists back to the native range to collect thousands more. Soaked in fungicide, rooted, and grown on for two years, the plants were then shipped to botanical gardens and research institutions worldwide, for observation and further study. In the late 1990s Smith students were involved in making cuttings from the wild-collected material, working out feasible propagation protocols, and shipping them to the Atlanta Botanical Garden. Ultimately some of the carefully documented plants were reintroduced into the native range. Rob has
Summer interns sticking cuttings brought back from a field trip to the Arnold Arboretum in 2007. From left: Alisha Mai Frank, Hampshire College ’08, Janice Wilson AC ’09, Corey Eilhardt ’09, and Deborah Villamia AC ’08. The most successful was the galaxy magnolia, *Magnolia × ‘Galaxy’* (*M. iliiflora ‘Nigra’ × M. rengeri ‘Diva’*). Eight specimens are growing at our Fort Hill Nursery to be planted on campus sometime in the future.

**Notes**

1. The Ames family papers can be found in the Smith College Libraries Sophia Smith Collection: [http://asteria.fivecolleges.edu/findaids/sophiasmith/mnss358_biograph.html](http://asteria.fivecolleges.edu/findaids/sophiasmith/mnss358_biograph.html).
**News in Brief**

**Lyman Pond**

*Michael Marcotrigiano*

The little pond next to Lyman Plant House is scheduled for a dredging this summer. Sediment has filled it in and you can literally walk across it now. The plans are to remove the invasive species and do some aesthetic enhancements that will lead to better viewing of the life within the pond, which now includes a few turtle species, some goldfish, and of course frogs, frogs, and more frogs. As for plants, we intend to replace the invasive flag iris with native species including *Cornus sericea*, red-twig dogwood; *Typha latifolia*, cattail; and *Panicum virgatum*, switchgrass.

**Our Traveling Exhibitions**

*Madelaine Zadik*

Our exhibit *Plant Adaptation Up Close: A Biological and Artistic Interpretation* is on the road again. It has traveled to New Jersey, Texas, Iowa, and now Michigan. You can see the exhibition at the Eleanor and Edsel Ford House in Grosse Pointe Shores through June 24, 2012. In 2013 we are expecting it to travel to the Kona Kai resort in the Florida Keys.

Others of our traveling exhibitions have gone to other venues around the country. If you are interested in seeing any of our exhibits in your area, talk to your local botanic garden, museum, science center, or nature center about hosting one. Information about all of our traveling exhibits is online at [http://www.smith.edu/garden/exhibits/traveling-exhibitions.html](http://www.smith.edu/garden/exhibits/traveling-exhibitions.html).

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**Spring Is Busting Out All Over**

*Gaby Immerman*

We’ve reported before on the spring horticulture class assignment called the Order of Bloom study. Students observe and record the expansion and opening of buds on a weekly tour of 50 campus trees and shrubs, which has given us some data to compare spring’s progress over the years. The year 2010 was an extremely early one for flowering, with lilacs in bloom the last week of April. After 2011’s long snowy winter, by contrast, everything was about two to three weeks behind.

2012 has been another peculiar year, or perhaps the old adage is true that the only constant is change. In late March, we experienced several days of unseasonable temperatures in the 80s and 90s that signaled to temperate plants that it was time to break dormancy. Magnolias that normally bloom mid-April unfurled their lush, tender pink and white petals around March 20–23, only to be cruelly defaced by a hard frost just days later. Other plants were spared such dramatic injury, but woody plant buds as well as herbaceous plants were off to an extremely early start.

Now in late April, we are seeing bud break and shoot growth the likes of which I have never experienced in twelve years of leading students in this project. Species like Japanese maple, *Acer palmatum*, and ruby red horse chestnut, *Aesculus × carnea* ‘Briotii,’ are not just blooming but have produced 8-12’’ of new shoot growth already. Many species that typically show no growth whatsoever over the course of this project have unfurled entire whorls of new leaves, including the weeping beech, *Fagus sylvatica* ‘Pendula,’ and even paperbark maple, *Acer griseum,* always one of the very last plants on campus to break bud in spring.

All this has made for a truly spectacular Order of Bloom experience for this year’s students, but one can’t help but wonder how these dramatic changes are rippling through the ecosystem, impacting synchronicity with pollinators, susceptibility to frost damage, etc. And in one very local way, this year’s early spring has violated a Smith tradition — the Capen tulips, timed to bloom around Commencement Weekend, are peaking as I write this on April 25.

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**Mapping and Technology Collaboration**

*Elaine Chittenden*

Jay Girard, Polly Ryan-Lane, and I have been working together with Jon Caris, GIS specialist for Smith’s Spatial Analysis Lab, Gary Hartwell of the Office of Environmental Sustainability, and Cheryl Obremski of Facilities Management to expand spatial data sharing across campus. This GIS working group applied for and received a grant from Smith’s Committee on Educational Technology for ten tablet devices (two Androids and eight iPads) and associated materials to forward our efforts in data collection and data access in our computerized mapping of the campus, including our plant collection data and infrastructure data.

The advantages of this most current mobile technology over equipment the Botanic Garden has been using is that it is more user-friendly, provides better visuals, offers voice dictation capability, and can serve as a camera and HD video recorder. The mobile devices will be used by staff, work-study students, and summer interns for inventorying the collection and mapping in the field. A big benefit is the mobile access to our collections database and maps. It will allow us to integrate tree maintenance and disease and pest management into the system. Additional apps are available for measuring tree height and will also enable us to have many other sources of information at our fingertips while out in the field.

More information about the GIS working group is online at: [http://www.science.smith.edu/sal/wordpress/projects/gardens](http://www.science.smith.edu/sal/wordpress/projects/gardens).
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- Botanic Garden News, our newsletter and calendar of events, twice a year
- Members only hours at the Bulb and Chrysanthemum Shows — 9:00 to 10:00 am daily
  Fall Chrysanthemum Show: November 3 – November 18, 2012; Spring Bulb Show March 2 – March 17, 2013
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