

# CAMPUS ARBORETUM

"The University of Arizona Campus Arboretum is a living laboratory promoting stewardship and conservation of urban trees through research, education and outreach."

[arboretum.arizona.edu](http://arboretum.arizona.edu)

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Dr. Tanya Quist



COLLEGE OF AGRICULTURE  
AND LIFE SCIENCES

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## Sycamore

In the place that is my own place, whose earth  
I am shaped in and must bear, there is an old tree growing,  
a great sycamore that is a wondrous healer of itself.

Fences have been tied to it, nails driven into it,  
hacks and whittles cut in it, the lightning has burned it.

There is no year it has flourished in  
that has not harmed it. There is a hollow in it  
that is its death, though its living brims whitely  
at the lip of the darkness and flows outward.  
Over all its scars has come the seamless white  
of the bark. It bears the gnarls of its history  
healed over. It has risen to a strange perfection  
in the warp and bending of its long growth.

It has gathered all accidents into its purpose.  
It has become the intention and radiance of its dark fate.

It is a fact, sublime, mystical and unassailable.

In all the country there is no other like it.  
I recognize in it a principle, an indwelling  
the same as itself, and greater, that I would be ruled by.  
I see that it stands in its place, and feeds upon it,  
And is fed upon, and is native, and maker.

- Wendell Berry

*"Platanus occidentalis*, American Sycamore. The UA Bicentennial Moon Tree, one of our Heritage Trees and symbol of the major role forests played in developing our American Heritage and the vital role forests have in our future."

# UA HERITAGE

Looking Back. Moving Forward.

By Tanya M. Quist, Director



"The word campus carries highly positive associations. We think of leafy public commons dotted with handsome buildings, alive with the energy of students engaged in invigorating discussions. College grads look back happily at their years on campus, remembering not just classes and friends but the physical surroundings with a deep fondness. The walkways they strolled late at night discussing politics or football with their roommates. The library steps where they relaxed between classes on sunny days."

Jay Walljasper



*This year marks two significant anniversaries for the University of Arizona Campus Arboretum – 150 years ago, in 1862, Senator Justin Smith Morrill of Vermont wrote legislation directing the provision of lands to the states for the establishment of public universities and agricultural education programs. President Abraham Lincoln, ratified the document and signed it into law on July 2, 1862. Whereas universities historically focused on instruction in the classics, the land grant institution extended disciplinary training to include agriculture and mechanical arts. It was this broad, and practical training that encouraged access to higher education irrespective of wealth or political class. In addition to establishing an egalitarian system of education, the Morrill Act also laid a foundation for later legislation that supplemented research capabilities (Hatch Act, 1887) and applied university expertise in solving challenges relevant to the states and supporting economic growth (Smith-Lever Act, 1914). As Arizona's first land grant school, the University of Arizona's landscape was established, and has evolved, as a consequence of the school's mission; serving as a living laboratory for research and education in service to the state. The campus grounds serve to beautify our environment, but also to model the University of Arizona's mission to "Discover, educate, serve and inspire".*

10 years ago, in September 2002, the University of Arizona's main campus was granted status as an arboretum and received membership into the American Public Garden Association. The honor is significant, as it confirms the University's continued commitment and fundamental value of public-focused and community-driven research and education, consistent with its land grant charge. Much has happened to support research and promote campus sustainability in 10 years in large thanks to the conviction and tenacity of the founding director, Ms. Elizabeth "Libby" Davison, President Peter Likins, College of Agriculture and Life Sciences faculty and administration, the Campus Arboretum Steering Committee, dozens of dedicated advisory board members and hundreds of faithful members and donors. Each contributor builds on the University's rich tradition in research, student education and engagement. As Arizona's needs continue to intensify as a result of climate, urbanization and reduced state funding, the impacts of your investment in the land grant mission are also magnified. So, here's to all of us and 150 more years of heritage stewardship and urban sustainability—Happy Anniversary!

# THE SAGE ARBORIST

## Ecosystem Services And Natural Capital.

By Tanya M. Quist, Director



**Tree Huggers Unite!** Students working for the Campus Arboretum i-tree carbon inventory and ecological landscape assessment, Spring 2012. From Left-Right: Nathaniel Ponvert, Andrew Hatch and Leslie Sullivan (not pictured: Amelia Blake).

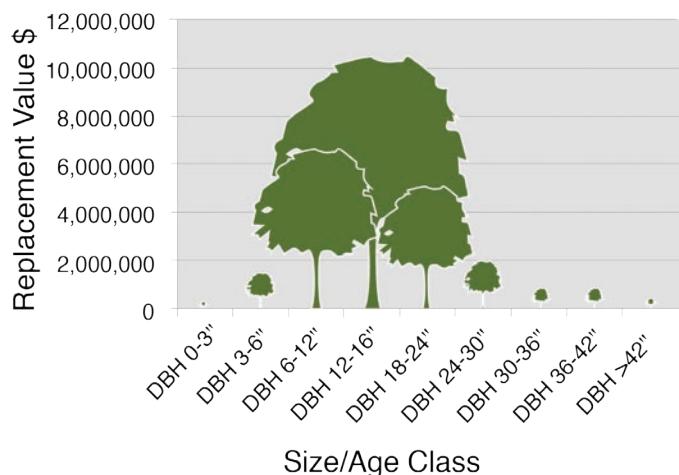
This spring, four students in the School of Plant Sciences set out to visit each of the almost 8000 trees on campus. With handheld devices loaded with the most recent version of the US Forest Services i-Tree software, Andrew Hatch, Amelia Blake, Nate Ponvert and Leslie Sullivan, spent nearly 5 months collecting data for each accessioned tree on the main campus. For each tree, they confirmed coordinates, entered information on the species and size and then ranked condition. From this data set, i-Tree software calculated environmental and ecological benefits provided by each tree. Although calculations were estimates, standardized against known values for each species and size, these estimates provide a means to quantify the contributions of campus trees, allowing us to rank relative return on investment, select trees that maximize ecosystem services, communicate the value of mature trees in advocating for tree preservation and set goals for landscape improvement. Additionally, other quantitative data obtained from this project, such as age distribution, and species richness provide a means to measure progress toward increased canopy coverage, biodiversity and succession planning. The data will be transferred to the Campus Arboretum database to supplement our life history records of each campus tree. The Campus Arboretum is grateful to the Office of the Vice President for Student Affairs that sponsored the project through the UA Green Fund.

*"When we think systematically, we stop asking, "How much is nature worth?", and know that we are a piece of nature ourselves."*

*Karl-Henrik Robèrt*

CO <sub>2</sub> stored in wood	3,890,698 lb
Annual atmospheric CO <sub>2</sub> removed	708,010 lb
Annual removal of air pollutants	632 lb
Annual energy savings	\$55,065
Annual floodwater mitigated	\$55,065
Total canopy coverage	12.90 %

**Green Infrastructure at Work!** A summary of the collective ecological and economic contributions of the UA Campus Arboretum trees. CO<sub>2</sub> stored in the wood and removed from the atmosphere annually is equal to the environmental benefits of decommissioning 289 cars and removing 56 additional vehicles from use for every additional year of the trees' life. More details and results of the project can be viewed on the Campus Arboretum website.



**UA Campus trees are worth protecting.** Total estimated replacement value of the almost 6000 trees inventoried is more than \$28 million. More than \$20 million of this replacement value is contributed by the mature trees with trunk diameter > 12". (The replacement value does not factor in value contributions to campus aesthetics, heritage, recruiting or retention.)

# HELPING US GROW

## A Sample of Upcoming Public Tours.

TIME	DAY	DATE	TOUR THEME
10:00 AM	Saturday	Nov. 17 <sup>th</sup>	Mediterranean Plants
10:00 AM	Saturday	Dec. 1 <sup>st</sup>	Arboretum History
10:00 AM	Tuesday	Dec. 4 <sup>th</sup>	Trees Around the World
10:00 AM	Saturday	Dec. 15 <sup>th</sup>	Medicinal Plants

For a complete schedule of tours, see the "Get Involved" tab on the new Campus Arboretum website.

## Our New Website.

After 8 years, the original UA Campus Arboretum website has bid farewell and, in its place, a shiny new version. Although search tools and map development that will facilitate searching the plant collection are still in progress, there is significant new content and additional functionality – including new student projects, upcoming events, archives of newsletters and news articles, sponsorship opportunities and increasingly new information on campus trees.

Check it out at: <http://arboretum.arizona.edu/> and let us know what you think by emailing your comments to: [infoarboretum@ag.arizona.edu](mailto:infoarboretum@ag.arizona.edu)



While you're visiting the new website, click on the link to our Facebook page, found at the bottom of the homepage. Select "LIKE" on our Facebook page if you want The University of Arizona Campus Arboretum news and photos to appear in your Facebook newsfeeds. It's a great way to stay up to date in between newsletters!



## The Campus Arboretum Tree Stewards.



How often do you come to the University of Arizona campus? Never before in its history have there been so many opportunities to participate in tours. We've partnered with the Pima Co. Master Gardeners, who now serve as the Campus Arboretum Tree Stewards. They have researched, developed, and refined a host of tours sure to offer you entertainment and education in an inspiring setting. Call (520)621-7074 or email: [infoarboretum@ag.arizona.edu](mailto:infoarboretum@ag.arizona.edu) to RSVP. Indicate your name, phone number, the tour date you will attend, and the number of participants in your group.

*"We can never have enough of nature."*

*Henry David Thoreau Walden, 1854*



## Sponsorship Opportunities.



**Bench sponsorship enhances landscape use and value while supporting future campus stewardship.** The shady paths along west campus, forming the historic Olive Walk, is lined with welcoming benches where many visitors and campus residents enjoy respite from the heat and business of urban life. The tradition of bench sponsorship started by early Campus Arboretum supporters continues today and tribute benches continue to be installed each year.

Did you know there are dozens of ways to help us grow, from replacing the hundreds of trees lost in 2011, to renovating the pond in the historic green belt or improving propagation facilities. Bench and tree sponsorship and annual membership dues or additional gift monies are the sole source of Campus Arboretum revenue. Your support has mentored students, planted a generation of trees, protected UA Heritage, and provided for the special care of the mature trees that impact campus character and environmental and human health most. The Campus Arboretum needs your help. Please visit our website or contact us directly to learn how you can join our efforts to promote responsible land stewardship and urban sustainability.

Image (right): Honoring Dr. Tom Gehrels, a pioneering astronomer and planetary scientist at the UA for 50 years. The Gehrels family chose this wonderful garden site near the Flandrau Science Center to place the bench honoring a truly remarkable life.



# LANDSCAPING TIPS

## A Case for Horticulture.

Dr. Tanya M. Quist

Horticulture involves the production and management of intensively cultivated crop and ornamental plants. In addition to crop plants and orchards, horticulture also encompasses urban ecology, urban forestry and arboriculture. At its best, horticulture requires both artistry and a sound understanding of science. As world population growth floods into urban centers and US population growth concentrates in regions where water limitation is significant, environmental impacts and consequences of human land management practices intensify. Can we afford to treat casually the science underlying the management of our urban landscapes? Many horticulture programs across the country face budget cuts and declining enrollment. As federal and state budgets have been cut, a trickle-down effect has occurred affecting horticulture programs – some seeing budget cuts as high as 19 percent. The cuts have meant the loss of faculty, extension and research programs, department mergers and increased need for external, non-state funding. While the impacts of these cuts have not been limited to a single discipline, reduced academic emphasis on horticulture has amplified a growing chasm between industry practices and environmentally sound principles. Education and public support for municipalities, commercial and residential land managers is necessary for both environmental and economic sustainability. Sustainable sites not only provide vital, life sustaining ecosystem services, they reduce water consumption by 80%, green waste by 50% and labor by 50%. That's not just good science, it's good business!



## Fall Watering and Landscape Tips.

Diana Vercillo, UA Plant Science undergraduate major (and extraordinary UA Campus Arboretum student staff)

*Fall weather means you can cut back on watering.* Once winter arrives watering should be cut back by about 1/2 the frequency in comparison to summer irrigation. Cooling temperatures slow plant growth and overwatering could cause soil to become waterlogged. If plants become waterlogged the roots start to suffocate due to a decrease of oxygen available to the roots. Deciduous trees lose their leaves in the winter and with no foliage to transpire water they become especially susceptible to root problems. Plants from Mediterranean climates, on the other hand, prefer moisture in the winter.

## Other Fall Tasks.

Fall is the perfect time to liven up your landscape. With cooling temperatures and relief from the summer sun you can resume yard maintenance left off in the heat of June and July. Start by pruning back dead branches, fertilizing trees for new growth before winter comes, plant, mulch, and irrigate less frequently.

### CRIME AGAINST HORTICULTURE BLOG!

If your sense of humor leans toward the ironic, you may enjoy Billy Goodnick's blog: "Crimes Against Horticulture" The blog and accompanying images on Flickr communicate with humor, the brutality sometimes inflicted on nature in the name of urban horticulture.

# INSPIRED BY NATURE

"Restoration forestry should be at the top of the environmental agenda in urban and suburban areas.

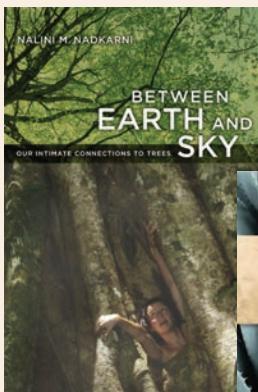
Merely planting trees as we always have done is not enough – we need a more radical approach to reforestation and afforestation. We shouldn't think of trees as only beautifying a city or suburb, but as a strategically planted ecotechnology, part of living, versatile, valuable environmental infrastructure that cools the urban heat island, cleans and manages water and air, acts as a natural mood elevator that reduces anxiety and depression, improves property values, mitigates noise, provides wildlife habitat, recreation, and medicines, and grows fruits, nuts and other nutritious foods."

Jim Robbins in *The Man Who Planted Trees*, 2012

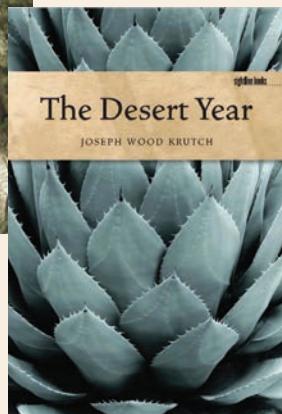


"After you have exhausted what there is in business, politics, conviviality, and so on – and have found that none of these finally satisfy, or permanently wear, what remains?  
Nature remains."

Walt Whitman



## Books to Read Under The Shade of a Tree



Robbins, J. (2012). *The Man Who Planted Trees*. New York, NY: Spiegel & Grau.

Nadkarni, N.M. (2008). *Between Earth and Sky - Our Intimate Connection to Trees*. Berkeley, CA. University of California Press.

Laws, B. (2011). *Fifty Plants that Changed the Course of History*. New York, NY. Firefly Books.

Krutch, J. W. (1952). *A Desert Year*. Iowa City, IA. University of Iowa Press.



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## Welcoming New Additions.

The Campus Arboretum continues to work with campus planners and managers to promote biodiversity in the campus landscape. Several nursery and private partners are working with us to grow-out many new native and cultivated woody trees and shrubs from our wish list. The combined efforts of all involved resulted in the planting of 267 new trees in 2011/2012. This, in part, offset the loss of nearly 200 trees in the record cold temperatures of February 2011. To name a few here are some of the more unusual species that have been recently introduced:



**Araucaria angustifolia (Brazilian pine)** The Brazilian Pine is an evergreen with tough scale like leaves that can grow up to 130 feet tall and 3 feet wide. It prefers well drained and slightly acidic soil. (Located southeast of Yuma Hall)



**Eucalyptus citriodora (lemon scented gum)** The Lemon Scented Gum can grow up to 75-100 feet tall. The leaves yield lemon scented oil (Citronella). It prefers full sun and is susceptible to frost damage below 50 degrees Fahrenheit. (Located on the south side of Centennial Hall)



**Robinia x holdtii (locust)** This Locust can grow up to 12-15 feet tall and 4-6 feet wide. This tree is drought-tolerant. The flowers are fragrant and attract bees and butterflies. (Located on the west side of CLAC Residence Hall, near 6th St. & Euclid)