

In the shade

Vol. 38, No. 1
May, 2014



NEWSLETTER OF THE ISA TEXAS CHAPTER

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PRESIDENT'S LETTER by Michael Sultan



Recently, I attended the Western Chapter ISA conference and trade show in Pasadena, CA. Dan Lambe, Vice President of Programs at the Arbor Day Foundation, asked us to consider how we can expand our roles in Community Forestry, by challenging us to connect more with communities in our community forests as partners, educators, and true advocates for community trees. Dan is an excellent speaker and I've always walked away from his presentations feeling inspired to act. Since then, I've been thinking of different ways to answer Dan's challenge both to more effectively promote arboriculture and urban forestry and how I can apply these ideas to better serving you as a member of ISAT.

As I was sitting at my computer the other day, I started searching the ted.com website and listening to different TED talks related to challenges. A talk from 2009 that really caught my attention, and one that I think applies to our industry directly, was by professor and research scientist, Dr. Nalini Nadkarni. She studies rainforest canopies, and, more specifically, epiphytes that thrive high above the forest floor. What I want to share with you about her talk and what resonated with me are the unique ways she has promoted and shared the importance of forest canopy and the fascinating biodiversity that links trees, their canopy, and people.

Like Dan's challenge to the WCISA conference attendees, Nalini's approach has key elements that as arborists we must embrace and utilize to spread the message that trees matter. She recognized that finding ways to communicate and partner with people outside of her science and academic circles was critical. Nalini relayed three unique stories about how she, along with students and colleagues from Evergreen College, found new ways to broaden the audiences reached by the simple message that trees and nature are marvelous and important.

Treetop Barbie Program was created to link youth, in particular young girls, with trees. The doll, dressed in field clothes with climbing gear, also includes a field guide to canopy plants and animals.

Sound Science focused on reaching youth to share the importance of trees and the natural environment. This partnership helped bring science to urban youth through rap music.

Green Prison Reform Project trained incarcerated individuals to grow moss for use in the floriculture industry. This project was aimed at replacing the non-sustainable and damaging practice of removing naturally occurring and slow growing moss from the forest while also giving prison inmates an opportunity to expand their knowledge and contributions to society.

So what do stories about Barbie dolls, rap artists, and prison inmates have to do with ISA Texas? Everything. My hope is that Dan Lambe's challenge and Nalini Nadkarni's stories about communication and partnerships will inspire you with new ideas for how we can promote trees, arboriculture, and community forestry in Texas. I am challenging myself and each of you to do something different – to do more – to be creative and diligent in how we share what we know about trees, and how we can better connect trees with people and their communities.

Inspection Advisory on Yoke Snaphooks

MSA recently issued an Inspection Advisory as a result of notification from Yoke Industrial Corporation of an issue involving the potential for missing or improperly installed rivets on yoke snaphooks. ISA is providing this advisory for your information. Please take a moment to view this YouTube video: <http://www.youtube.com/watch?v=eVvMkjpQqF0>

TTCC is May 15–17: "Let's Gather at the River"

Don't forget the Texas Tree Climbing Championship May 15–17 in New Braunfels. The winner of this year's competition will represent the Texas Chapter in the internationals in Milwaukee. This is the best event of the year for a working climber to attend if you want to improve your skills. isatexas.com

Miguel Pastenes wins 4th overall at NTCC

Miguel Pastenes, current Texas Tree Climbing champion, placed fourth overall at the 2014 North American Tree Climbing Championships (NATCC) in Pasadena, CA in April. Miguel won first in the belayed speed climb event and third in the throwline event. His footlock was a hair over 16 seconds.

Chad Brey of San Francisco, CA and Krista Strating of Hamilton, ON, Canada, won the top spots and will represent North America at the ITCC in Milwaukee in July.

ON THE COVER

Closed flowers of the Ocotillo, *Fouquieria splendens*, in Big Bend National Park. Photo taken by Oscar Mestas April 2, 2014.

Evaluating the Use of i-Tree ECO in the Southeastern US

by Francisco Escobedo, University of Florida- School of Forest Resources and Conservation

This article was originally published in the Fall 2013 issue of the Florida Arborist Newsletter (www.floridaisa.org/pdf/2013Fall.pdf). It was originally aimed at users of i-Tree in the southeastern US and should apply to areas of east Texas. But, given the completion of recent ECO projects in West Texas and elsewhere in the southwest, this would be an opportune moment for users in east Texas and the desert Southwest to learn about some of our experiences using i-Tree. Being a native of the El Paso area and a New Mexico State University and University of Arizona graduate, (as well as having worked with these models for nearly 15 years) I really hope that information will be useful. This article is written in two parts. Part 1 provides an introduction to some peer-reviewed studies that are evaluating the use of i-Tree. Part 2 provides some applications and recommendations for i-Tree's use outside the northeastern US, where it was originally developed.

PART 1

The i-Tree software and its models and utilities are one of the very few, available, no-cost tools that provide relatively easy and science-based means for communities to assess the amount, type, characteristics, benefits and management needs of their urban forests. It uses standardized urban forest inventory data from street

segments or sampling data from random plots located throughout a city.

With this data, i-Tree's two models, ECO and STREETS can assess: public and private tree structure, energy savings from tree shade, air pollution and carbon dioxide removal, compensatory value, and, more recently, stormwater interception for all public and private trees in a community, neighborhoods, land uses or an entire urban area.

The information provided by i-Tree can in turn be used to develop more effective urban forest management and arboricultural practices.

(itreetools.org/eco/)

(itreetools.org/streets/)

In this following article we present findings from some recent studies from the southeastern US that can be used to evaluate i-Tree ECO's methods and results for use in its subtropical climates and ecosystems. We then provide some insights on some sources of sampling and carbon storage estimation errors in i-Tree's ECO model. We also make recommendations and suggestions for improving its accuracy.

The standard ECO protocol requires over 2 dozen measurements using a recommended 200 tenth-acre circular plots for a city since this is the number of

plots that can be efficiently measured by a 2-person crew over 14 weeks and produce acceptable standard error of 12% of the tree population. A recent study by Martin and others (2011 and 2013) from Auburn University (AU) in Alabama evaluated this sampling protocol. They inventoried 100% of all trees on the managed areas of AU's campus. The measured total tree population numbers were then compared to estimates obtained using the standard ECO protocol. They found that to attain a total tree population estimate for AU's campus with a 10% error, 258 plots were needed, compared to the 200 plots recommended by ECO. However, the current ECO protocol substantially underestimated the amount of necessary plots needed to obtain an acceptable error. They found that 622 plots would be needed for air pollution removal, 870 plots for carbon storage and 483 plots for carbon sequestration.

The ECO model also uses the tree sampling data along with tree size to carbon equations (mostly from forest grown trees outside the southeast) and several tree growth, site, and condition assumptions to estimate carbon storage and sequestration. A recent study by Timilsina and others (2013), measured, felled and weighed the leaves, ►



Martin Jones with Davey Resource Group, cold checking a data plot for accuracy.

◀ branches, and aboveground stems for 9 urban live oaks and 8 urban laurel oaks from the University of Florida (UF) campus. The UF data was used to measure biomass and carbon for these trees and to develop an urban oak carbon stem diameter to carbon storage equation. The UF researchers then compared the carbon storage for these 17 urban oaks to estimates from the ECO model and found that ECO consistently underestimated carbon storage by 15% on average. The largest differences, as a percentage of actual tree biomass, were in smaller and medium sized trees, and more than half of the trees were underestimated by at least 20%.

A separate analysis compared carbon storage in these 17 oak trees to estimates provided by the USDA Forest Service's Tree Carbon Calculator (CTCC) (www.fs.fed.us/ccrc/tools/ctcc.shtml) and found that CTCC overestimated by 2% on average. Overall the model had C storage estimate inaccuracies, as measured by root mean square error, of up to 40%. In cities such as Gainesville, Florida, where these types of oaks account for much of the tree population and carbon storage, this is an important source of error when making carbon storage and sequestration estimates. ■

WHAT IS THE WEIRD GROWTH ON THIS TREE?



There's an answer elsewhere in this issue.



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RETRENCHING HOLLOW TREES FOR LIFE PART 2

by Guy Meilleur, Practicing Arborist, Aerial Consultant

Does retrenchment pruning go beyond the ANSI A300 Tree Care Standard?

No. Retrenching is 100% within the A300, when the objective is established, the requirements or “shall” are met, and specifications are communicated, Standard Operating Procedure:

SCOPE: An oak that is 6' wide at the base. ~5' of that is hollow. Extensive root damage.

OBJECTIVE: Reduce the load and the risk by retrenching the crown. Lower maintenance.

SPECIFICATIONS:

1. Remove all dead branches >1" diameter.
2. Reduce downward and horizontal segments of overextended branches, clearing the branches below by 2'-4'. Cuts <3" to upright laterals, <8% total foliage
3. Thin crowded branches back to the collars. <4% total foliage, <3" cuts
4. Reduce declining leaders 3'-6'. Smallest cut possible, near vigorous growth or buds.
5. In an area between 3' and 20' from the trunk, use air/water tool to make holes >2" wide and >12" deep. Force 50% compost/50% soil conditioner into holes. Mulch 2" woodchips.

What do other arborists have to say about geriatric trees that have given up the ghost?

“As old branches are shed in a process called retrenching, the tree gets smaller. This makes it less vulnerable to severe weather conditions and therefore means that it can survive for longer.”

“Retrenchment is a natural process whereby an old tree dies

back to a smaller, lower crown. Stagheaded oaks are classic examples of early stage retrenchment.”

“Retrenchment can be caused by storm damage. It can also be encouraged by crown reduction while retaining all low branches.”

“Trees eventually mature so their risk of failure reaches a threshold that some mitigating action must take place. For conservation arborists, this is where retrenchment pruning comes in.”

“Retrenchment pruning to trees...encouraging growth lower down in the canopy and reducing the weight of the branches carried by the tree to lessen the chances of it splitting apart.”

How serious a defect is interior decay? This thing's rotten to the core, and look at the bugs!

When interior decay is noticed, non-arborists who never took Biology 101 react with shock and horror. Arborists understand that **taproots naturally shrivel up and decay**, as the buttress roots deny them air and water while taking over the support function. No longer needed, taproots are shed, and decay moves up to digest the metabolic waste that was dumped in the heartwood. This may affect the value of the log as timber, but it does not affect the landscape value of the living tree. Whether and when and how much this interior decay affects stability is anybody's guess.

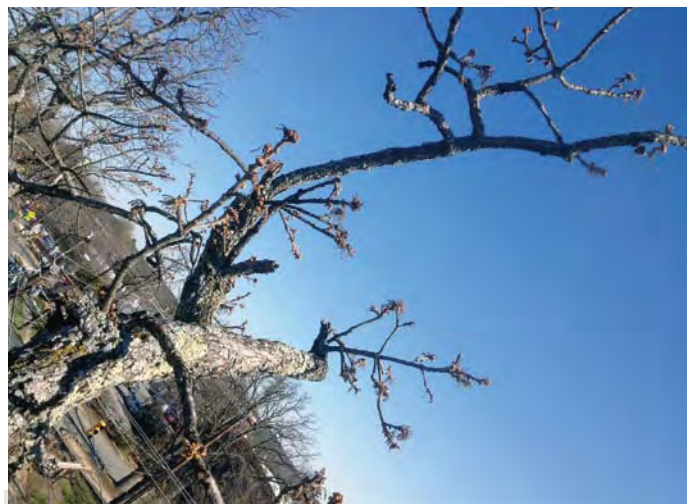
What about the 1/3 Rule for trunks: >2/3 of the trunk area has decay, isn't it a high risk?

In 1996, Wessolly assessed 2096 trees and reviewed the data behind that rule, concluding “The size of the actual cavity (alone) provides no information on the safety of the tree. The transfer or generalization of this diagram to street trees is **scientifically inadmissible**.” ►

The tree referenced in these photos can be seen in the Arborist News December 2013's A300 update article on pages 30-33.



Inonotus hispidus is colonizing the declining central leader. This fungus is more a saprophyte than a pathogen, and poses no threat to tree structure.



Reduction cuts are made to buds, located at concentrations of vitality. The size of the remaining lateral is not relevant to reduction pruning.

◀ In 2006, Jerry Bond took a good look at the research data on trees that seemed to support this Rule. First, he found no data for applying this rule to trees >36" dbh. None.

Second, **the Rule ignores height, wind exposure, species** and other factors. Bond's conclusions: "The ratio $t/R < .3$ can no longer be used by itself as an index of trunk failure potential. Trees can tolerate extremely large amounts of internal decay without necessarily incurring adverse effects on their stability."

The physicist who developed the resistograph calls overreliance on this 1/3 Rule "**Voodoo**".

Why is there decay in the sinuses of this train wreck? How bad is it?

Sinuses are concave areas between supporting tissue, in this case buttress roots. Sinuses are wounded by included bark folded inward from buttress roots, like codominant branch unions. Sinuses degraded by microbial or insect activity should be cleaned and treated. Since the buttresses support the tree, sinus problems are typically not structural problems. Decline over time can divide the buttresses, which then function independently. Many oaks in Europe aged 600+ have room inside for a dozen people to dance, and a good poker game, too.

What about target rating? Kids walk under this hollow tree. It's a ticking time bomb!

Children are generally kept inside during storms, dropping the occupancy rate of the target near zero at those times when trees are prone to fail. From the BMP:

"In considering risk and mitigation measures, **tree risk assessors should communicate the benefits of trees** as well as the consequences of losing them. The following items should be included in a detailed written report...**occupancy rates**...

Guidelines should be considered a starting point and should be modified as needed so that they are appropriate for the tree and site. While 'likelihood of failure' guidelines are presented for individual defects and in several cases, multiple defects; it is essential to consider all of the aggravating factors as well as any **mitigating factors such as adaptive growth** in the tree."

Where's your data on retrenching decrepit hulks? What research can you cite?

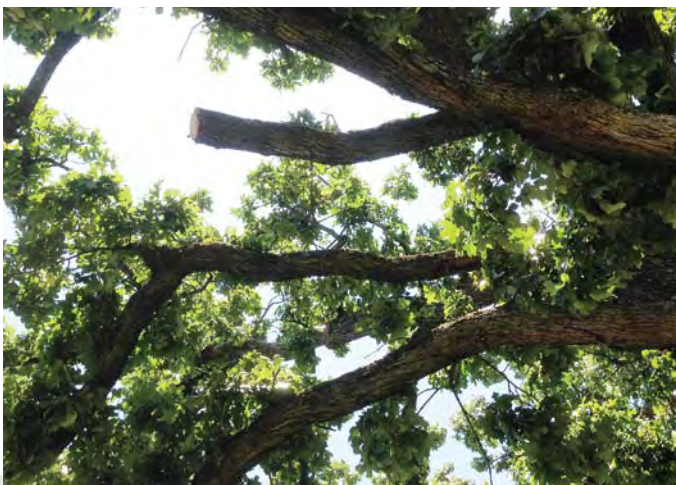
Formal research on crown reduction of mature trees is nonexistent. Their unique nature and the large number of variables involved make controlled replication impossible. Lacking research, we extrapolated and applied 1/3 Rules to branches and stems. When asked questions like "How can this tree be pruned so it is safer?" we described what we would NOT do. **Ironically**, when risk entrepreneurs condemn trees with heartrot, which was caused by pruning big limbs to the collar instead of small laterals, aren't we killing the tree with kindness and 1/3 rules? Retrenching is verifiably supported by references below and our website. Respect your elder trees. Send positive messages about their care. Get more respect for the tree care industry!

References

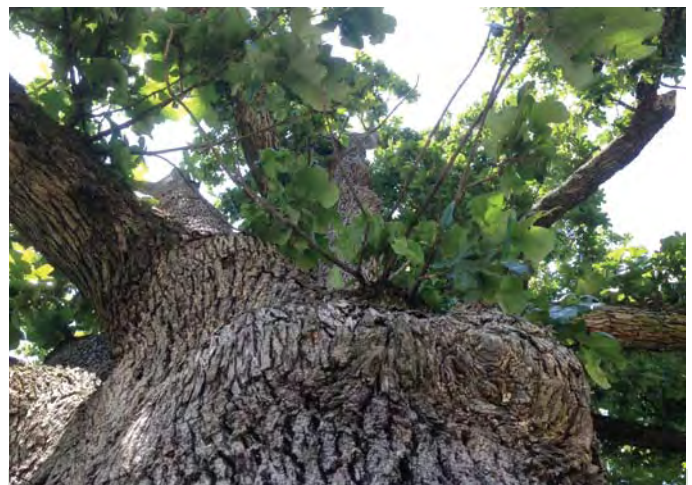
1. *Best Management Practices on Tree Risk Assessment* International Society of Arboriculture
2. *Arboriculture: The Integrated Management of Trees, Shrubs and Vines* Harris et al
3. *ANSI A300 Tree Care Standard, Part 1 Pruning* Tree Care Industry Association
4. *Basic Tree Risk Assessment* CEU article, Arborist News October 2006
5. <http://www.ecosync.com/tdworld/Branch%20Failure%20Investigation.pdf>
6. *BS 3998: 2010 Tree Work—Recommendations* British Standards Institute
7. *How Hollow may a Tree be?* Neue Landschaft 11/96 p. 847-850
8. *Foundations of Tree Risk Analysis* Arborist News December 2006

Ummmmm...I'm still not sure that retrenching hollow trees is a good idea!

That's ok; thanks for listening anyway. One step at a time. Are you willing to send information and pictures of hollow trees to bettertreecare@gmail.com ? We'll talk with you about it, maybe suggest some mitigation options. No charge, no obligation, FREE CONSULTATION (>3 min.). ■



To avoid a larger wound, this limb was reduced to a tiny lateral. If there is no growth at this point, the limb will be further reduced on the next pruning cycle.



Heavy sprouting from overfertilization facilitates the retrenchment process. The white fungus on the bark is not a structural concern.

Getting Firewise at Leon Valley

I'd like to thank the Texas A&M Forest Service for the informative Firewise Program. Never thought there would be so much to learn! What I liked a lot was the three zones that were discussed to protect me, my home, my family and property.

Wildfires are not only restricted to rural areas, they can also be in urban areas close to green spaces and wooded parks. If we are all firewise smart and put fire zones around our property, we stand a better chance of surviving a wildfire.

There's much we tree folks can teach the community. Not only can we share this knowledge with our tree business clients, it's possible we could save life and property with this information.

The classroom instruction was great, and the walk with the Leon Valley Fire Chief to see a live fire zone barrier was exciting and educational. Again, thanks to TFS. Have a nice tree day.

Booker Arradondo



Firewise for Arborists was held March 25th at the Leon Valley Community Center. It was sponsored by the San Antonio Arborist Association in cooperation with the Texas A&M Forest Service and the City of Leon Valley. For more information on Firewise go to www.texasfirewise.org



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What's New for the 2014 Conference

ISA is expanding its networking and educational opportunities at the 2014 ISA Annual International Conference and Trade Show in Milwaukee. Attendees will have the opportunity to participate in a new session format and have easy access to information about conference activities and schedules.

Expert Express and Four O'Clock Forum

This new format will allow for presenter/attendee interaction. During the **Expert Express** session, industry leaders and selected conference presenters will deliver very brief (5- to 8-minute) presentations of their research or topics of interest.

The speakers will then join attendees at the **Four O'Clock Forum** for small group discussions about the various topics they presented. A list of scheduled experts will be provided in the conference registration guide and online in the educational programming information section of the conference website.



Conference Mobile App

Would you like to use your smart phone or tablet to help you plan your conference experience? This year, ISA is excited to offer conference program information in a mobile app format. Attendees will be able to download educational session information, schedule of activities, and much more.

Watch for instructions to download the app at
isa-arbor.com/events/conference/index.aspx

Engage with ISA on Social Media

Stay connected by following ISA on Facebook and Twitter (@ISArboriculture, #ISAMilwaukee) to get updates on conference registration and program information. ISA members will find the conference registration brochure in the April issue of *Arborist News*. Registration will be available soon. See you in Milwaukee!

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Thinking outside the pipe

part 3

by Vincent Debrock,
Heritage Tree Care LLC

The use of drinking water for landscaping is becoming increasingly frowned upon or simply illegal. Watering restrictions are on early this year. San Marcos has the earliest stage 3 mandate ever, starting end of April. For this reason, the use of rain water is becoming an essential part of any urban landscape maintenance, trees included.

Rain tanks and underground cisterns are an old and practical way to collect rain water. Contractors start these days hooking up those tanks to smart irrigation systems, mostly made up of drip line instead of sprinklers.

Another way of collecting rainwater is by using the soil as a container. Rain gardens, permaculture, berm and basin design, are different ways of leveraging the rainfall through earthworks for the purpose of increasing the amount of available rain water for plants with the same amount of rainfall. I have come to call these various methods passive rain water collection, as once these design features are installed, nature takes it from there and needs very little maintenance.

In order to familiarize myself with these, I have, with the invaluable help of Zach Halfin, a horticulturist, practitioner of permaculture and ISA certified Arborist part of our team, retrofitted my classic St. Augustine wooded lawn into a landscape taking full advantage of the slight (3-5%)

grade from one end to the other. By using a variety of design features, we are able to collect the first 2" of rainfall before any storm water actually leaves the site. Prior to the design, runoff left the site starting at ½" of rainfall, sometimes less, depending of the dryness or crustiness of the soil.

The advantages are multifold: three to four times more rain water for the same rainfall; plants relying on deep root systems instead of frequent watering; 600 sq. ft. of turf instead of 10,000 sq. ft.; larger healthier trees that provide more shade over the street and lot, hence more energy efficiency; less stormwater runoff, which means less load on the city's storm water infrastructure; better water and more space for our edibles (fruit trees, herbs, vegetable, etc.); more wildlife habitat and food; less pesticide and fertilizer needs; and hardly any mowing or weeding.

This thoughtful design included many functional spaces that allow a variety of uses while not hampering the water collection. A lot of neighbors were concerned about the lack of play space due to the minimal turf area: I have to report that the kids and their friends actually have found great uses for the various plants and features. Remember that visual ad on Facebook—the picture of a dense forest titled "the original PlayStation"?

Obviously there is not space here to walk you through all the features of this water collecting garden, but I can share some of the principles. First of all, reduce impervious cover and replace turf with as much surface of planting beds as possible. Shade and play areas can easily be covered with playground mulch, or wooded areas can be dressed with sedge grasses instead of forcing turf under trees and having the trees stripped or thinned. Thick cedar mulch works well for trails as it is long lasting and requires very little weeding, as long as you prevent leaf buildup.

Introducing as many infiltration features as you can (berms, infiltration trenches away from the foundation) and preserving or restoring soil quality will greatly increase the water-catching capacity of your landscape. Using the right plants as well as a variety of woodys, legumes and grasses will help keep the soil fluffy and productive. Keep in mind that where water moves, soil will move; use plants for silt and organic matter retention with vegetative filter strips. Also remember to have overflow features as there will always be storms beyond our capacity to collect.

To conclude, I have to say that in order to have healthy urban trees, we need the landscaper to work with the arborist (the trees, really) to help their survival, rather than having a tree guy working for the landscaper to help him with the turf. ►

Bottom of the lot: shaded overflow feature with inland sea oats and cut rice grass acting as a filter strip.



Roof run off caught by cedar mulch trail and filtered through a line of rock serving as edging, terracing and energy dissipation feature.

Buffalo grass basin catching the dissipated roof run off and feeding into an elevated herb garden and irrigating surrounding trees.



Woodland berm basin, dressed with several types of sedges, red and yellow buckeyes, and a few other seasonal surprises. Notice the overflow feature on the bottom of the photo, built with rock and preceded with plants as a filter holding organic matter.

Students plant redbuds at Lone Star College; An old software friend helps visualize the results



Students involved in honors and environmental organizations at Lone Star College-Montgomery (LSC-M) near Conroe/The Woodlands worked with ISA certified arborist John Warner from Texas A&M Forest Service to plant 20 fruit bearing trees and 50 eastern redbud trees. The project is part of LSC-M Facilities Director Dr. Linda Corbin's vision for a sustainable campus and a more civically engaged student body and faculty.

Before the redbuds were planted, John Warner used the computer imaging program CanVis to produce a view of the site without the trees, and another view showing the site five years later, with the trees healthy and blooming.

LSC-M has been named a Tree Campus USA®. (See article on next page.)



Many commercially available software programs can be used to create visual simulations. CanVis is a free image editing program developed by the USDA National Agroforestry Center specifically for creating natural resource planning simulations. It enables you to manipulate a digital photo to show your client how a project will appear in the future. Here is the site to download free software from the USDA National Agroforestry Center: <http://canvis-3.software.informer.com/>

Lone Star College-Montgomery Designated "Tree Campus USA"

Lone Star College-Montgomery was honored with 2013 Tree Campus USA® recognition by the Arbor Day Foundation for its commitment to effective urban forest management. Tree Campus USA is a national program created in 2008 by the Arbor Day Foundation and sponsored by Toyota to honor colleges and universities for effective campus forest management and for engaging staff and students in conservation goals.

Lone Star College-Montgomery achieved the title by meeting Tree Campus USA's five standards, which include maintaining a tree advisory committee, a campus tree-care plan, dedicated annual expenditures for its campus tree program, an Arbor Day observance and student service-learning project. *(More about tree planting at LSC-M on previous page.)*

LSC-Montgomery received its Tree Campus USA plaque from John Warner, district urban forester with Texas A&M Forest Service during last month's Texas Wildlife & Woodland Expo event. Also pictured below are (center) Linda Corbin, director of facilities at LSC-Montgomery, and Pat Sendelbach, interim vice president of administrative services at LSC-Montgomery.



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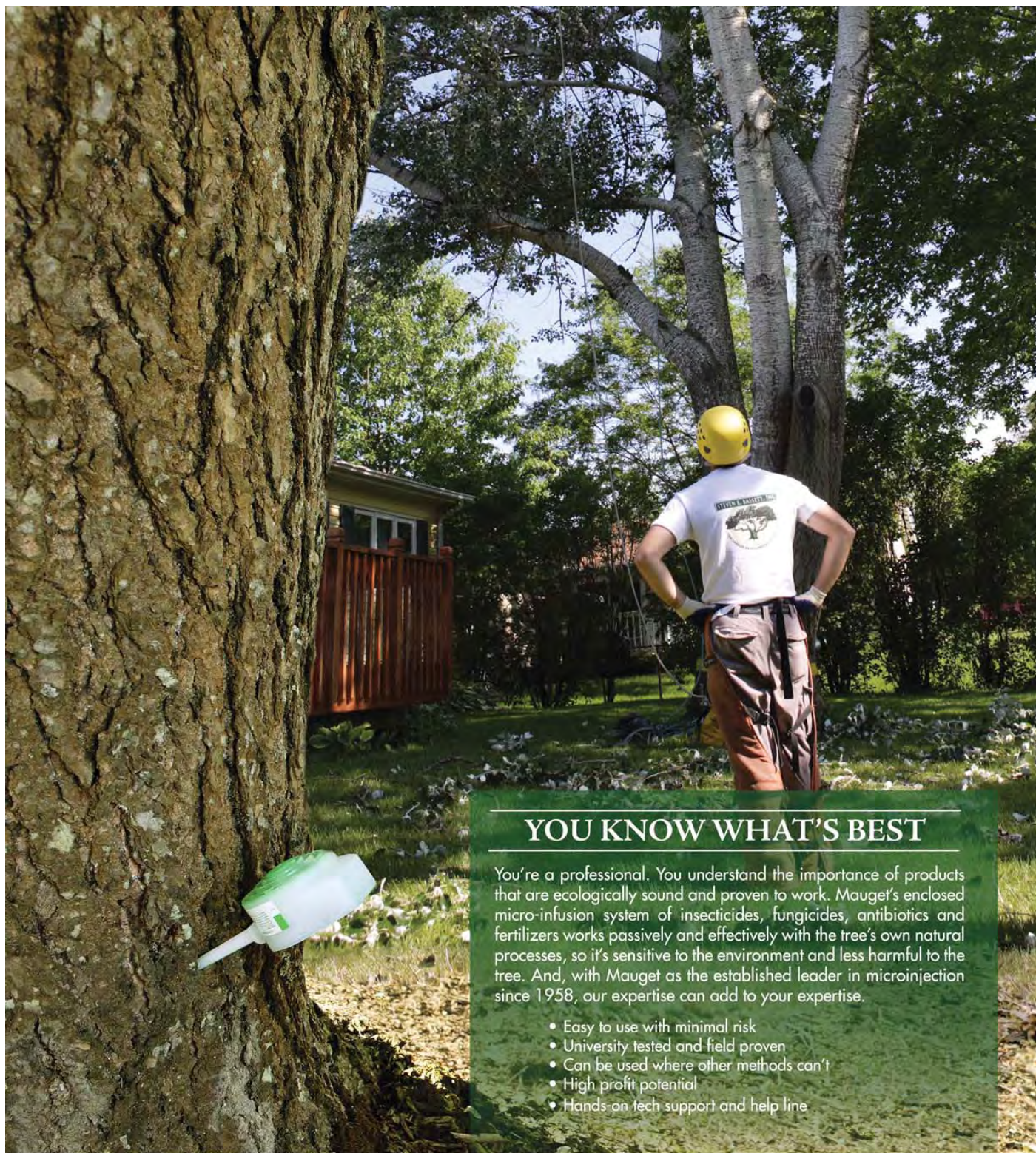
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EDITOR'S NOTE by Oscar Mestas

The following quote was shared by Vincent Debrock:

I want to thank you for your article, Thinking outside the pipe, part 2. I just got around to reading it, and on our upcoming ISA Tree Worker Bilingual Training will mention some of your water conservation and water management points. Recently, my kids 4, 11, and 12 and I made a rain garden with free native plants through the SAW'S landscape program. It was an enjoyable experience for all, and now I have a beautiful garden area. I look forward to reading more of your research.

Armando Cortez
Certified Arborist TX-3443AM

When I get feedback like this from our contributors and from our readers, it makes it all worth it. Thank you, Vincent Debrock with Heritage Tree Care LLC, for the great contributions you have made to *In the Shade* and for your recent series on water conservation.

I know we have other great arborist/authors out there. What is your passion? Let us know, let us help spread the word. As always, send your thoughts and articles to omestas@tfs.tamu.edu

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ANSWER TO "WHAT IS THE WEIRD GROWTH ON THIS TREE?"

The tree lost a branch at some point and has been trying to heal for many many years. The squirrels continue to chew on the thin wound wood on the edge so it continues to grow out from the tree creating a plate like structure.

Not many people have seen squirrel damage this severe. It is larger than a dinner plate, and people place their small children on it for photos.

– Kelly Eby,
Urban Forester
City of New Braunfels

NEW MEMBERS

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Kenneth Cejka	Gonzales
Blake Conway	Frisco
Christopher Courville	Austin
Jonathan J. Davis	San Antonio
Oscar Dorantes	Austin
Emily Driscoll	Austin
Jorge Espinoza	Austin
Bryan H Hummel	San Antonio
Matt Johnson	Hudson Oaks
Jenica Kruger	Cypress
Matthew McGearry	Bedford
Hector Nicolas Medrano	Smithville
Frank Nieto	Gonzales
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PEST POST

Texas Leafcutting Ants

by Ronald F. Billings, Texas A&M Forest Service

When you observe your newly-planted pine seedlings or landscape plants stripped of foliage, you first tend to suspect that caterpillar or sawflies have been at work. Closer inspection reveals needle or leaf fragments scattered along narrow foraging trails and nearby crescent-shaped mounds of sand. These clues serve to identify the actual culprit – leafcutting ants.

The Texas leafcutting ant, *Atta texana* (Buckley), known variously as cut ants, town ants, parasol ants, or fungus ants, can be a destructive pest of recently-planted pine seedlings, landscape plants and some agricultural crops. These native ants are kin to some of the most destructive pests in the tropical and subtropical Americas. But this particular species is found only in eastern, central and southern regions of Texas, in western Louisiana, and in a couple of states in northeastern Mexico.

They live in large underground colonies or towns, excavated in sandy soils. The colonies are characterized by numerous crescent-shaped entrance mounds (see photo). The ants often can be seen tracking forth and back along far-reaching trails created as they search for leaf material. Segments of pine needles or hardwood leaves are carried back to the colony or dropped along the trails in the process. The ants don't eat the plant material, but use it to grow a fungus in underground fungus gardens. The fungus serves as their sole food (soul food).

Texas leafcutting ant colonies consist of winged reproductives (female queens and male drones with wings) and wingless workers (see photos). From one to five queens live underground and produce eggs, most of which become sterile female workers. The workers

vary markedly in size, from $\frac{1}{16}$ to $\frac{1}{2}$ inch in length. The larger workers serve as soldiers to protect the nest while medium-sized workers forage for plant material. The smaller workers are relegated to maintaining the fungal gardens or caring for the queen and brood ants.

The above-ground portion of a leafcutting ant colony consists of a central nest area comprised of from 1 to 1000 entrance mounds. Underground tunnels link the entrance mounds to fungal cavities and detritus chambers (where waste materials are stored) that may extend as deep as 25–30 feet.

In East Texas, damage to pine seedlings occurs primarily during the winter months, when other plant material suitable for growing their fungus is unavailable. A large leafcutting ant colony can strip several acres of pine seedlings in short order if not controlled. In other regions, the ants forage on a wide variety of broadleaved plants, including citrus trees. Defoliation by leafcutting ants may resemble that caused by many other defoliating insects, including sawflies and leafcutting bees. Close observation of the impacted area will usually reveal the ants, their foraging trails lined with leaf fragments, or the central nest area. In the summer, the ants avoid high temperatures by foraging primarily at night and may seal off entrance holes to the colony during the day.

Various chemicals have been used since the 1930s to control Texas leafcutting ants. For over 50 years in East Texas, fumigation using methyl bromide was the standard control

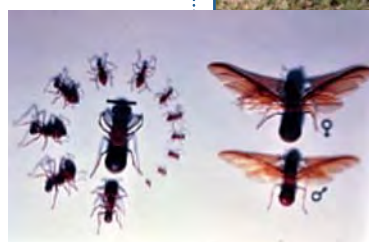
procedure. In 2005, this chemical was phased out for this purpose. The Forest Pest Management Cooperative (FPMC), administered by the Texas A&M Forest Service and based in Lufkin, has explored alternative methods to replace methyl bromide. Several insecticide baits, including sulfurimid (Volcano™ and Griffin baits), proved very effective, but are no longer available. Another, less effective chemical for leafcutting ant control is sold as Amdro Ant Block™ and contains hydramethylnon. This formulation has proven reasonably effective during the winter months when no other plant material is available. It is less effective during the spring, summer and fall when competing with other plant material. Amdro Ant Block™ may require repeated applications to achieve satisfactory control of the colony.

Recently, a chemical formulation used to control pine tip moths has been registered for control of Texas leafcutting ants. The chemical, sold by BASF Corporation under the trade name PTM™ (for pine tip moth), contains fipronil. The chemical is injected directly into the active entrance holes of the leafcutting ant colony and has proven very effective for halting ant activity within 4-8 weeks during all seasons. PTM™ is registered for forestry applications, but not for use in residential or non-forestry situations. Meanwhile, the FPMC continues to evaluate new insecticide-laced baits for control of this destructive insect pest.

For more information see texasforestservicetamu.edu/main/popup.aspx?id=1187.



Texas leafcutting ant colony.



Workers and winged adults

BAJO LA SOMBRA

Técnicas Apropriadas para Aplicar el Mulch, Parte 2

Traducción del original en inglés "Proper Mulching Techniques", International Society of Arboriculture, Champaign, Illinois, por Sally González, Especialista en Forestación Urbana y Paisajismo del Servicio Cooperativo de Extensión, Universidad de Puerto Rico.

Problemas asociados con el manejo inapropiado del mulch

- El mulch muy profundo puede ocasionar exceso de humedad en la zona de las raíces, lo que puede estresar a la planta y causar pudrición las raíces.
- Apilar el mulch alrededor del tronco o ramas de las plantas puede estresar al tejido y propiciar enfermedades y problemas con insectos.
- Algunos tipos de mulch, especialmente los que contienen césped cortado, pueden afectar el pH del suelo. El uso continuo de ciertos tipos de mulch durante períodos largos puede propiciar deficiencias de micronutrientes y toxicidades.
- El mulch apilado contra el tronco de árboles jóvenes puede crear un hábitat para roedores que muerden la corteza y estrangulan al árbol.
- Las capas muy gruesas de mulch de textura fina pueden convertirse en una manta que podría impedir que el agua y el aire penetren. Además, puede convertirse en un suelo que acumula agua y promover el crecimiento de hierbas.
- El mulch anaeróbico "agrio" podría generar olores fuertes, y el alcohol y los ácidos orgánicos generados podrían ser tóxicos para las plantas jóvenes.

El mulch adecuado

Es evidente que la selección del tipo de mulch y el método de aplicación pueden ser importantes para la salud de las plantas en el jardín. A continuación se mencionan algunas indicaciones importantes respecto a la aplicación del mulch.

- Inspeccione las plantas y el suelo donde piensa añadir mulch. Averigüe si el drenaje es adecuado. Averigüe si las plantas podrían verse afectadas por el tipo de mulch seleccionado. La mayoría de los tipos de mulch disponibles funcionan bien en la mayoría de los trabajos paisajistas. Algunas plantas podrían beneficiarse del uso de mulch ligeramente ácido como la corteza de pino.
- Si ya hay mulch, verifique su profundidad. No añada mulch si ya hay una capa adecuada en el lugar. Revuelva con un rastrillo el mulch viejo para romper cualquier capa acolchonada y refrescar su apariencia. Algunas compañías de mantenimiento paisajista rocían el mulch con un tinte de aceite vegetal soluble en agua para mejorar su apariencia.
- Si el mulch ha sido apilado contra tallos o troncos de árboles, retírelo varias pulgadas, dejando expuestas la base del tronco y la corona de raíces.

- Generalmente se prefieren el mulch orgánico a los inorgánicos debido a que mejora las propiedades del suelo. Si utiliza mulch orgánico, deberán estar bien aireados y preferiblemente compostados. Evite el mulch orgánico con olor agrio.

- Las virutas o astillas de madera compostadas pueden ser buen mulch, especialmente cuando se combinan con hojas, corteza y madera. Se pueden usar pedazos de madera astillada fresca alrededor de árboles y arbustos establecidos. Evite usar pedazos de madera que no están compostados, y que han sido apilados y no han tenido contacto con el oxígeno

- En lugares con buen drenaje añada entre 2 y 4 pulgadas (5-10 cm) de mulch. Si hay problemas de drenaje deberá usar una capa más fina. Evite colocar mulch contra el tronco de los árboles. Coloque el mulch hasta la línea de goteo o más afuera.

Recuerde: Si el árbol pudiera hablar sobre el tema le pediría que todo su sistema de raíces (que generalmente se extiende más allá de la línea de goteo) se cubriera con mulch.



Los "volcanes de mulch" causan muchos problemas a los árboles.



Aplice el mulch a lo ancho y no a la profundo.

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*Bill Miller,
General Manager of Buckley Tree Service*



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What's the Big IDea?

Can you identify this native Texas tree?



If you know this tree, look for the photo on our facebook page and correctly identify it in the comment section under the photo. If you don't know it, check the page for the answer in a few days. *Hint:* Although it could, her name refers not to bark nor leaf, but to he who introduced us to her.

March winner



Our March Big IDea winner was Juan Guerra, who correctly identified Mexican buckeye, *Ungnadia speciosa*.