

# THE ARBORICULTURAL Consultant

ISSUE  
**one** 2010

## Positioning ASCA for the Future



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**asca**  
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CONSULTING ARBORISTS

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James Allen, RCA #390  
ASCA President

When Wayne Gretsky, the great hockey player was asked what set him apart from other players he quickly responded: *Other players skate to where the puck currently is. I skate to where the puck is going to be!* Wayne instinctively knew where he needed to position himself in order to reach the goal and score, which he accomplished more than any player in the history of the game. ASCA leadership is tasked with envisioning where we need to be as Consulting Arborists and strategically planning in order for our membership to be prolific scorers.

### Vision

In order to accomplish this, the ASCA board met in August of this past year to revise our strategic plan. This effort identified key initiatives to be implemented within the next three years.

- Marketing, Public Relations, Public and Professional Awareness
- Career Education Development and Delivery
- The Membership Experience and Business Viability

The implementation of each initiative is vital to the continued success of ASCA.

### Call to Action

But this plan means nothing without action. Priorities were established by the Board to begin the action phase:

- Career education program investigation, development and delivery
- Website enhancement and upgrade

To better inform these actions, six task forces have been charged, two of which have been launched to investigate, inform and move these initiatives from concept to reality.

- Industry definitions
- Core competencies
- Education programming development and delivery investigation
- Educational business plan development
- Newsletter
- Website upgrade

*[continued on page 5](#)*

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E [asca@mgmtsol.com](mailto:asca@mgmtsol.com)W [www.asca-consultants.org](http://www.asca-consultants.org)**Editorial Board**

J. David Hucker, RCA #388, Technical Editor

Barbara Neal, RCA #428, Advisor

**ASCA ANTITRUST STATEMENT**

The following antitrust statement has been approved by the President and Board of Directors of the American Society of Consulting Arborists.

“Members of the American Society of Consulting Arborists, especially members of the Board of Directors and Society committees, are reminded that they do not and may not speak for or on behalf of the Society without the express permission of the President or Board of Directors of the American Society of Consulting Arborists. This prohibition includes the use of ASCA letterhead when making a statement of a technical, economic or political nature. Members of ASCA speak only for themselves as professional consultants when giving opinions or making statements.”

## When You Come to a Fork in the Road, Take It



*Ed Milhous, RCA #350  
ASCA Immediate Past  
President*

ASCA's Board of Directors met in Monterey the day before our Annual Meeting, welcoming the two new members you elected this past summer, Jim Clark and Molly Sinnott. I felt a bit of melancholy as I watched my final meeting as president pass by much too quickly, and saw Tom Mugridge and Mike LaMana bid farewell to the Board as their terms ended. But I left with a sense of excitement for our future. ASCA's membership retention rate is over 93 percent, a phenomenal number even in the best of times. Our Annual Meeting was one of the

most successful ever, with well over 300 attendees. We have a stalwart crew manning the ASCA ship, with James Allen steering and Alan Jones on deck. And we have a well-built strategic plan to guide the way. Yogi Berra can rest assured that whichever fork in the road we take, this group will get us where we need to be.

Our three-year strategic plan calls for ASCA to develop a structure for our educational programs. We will start with a business plan for education that identifies the best ways to deliver what you members—and our audiences of potential members and clients—need. ASCA recognizes both direct and indirect returns on investment in our various programs; we want to know what these are so that we can judge which are most successful and which need some fine-tuning. My view since joining in 1992 is that ASCA does pretty darn well with its educational efforts, but the Board realizes that these should be more consistent in terms of content and quality. To that end, we need a curriculum template and a way to monitor our offerings so that, over time, we reach all our audiences and cover all relevant topics.

None of this will happen over night, and it will take longer if you members do not pitch in to help. So, answer the call when it comes... Immanuel Kant wrote, “The best way to predict the future is to invent it.” 🌱

*Ed Milhous, RCA #350*

*ASCA Immediate Past President*



# Education where you want it, when you want it!

ASCA is making its outstanding programs available to you where you want them, when you want them! Through our ASCA Webinar Series, you can take advantage of the best experts in the industry in the comfort and convenience of your office or home. While only the registrant can receive CEUs, you can train others at the same time for the same price!

## The Write Stuff: An Introduction to the Critical Skill of Report Writing

The Write Stuff is a three-part webinar that will assist consulting arborists and other green industry consultants and practitioners to understand the importance of writing effective and competent letter reports that are logical, readable, usable and credible. As an introduction to good report writing, Logan Nelson, RCA #413, will teach you how to improve the reports you currently write and what steps you can take to become an even better report writer!

**ASCA members** \$65 for the three 1 hr sessions (3 CEUs)  
**Non members** \$95 for the three 1 hr sessions (3 CEUs)

## Risk Assessment Webinar

Take the seminar that received rave reviews at the 2008 ASCA Annual Conference! With experts like Nelda P. Matheny, RCA #243, Mark Duntemann, Christopher J. Luley, Ph.D, Brian Kane, Ph.D. and James R. Clark, Ph.D., RCA #357, you will be learning from the best in the industry. You can take one or all five parts of this webinar where you want it, when you want it and receive 1.6 CEUs for each completed segment!

**ASCA members** \$55 each 1-1½ hour session (1.6 CEUs)  
\$225 for all 5 (\$45 per session) (8 CEUs)

**Non members** \$75 each 1-1½ hour session (1.6 CEUs)  
\$325 for all 5 (\$65 per session) (8 CEUs)

For more information or to register go to  
[www.asca-consultants.org](http://www.asca-consultants.org) now!

David R. Ahlum  
Ahlum & Arbor Tree Preservation, Ohio

Molly E. Sinnott  
Sinnott Consulting, Nevada

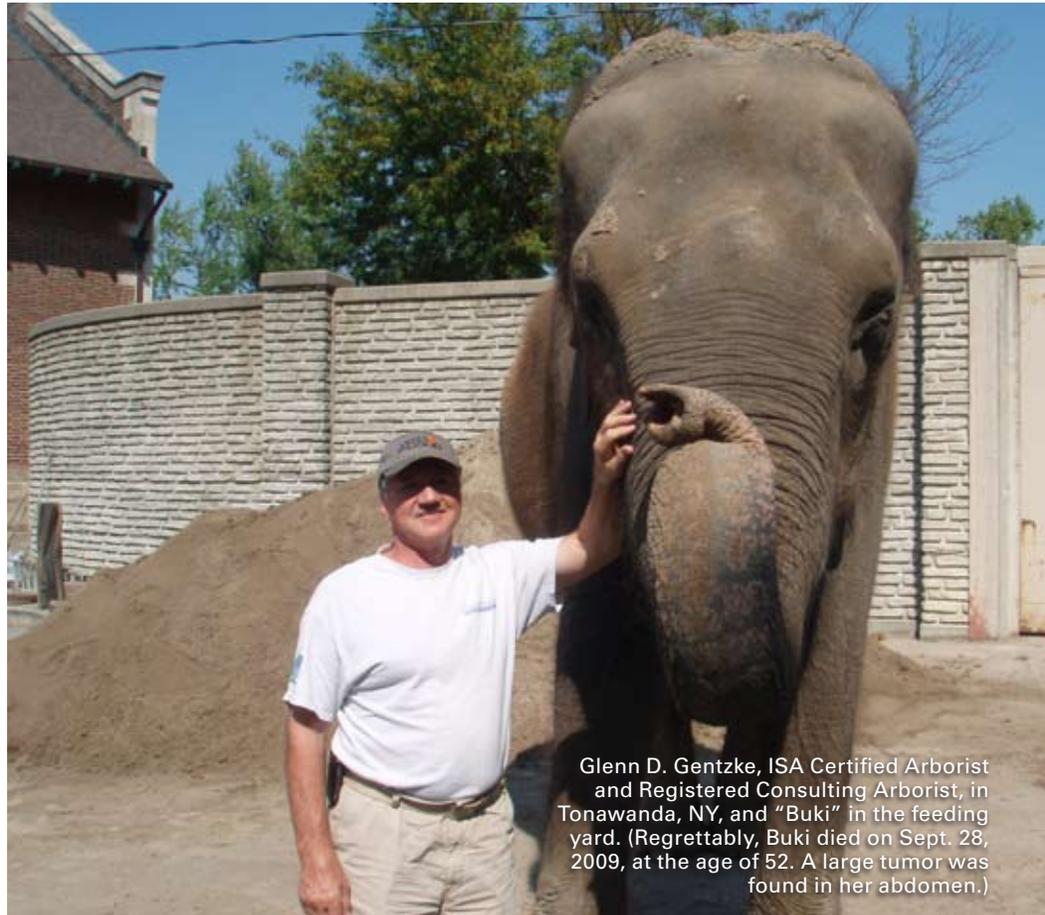
 **AMERICAN SOCIETY OF  
CONSULTING ARBORISTS**

# Arborist and Buffalo Zoo Join Forces to Feed the Elephants

Glenn D. Gentzke, RCA #485

Recently, while chipping the branches of a large Crimson King Norway maple (*Acer plantanoides*) I had just cut down, a dump truck pulled up and two zoo-keepers in municipal jumpsuits got out. One came up to me and asked if she could have the branches for “browsing” at the zoo. She said the elephants and gorillas loved them. I said yes, of course, and helped them to load their truck. I consider myself somewhat of a “tree hugger” and was pleased to provide this service.

I asked the zookeeper what other species of trees the animals could use. She replied that many tree species were toxic to the elephants (*Quercus*, for example), and that we’d have to coordinate with the Buffalo Zoo to determine what I could provide. I gave her my card and was contacted by the zoo shortly thereafter. The zoo does not have the resources to drive out to job sites, but they would be grateful if I could deliver the branches (cut in six to twelve foot lengths) to the zoo. My



Glenn D. Gentzke, ISA Certified Arborist and Registered Consulting Arborist, in Tonawanda, NY, and “Buki” in the feeding yard. (Regrettably, Buki died on Sept. 28, 2009, at the age of 52. A large tumor was found in her abdomen.)



Glenn D. Gentzke, is seen dumping two tons of willow branches in the feedlot at the Buffalo Zoo.

range is typically within a 40-mile radius of the zoo, so “drops” normally add a few hours of my time to any job.

In the days following, I worked with the Buffalo Zoo to provide “browsing” in the form of weeping willow (*Salix babylonica*) branches and leaves. I learned this is a favored delicacy of the Asian elephants and gorillas at our zoo in Buffalo, New York. Other favored local species include crabapple (*Malus*), Crimson King Norway Maple (*Acer plantanoides*) and Sun-

burst Thornless Honey Locust (*Gleditsia triacanthos* var. *inermis* ‘Sunburst’). (Western New York falls in zone 6 on the USDA plant hardiness map.)

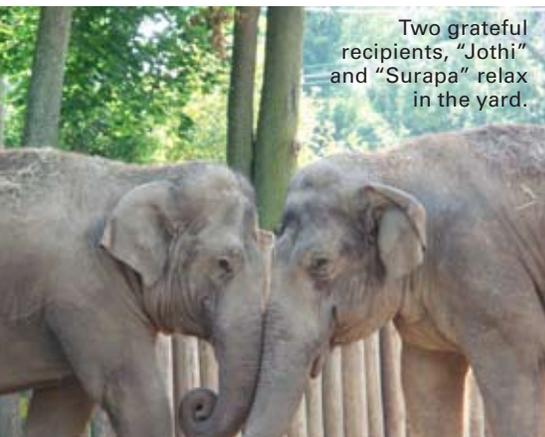
As arborists, we strive to “go green,” recycling all our byproducts. The August/September 2009 issue of *Tree Services* features an article by Don Dale entitled “Recycling for Profit, green waste is big business.” In the piece, he states, “When you recycle your own wood waste you can generate some income.” In our industry,

revenues can come from consulting, tree appraisals, “expert witnessing,” and the sales of mulch, compost, barbecue-flavoring wood (restaurant sales), firewood, timber and from the collection of green waste dumping fees. Additional revenues may come from commissions earned in subcontracting such as stump-grinding.

We have a moral obligation, however, to give back to our communities whenever possible. Often this means accepting municipal contracts without profit or at a loss. The zoo is a good example of this. Recently, I began showing photographs of my zoo adventure to prospective clients. All seemed impressed with this good deed; I am convinced that it has contributed to the closing of sales. To me, this is truly a “profitable” effort. I strongly urge you to contact your zoo and see if you, too, can be of assistance. The elephants and I thank you! 🌿



“Koga” sleeps and dreams of willow branches, yet to come.



Two grateful recipients, “Jothi” and “Surapa” relax in the yard.

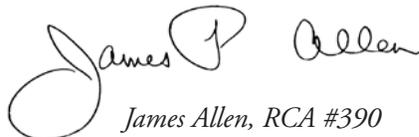
### Engaged Membership

A call was put out to volunteers to populate these forces with the secondary goal of identifying future leaders. Hopefully those of you that are interested in supporting ASCA raised your hand. Those of you that have yet to volunteer, I hope you will be encouraged to step up and contribute to the ASCA’s continued development and success.

### Measurable Results

The ASCA Board and I are committed to implementing the Strategic Plan. The Educational Program Development and Website Upgrade are primary goals during my Presidential term, as well as reinforcing Core Values and ensuring that ASCA membership is a rewarding and pleasant experience.

Please join me as we actualize our goals and move toward *where the puck is going to be!* 🌿

  
James Allen, RCA #390  
ASCA President

## Passing the Torch

Barb Neal, RCA #428, is stepping down as Technical Editor for *The Consultant*. Serving as newsletter editor since 2005, Barb started out working with John Lichter on an ad hoc committee on the newsletter and ended up volunteering to be the Technical Editor. We appreciate Barb’s many years of service to ASCA—lending her expertise and wisdom to carefully guide the newsletter ship. Barb will stay on with *The Consultant* in her new role as Advisor. Many thanks, Barb!

J. David Hucker, RCA #388, has taken the helm as Technical Editor. A full time consultant and native of Philadelphia, David has been a member of ASCA for 12 years and currently serves on the Board. For the past five years, he has skillfully handled the Q & A department for the newsletter and offered occasional editorial comment. We appreciate David stepping up to fill Barb’s big shoes and know the newsletter is in great hands. 🌿

# American Chestnut, The Life, Death and Rebirth of a Perfect Tree

By Susan Freinkel, University of California Press, 2007  
Reviewed by Barb Neal, RCA # 428

At the ASCA conference, pathologist Dr. Tom Gordon told attendees the stories of three exotic diseases, one of which was Chestnut Blight (*Cryphonectria parasitica*). The speed and virulence of the pathogen resulted in a change in our eastern forests that was truly epic. Livelihoods were lost, ecosystems forced to adapt, and the trees went from being a benevolent provider of food, structure and fuel to a distant memory within a few generations. I remember standing inside a hollowed-out chestnut stump with nine or ten other people—it was that big. Growing up in New England, I learned of the old legend that a squirrel could hop from chestnut tree canopy to chestnut tree canopy from Georgia to Maine and never touch the ground. It was hard to imagine the woods of my childhood so populated with these gentle giants.

In *American Chestnut*, author Susan Freinkel manages a neat trick: in her quest for knowledge and memories about the tree, she shares with her readers a journey that spans the hill and hollow country of the Appalachian Mountains where memories of the tree linger, to the laboratories of universities and foundations where dedicated scientists work to breed a resistant tree or find some cure for the disease—all the while writing in an interesting, informative and inspiring prose. Freinkel became interested in the fate of the chestnut as a

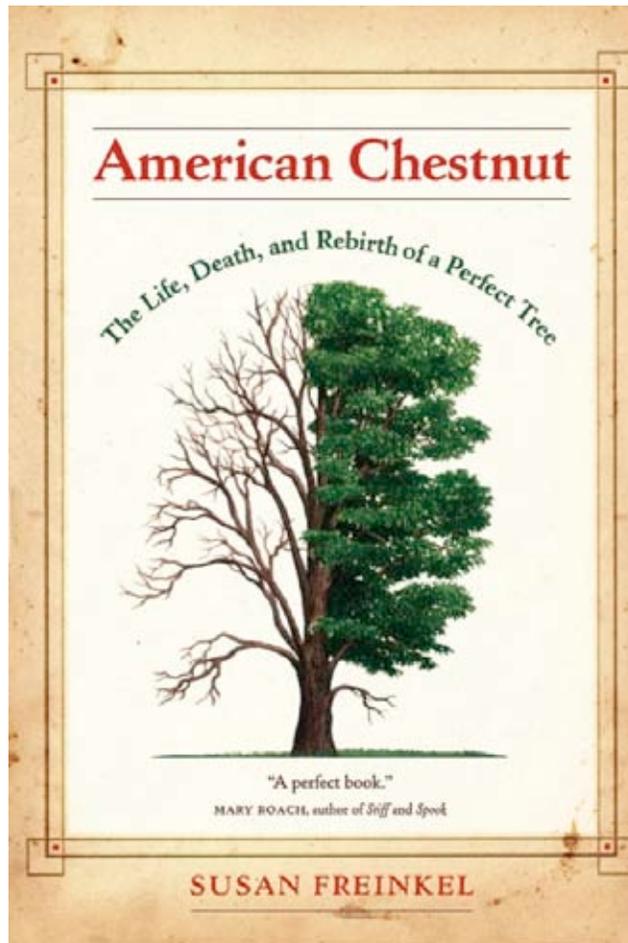
California resident who became alarmed at the outbreak of Sudden Oak Death (*Phytophthora ramorum*) and the possibility that many of the coast live oaks

to dig into the history, she was captivated by the quest to bring back the tree. She writes, “But something in the chestnut’s desperate dance with extinction riveted me. I was moved by the deeply personal ways in which people in Appalachia experienced the loss of the chestnut tree, and in which they still grieve its demise decades after the last chestnut forests disappeared. I was intrigued by the spirit animating current efforts to bring the chestnut back—a devotion that persists beyond all logic. In many ways, that deep sense of affinity for a tree is what I set out to understand.”

As we as consulting arborists face continual threats to our urban and rural forests—think Emerald Ash Borer, Sudden Oak Death, Asian Longhorned Beetle, Thousand Cankers Disease, to name a few—the history of the chestnut and the chestnut blight moves from a distant memory to help inform our present paradigm in which we take steps to manage the diseases and insects of our time. On the steps of the National Archives in Washington, D.C.,

is a saying, “The past is prologue.” Reading *American Chestnut* helped me put our current battles against alien invaders into a historical perspective. That the book is a darn good read is icing on the cake. 🌿

may perish. She wondered how previous generations faced the loss of “their” species. While the loss of American elms has been well documented, she found little in the way of narratives on the effect of the blight on the chestnut. Once she started



# Cool Tools We All Need!

By Joe McNeil, RCA #299

*At the annual conference in Monterey an evening open session was held that allowed the audience to discuss favorite tools or perhaps ask questions about tools they found a need for. Everyone seemed to participate and the topics ranged from photography to computer operating systems to field equipment. Joe McNeil demonstrated a unique optical/laser calculator, the Tru-Pulse 360, that generated great interest. Joe describes his discovery and subsequent use as follows.*

I saw this instrument at the ISA Annual meeting tradeshow in Hawaii, 2007, just before it's general release. It is similar to rangefinders in that it indeed will display distance to an object. I've gotten readings from "non-reflective" targets such as trees, a happy coincidence, since trees are usually what I'm looking at, to a distance of nearly 3,000 feet under ideal conditions.

It's similar to other instruments in that it also has an integrated level, so it can display and retain information about observed angles, and use this to calculate heights of things. Trees for instance.

What puts this in a different class is that it also measures and retains compass direction, or azimuth. The azimuth can be adjusted for local declination, to read true north.

There are other instruments that do this, of course, but they're in the \$4,000 plus range, as I remember. I believe this is about \$1,600 or \$1,700, depending on Bluetooth capability.

The value of this feature, or at least how I use it, is that it can locate a point on a target relative to the instrument, both height (higher or lower) and in azimuth. If the instrument is then directed to a second target, it can locate that second point relative to the first.

Information it will provide about the relationship between the two points is horizontal distance, the vertical projection. This is what you'd see or place on a site drawing. It provides the elevation of one point above the other, as well as the distance between the two, along the sloped actual line between them. It displays the slope of this line in degrees or percent, and its azimuth, the direction it's pointing relative to true north.

For me this device was a godsend at that particular time. I had just started a project in rough terrain that had perhaps a hundred trees, not located by the surveyor, but with a dozen surveyed points I could locate in the field. None of the project perimeters were staked.

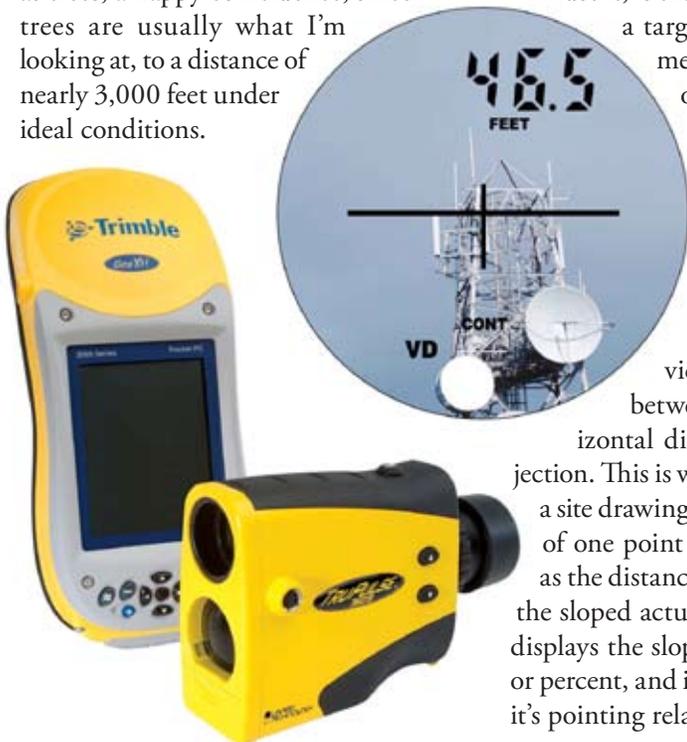
I was able to roughly locate individual trees relative to the surveyed points, in elevation, distance and direction. I collected the data and transferred it to an AutoCad drawing, the pertinent layers of which I was able to distribute to the architect and civil engineer for their use.

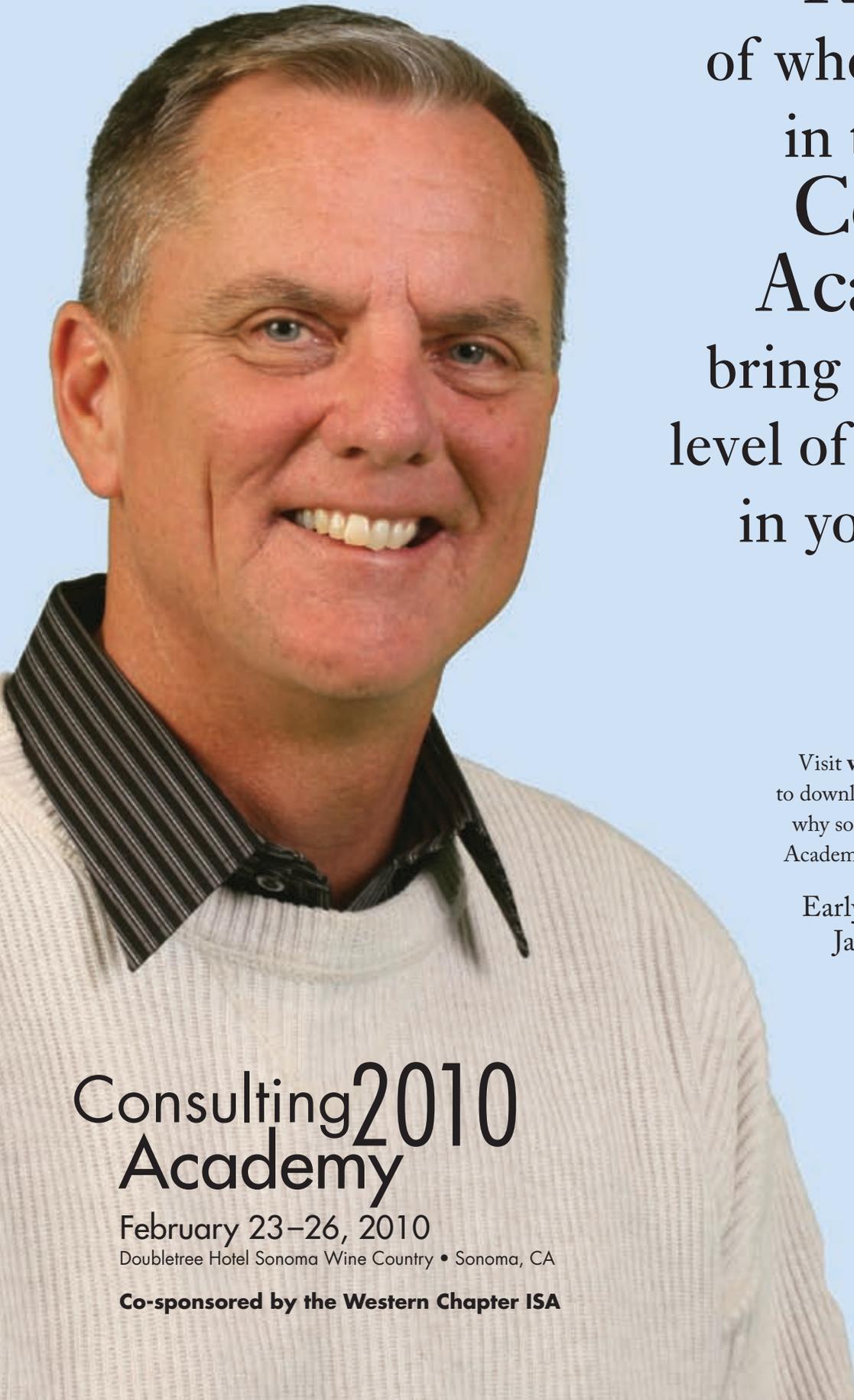
I use this instrument in a somewhat non-rigorous manner. To assure that rotations vertically or horizontally are around the axis from which the device measures, it should be tripod mounted. I don't usually comply. I often correct rather casually for offsets, for my measurement from the side of one tree to the side of the other, instead of center to center.

The result is an approximate site map rather than a site map to survey precision, of which I'd be incapable in any case. I strive on site maps or in tables to distinguish trees I've located from trees located by a surveyor, to avoid misleading those who use my information.

On a construction site, for trees clearly within a building footprint, more precise location may not be required. Similarly, for trees well outside any zone of disturbance, such an imprecise location may be sufficient. But, if location of a tree is critical, if it is near the curb, or building,

*[continued on page 27](#)*





“Regardless  
of where you work  
in the field, the  
**Consulting  
Academy** can  
bring you to a new  
level of competence  
in your **career.**”

—D. Scott Shultz, RCA #387  
*Walt Disney World, FL*

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to download the Academy brochure and see  
why so many mark the ASCA Consulting  
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Early bird registration is Friday,  
January 22, so **register today!**

# Consulting**2010** Academy

February 23–26, 2010

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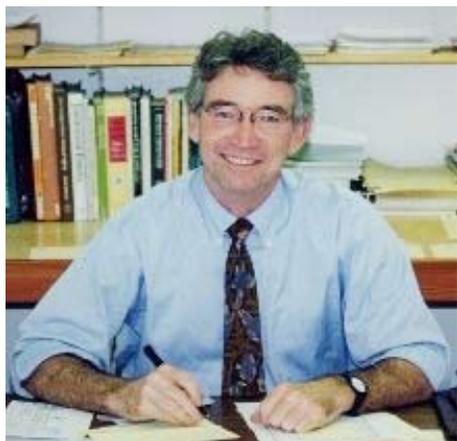
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The Consultant's Consultant



## Kenneth W. Allen, RCA #374

August 17, 1943–August 28, 2009

I am deeply saddened to report the passing of a long-time friend and respected colleague. I am sure many of you knew him. Although reserved and thoughtful, Kenneth Allen was always sociable and present at many of our conferences and meetings.

Kenneth passed away August 28, 2009, at his home in San Francisco, suddenly and unexpectedly, of a heart attack.

I, as many others, appreciated his friendship, his professionalism and his presence. I always found him receptive, open, sensitive and appreciative... a true friend. I will miss him, but am please to have known him.

—Torrey Young, RCA #282

Kenneth W. Allen's life began in Columbia, South Carolina, on August 17, 1943. His early childhood was far from perfect. He and his younger brother, Ron, grew up under challenging conditions, with their parents divorcing early in their lives.

His mother remarried when Kenneth was twelve. He and his younger brother were adopted by their new father, with whom he maintained a lifelong relationship of love and respect.

Kenneth's love of dance began when his mother turned up the music and danced him around the kitchen.

By the time Kenneth finished high school, he had acquired "the King's English" so

thoroughly that most of us could no longer hear the Southern accent in his voice, and some of us thought that he must be British!

Soon after graduation, Kenneth joined the Marines and served in Vietnam from 1962 to 1966. He enrolled thereafter at the University of North Carolina, and then withdrew to begin a two-year hitchhiking odyssey working at odd jobs around the country.

He moved west and enrolled first at the University of California at Berkeley, married, and then completed an undergraduate degree in anthropology with honors at the University of California at Santa Cruz in 1981. His 185-page senior thesis was entitled "The Sociology of Meaning." The advisor for the Board of Studies in Anthropology reviewed his thesis as follows:

"It is a sustained and lucid philosophical analysis of the concepts of mind, culture, and social structure. The thought of a large number of scholars, especially the philosophers Wittgenstein and Ryle, the psychoanalyst Schafer, and the anthropologist Geertz, is drawn on with great analytic and synthetic skill, and the resulting thesis is a superb, sophisticated, mature essay. The ideas are complex and the argumentation is tight. The writing is a marvel of clarity. Mr. Allen has been working on this thesis for several years, and he has produced a remarkable piece of work which in quality of ideas, mastery of literature, and grace of writing

goes far beyond the expectations of an undergraduate thesis. It is honors work of the highest distinction."

Thereafter Kenneth and his wife had an amicable parting, and he spent a summer at Oxford University studying English landscape and garden design.

Ken had begun a career in arboriculture in 1979. Beginning in 1981, he practiced commercial and consulting arboriculture. From 1981 to 1988 he taught courses through the Royal Botanic Gardens of Madrid and the Canary Islands, the Royal Palaces of Madrid and Segovia, and the municipalities of Barcelona, Madrid, Seville, and Valencia.

Over the years, he continued to teach, lecture and publish and was perhaps Northern California's foremost authority on the selection, transplantation, and care of palm trees.

Kenneth became a Registered Consulting Arborist in 1998, a Board Certified Master Arborist in 2005 and a Certified Urban Forester in 2006.

At various times Kenneth pursued skydiving, sailing, rock climbing, and recreational tree climbing. He could footlock with the best of them.

Kenneth's dancing abilities extended back to lessons begun three decades ago, and included many evenings of ballroom dancing, Western Swing, and the Lindy Hop.

*continued on page 13*

# You Need the TREE Fund...

## And the TREE Fund needs you!

### Have you ever:

- pruned a tree?
- performed a tree risk assessment?
- diagnosed a tree problem?
- treated a tree for a pest problem?
- fertilized a tree?
- planted a tree?
- performed a tree inventory?
- performed a root collar excavation and inspection?
- watered a young tree?
- tried to decide which tree would be the best to plant in a given situation?
- wondered about soil properties in the urban landscape?
- used PGR's to manage trees?

If you can answer yes to any one of the above questions...then you've probably benefitted from the work of the TREE Fund! The TREE Fund (Tree Research & Education Endowment Fund) is currently the leading non-governmental source of funding for research and education programs in the field of arboriculture. Their mission is to identify and fund projects and programs, which advance knowledge in the field of arboriculture and urban forestry to benefit people, trees and the environment. The foundation

has distributed more than **\$6 million** to date in the form of scholarships, educational program funding and research grants to students and professionals in the industry. More than **400** research grants have been funded, the results of which directly impact tree care practices, people's lives and arborists' techniques every day!! So far in 2009, the TREE Fund has awarded **\$183,000** in grants and scholarships and inaugurated two brand new funding programs.

How can you support the TREE Fund's mission? The options are almost unlimited...but here are a couple of ideas. Sign up to ride the 2010 Stihl Tour des Trees (either the full Tour or the 1-day "Ride for Research" on July 24). You could also support a Tour rider with a cash donation or volunteer to help at a TREE Fund event.

Visit the TREE Fund website at [www.treefund.org](http://www.treefund.org) to see and learn about how the TREE Fund is helping each of us engaged in the field of arboriculture. The site has been recently updated, and the *grants/scholarships* and *news* pages in particular are loaded with useful information. The Tour des Trees website at [www.stihltourdestrees.org](http://www.stihltourdestrees.org) is the best source of up-to-date information about the 2010 STIHL Tour des Trees, which will trace a loop through northern Illinois, beginning and ending in the Chicago area. The 2010 Tour route map is posted on the website, and rider registration opened January 4.

Now it's time for you to get involved and help the TREE Fund... help yourself... and help our industry!! Please contact me with any questions or suggestions.

Michael W. Dougherty  
MW-ISA TREE Fund Liaison  
913.894.8733  
[Treemgtco@aol.com](mailto:Treemgtco@aol.com) 🌿

### ASCA Conference Speaker Ron Karr Donates Portion of Book Sales to the TREE Fund

The 2009 ASCA annual conference kicked off with a session on *Three Critical Mindsets for Selling an Arborist's Consulting Services*. Ron Karr's session provided a different way to think about and approach the sales process.

Attendees were also able to take advantage of his message by purchasing some of his publications. He then went on to donate \$150, a portion of the sales, to the TREE Fund in ASCA's name.

# ASCA Member Profiles



**Charles T. Commins (Terry)  
RCA #479**

After more than twenty years in the tree trimming business, Terry was fortunate to become employed by a local consulting arborist. This new side of the business re-energized his interest in the field of arboriculture.

Immediately upon starting his employment, the company was knee deep in storm damage appraisals after the area was hit by two South Florida hurricanes in 2004. It surely was a lot to learn, but Terry caught on quickly and excelled at the task. Just as the appraisals were winding down, they were again hit by two more hurricanes in 2006. The company once again performed a large amount of storm damage appraisals, and were also involved in the re-landscaping of several large complexes.

During his employment Terry was introduced to ASCA and motivated to organize his CEUs and continue on his mission to obtain the required hours to join. In due time, Terry met that goal,

joined ASCA, and attended the Academy, an experience that he will always remember.

Terry looks forward to the challenges ahead of him and is always looking to increase his knowledge base.



**Glenn D. Gentzke, RCA #485**

A native of Tonawanda, N.Y., Glenn became interested in arboriculture in 2005 while helping to remove trees in Waveland, Miss., in the wake of Hurricane Katrina. In October 2006, in the aftermath of the “October Surprise” storm that devastated large portions of Western New York’s tree population, he was a project manager for Boldt’s Logging, Inc. Here he directed all phases of emergency debris removal, as part of a FEMA contract awarded after large sections of the region were declared a “major disaster” area by President Bush. He became an ISA Certified Arborist (NY-5317A) in 2006, and earned his ASCA RCA designation in December 2009.

A 1973 graduate of the University at Buffalo, where he earned his BS in accounting, Gentzke earlier served in the U.S. Army as a First Lieutenant, having graduated from Officer Candidate School in Ft. Sill, Okla. He spent 16 years in the aerospace division of Moog, Inc., where he was a senior program manager. He has also headed his own accounting and tax preparation business, and early in his career worked in commercial landscaping. He is married and the father of two grown children.



**John Hosbach, RCA #483**

Professionalism, hard work and character define ASCA for John. Since his first interaction with the group in 2001, he knew the RCA status was his goal and final destination. He has yet to see a group with such involvement and resources.

After attending college in the study of urban forestry, John knew he would spend the rest of his life in the Arboricultural field. Serving the Philadelphia market has some great challenges and surprises to say the least. He’s not one for

preparing a bio, but would much rather list various individuals that have spent time answering his questions and giving advice over the years. The “People” are who make ASCA a great place with which to be associated. Russ Carlson, David Hucker, Mike LaMana, Scott Cullen, Lew Bloch, ASCA staff, and all the people that John has interacted with at the conferences have all been a invaluable resources. It is a great feeling to know that there is support and camaraderie among the elite group of Consulting Arborists.



**Eric H. Hoyer, RCA #482**

Eric is employed as a consulting forester and consulting arborist with Natural Resource Planning Services, Inc. in San Antonio, Florida (look that one up on a map!) and serves as Division Co-Manager for the Arbor Division. He has been with NRPS since 1995. He has also worked as a county forester with the Florida Division of Forestry, as an environmental consultant and owned his own forestry consulting business. Eric has 33 years experience in both timber management and arboriculture in Florida. A Certified Arborist since 1992 (one of the first ten in Florida), Eric is also a Certified Forester through the Society of American Foresters. He has been a member of ISA since the early 1980s and currently serves as the Secretary of the Florida Chapter ISA. Eric joined ASCA in 2009 (better late than never, he says) and recently became an RCA.

Eric resides in Lakeland, Florida with his wife Cathy. They have two daughters and five grandchildren (and three

dogs and two cats). Eric is an avid cyclist and has done several cross-state rides. He and Cathy enjoy hiking, kayaking, and cycling.



**Gordon Mann, RCA #480**

Gordon is the Municipal Manager for Fallen Leaf Tree Service in Sacramento, CA and owner of Mann Made Resources, a marketing and consulting firm in Auburn, CA. During his 32-year urban forestry career he served in three cities. He retired as City Arborist and Public Works Superintendent with the City of Redwood City. He joined the Sacramento Tree Foundation as Urban Forest Services Director until January 2009. He developed the Redwood City Tree Preservation and Sidewalk Repair Program and is passionate about clear specifications, standards, criteria for decision making, and young tree care.

Gordon currently serves as a Director on the ASCA board and as the Municipal Arborists Committee Chair for the Western Chapter ISA. He serves as the SMA representative to the ANSI A300 standards writing committee.

He served as president of the California Arborists Association and Western Chapter ISA. He served as a Director on the Society of Municipal Arborists (SMA) board for two terms.

In addition to being a Registered Consulting Arborist, Gordon is an ISA Certified Arborist and Municipal Specialist, and a CaUFC Certified Urban Forester. He was written up in the Redwood City local newspaper as the rollerblading

arborist. In his spare time, he volunteers on the Sugar Bowl Ski Patrol.



**Greg J. Monfette, RCA #481**

Greg has been a Certified Arborist since 1991 and is actively involved with the Western Chapter ISA in the following areas: Currently a President Elect on the Board of the Western Chapter International Society of arboriculture; judging and assisting with the certified tree worker/arborist exams; a proctor for the International Society of Arboriculture Certification process; the Certification Coordinator for the Southern California area; the Regional Conference Chair for the Western Chapter; a champion of an initiative of the chapters strategic plan; the Western Chapter’s first Workday Coordinator; as well as various other committees throughout his tenure.

Greg is a Superintendent I in the Urban Forestry Division for the City of Los Angeles which manages one of the largest street tree populations in the nation. In this capacity he manages one-third of the City’s tree population, as well as overseeing the sub-division section which deals with all construction projects throughout the City of Los Angeles. Prior to coming to the City he was the owner/operator of Neighborhood Tree Service. He is currently a private consultant and owner of Neighborhood Consulting Arborist, where his specialty is root and infrastructure conflicts. He is the Past President of the Street Tree Seminar in Southern California, an ASCA Academy graduate, a Certified Arborist/Certified Tree Worker/Utility Specialist with the WCISA, a licensed

Pest Control Advisor and Pest Control Operator with the State of California, and has been involved with the tree care industry for more than 29 years.

Greg's goals for the industry are the following: to continue to provide relevant education and training, promoting outreach and involvement to youth, multilingual and diverse groups, resulting in professional growth and development within our organizations; work to express the importance of volunteers within our industry and the benefits to our multiple memberships; put together a study, with other organizational members, to develop industry standards relating to sidewalk repair, alternative options, tree preservation, tree retention, and root pruning standards; outreach to more field employees through bilingual, field level training; and work with various organizations to continue to improve our industry and ensure that our membership receives the benefits they deserve.



#### **Judith L. Thomas, RCA #484**

Judy has been a Certified Arborist since 1984, and provides services as an Arboricultural Consultant and Horticultural Advisor in the Bay Area, for both plant consultations and landscape management.

She holds a Master's degree in Biology from San Jose State University and a Master's Degree in Education from Stanford University, and has a Bach-

elor's degree in Biology from Stanford University. Judy was the recipient of the 1985 Education Award from the Northern California Turf and Landscape Council.

In May of 2007, Judy retired from her full-time position as Landscape Horticulture Instructor at Merritt College in Oakland, California, where she taught since 1977.

Currently, she is the President of the Northern California Turf & Landscape Council (NCTLC) and editor of their quarterly online newsletter. She serves on the Northern California Advisory and Executive committees of the Mediterranean Garden Society.

Judy also serves as a featured speaker for the East Bay Master Gardener Program, the International Society of Arboriculture, the NCTLC, the Diablo Firesafe Council, the Nevada Shade Tree Conference and numerous garden clubs and civic groups. She has been an education chair for the ISA, an editor for the Ortho book *Gardening Techniques* and was a 1985 Horticultural Delegate to China. Her garden was photographed for two *Sunset* books and was one of those featured on the Park Day School tour in 1989. Judy's new garden has been described in the MGS Journal No. 57 in July 2009. 🌿

#### In Memoriam [continued from page 9](#)

He loved the symphony, the theater, a wide range of music, and probably everything sung by Diana Krall; he subscribed to a daily quotation post by Garrison Keillor. He was a member of the Commonwealth Club and a frequent attendee at its lectures.

Kenneth's extensive jazz collection was donated to the Oakland Public Conservatory of Music for use by disadvantaged and aspiring young musicians.

Kenneth is survived by his adoptive father James Wilson, his stepmother Judy Wilson, his sisters Debbie Wilson and Kathy Pattishall, his nephews Christopher, Taylor, and Graham Smith, and his stepsister Lisa Reese, all of whom live in North Carolina.

His family and his friends from many circles will not forget the "gentleman of the trees."

About 25 family members and friends gathered on Saturday, October 24, 2009, to celebrate Kenneth's life. He was a highly respected arborist, a great friend, and always—a gentleman. We will miss him. 🌿

*Reprinted from the Kenneth Allen Memorial Website: <http://www.kennethallenarboristmemorial.blogspot.com/>*

## **Upcoming Events**

**2010 Consulting Academy**  
February 23–26  
Doubletree Hotel  
Sonoma, California

**2010 Annual Conference**  
December 5–8  
Amelia Island Plantation  
Amelia Island, Florida

#### **Webinars**

Anytime you want!

<http://eo2.commpartners.com/users/ascacon/>

## Member News

**Jack Phillips, RCA #449**, is teaching several courses this winter. *Tree Root Anatomy, Physiology, and Ecology: An Exploration of Roots, Rhizosphere, and Symbiosis Through Dissection and Microscopy* was taught at the Metropolitan Community College in Omaha, Nebraska, on January 13, and will be offered again February 12 at the Sheraton on the Falls, Niagara, Ontario, during the ISA Ontario Chapter Annual Educational Conference and Trade Show. Jack's upcoming course for Spring 2010—*Tree Biology and Care: Planting, Culture, and Preservation of Trees in Urban and Built Environments*—will be offered in Vancouver, April 19-20; in Saskatoon, May 5-6; Cambridge, Ontario, May 12-13. For more information, contact Arboriculture Canada Training and Education at [www.arborcanada.com](http://www.arborcanada.com).

**Lew Bloch, RCA #297**, and **Christopher J. Luley, Ph.D.** were cited in *The Legal Intelligencer*—which states on its masthead: “The Oldest Law Journal in the United States”—as assisting as expert arborists in a 5.5 million dollar settlement in a case in Philadelphia, Pa. They were plaintiff experts involving a tree failure that impaled the leg of a blind lady while she was being transported from her job at the Philadelphia prison system by a para-transit bus. The plaintiff attorney was not entirely satisfied with the settlement amount that he thought could have been quite a bit more if the case went to trial. However, his client wanted to settle because the main defendant (one of 3 defendants) was insured by AIG and

she was concerned about their financial condition if it went on to trial.

**Spence Rosenfeld, RCA #332**, President of Arboguard Tree Specialists, was presented the Outstanding Urban Arboriculture Award for 2009 by the Georgia Urban Forest Council (GUFC) for extraordinary efforts taken by the company in the development of the Southern Seasons Garden, a new addition to the Atlanta Botanical Garden.

The Southern Seasons Garden was created to encompass both woodlands and continuous year-round bloom that are iconic to gardening in the Southeast. It hosts hydrangeas, camellias, trillium, native orchids and ferns nestled under the cathedral of oaks, tulip poplars and beeches. Appropriately, the Southern Seasons Garden is the first display visitors see when entering the ABG.

In addition to irrigation, electrical lines, and retaining walls, over a half mile of ADA compliant walkway was built within inches around the trees. That meant creating floating bridges and precise root excavation. In addition, the trees needed to be protected from the large cranes that were used to place the slabs for the Henry Moore Exhibit. Geo-textiles and other materials were employed to soften the impact of construction.

Spence's company also received the Green Innovation Award in the 2009 Professional Landscape Awards program, presented by the Metro Atlanta Landscape



and Turf Association (MALTA), also for the Southern Seasons Garden.

**Tim Kastning** has been appointed to the State of Idaho Community Forest Advisory Council. Tim has also recently been appointed to the Board of Directors at the Coeur d'Alene Chamber of Commerce, and North Idaho Builders and Contractors Association. “Community involvement is an important part of our business, and we want to continually give back to the communities we serve, and professionally represent the field of Arboriculture,” says Tim.

**Judson R. Scott, RCA #392**, announces the presentation of the Carmel Green Award to the Upper White River Watershed Alliance (UWRWA). The Green Award, sponsored by Vine & Branch and the Carmel Chamber of Commerce, recognizes an organization, company or association that is solving environmental challenges using innovative and green practices or by setting up creative partnerships to enhance the environment.

The Upper White River Alliance (UWRWA) is a regional coalition of a diverse cross-section of professional, governmental and citizen groups working together on regional planning to improve and protect water resources.

The project that they submitted this year for the Green Award was the Regional White River Clean Up—Partnering to Protect the White River. The UWRWA and a core group of Hamilton County

communities have worked to bring together a partnership across six counties (Randolph, Delaware, Madison, Hamilton, Marion and Morgan). This regional approach resulted in 1500 volunteers cleaning the river on the same day and gained a corporate sponsorship from Kroger.

The project encouraged the participation of the public and made them more

aware of their commitment to the River as it is shared with others up and down stream. The success of the project is directly measured by the 40,000 lbs. of trash and other debris removed and materials recycled. All of Central Indiana is dependent on the White River for drinking water supply, industrial processes and discharge, recreation and transport of floodwaters—making this sustainable project a winner for all.

**John Harris** and his colleagues were invited to author a few chapters for a multi-disciplinary book about Sustainable Site Development being edited by a planning and design foundation in Washington. These chapters are regarding sustainable landscape principles and environmental site design principles. The book will be published next year.

**Philip van Wassenaer**, President of Urban Forest Innovations, Inc. in Mississauga, Ontario, was honored as one of seven “True Professionals of Arboriculture” by the ISA at the 85<sup>th</sup> ISA Conference & Trade Show in Providence, Rhode Island, this past July. “True Professionals” was designed to highlight a group of today’s arborists who represent the profession in the most positive light and to recognize professional arborists who help increase public understanding of arboriculture and the professional skills of today’s arborists.

Fellow ASCA members **Dave Leonard, RCA #346, Harold Spiegel** and **Dennis Swartzell** were also honored as “True Professionals” at the event.

**Tom Mugridge, RCA #306**, was named “Person of the Week” by the *Sun Messenger*, a community newspaper owned by *The Cleveland Plain Dealer*, Ohio’s largest, and the nation’s 16<sup>th</sup> largest, newspaper. Tom was recognized for his work chairing the Rotary Club of Hillcrest’s “A Taste of Hillcrest” event the past five years.

“A Taste of Hillcrest” is the club’s major fundraiser and has raised over \$100,000.00 since 2005. All of the net proceeds help finance the club’s charitable works, including the purchasing and placement of over 35 AEDs in the communities the club serves, along with sponsoring Meals on Wheels, local Special Olympics, vocational students and area Senior and Youth programs. 🌿

# NEW in what to wear from ASCA!

## Navy Down Vest

This is the “must-have” item for winter!. The wind-resistant vest is filled with 500 fill power grade down. That’s warm! And the details are all there: precise quilting, snap front, slash pockets and a drop-tail hem for extra warmth and coverage. Machine washable. With ASCA logo embroidered in white and green.

- Wind-resistant 100% nylon shell
- 500 fill power down (note: fill is 70% down / 30% feather)
- Snap front
- Slash pockets
- Drop-tail hem for extra warmth

Sizes: S, M, L, XL, XXL, 2XL



## Navy Baseball Cap

Navy, 100% certified organic cotton twill; 6-panel, unstructured; navy with matching sewn eyelets; self-fabric closure with brass slider and hidden tuck-in, with ASCA logo embroidered in white and green. One size fits all.



Item	Quantity	Price	S/H	Subtotal
Cap		\$20	+ \$5 ea	
Vest		\$55	+ \$12 ea	
<b>Total</b>				

## Payment Information

Amount Enclosed \$ \_\_\_\_\_  Check  Visa  MasterCard

Credit Card Number \_\_\_\_\_ Expiration Date \_\_\_\_\_ Security Code \_\_\_\_\_

Name on Card \_\_\_\_\_ Signature \_\_\_\_\_

## Shipping Information

Name \_\_\_\_\_ Address \_\_\_\_\_

City \_\_\_\_\_ State/Province \_\_\_\_\_ Country \_\_\_\_\_ Zip Code \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_ Email \_\_\_\_\_



## More Thoughts After Monterey

**Some years ago, it was thought that perhaps pesticides would become decreasingly needed, as our plant health care tools and tactics diversified and improved. Sales of pesticides seem to suggest this may not be the case. Is there an anticipated direction the industry may be going, in the foreseeable future, with regard to these products?**

*I am not certain in what direction the industry is or will be going. I submit that it should increase the integrated approach utilizing monitoring and scouting and treating only where necessary to protect the health and function of the plant material. There are still too many companies selling automatic renewals without an inspection for pests that may not need treatment in some years. There are also too many situations where treatments and recommendations are made without accurate identification of the pest or problem. I also see situations where relatively simple treatments are foregone due to the lack of an accurate identification. (Trees with borers are fertilized because no one identified the borers.)*

*I think we need to create more opportunity for arborists with entomology and pathology backgrounds by elevating the stature of the IPM monitoring and scouting functions. The typical track for someone with these skills leads to a sales role in most companies if they seek career advancement—a role many very good arborists are not comfortable with or even fail at. Rather than*

*pest identification and treatment recommendations being part of the sales process, they should be the product. So long as we are giving these functions away, arborists that go into sales will continue feeling pressure to sell items in order to feed their family that may not be in the clients', or environment's, best interest. It is time for this model of providing services in the industry to be challenged and replaced by a more professional system, where the value is placed on the diagnosis and recommendations, not just providing the treatment. This will reduce the likelihood of overselling chemical treatments and provide an upward path for arborists other than sales.*

—Don Zimar, RCA #446

*The issue has become so politically correct that the science and use got lost. The use increased because the people using the product realized they were not being helped by the “green” industry.*

—David D. Hunter, RCA #408

*Pesticide sales most likely have not decreased because pesticide chemistry has shifted from contact to systemic. These changes allow applications to be made by soil/trunk injection, soil drenches and bark applications using bark penetrants. Present day treatments are more environmentally friendly and target just the insect pest with no detrimental effect to beneficial insects. Alternative treatment methods most likely*

*will be developed within the near future. Recent, not yet published, research conducted at the University of Kentucky centered on an “ant-exclusion” trial for soft scale infestations using Tanglefoot® on tree trunks. The hypotheses of these trials was to keep the ants from “sitting” [protecting/guarding] the scales while savoring their honeydew and allow beneficial insects to control the scale population. Results of this research yielded 53.6% control in 2008 and 68.5% in 2009 on calico scale. These results provided better control than previous research using numerous pesticide strategies. Another small “ant-exclusion” study was performed in 2009, with newly planted magnolias which were artificially infested with magnolia scale, this effort yielded an 82% reduction. This test was statistically significant but it was a new infestation rather than a large established one. Pesticides will remain in the PHC toolbox, but application methods will be more environmentally conscientious which may or may not effect pesticide sales.*

—W. Larry Hanks, RCA #415

*I have heard in presentations and read about greater control over what chemicals and/or combinations of chemicals can be used in pest control. In some states and individual municipalities, it is required that only licensed pest control operators can apply pesticides, and that a decision tree be followed so that the least toxic chemical treatment is used (IPM—Integrated Pest Management),*

sometimes a bio-rational type treatment. Requiring that pesticides only be applied according to label information and for treatment of only the specific pests listed on the label is part of pest control regulations that I read. I foresee more restrictions on what chemical can be used and on rates of applications in the future, and making some of the more toxic chemicals illegal to apply in some municipalities or specific types of areas (like riparian zones, littoral zones, water bodies, slopes, within urban areas, or within x feet of homes with MCS—Multiple Chemical Sensitivity individuals).

—John Harris

Acceptance and support of a balance between predators and prey (insects and plants) on our planet is a commendable but grandiose goal. If we as a society move to any extent to that direction, that is success. There are many factors that effect insects and plants that are beyond individual control such as monoculture, lack of genetic diversity in nursery stock, enhancement of susceptibilities by nursery breeding practices, uninhibited movement of species between ecosystems, selecting appropriate environments, irrigation practices, shipping (plants and host material), lack of restriction and quarantine compliance and enforcement, natural predators (both protection and unintended eradication), etc. Therefore, the mere awareness of some of the impacts of some insecticides and practices and some movement towards balanced and natural outdoor environments may be all we can expect. It seems to me unrealistic to expect a dramatic reduction in the near future, until we see a dramatic change in many social values and practices.

—Torrey Young, RCA #282

I don't believe we ever felt that pesticides would become decreasingly needed, the thinking was we would learn to use tools that were more precise and less invasive. Today's tools (pesti-

cides) are targeted to the pest, to the type of plant and mode of action. Our industry has been through a great deal of challenges, especially as it relates to invasive species and regulatory actions. We will continue to be challenged as we battle to save our critically important Urban Forests. We will have to continue to be creative with our treatment protocol solutions and pesticides will always be a tool in our arsenal.

It is our responsibility as environmental stewards to continue to study and apply holistic solutions when practical. That coupled with responsible targeted pesticide use will provide our customers with the best solutions for the health of their landscapes.

—Richard M. Foote

I believe that sales of pesticides will continue to increase because the companies are not required to account for the true "cost" of their use. Costs to groundwater, surrounding vegetation, wildlife, as well as energy and water costs to produce, store and ship the products to market. How do we reconcile our connection with the agricultural chemical industry as sponsors for our conferences and seminars?

Consulting arborists should have a role in educating their clients about their using the minimum amount of chemicals to keep trees healthy, through the promotion of healthy soils, appropriate plant spacing and species. Many in the industry still use chemicals because it is easier than planning for release of beneficial insects—and clients don't want to wait. It might be that the profit margins for sales of beneficial insects are not as lucrative as pesticides. Judging by the aggressive sales tactics of the lawn care companies in my area (Glendora, CA), much of the pesticides used in our area are to keep lawns green. I wonder how much of the total pesticides used in the country are from tree care?

—Rebecca K. Latta

As the U.S. food producers strive to feed more and more people, here and around the world, efficiency becomes more critical. Vertical integration is one means to meeting these demands. That means higher population of "food product" being produced in the same or smaller area. The greater the product population the greater the risk of product disease infection, insect attack, and vectored contamination. Pesticides are one of the vanguards to protect our food supply. To eliminate proper pesticide use would be a return to the 19th century.

—Lawrence T. Hoffmeier

**Has our industry effectively begun to demonstrate the importance of sustaining the urban forest in order to reduce green house gases? Are there ways we can do a better job?**

More research that is directly identifying the air cleansing and cooling benefits of tree canopies is needed. As we continue to have world wide summits about green house gases, global warming, and pollution control, the researched benefits of trees to reduce the harm from these issues cannot be actualized without more hard research data and results from multiple countries and environments or eco-systems. Some data and results are being shared, but trees in urban areas are not a main method for reducing these harms globally. Forests of trees without buildings are a main answer, and are part of the investment made by pollution producers to meet regulations about emissions and green house gases. Locally, we have leaders and agencies talking about trees as answers within their communities, with some cities like New York making them a key part of their quality of life efforts, so I think we will find trees being given higher value in the future than they have today, so we can promote good trees in good places even more.

—John Harris

*I suggest we are beginning to demonstrate only. Blind planting of vast quantities of trees alone is not the solution. All that is green does not reduce environmental gasses. Some planting, e.g., golf courses, sports fields & parks, vineyards, developed urban parks, may actually enhance pollutants by requiring maintenance and the use of herbicides, pesticides and power equipment, while often modifying and even eliminating a natural woodland or other open space. Working for long-term effectiveness of plantings, enhancing natural open spaces and encouraging native plants, I believe, are critical efforts in restoring and protecting our environment.*

—Torrey Young, RCA #282

*We have excellent new tools in the iTree Suite from the Forest Service. I like iStreets for urban foresters as it gives results for street trees and that is what an urban forester has control of. We did a study with Toledo, and Toledo's 87,000 street trees generate some 15.1 million in environmental benefits annually for Toledo residents.*

*iTree Eco characterizes the tree canopy of all trees within set boundaries but some 90% of tree cover is on private property. iTree Vue is an exciting product doing some of the things that iTree Eco does but with less effort, using the 2001 National Land Cover Database which is to be updated to 2006 within the year.*

*Carbon trading is around the corner for new plantings. Unless the value of those credits goes up, the value would be to feel good and to take advantage of the records generated. California and Chicago have begun to develop standards.*

*We all need to learn to use the tools now available. I think that citizen volunteers are the way to go. When they get "skin in the game" they have credibility that consultants, university professors, or urban foresters can never have.*

—T. Davis Sydnor, RCA #349

*Our industry has a long road before us to promote sustainable urban forests. We have lost significant ground in California (I can't speak to other states) over the last five years. Municipal governments are defunding their programs, eliminating or combining their urban forester positions, and reducing their investment in their urban forest programs. Yes, there are cities who continue their steadfast support for urban forests, but the number is dwindling. As the Federal government takes money from the States, the States take money from the Cities. Soft services such as parks and urban forest programs lose the most. The information exists to prove the tangible and monetary benefits of trees. Greenhouse gas information is complex, but available. Information is not enough. Our industry needs leaders and advocates to regain lost ground and promote sustainable urban forests. The word 'green' in California has been co-opted by power companies to mean renewable energy and efficient building methods. Tree planting is not a meaningful part of California's reinvestment/jobs program from the Federal Government. Yet, we are a part of the 'green' industry!*

*ASCA could use the strength of the membership and their collective experience to put together a national marketing campaign to promote urban forest care and funding.*

—Rebecca K. Latta

*No, nor should it. What happens when we reduce these gases, sacrifice 1/3 of our GDP and the temperature still rises? Earthquakes still happen? Volcanoes erupt? Rivers flood? Sea levels rise? Ice melts? Winds blow? Hurricanes hit? We cannot control nature, only adapt to the environment we have. It will change regardless of our efforts. To predict catastrophe is soothsaying no matter how many people promote the prophecy (mostly to their own benefit). Man has adapted to every climate extreme on earth and some in space. There is*

*no change that will occur that we cannot adapt to if we maintain economic and scientific prosperity. This requires wealth, energy and most of all freedom. Limiting any of these can only make things worse, not better. I hope we don't hitch our horse to that wagon.*

*Don't get me wrong. Climate change is real. Always has been and always will be. The only thing certain is that, regardless of any human activity, the climate will still change. The rest is a matter of degree. We either continue to learn to adapt, or we perish like other creatures and the earth continues without us. Anyone prefer adapting to a colder climate? Warming is likely much easier to deal with and even a benefit for most of the earth. CO<sub>2</sub> is the building block of all life. Change might come with some other challenges. But we can handle them with the freedom to prosper and use our resources to research and apply new technology in our own best interests.*

—Don Zimar, RCA #446

*Yes and Yes. Keep on keeping on.*

—Lawrence T. Hoffmeier

*We can do a better job by getting real climate data, real figures without the political agenda of the green side trying to take over our economy. The CO<sub>2</sub> and the Al Gore affect are proven lies, and the climate change folks have altered data! I breathe out CO<sub>2</sub> so I am affecting the climate! Please folks, can we get back to some reality in science without the doctoring of data!*

—David D. Hunter, RCA #408

**What are the most effective tools or techniques currently available for the control or spread of Sudden Oak Death?**

*Don't see much of it in VA, yet. Still looking. I defer to those who deal with it on a frequent basis.*

—Don Zimar, RCA #446

Comments from the City of Palo Alto: Palo Alto best management control practice for SOD is required by the city in several permitting scenarios and entitlement approvals. The language and information is a standard for staff to utilize within the Planners Toolbox available to all planning staff. They are:

- All discretionary applications in the open space district zone (foothills, grasslands and oak woodland area) are approved with an important condition of approval that requires contractor or landowner to utilize provided best management practices. Discretionary applications include any new or remodel home or structure building permit, grading permit, etc.
- All Protected Tree Removal Permits are issued with a specific condition of approval (same as the above) and a copy of the SOD Best Management Practice News Release. The tree service and landowner is required to have the permit and SOD BMP's on site while the tree is being removed.

I have recently modified our city standard condition of approval as follows:

1. **SUDDEN OAK DEATH (Best Management Practices).** To deter the potential spread of sudden oak death disease in Palo Alto, the City requires that:
  - a. All contractor activities and delivery vehicles perform the work according to the county quarantine restrictions in the Sudden Oak Death Best Management Practices <http://www.cityofpaloalto.org/environment/news/details.asp?NewsID=790&TargetID=59> Violation is subject to penalty and/or prosecution. <http://www.cityofpaloalto.org/environment/default.asp>
  - b. The tree protection report and project site arborist shall determine (a) whether or not it is feasible to remove any bay laurel (*Umbellularia californica*) within 10-feet of any oak (*Quercus sp*) and, (b) to evaluate with the

land owner the benefits of proactive Agrifos treatments on oaks to prevent SOD infection.

Inquiries for the "Planners Toolbox" should be directed to Dave Dockter, Environmental Planner, [dave.dockter@cityofpaloalto.org](mailto:dave.dockter@cityofpaloalto.org)

—Dave Dockter

Reduction of surrounding hosts and trunk-drenching with AgriFos®, as well as typical sanitation practices, are all that is available. Some treatments supported by anecdotal claims are in practice, but the long-term success of these or the former methods remains to be seen. As trunk treatments and host reduction is preventive, we cannot be sure of the effectiveness. Maintaining an environment conducive to the success of the species is as important as ever, as a primary method of combating tree maladies.

—Torrey Young, RCA #282

Education of industry persons first likely to come in contact with the bad guy is always primal. Research for control is always primal. Public awareness is always primal. There is no one "most."

—Lawrence T. Hoffmeier

**It has been estimated that approximately \$100 million in damage has been sustained by pavements and walkways in the United States. What are a few of the most effective and reasonable methods currently available to deal with this issue?**

The most effective way to help limit hardscape damage from trees is to be proactive by planning ahead before any trees are planted or when trees presently causing hardscape damage are to be removed. A person, such as an experienced arborist, familiar with the available treatments should be part of the construction team in the design

development (planning) phase. Following are ways of preventing root-related damage.

- **Install root barriers:** To help prevent tree roots from disturbing sidewalks and infrastructure, install a root barrier adjacent to (or under if chemical barriers are used) the sidewalk. Since no root barrier is 100% reliable, it is prudent to consider additional options.
- **Provide more rooting space for the trees:** Wider street tree lawns provide more rooting space and more space for structural root expansion. There are many methods, such as using CU Structural Soil or Silva Cells, which provide adequate rooting space where AASHTO compressive loading rates need to be considered. Also fully elevated sidewalks can be installed.
- **Move the street tree location:** If the tree lawn is too thin to accommodate street trees, plant the tree in the adjacent front yard if possible, a few feet outside of the Right-Of-Way. This location usually provides more rooting space while keeping the tree near enough to the street to provide future shading benefits.
- **Consider asphalt:** Asphalt's aesthetics can be enhanced by adding colored rock, coloring the mixture, or by sealing with a colored sealant. It can also be stamped with a design, such as a brick border, or fully stamped to resemble bricks or pavers. Asphalt can deform somewhat to accommodate root expansion without causing a tripping hazard, and its elastic strength can be improved by adding cellulose, mineral, glass, or rubber. An engineer should be consulted to determine which additive would be best.
- **Install pavers:** Pavers can include but are not limited to full-size (frost resistant) bricks, concrete, man-made stone, rubber pavers, and other mate-

rials. Pavers can be lifted and reset or removed to give the tree roots room to expand when they displace individual pavers.

- **Use more expansion joints:** Using more expansion joints between sidewalk segments near trees will limit the number of segments affected by tree roots.
- **Install articulating material:** Articulating products can be installed with new concrete walkways. These products, which serve as a hinge between concrete segments, hold the segments together even if one or both segments are displaced by expanding roots.
- **Install long, uninterrupted sections of concrete:** Long sections of reinforced concrete sidewalks can resist cracking and being displaced if correctly specified and installed. These long sections can be used adjacent to the street tree location. An engineer should be consulted about what type of reinforcement is necessary given the desired length.
- **Use a stronger concrete mixture:** A stronger concrete mix can be used when pouring the sidewalk or curb. If 3000-4000 psi concrete is used, increasing the strength to 5000-6000 psi will help the concrete remain intact and, if displaced by roots, other techniques such as ramping or slab jacking can be used effectively.
- **Change base course specifications:** Place a 6" deep compacted base course of washed, unmodified 1" diameter gravel under the slab. Under normal conditions, tree roots do not grow quickly or easily through the porous, well-drained gravel.
- **Install pathways for roots:** PVC pipes (12" diameter) partially filled with soil can be used to guide roots under the pavement and into adjacent lawn areas. These pipes should be placed just under the base course. Since

trees are removed and replanted over time, it may be useful to install these pipes every 5' or so under the new pavement.

Where existing trees are causing hardscape damage, deciding which repair treatment to use depends on many considerations such as cost, aesthetics, tree size and root orientation, and severity of hardscape damage. To eliminate hazardous conditions now and as far into the future as possible while insuring the tree's vitality, it is important that any sidewalk repair not damage the tree's structural root system, and that enough of the biological root system is preserved. This can be realized by removing the damaged sidewalk and ramping a new sidewalk up and over the root system. The following options have varying efficacies over time because tree roots continue to expand.

- **Grind the concrete:** Grind down the raised sidewalk/curb section to eliminate the tripping hazard. Typically, sidewalks misaligned by up to two inches can be ground down, but grinding the slab down to less than two inches weakens the slabs.
- **Ramp between sections:** If paving slabs are offset, or if the raised section of sidewalk has been previously ground down up to two inches, the tripping hazard can be eliminated by placing an ADA-compliant concrete ramp to the raised section. To assure that the new concrete ramp remains securely attached to the old sidewalk, the concrete-to-concrete contact area must be meticulously clean when the concrete ramp is formed.
- **Concrete raising, a.k.a. "mud or slab jacking":** This can be used when the sidewalk slabs are still intact but have settled or have been offset. During the slab jacking procedure, holes are drilled through the slab's surface and grout is pumped at high pressure into the area between the concrete and

the base course. As the slab slowly rises, it is coaxed where it needs to go. The injection holes are then filled and the sidewalk is ready to use almost immediately. Soil should be added to the sidewalk's edges to fill any drop-off created.

- **Bridging over individual structural roots:** If single tree roots are lifting the sidewalk, the old sidewalk can be removed and the offending roots carefully exposed while not disturbing the compacted base course. An applicably-sized PVC pipe can be cut lengthwise and laid over the root, effectively forming a bridge. There should be enough clearance between the top of the root and the underside of the PVC pipe's arch to allow the root to expand for a number of years. Once the roots are covered with PVC "arch," the area between the roots can be filled with gravel, compacted, and the surface can be placed over the new base course.
- **Bridging over the trunk flare:** A "bridged" or elevated sidewalk can be constructed when other alternatives are not an option. Small diameter concrete piers can be carefully augured into the ground without harming structural roots. The tops of these piers could be finished to support pavers, or adjustable jacks could be installed on the piers. The voids between and beneath the pavers should be filled with sand to allow stormwater to infiltrate.

—Jason Lubar

I estimate that at least \$200 million in damage has been done to our trees by sidewalks and their repair and construction. The most effective solution is good design. Once the situation exists where a tree is damaging the sidewalk, solutions to reduce the conflict without sacrificing the tree become more difficult, and generally more expensive. I like systems such as Sylva Cell designed by Jim Urban. I think we will see these

products used much more, especially in urban design. For existing trees I have used concrete pillars and steel decking to bridge sidewalks through preservation areas. Quite expensive, but effective. Design is the key. Unfortunately, there isn't much support in the engineering professions for including these specifications unless coerced by local jurisdictions. Therefore, the most effective method is revision of local design standards to accommodate trees better into urban spaces. This begins with acknowledging that trees need free below ground space to grow as much as they need above ground space. To plant a tree in a typical sidewalk space or parking lot space means accepting this conflict and dealing with the damaged hardscape. To replant into such a space after repairs kill a tree just perpetuates this cycle. Should we stop planting these spaces altogether? Should arborists and landscape contractors refuse to plant trees where we know a conflict will be created?

—Don Zimar, RCA #446

As stated in my answer to the previous question, education of industry persons first likely to come in contact with the bad guy is always primal. Research for control is always primal. Public awareness is always primal. There is no one "most."

—Lawrence T. Hoffmeier

I remain unimpressed by expensive methods and products intended to minimize the results of what is quite simply insufficient planting space. At best, these efforts delay inevitable conflicts, with many having negative impacts on the trees and significant long-term or delayed expense. We want it all... streets, sidewalks, plenty of (shaded) parking all while maximizing real estate value. Until society realizes and allows for urban forest development and improvement as a long-term asset, rather than focus on short-term efforts at great expense... we are doomed to

continue down a repetitive and ineffective path.

—Torrey Young, RCA #282

Change how we approach re-paving or paving at all—maybe an alternative to paving, without the digging or compaction or redo work.

—David D. Hunter, RCA #408

Trees do not set out to damage sidewalks. Trees DO exploit defects in construction. If a tree is planted in a droughty, sterile, and compacted devil strip (tree lawn), it will grow into rooting areas more conducive to growth (property owners lawn).

Thus the simple, long-term solution is to plant trees on the homeowners' side of the sidewalk. I have looked at thousands of trees along sidewalks and only remember one circumstance where a tree planted in a lawn panel grew under a cracked sidewalk and into the tree lawn then deflecting the sidewalk. In Ohio most easements extend ten feet beyond the curb. Place the sidewalk adjacent to the curb and the tree 1-3 feet beyond the four-foot sidewalk.

Trying to deal with existing defects is much more expensive and buys less time.

—T. Davis Sydnor, RCA #349

**Is the use of "hearsay" evidence by a testifying expert ever admissible in a court of law?**

Although typically encompassing many facts, observations and citations, the opinions of a testifying expert are substantially subjective and can be characterized as hearsay. However, experts are not limited to observations and facts, as is a percipient witness. There is a lot of latitude in the testimony and formation of answers to examination questions by experts. A testifying expert is expected and allowed to say and/or

demonstrate what he needs to in order to express his opinions, describe his methods and observations and explain his conclusions.

—Torrey Young, RCA #282

This is a question of law, or legal question, for lawyers to answer, so I hope some of our arborist lawyers provide good answers to the question. My experience says that it is admissible, but that is not a legal answer.

—John Harris

Yes. But check it out with an attorney as the answer in your particular situation may be NO. The devil is in the details.

—Lawrence T. Hoffmeier

Why is this question being asked of arborists? This is a purely legal question that no responsible arborist should even try to answer. Ask an attorney. Here is what one has to say:

May experts rely on hearsay?

1. Definition—Hearsay is an "Out of Court statement made for the truth of the matter asserted."
2. When expert's include hearsay as a partial foundation for their opinions, the hearsay may be admissible, under exceptions to the hearsay rule, if it can be shown to be trustworthy, e.g., Federal Rules of Evidence 803(24) (Example: Investigating Officers Accident Report-Federal Rules of Evidence 803(8))
3. Experts may rely upon hearsay if it is the kind "reasonably relied upon by experts" in your industry. Federal Rules of Evidence 703.

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*continued on page 26*

# Preventive Strategies to Reduce Sidewalk Damage from Tree Roots in The City of Oakland

By Gerald D. Smith  
Arboricultural Inspector - City Of Oakland

*This report, prepared for the City of Oakland Community & Economic Development Agency, is a compilation of information gleaned from many up to date sources that include: L.R. Costello & K.S. Jones, "Reducing Infrastructure Damaged by Tree Roots," James Urban, "Up By Roots," Edward F. Gilman, "Deflecting Roots Near Sidewalks," as well as articles from the ISA Journals by E. F. Gilman, E. Thomas Smiley, J.A. Wagar and many others.*

## Introduction

Street trees are an important component of Oakland's urban "green infrastructure" but root damage to sidewalks, curbs and gutters is a serious problem and strategies must be developed for reducing infrastructure damage potential. Research statistics compiled back in 2001 show that California spent \$70 million annually on costs due to root damage and another \$9 million for sidewalk trip and fall claims. These costs have increased substantially since that time and more recent surveys administered to municipal foresters in 15 cities across the nation revealed that sidewalk repair costs are the single largest expense in all cities.

## Purpose

The City Of Oakland began its street tree planting programs over sixty years ago when there was little information available related to infrastructure damage potential caused by planting trees in the sidewalks. As a result many inappropriate, large stature and invasive trees were planted. These trees have since grown to maturity and outgrown their planting

spaces. Prior to the 1960's, inappropriately planted street trees were removed by the City after the 3<sup>rd</sup> incident of sidewalk damage unless the property owner agreed to pay for any subsequent repairs. A large majority of the infrastructure damage in the City Of Oakland is caused by these inappropriately planted trees and will continue to cause damage unless preventive strategies are developed.

Damage by tree roots is a problem that requires an effective plan to reduce the damage and its related costs. I have drawn information from numerous published sources, including scientific journals, trade journals, websites and manuals in order to make better decisions about trees and hardscapes. Up-to-date information is vital and can serve as a guide when considering alternatives to our existing methods and create strategies for a friendlier environment for both the trees and the infrastructure. Implementation of these strategies should also result in substantial long term cost savings for hardscape repairs and related trip and fall liability claims.

## Overview of Sidewalk and Tree Root Conflict

Concrete sidewalks are economical to construct and when built well, are long-lasting and attractive. The vast majority of sidewalks are the rigid concrete slab-on-grade type constructed over the native soil. Once the native soil has been graded and compacted it becomes the subgrade for the sidewalk. A layer of compacted gravel, the subbase (or aggregate base course), is then placed between

the subgrade and the concrete slab. Sidewalk damage occurs when tensile strains caused by one or more modes of deformation exceed the tensile failure strain of the concrete. Failure can result from expansive native soils, thermal expansion of the concrete slab and tensile shrinkage caused by shrinkage of underlying soils. Additionally, poor quality materials, poor placing, improper curing practices and, of course, tree roots, can cause the concrete to fail.

## Tree Roots Response to Hardscape Environment

While every crack that appears in the sidewalk is not caused by tree roots, once the cracks do occur, they allow water to penetrate beneath the concrete, and that water in turn attracts tree roots to grow into the gravel layer (subbase) under the concrete slab. Even when cracks are not present tree roots will grow into the gravel layer because conditions there are usually more favorable and they may not be able to penetrate the restrictive, compacted soil (subgrade) beneath the gravel layer. Oakland's saturated clay soils contain low oxygen levels which also encourages shallow rooting. Typically, the majority of the roots are only in the top 18 inches of these types of soils.

Numerous studies have shown that condensed water accumulates under a sidewalk which creates a moist environment that favors root growth. Water is actually drawn up through the soil where it then condenses under the sidewalk. These

more favorable soil conditions combined with added moisture are major factors that contribute to shallow root development. Given space, moisture and oxygen, roots will take advantage of even the low level of nutrients that are present in the gravel layer, increase in diameter, and crack the sidewalk.

The majority of the sidewalk damage I have personally observed is from root intrusion in the interfaces in the sidewalk profile. When the uplifted concrete is removed the roots are almost always growing immediately below the concrete. In many instances the trees were small to medium sized and the damaging roots were less than 2 inches in diameter.

It only takes a tree root 15 inches long and one inch wide to lift a 10-foot section of sidewalk. This is due to the weight of a concrete sidewalk being very small. At 150 pounds per cubic foot, a 4-inch slab of sidewalk concrete weighs less than a pound per square inch. Since tree roots can exert an estimated pressure of 175 pounds per square inch, the concrete affords little resistance to this force.

### Root Pruning And Root Regeneration

Root pruning is a treatment that has been used by the City Of Oakland for many years to reduce further damage and allow for the replacement of infrastructure elements. However, within 2 to 6 weeks after the tree roots are pruned they begin to regenerate and seek out favorable soil conditions to obtain the necessary water, oxygen and nutrient requirements. Additionally, the remaining undamaged roots are required to grow more vigorously to compensate for the reduced root mass. The subbase gravel layer directly beneath the sidewalk meets these requirements adequately. Creating an environment that is less favorable to root growth would eliminate or discourage new root development under sidewalks.

### Up to Date Strategies

Strategies for reducing infrastructure damage can be used to prevent future

damage (preventive) or to correct existing damage and avoid further damage (remedial). Some strategies are both preventive and remedial. Both types should be incorporated into plans for reducing infrastructure damage potential.

These strategies fall into two categories:

- Infrastructure related—modifications to the subbase materials and alternatives to concrete.
- Rootzone related—root guidance systems that minimize the potential for contact between roots and infrastructure.

### Infrastructure Related—Modification to Subbase Materials

There are several modification approaches that would serve to create less favorable conditions under the sidewalk, reduce the condensation layer and establish a separation between the roots and the infrastructure.

**Air-pruning.** The most up to date field tests point toward “Air-pruning” by using large-diameter gravel as a subbase under the concrete. This strategy relies on the large air spaces within the gravel layer reducing water retention to the point where root development does not occur. These gravel layers must be an open stone with no fines (such as an angular, 1.5” x ¾” drain rock) in order to air-prune roots and prevent them from growing into the gravel layer. This type of aggregate is considered “self compacting”. Studies have also shown that the large diameter gravel layer proved the most effective at keeping roots well under the bottom of the sidewalk slab. Although the effect was most prominent in the well-drained soil type, gravel also performed fairly well in the poorly drained soil.

**Highly Recommended:** this is the preferred strategy to be incorporated with a root guidance system (see, Rootzone related, below).

**Thicker gravel layer.** A thicker gravel layer, 8 to 10 inches deep, at the edge of the slab closest to the tree is an alternative way to reduce moisture retention and discourage root development.

**Moderate Recommendation:** roots will likely surface beyond the thicker gravel layer into the shallower granular material beyond the edge of the slab where moisture would still accumulate. This method would still be an improvement over the current practice of not using any preventive measures.

**Denser gravel layer.** A well-graded aggregate base (large and small rocks) that would reduce void space and increase bulk density may reduce damage potential by making it harder for roots to grow into the gravel. The minimum and maximum soil compaction should be specified for the aggregate (e.g. 92% to 95%) so that roots will be encouraged to grow into soil below the gravel layer.

**Moderate Recommendation:** this denser, crushed stone, granular material used in the subbase may still provide a moist environment that would be more favorable to

the roots than the compacted, root restricting, subgrade soil. It would still provide an improvement over current methods.

**Structural soils.** Structural soil mixtures are composed of soil and stone, or soil and a derived aggregate such as expanded slate or shale. The purpose of this soil modification is to provide increased underground pore space for tree roots without compromising the load-bearing needs of streets and sidewalks. Although attempts to replace soil around existing trees have been made, soil modification techniques are usually employed prior to tree planting. While structural soil has been found to promote deeper rooting patterns and vigorous tree growth, several studies have shown the need for refinement and further field tests. Regional differences in soil types, varied pH levels

and availability of stone require the mixes to be carefully adjusted to suit individual installations. The components must be mixed according to rigid specifications and supervised to ensure compliance. The recommended installation depth is 24 inches to 36 inches and the area typically requires 2 cubic feet of soil for each square foot of crown projection. A tree with a crown projection of 1,000 square feet (25 by 40 feet) requires 2,000 cubic feet of soil or 666 square feet at a 3 foot depth. While the cost of using structural soil is slightly higher than preparing quality topsoil, the total cost is usually greater due to removal and disposal of existing soil.

**Moderate Recommendation:** structural soils would be most effective when used in large areas that are not near established trees due to the required installation depth of 2 to 3 feet. This strategy is generally used for new plantings or new projects with large planting areas.

### **Infrastructure Related— Modifications and Alternatives to Concrete**

**Expanded foam board (Formular, Styrofoam).** This method moves the condensation layer deeper into the soil by installing a layer of expanded foam board horizontally beneath the sidewalk. This foam board material consists of two, four foot wide, 2 inch thick sheets glued together and held in place with wire mesh. Studies have shown that roots grow at deeper levels in the soil under the foam underlay and do not allow the roots to grow in contact with the bottom of the pavement. This treatment has the added benefit of allowing root expansion without sidewalk lifting. Field tests show that a small number of roots growing in the gravel base did penetrate the foam but did not affect the sidewalk because as the roots under the foam increased in diameter, they crushed the foam, dispersing the upward force of root pressure. Root pressure does not disperse in the compacted gravel base that is currently used and this upward force causes the sidewalk to lift and crack.

**Highly Recommended:** as an alternative to “Air-pruning” method. Also must be incorporated with root guidance system. Use of this material would be best suited for smaller areas adjacent to small and medium sized trees.

**Recycled rubber.** Rubber bricks and pads (modules) have been tried as paving material near trees to reduce root lifting conflicts. The theory with rubber is not to stop the lifting, but to accommodate it in a way that reduces trip-and-fall issues by allowing the pavement to roll. Advantages of recycled rubber materials include flexibility, permeability, and ease of repair. The modular pavers present a lower tripping hazard compared to individual pavers because when they are displaced by roots the modules lift as a unit. If installed as a remedial treatment after root pruning, modules can be lifted and replaced for periodic management of root growth. This can be done for a much lower cost than replacing the concrete. A recent cost comparison showed the typical sidewalk repair time for a 100 square foot section of concrete is 36 hours (10 hours were allotted for root pruning). The rubber sidewalk maintenance was performed 2 years after the roots had been pruned and took only 4 hours (1 hour allotted for root pruning). No research has examined the results if the rubber modules are left in place and the roots allowed to grow for a longer period of time.

**Moderately Recommended:** the first recycled rubber sidewalk was installed in 1999. As a result, assessments of root regrowth and sidewalk impacts are limited. More follow-up evaluations are needed to determine the benefits and limitations of this strategy. The installation cost is higher and the materials are expensive. Rubber sidewalks require the subgrade to be compacted to 95 percent of maximum dry density. This compaction results in roots that grow directly under the modules in the compacted sand base. Periodic management of root growth would require monitoring to determine the frequency of maintenance.

Being a recycled material, there is an added environmental benefit from using rubber as a concrete substitute.

### **Reinforced concrete and thicker slabs.**

Research has shown that reinforced concrete and thicker slabs may not reduce the risk of damage. The reinforcement and thickness must be very large for the risk to be reduced even a little.

**Not Recommended:** reinforced slabs 8 to 10 inches thick would cost more to install and to repair. Further research is needed to identify optimal sidewalk thickness and reinforcing requirements.

**Pervious concrete.** Although not tested in field trials, pervious concrete is thought to encourage deep rooting by distributing water through the soil profile. Since it does not contain sand, pervious concrete has an open void structure and is nearly as strong as standard concrete. It is best used over sandy or other well-drained soils and special installation requirements must be followed to prevent water from accumulating under the sidewalk.

**Not Recommended:** native soils in this area are not well drained and would allow water accumulation under the sidewalk.

### **Rootzone Related— Root Guidance Systems**

Rootzone related strategies attempt to direct roots away from infrastructure (root guidance). By guiding roots away from infrastructure the damage potential can be reduced. The guidance methods I have evaluated include root barriers that deflect the roots and root barriers that inhibit or trap the roots.

**Root Barriers—Deflectors.** There are many types of barriers available however the plastic deflectors are the most commonly used. The primary purpose for the barrier is to keep roots from growing into interfaces at the bottom of the sidewalk or the bottom of the base rock. Plastic manufacturers recognize high-density polyethylene as the most resilient.

ient and durable plastic for use in a barrier. Linear plastic barriers greatly reduce the amount of roots that could damage sidewalks and should substantially reduce the costs of such damage. While roots do grow into the barrier and are deflected laterally or downward, they can and will attempt to re-enter the soil profile interfaces. Once a root has found a way around, under or over the barrier it is on its own and travels through the soil wherever it's possible.

**Highly Recommended:** the use of linear plastic barriers, incorporated with my previously recommended subbase modifications, would eliminate or greatly reduce the amounts of root damage to sidewalks. Even without subbase modifications the root barriers would deflect new roots growing from pruned roots on established trees and potentially reduce damage to the sidewalks. Linear plastic barriers are also useful to protect driveways, water meters, paths and areas where roots need diverting. Approximately 50

percent of the 200 urban forestry programs using root barriers in California report them to be effective or partially effective in reducing sidewalk damage.

**Root Barriers—Traps.** Traps consist of screens, welded-fiber sheets, and nylon fabrics. Holes in these materials are small enough to allow root tips to penetrate, but radial growth is inhibited and the root is girdled and unable to grow beyond the trap.

**Moderately Recommended:** the material and installation costs were greater than the plastic barriers, while not significantly increasing the effectiveness of the guidance method. Several species of trees with vigorous roots have been found to penetrate these traps. When incorporated with the air-pruning method, traps would be an effective preventive measure.

**Root Barriers - Inhibitors.** Inhibitors are landscape fabrics or screens impregnated with chemical compounds that inhibit root development. Inhibitors include herbicide-containing fabrics (Bio-barrier), copper screening, and copper infused fabric. When roots grow into the zone of activity of the inhibitor, the roots are suppressed. Copper screens can act as both an inhibitor and a trap.

**Moderately Recommended:** roots of several species have been found to penetrate copper screens, copper infused fabrics and herbicide-containing fabrics. The fate of herbicides used in fabric (Bio-barrier) is also a concern to environmentalists and city management. All three of these inhibitors incorporated with the air-pruning method would be effective.

### Initial Costs for Preventive Treatments

The service life of a concrete sidewalk is estimated to be 20 to 40 years conversely sidewalks close to trees may have to be replaced every 5 years depending on certain site specific factors. Reducing sidewalk repair costs associated with street trees may increase the initial costs for

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the preventive treatments but the cost benefit produced by delaying the sidewalk repair is much greater. The use of preventive measures could potentially allow a sidewalk, close to a tree, to last its entire estimated service life. Preventive strategies also provide future benefits to the trees by reducing the stresses and impacts caused by root pruning.

### **Service-life Extension Values.**

In order to determine whether preventive measures are worth their cost we can use a simple, common-sense approach called service-life extension (useful-life value). Service-life extension values are easily calculated without formulas. By using preventive measures, the cost benefit produced by delaying the sidewalk repair for 1 year is worth the repair cost divided by its normal service life. Currently it costs approximately \$13 per square foot to demolish, root prune and replace an average sidewalk (5'X25'). The average cost would be \$1625 (\$13 X 125 square feet). If \$1625 is needed every 5 years to repair the sidewalk, each year of service-life is worth \$325. Therefore you could justify spending up to this amount on preventive measures. For every 3 years it's extended, \$975 is justified, 5 years \$1625, etc. Furthermore, if there were no root-sidewalk conflicts at the end of the service-life of the sidewalk, the replacement costs would be paid by the property owner.

### **Preventive Measures Initial Costs**

Based on the cost benefits produced by delaying the sidewalk repairs for only 1 year, \$325 per tree could be justifiably spent on preventive measures. The additional costs associated with the preventive measures I have recommended (air-pruning with plastic root barriers) includes the cost of the barrier installation and the higher cost of the base rock.

The estimated cost to install an 18' plastic barrier, including materials, is approximately \$14 per linear foot. A

20 linear foot area per tree would be sufficient to deflect roots, at a cost of about \$280. The cost to cover a 100 square foot area (5' X 20') to a depth of 5 inches with large diameter gravel would be an additional \$40 per tree over the cost of the standard base material currently being used. The additional cost per tree would be approximately \$320.

This additional cost would be less than the \$325 cost benefit for delaying the sidewalk repairs for only 1 year.

By combining the use of root barriers with the large diameter gravel, I would estimate the sidewalk damage caused by tree roots would be delayed a minimum of 5 to 10 years. The cost benefit for delaying sidewalk repairs for 5 to 10 years would be in the range of \$1625 to \$3250 for each tree. Since there are over 50,000 official street trees in the City Of Oakland that have to potential to cause damage to the sidewalks, the cost benefit for delaying or preventing this damage would be very significant. Moreover, in many cases, where the tree wells can be expanded and these preventive measures are implemented, root damage may be eliminated completely.

### **Conclusion**

Conflicts between tree root growth and hardscape cost the City of Oakland economically, environmentally and aesthetically. Not only are millions of dollars spent to remedy the problem, sometimes the remedies result in the loss of other benefits that healthy, large-statured shade trees could be providing. This is a lose-lose situation that calls for strategies that will direct roots away from the infrastructure and site designs that minimize potential for root-infrastructure contact. The preventive measures I have put forth in this report should provide the cost-effective strategies to retain benefits from a healthy street tree population while reducing the costs associated with root-sidewalk conflicts. 🌿

### **Q & A [continued from page 21](#)**

[successful expert wi.htm](#). Apparently hearsay is admissible under certain circumstances according to the law. Any opinions offered that differ from that are probably unreliable.

—Don Zimar, RCA #446

*No, not unless you're using hear and say from prior cases that discuss the issues that are related, and the cases have been tried.*

—David D. Hunter, RCA #408

*There are a number of circumstances where hearsay evidence may be admitted. The ultimate source on this is the Federal Rules of Evidence. Article VIII Hearsay covers it for federal courts. The rule and possible exemptions are presented. They are numerous and detailed, so I won't list them all here.*

*Anyone who is involved in court proceedings, whether in state or federal courts, would be well advised to get a current copy of the Federal Rules of Evidence, as well as the Federal Rules of Civil Procedure, and become familiar with them. These documents govern the way the courts conduct their business. Also, get comparable documents for your state courts. Many states follow the federal rules, but some have their own rules, which might be quite different. 🌿*

—Russ Carlson, RCA #354

or storm drain trench, then it should be located by a qualified surveyor.

Of course I use the TruPulse for other things too. I can quickly collect four or five, up to a dozen or more points around a tree canopy. These can be used to draw a foliar outline, or to put limb elevation points throughout the zone under the tree to assist the architect in roof shape design, if construction will extend under part of a tree.

There are two routines that can be used to determine tree heights. Again, this is not a “survey-grade” height determination, but it’s quite accurate in some circumstances. At the ISA Providence

meeting our own Guy Meilleur, during a climbing demonstration in the trade show, dropped a tape from the top of the tree to the platform below. At the same time I measured the height of the tree to the same distance within about six inches, using a TruPulse 360 from the LaserTech booth.

I used it year ago to measure the percent slope in the parkland behind my house during a walk-through with the park administrator. It helped convince her that the district flail mowers could make it up the hill for weed abatement.

A caution for people who anticipate using the TruPulse as I’ve described, to

locate the relationship between two distant points. These devices seem to have a glitch in the algorithm that calculates and displays the azimuth, if that azimuth is between 270 and 360 degrees. There is a “work-around” for this, but it’s tedious. Be sure to talk with them first about your needs.

A more convenient work-around for folks plotting points in the field is to dump the data directly into a field data collector. This avoids the questionable routine completely, and the collector can download the points directly into programs such as AutoCad. TruPulse has software available for the TDSRecon and both are Bluetooth available. 🌱

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