

TREE CARE INDUSTRY

M A G A Z I N E

The Official Publication of the Tree Care Industry Association

Volume XXVIII, Number 7 - July 2017

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**POISON IVY
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Again, Calls for Unity in D.C. – But Will They Last?

On the morning of June 14, 2017, TCIA members were poised to head up to Capitol Hill for

a day with their Representatives and Senators. TCIA's biennial Legislative Day on the Hill is an important opportunity for members to bring their message of professional tree care to their elected representatives. Other events intruded.

The day was supposed to start with breakfast on Capitol Hill and a short address from U.S. Rep. Virginia Foxx from North Carolina. Then, we would disperse to House and Senate office buildings for individual meetings with our elected representatives.

But the day did not go as smoothly as we had planned. Instead, a crazed gunman decided to start the day by shooting at Republican congressmen who were practicing for a charity softball game. Four people, including one congressman, were wounded.

Reports poured in as we gathered for breakfast. No one knew at that point if this was an isolated attack or if there were more to come. No one knew the motivation for the attack, nor who else might be targeted.

Meetings we had scheduled with Congressmen were canceled. They weren't in their offices; we saw them giving interviews on CNN, still in their softball uniforms.

Some of our delegation had been invited to the Department of Labor that morning to see President Trump announce a new administration initiative on workforce training and apprenticeship. That meeting was canceled as the Secret Service went into full protection mode.

There was a palpable nervousness as we walked the halls of the office buildings. Tourists tried to go about their day and congressional staff welcomed us into their suites. Most of our meetings went on, though fewer congressmen than usual stopped in for a photo. Security was clearly heightened and on edge. As we met with staffers, it was clear to them that something special happened. One of their own had been targeted.

As the day went on, we heard bipartisan calls for unity, for a dialing-back of the rhetoric that labels those who disagree with us as enemies rather than fellow citizens with different opinions. With the increase in cable stations that cater to only one view – and slant that view beyond rational recognition – we are less likely to be exposed to intelligent opinions that differ from ours. With the proliferation of anonymous social media and petty taunts delivered via Twitter, we are encouraged to insult rather than debate.

My first legislative visit to Washington was on September 11, 2001, when terrorists with no ability to understand or validate other opinions killed thousands of Americans. All our meetings were cancelled that day.

There were calls for unity then, too. For a time, we even found common ground as Americans and the rest of the world found common ground with us. It didn't last, and it is unlikely unity among Republicans and Democrats today will last long. Perhaps the best we can hope for is that someday soon, our collective fever will break and we'll start considering the opinions of others in a respectful way.

Mark Garvin, Publisher

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TCI's mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the non-profit Tree Care Industry Association, we vow to sustain the same uncompromising standards of excellence as our members in the field, who adhere to the highest professional practices worldwide.

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The 2017 TCI Summer Buyers' Guide is polybagged with this issue of TCI Magazine.

ON THE COVER: Equipment from Savage Forest Enterprise, Inc., a TCIA member company based in Mount Desert, Maine, loads onto a barge for a job on a coastal island. Story, page 10.

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Remote Island Work Has Its Own Special Challenges



A crew member from Belknap Landscape Company unloading a stump grinder from a barge at a property on Lake Winnepesaukee in Meredith, New Hampshire. Courtesy of Belknap Landscape.

By Tamsin Venn

Seven years ago, a windstorm blew over a large stand of tall spruce trees on the northeast slope of Choate Island in Essex, Massachusetts. The 135-acre island is the crown jewel in the Crane Wildlife Refuge, owned by The Trustees of Reservations. Some may know the island as the site of the 1996 film *The Crucible*, based on Arthur Miller's play about the Salem witch trials.

A non-profit conservation organization, The Trustees turned to Dan Mayer, owner of Mayer Tree Service, a long-time TCIA member company based in Essex, for help. No stranger to large-scale tree care projects, Mayer previously helped oversee the restoration at another Trustees property, the tree-lined Grand Allée at Castle Hill on the Crane Estate (see "A Grand, Green Return," *TCI Magazine*, May 2010).

For Choate Island, Mayer put a plan together to manage the blowdown of non-native Norway spruce that had been planted in the 1930s by island owner Cor-

nelius Crane. Getting heavy equipment to the island was a major hurdle.

"I looked into helicopters, high lines (cables between the island and the mainland with a cable car to carry logs), boats and barges, and whenever I would get a plan together, the funding would crumble," says Mayer.

Then, rather suddenly this past spring,

funding came through. The Trustees received a grant from the Massachusetts Division of Fisheries and Wildlife and the North American Wetlands Conservation Act. The goal was to create a shrub-covered landscape to provide habitat for breeding waterfowl, migrating birds and other wildlife.

Mayer reached out to a Portsmouth,



Equipment is moved inland on Choate Island by Mayer Tree Service crews. Photo courtesy of Oliver Donlon.

New Hampshire-based company that he had contacted in previous planning stages. It turned out the company was in the process of moving a barge north along the Massachusetts coast and would be in the Essex area. Mayer notified the Trustees that a large barge was available.

“Here we had been trying to do something for three years and all of a sudden we’re on their (the barge owners’) timetable,” says Mayer.

“We had to hustle,” he adds. “Sunday we marked the channels with buoys, then we moved the equipment that Wednesday. It was a record-setting day for high temperatures, at 70 degrees, and the sea was flat calm.” Despite that lucky break, challenges included tricky barge loading on and off beaches, and the need not to disturb anything due to the preservation status of the site.

The work entailed clearing 27 acres of the fallen 80- to 90-foot spruce and some of the live trees. During the work, the wind took down another 20 trees. Mayer’s crew gathered larger logs to decompose, chipped branches and smaller logs and dispersed the chips in a thin layer on the ground and on top of logs to aid decomposition. Getting wood off the island wasn’t feasible from a logistics and economic standpoint. The Trustees had looked into floating and even flying the logs to shore.

The barge transported two feller-bunchers, one with a hot saw (disc saw head) and the other with a Quadco mower head; a forwarder; a Vermeer 2100XL Brush Chipper; and a service truck for equipment maintenance and repairs on the island.

Two to four crew members worked at any one time and used an aluminum clammer’s skiff owned by one of the crew to get back and forth. Fuel for the machinery was an issue. The crew brought fuel every time they went over and asked the Trustees’ members to do the same. Crew members watched consumption carefully.

While the work was on an island, it was just a short crossing to the mainland and the workers had vehicles to get around in, good cell service and use of a summer cottage for emergency overnights if needed.

“It’s still sketchy,” Mayer said of being on the barge-service schedule while still in the midst of the project in early May. “It ain’t over until I get my equipment back. Of all the crazy things I’ve done –



Despite warm temperatures and calm seas, moving equipment on and off a barge and onto an island with an environmentally sensitive shoreline can be a challenge, according to Dan Mayer. Courtesy of Mayer Tree Service.

I’ve worked in Memphis and Florida and hauled equipment down there – this is totally doing something out of your control that you never really run into. I’m really at somebody else’s mercy. It’s a strange feeling. I’m usually the one who is solving a crisis situation, but this is one I don’t have the answers for.

“But once we get out there, it’s what we do every day,” he says. “It’s just on an island ...”

“This is one of the biggest environmental-improvement projects we’ve ever had, and it’s made more complicated by being across a body of water,” says Peter Pinciario, general manager of the Crane Estate. “It was a challenge to get the equipment to the island at a reasonable price.”

Clearing the spruce on the island was part of a 2002 management plan, says Pinciario, “but it’s a giant landscape. What do you do with everything you take down? The volume of logs and piles of chips is staggering. Fifty percent of the forest blew down in the storm. Most of the blowdown is off the ground. If we don’t address that, that debris will be out there for generations,” he says of the huge scope of the project.

But the project is well worth it, he says.

“From my standpoint, it really is a project that is very consistent with Crane’s desire for it to be a refuge for wildlife but also a place for species diversity and to support nesting waterfowl and animals that are increasingly rare in coastal habitats like this,” Pinciario notes.



Kayakers view Choate Island in Essex, Massachusetts, after most of the non-native Norway spruce were cleared by Mayer Tree to convert the property to coastal habitat for native waterfowl. Courtesy of Tamsin Venn.



In Mount Desert, Maine, loading is easy on the mainland, using a concrete ramp, but that is absent on the islands, says Tom Savage. Plus, you have to watch the tides. Courtesy of Savage Forest Enterprise.

Further north ...

Due to geology, Maine has more than 4,600 granite islands off its coast.

“Island work is a common activity for us,” says Tom Savage of Savage Forest Enterprise, Inc., a TCIA member company based in Mount Desert, Maine. Savage has worked on six of those islands.

“We have the good fortune of having barging opportunities at our disposal any time, year round, weather dependent,” he says.

Most of his company’s work is clean-up of mature spruce that blow over in big storms. The work is 80 percent storm damage or trees that are hazardous and 20 percent ornamental, Savage notes.

Putting the equipment on the barge is

not easy, Savage adds. Typically, he uses a mini skid-steer, a stump grinder, a chip truck, a dump truck with rubber tracks and two tracked chippers.

Loading is easy on the mainland, using a concrete ramp, but that is absent on the islands. Plus, you have to watch the tides. You can’t risk getting stuck in the mud at low tide, and then have the tide come up and destroy your equipment, says Savage.

He learned some of that the hard way. On his first remote island job, in Castine, Maine, his crew hooked up a chipper to a bulldozer to load it onto the barge and broke the front of the chipper right off.

“I learned right away, there has to be a better way. That was the turning point.”

Savage chips logs up to 17 inches in

diameter. “Anything larger, we would remove the logs using the mini skid-steer with a log grapple. We can load them onto our tracked truck or get them shore-side to get them picked up by a log loader off the barge,” he says.

Most often the material is staying on the island, he notes, due to the additional expense of removing it. Homes in those remote locations are mostly estates or well-developed houses, and their owners normally would want their land manicured.

“But they’ve realized living in those situations, maybe you could move it to another location on the island and dump it and that would be good enough,” says Savage.

Savage Forest has developed a niche performing the type of tree work common on the mainland but transposed to an island environment.

“Equipment is on tracks, that is the niche. That is high investment if you don’t have guaranteed ROI. We’ve developed our business to that and we do get that return,” says Savage, who earned a business degree from Husson University in Bangor, Maine.

One of the main considerations of island work are safety scenarios for his 10 employees, Savage says.

“You are in a remote location, so being conscious of any hazards is very important because you have limited access to help. You have to be very aware of your situation and you have to be cautious,” Savage notes, adding his company has had no injuries. “Thank goodness.”

Savage is an ISA Certified Arborist, a Maine licensed arborist and a U.S. Coast Guard-licensed boat captain.

“It is not essential to our operations, as we hire much of our barging and vessel services,” says Savage of his captain’s license. “But it doesn’t hurt to have commercial-vessel experience when planning these types of operations, such as in water and weather conditions and how a vessel/barge changes as it is loaded and unloaded. My family operates a commercial passenger-boat company on Mount Desert Island and that is the main reason I have a captain’s license.

“We are always looking to advance technology and methodologies and grow, personally and as a company,” Savage says. “That has kept us relevant, instead of doing the same thing all the time. That might be why



An employee with Savage Forest Enterprise moves a tracked chipper off the barge. Courtesy of Savage Forest Enterprise.

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A member of the Belknap Landscape crew drives a chipper off the barge. Courtesy of Belknap Landscape.

we got into that special equipment; we saw the need and were willing to take the risk.”

Inland waters

Hayden McLaughlin, owner of the Belknap Landscape Company, an accredited TCIA member company based in Gifford, N.H., has faced similar challenges in

doing remote island work, in his case on Lake Winnepesaukee, New Hampshire’s largest lake. Last June his company did a month-and-a-half-long landscape project on Mink Island, the first task being tree work.

“When you don’t own a barge and you are relying on someone else, that’s

a challenge,” says McLaughlin, echoing Mayer’s concerns. “The other part of the equation is that you’re not the only customers, and timing has challenges because not every day on the lake is a good day to be on a barge.”

Belknap has 80-85 employees at full tilt. It’s a full-service landscape company and has been doing tree work now for 15 years.

“TCIA is a great organization. It has helped us with safety protocol, daily and long term, and our Accreditation has helped round out our knowledge of what it’s like to be in the tree business,” says McLaughlin.

Insurance is an issue when moving equipment out to an island, says McLaughlin. The barge company is covered by an inland marine insurance policy when hauling its own equipment, but needs cargo insurance when hauling someone else’s equipment.

“My insurer isn’t going to be very happy with my chipper lying at the bottom of the lake.”

– Hayden McLaughlin

“That was the biggest hurdle as far as making sure everything was OK. I had to make sure anything I put on a barge was covered, and that the barge provider had adequate cargo coverage because my insurer isn’t going to be very happy with my chipper lying at the bottom of the lake,” says McLaughlin.

It is also important to make sure the equipment is in good working order. “You just can’t scoot over to the hardware store to pick up a spare part. You have to take your equipment to the next level.”

Other considerations were bringing spares for smaller equipment, such as chain saws, in case of breakage and performing safety checks for gear and equipment, such as climbing ropes.

“It’s a different environment, and you have to prepare for that,” McLaughlin says. “You have to ask the what ifs, so they don’t creep up and surprise you. You need to prepare yourself differently as the procedures may be different.”

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CI Capital Partners buys majority interest in SavATree

CI Capital Partners, a New York-based private equity firm, in June acquired a majority interest in SavATree, a 31-year TCIA member company based in Bedford Hills, New York. The management team of SavATree has a significant equity ownership in the company. Terms of the transaction were not disclosed.

SavATree services customers in 12 states through 25 locations. Since 1985, under the leadership of Daniel van Starrenburg, who will remain CEO, SavATree has expanded through both organic growth and 11 strategic add-on acquisitions. The partnership with CI Capital will enable the company to continue its growth and bring SavATree's services to new regions of the U.S.

"We are excited to form this partnership with CI Capital, whose experience executing buy-and-build strategies will help us accelerate the pace of our acquisitions," says van Starrenburg. "We look forward to working with CI Capital to further expand SavATree's business while providing the same high level of service our customers expect."

"We have known Daniel for some time and are very impressed with the business he and his team have built," says Joost Thesseling, managing director at CI Capital. "We are grateful for this opportunity and are committed to providing the SavATree team with the resources and support they need to achieve their growth objectives."

Utility One Source acquires Equipment Repair Solutions

In May, Utility One Source acquired Equipment Repair Solutions, a provider of upfitting services based in Tampa, Florida.

Utility One Source, a TCIA associate member company, is a single-source supplier for the utility and heavy-equipment industries.

"This addition demonstrates our com-



An updated app for smart phones and other mobile devices can help workers stay safe when working outdoors in hot weather.

mitment to the expansion of our footprint, and to better serving the heavy equipment and utility industries," said UOS CEO Fred Ross.

"We are looking forward to having the nationwide strength to better service our customers' needs, both national and local, while also expanding our services to the utility, gas and construction markets in Florida," said Anthony Stanonis, ERS president.

Improved Heat Safety mobile app for outdoor workers

An updated app for smart phones and other mobile devices can help workers stay safe when working outdoors in hot weather. The free app was redesigned by CDC's National Institute for Occupational Safety and Health (NIOSH), along with the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA).

The OSHA-NIOSH Heat Safety Tool mobile app, for iOS and Android devices, determines heat-index values – a measure for how hot it feels – based on temperature and humidity. Workers exposed to hot and humid conditions are encouraged to use the app to check weather conditions if they will be working outdoors during the summer heat.

"This app is a valuable tool for employers and workers to help prevent heat-related illnesses," said John Howard, M.D., director of NIOSH. "In many cases, workers rely on their employers to pro-

vide opportunities for taking rest breaks and drinking water. This app puts life-saving information at the fingertips of both supervisors and workers to inform them when they need to take precautions to stay safe at the worksite."


Extreme heat causes more deaths than any other weather-related hazard; each year, more than 65,000 people seek medical treatment for extreme heat exposure. In 2014 alone, 2,630 workers suffered from heat-related illness, and 18 died from heat stroke

and related causes on the job, according to OSHA.

Work-related exposure to heat can also result in reduced productivity and growing risk of injuries, such as those caused by sweaty palms, fogged-up safety glasses and cognitive impairment (that is, mental confusion, impaired judgment and poor coordination).

The app, an updated version of OSHA's original Heat Safety Tool, uses the device's geolocation capabilities to pull temperature and humidity data from National Oceanic and Atmospheric Administration satellites to determine the heat index. The app shows the current risk level (minimal, low, moderate, high or extreme) and forecasts the hourly heat index throughout the entire workday, giving employers information they can use to adjust the work environment as needed to protect workers.

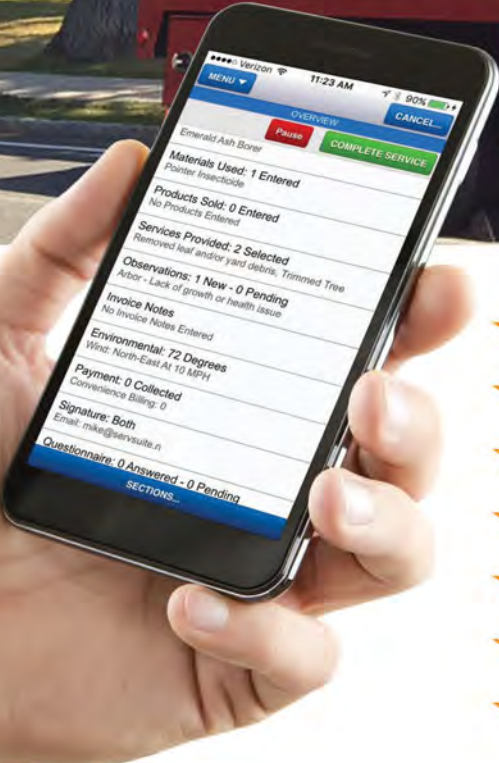
In addition to calculating the heat index, the app provides users with specific NIOSH and OSHA recommendations for protection against the heat based on the calculated risk level. This includes information about staying cool, proper hydration and scheduling rest breaks. Recommendations are based on the 2016 publication "NIOSH Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments," which recently was updated to reflect the latest science.

To install the OSHA-NIOSH Heat Safety app on your iOS or Android device, visit www.cdc.gov/niosh/topics/heatstress/heatapp.html. 



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Color Max coloring system for Bandit Beast horizontal grinders

Bandit's enhanced Color Max colorizer system for creating colored landscape mulch from waste wood is designed to produce the highest-quality colored mulch faster and with lower operating costs than the competition. The Color Max system sprays color directly to

The Beast's patented cuttermill, which distributes color throughout the mulch as it's broken down. With color applied to the cuttermill, coverage on the product is distributed evenly while also being efficient with the colorant. The Beast using the Color Max system is designed to produce 35 percent more colored mulch per hour compared to the competition, while using less colorant and water. The Color Max system is available as an option on all models in The Beast lineup.

(www.banditchippers.com; 800-952-0178)



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DMM Gyro pulleys

DMM's new Gyro range of pulleys are designed to be high strength, compact, durable and textile friendly for use in all rigging scenarios. Developed with DMM industry partners, the Gyro range includes three models: single sheave, single-sheave Prusik-minding and dual-sheave Prusik-minding with becket. All feature sealed roller bearings and rope-friendly fairleads to maximize efficiency. DMM iD, an identification system incorporating RFID (radio frequency identification), is built into every pulley for easy integration into personal protective equipment (PPE) safety-management systems. Features and specs include minimum breaking strength of 56kn, working load limit of 10kN, a sheave diameter of 38mm and a maximum rope diameter of 11mm. Big-bore axles are intended to resist side-plate leverage. Gyro Twin and Gyro PM are designed to tend Prusiks, and Gyro Twin features a textile-compatible becket for additional attachment options. All models conform to British Standard EN 12278 safety requirements. (www.dmmwales.com)



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Fecon excavator rotating tree shear



The new Fecon Rotating Shear model FRS10 tree shear for excavators provides 360-degree rotation for a wide range of motion and is designed to allow operators to save time and be more efficient with less repositioning of the excavator.

The FRS10 increases safety due to the shear being able to load chippers. The FRS10 is designed for 12- to 18-ton excavators and cutting up to 14-inch material. Other FRS models range from 5- to 35-ton capacity. An optional accumulation arm allows the operator to bunch smaller material. This "Fecon Tough" shear is constructed with Hardox in My Body steel. (fecon.com; 513-696-4430; chaag@fecon.com)

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Updated Jarraff All-Terrain Tree Trimmer with rotating head

Jarraff Industries' All-Terrain Tree Trimmer has been updated with a new look and been newly designed for higher power output and improved efficiency. The updated Jarraff features a patent-pending rotating saw-head design that



allows rotating the blade assembly 180 degrees, an industry exclusive. A new touch-screen information center gives the operator control, engine monitoring, a high-definition camera display and more. The new Jarraff features a Cummins 130-hp, Tier 4 engine that meets all environmental emission standards and mandates. Designed to provide a dynamic field of operation, a rotary manifold offers a 360-degree-plus range of motion as a standard feature. The unit also provides lateral tilt and 75-foot cutting height. Two four-way joysticks and fingertip controls offer optimal precision. The cab is ROPS, FOPS and OPS certified. Full panel, lexan windows prevent distortion and provide a clear view of operations. (www.jarraff.com; 800-767-7112)

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July 8, 2017

Morbark Chipper Training
Woodbridge Estate Care, Bethany, CT
Contact: wendy.hopkins@morbark.com

July 11-12, 2017*

Certified Treecare Safety Professional/CTSP Workshop
Vacaville, CA
Contact: www.tcia.org/training

July 12, 2017

Arborist Apprenticeship Program Validation
Pine Lawn, MO
Contact: www.tcia.org/events

July 14, 2017*

Chain Saw Specialist Workshop**
Portsmouth, NH
Contact: www.tcia.org/training

July 18, 2017

TCIA Arborist Apprenticeship Workshop
Pine Lawn, MO
Contact: jhibbs@tcia.org

July 20, 2017*

CT Tree Protective Association Summer Meeting
Farmington, CT
Contact: www.CTPA.org

July 21, 2017

Chipper Operator Specialist Workshop**
Portsmouth, NH
Contact: www.tcia.org/training

July 22, 2017

Ground Operations Specialist Workshop**
Highland Activity Center, Highland, MI
Contact: Dawn Thierbach (810) 796-3322

What's Coming in TCI?

Each issue of *TCI Magazine* contains a variety of articles tailored to the specific needs, concerns and interests of arborists. *TCI* solicits a number of articles from outside writers to keep its editorial content fresh. Do you have a story for *TCI*? The editor will be happy to review your idea or manuscript and discuss it with you. Here are some of the upcoming topics for the next two issues:

August

Machinery & Equipment: Right-of-Way, Wood Processing/Biofuel/Mulch
Tools & Supplies: Pest Management, Climbing Gear, Preparing Storm Response
Services: Tree Appraisal, Insurance
Safety: Ergonomics

September

Machinery & Equipment: Trucks; Storm Prep & Response
Tools & Supplies: Fertilization/Soil Amendments
Services: Maintenance & Repair
Safety: Aerial Lift Safety, CTSP CEU Quiz
TCI Equipment Locator: Guide to New & Used Equipment

Contact editor@tcia.org

Advertising opportunities: Sachin Mohan, smohan@tcia.org

July 29-August 2, 2017*

ISA Annual International Conference & Trade Show w/ITCC
Washington, DC
Contact: www.ISA-Arbor.com

August 1, 2017

TREE Fund After Hours Silver Anniversary Tour
Celebration & MAC-ISA Party
National Harbor, MD
Contact: www.treefund.org

August 1-2, 2017*

Certified Treecare Safety Professional/CTSP Workshop
Fowlerville, MI
Contact: www.tcia.org/training

August 4, 2017

Chipper Operator Specialist Workshop – Spanish**
Roseville, CA
Contact: www.tcia.org/training

August 11, 2017

Electrical Hazard Awareness Program/EHAP – Spanish**
Homestead, FL
Contact: www.tcia.org/training

August 14, 2017

Arbormaster Tree Climbing Methods
Reston, VA
Contact: info@arbormaster.com; (860) 429-5028

August 17, 2017

Arbormaster Precision Tree Felling, Chain Saw Safety
Reston, VA
Contact: info@arbormaster.com; (860) 429-5028

August 18-19, 2017

Professional Tree Care Association (PTCA) of San Diego Field Day
Balboa Park, San Diego, CA
Contact: ptcaosd.wildapricot.org

August 21-26, 2017

Crane Operator & Arborist Rigging Certification
San Francisco, CA
Contact: events@timberwarriors.com; (844) 999-9246

August 25, 2017

Aerial Lift Specialist Workshop – Spanish**
Selma, TX
Contact: www.tcia.org/events

September 11-12, 2017*

Rocky Mountain Chapter ISA Annual Conference
Loveland, CO
Contact: www.isarmc.org

September 14, 2017

Aerial Lift Specialist Workshop**
North Franklin, CT
Contact: www.tcia.org/training

* Indicates that TCIA staff will be in attendance
** Susan Harwood Grant-funded workshop; does not include lunch
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By Peter Gerstenberger

Staying on the Right Side of Child Labor Laws



For many of those in the tree care business, the summer months bring young workers looking for summer employment. While this demographic of workers may only be with you for a few months, staying on the right side of child labor laws and providing proper training and supervision to your young workers are all vitally important.

The injury rate for young workers – those under age 25 – is almost twice that of workers over 25. This is particularly true in the first few months of work, making young – and often inexperienced – summer workers more susceptible to injury and illness.

Employers have a responsibility to know and comply with child labor laws that apply to their business. The law outlines restrictions regarding the type of jobs workers under certain ages can and cannot perform

to protect their health and safety. It also sets the hours that youth may work, both during the school year and during the summer.

Child labor laws are governed by the Fair Labor Standards Act (FLSA), which establishes minimum wage, overtime pay, recordkeeping and child labor standards at the federal level. For the most explicit guidance for your business, check your state's child labor laws.

Here, we are going to concentrate on one aspect of most of these laws: underage workers performing so-called "hazardous duties."


Driving. No employee under 17 years of age may drive a motor vehicle on public roads as part of his or her job if that employment is subject to the FLSA. A 17-year-old may drive for work so long as the work vehicle does not exceed 6,000 pounds GVW and does not tow a vehicle, and driving comprises no more than one-

third of the employee's day.

Operating power equipment. Under the FLSA, persons under 18 are prohibited from operating certain types of equipment. Chain saws and wood chippers are named specifically in most lists of prohibited equipment.

Tree work is non-agricultural labor. Most states' labor laws make special exceptions for agricultural labor, particularly for the minor children on family-run farms. Tree work has *no* such exceptions.

As tempting as it might be to offer employment to an eager and capable minor, it is likely in your business's best interest to tell them, "Please come see us when you're 18."

Peter Gerstenberger is senior advisor for safety, compliance & standards for the Tree Care Industry Association. 

September 14-15, 2017*

Arboriculture Society of Michigan Arborfest
Midland, MI
Contact: www.asm-isa.org

September 24-27, 2017*

Pacific Northwest Chapter Annual Training Conference
Lynnwood, WA
Contact: www.phwisa.org

September 27-29, 2017*

Texas Tree Conference
Waco, TX
Contact: www.isatexas.com

October 1-2, 2017

MAC-ISA Annual Meeting & Trade Show
Virginia Beach, VA
Contact: www.mac-isa.org

October 1-3, 2017*

New England Chapter ISA Conference
Southbridge, MA
Contact: www.newenglandisa.org

October 5, 2017*

Wisconsin Arborist Association Fall Meeting
West Bend, WI
Contact: www.waa-isa.org

October 17-18, 2017*

Illinois Arborist Association Annual Meeting
Tinley Park, IL
Contact: www.illinoisarborist.org

October 19-20, 2017

New Jersey Shade Tree Federation Annual Meeting
Cherry Hill, NJ
Contact: www.njstf.org

October 31, 2017

Certified Treecare Safety Professional/CTSP Workshop
Columbus, OH
Contact: www.tcia.org/training

November 2-4, 2017*

TCI EXPO Conference & Trade Show
Pre-show events November 1, Columbus, Ohio
Contact: www.tcia.org

November 8-9, 2017*

Oklahoma Grows
Thackerville, OK
Contact: www.oknla.org

November 29-December 1, 2017*

New England Grows
Boston, MA
Contact: www.newenglandgrows.org

January 2-4, 2018

Northern Green EXPO
Minneapolis, MN
Contact: www.northerngreenexpo.org

January 15-17, 2018

MGIX – Midwest Green Industry Xperience
Columbus, OH
Contact: www.cents16.com

January 18, 2018

CT Tree Protective Association Annual Meeting
Southington, CT
Contact: www.CTPA.org

January 18-19, 2018

Think Trees NM
Albuquerque, NM
Contact: www.thinktreesnm.org

January 23-25, 2018

Indiana Arborist Association Annual Meeting
Indianapolis, IN
Contact: www.indiana-arborist.org

February 5-9, 2018*

Winter Management Conference
Maui, Hawaii
Contact: 1-800-733-2622; www.tcia.org 

More Hazards on the Job – **POISON IVY AND TICKS**



A crew from Race Mountain Tree Services in Sheffield, Massachusetts. Lyme disease is part of Race Mountain's safety meeting discussion every spring, when ticks become more active. Courtesy of Race Mountain Tree Services.

By Patricia Chaudoin

They lurk around rock walls, at the edges of the woods and up in trees. We're talking about the flora and fauna – poison ivy and oak, ticks and stinging insects – that create everything from nuisance itching to potentially life-threatening diseases. And every one of them is a hidden hazard for workers in the tree care industry. In all cases, knowing what to look for, how to avoid exposure and what to do if accidentally exposed are three important topics for discussion.



Deer tick. Photo by Scott Bauer, USDA Agricultural Research Service, Bugwood.org.

Let's start with poison ivy, oak and sumac, all of which are insidious problems if you work in the tree care business or spend any time in or near the woods.

Poison ivy, oak and sumac

Most people are familiar with the saying, "Leaves of three, let it be" that we learned as children as an easy way to identify poison ivy and oak. That was pretty

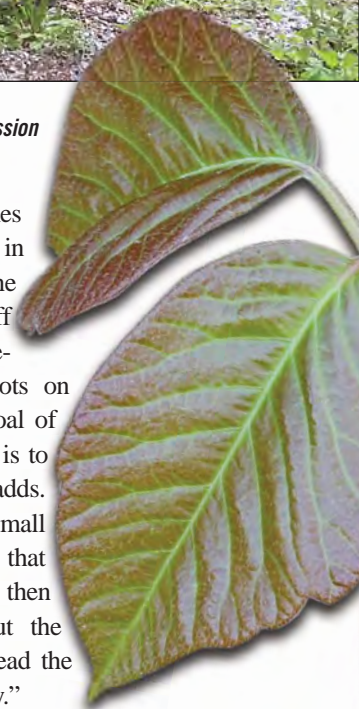
good advice, according to Dan Boelman, customer service manager with Zanafel, a seven-year TCIA associate member company based in Clive, Iowa. Zanafel makes a product by the same name, Zanafel Poison Ivy, Oak & Sumac Wash, a topical treatment used to greatly lessen or even eradicate the effects of exposure to the urushiol oils of poison ivy, oak and sumac.

"First, it helps to know what to look for in different parts of the country," says Boelman. "Poison ivy is unique to North America, specifically Canada and the U.S., and there are two species, eastern and western. The eastern variety climbs up trees, rock walls, even the sides of barns. The western variety appears in places like the Rockies and western Canada as a ground cover or shrub. Poison oak is a problem on the West Coast, mainly California, and poison sumac is a small tree that grows mainly in swamps, so it's not something most people run into."

Poison ivy and oak love sunlight and grow mostly on the edges of woods, so according to Boelman, you won't find it deep in the forest. He says leaves appear jagged

or sometimes smooth, and in summer the leaves give off a sap that creates black spots on them. "The goal of all poison ivy is to spread," he adds. "It also has small white berries that birds eat, and then they poop out the seeds and spread the plants that way."

Because it climbs trees and can send out its own 10- to 12-foot branches, eastern poison ivy is especially hazardous for tree care workers, according to Boelman. "You can get hit in the face with one of its branches and brush it away and never realize you were exposed, ending up with a nasty case of



Eastern poison-ivy (Toxicodendron radicans). Photo by Rob Routledge, Sault College, Bugwood.org.



Poison ivy bubbles. Courtesy of poison-ivy.org

poison ivy. Also, besides directly touching a plant, your skin can come into contact with clothing or equipment such as chain saws that have plant oils on them.”

Post-exposure treatments

Boelman says the key to avoiding a bad rash from exposure to poison ivy or oak is to treat the skin as soon as possible. “The rash from the poison ivy toxin, known as ‘urushiol-induced allergic contact dermatitis,’ is a delayed hypersensitivity reaction, meaning it can take one to two days to show up – and then it’s too late. Ideally, you want to

wash your skin with soap and water within 15 minutes after exposure to avoid a rash. Within one hour, you may get most of the toxin removed, but not all. After an hour, the oil has already bonded to your skin and your white blood cells have started attacking the affected area.”

That’s where treatment with Zanfel comes in. “Washing with Zanfel removes the cause of the itching rash by breaking the bond between the urushiol oils and skin tissue,” Boelman explains. “It absorbs the oils and removes them. In a mild to moderate case, the itching usually stops within 30 seconds, and within one day approximately 50 to 75 percent of the inflammation is gone. When tree care crews scrub with Zanfel at the end of the day, they usually have no reaction or it’s way less severe. By removing the allergen oil, your white blood cells have nothing left to attack.”

Symptomatic treatments such as calamine lotion and antihistamines may stop the itching, but they don’t remove the problem and will have to be used repeatedly, says Boelman. In severe cases, a corticosteroid such as a five-day prednisone pack may be prescribed, but this only shuts off the immune system – and the side effects of corticosteroids are a whole other issue that should be avoided, he adds.

Lowering medical costs

The use of Zanfel in the tree care industry has proven to significantly reduce hospital visits, lost workdays and workers’ comp claims, according to Boelman. “Asplundh is one of the companies that uses Zanfel. It’s been a huge success story for them.”

Bruce Mellot, director of corporate safety for Asplundh, concurs. “We brought Zanfel on board in fall of 2014 and rolled it out company-wide in 2015, primarily in our vegetation management division,” he says. “We measured our loss costs – medical costs associated with people going to a clinic or



Poison ivy forearm rash. Courtesy of poison-ivy.org

ER – for our first year using Zanfel against those of the previous year and saw more than a 50 percent reduction. We expected some reduction, but not nearly what we saw. I am definitely a believer – it works!

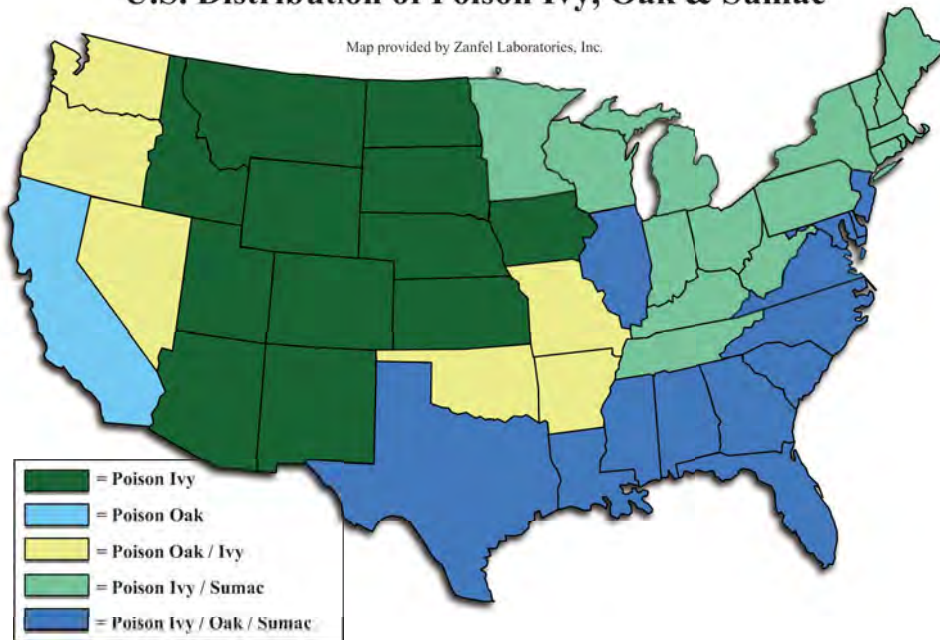
“I’ve been using Zanfel myself for years,”



Poison ivy, both shiny and not. Courtesy of poison-ivy.org

he adds. “It’s unique because you can use it several days after exposure instead of within one hour, like other washes.”

U.S. Distribution of Poison Ivy, Oak & Sumac



Poison Sumac (Toxicodendron vernix). Photo by James H. Miller & Ted Bodner, Southern Weed Science Society, Bugwood.org.

Tips for Avoiding Poison Ivy & Oak

Follow these tips to avoid contracting poison ivy, oak and sumac.

- Make sure everyone on your crew or crews knows how to identify these plants so they can avoid them.
- Wear protective clothing, including long pants, long-sleeved shirts, hats and gloves.
- Never burn any plants suspected of being poison ivy or oak. Inhaling the smoke can draw the oil right into your lungs and bloodstream, causing a systemic reaction that can be deadly.
- Wipe off chain saws and other equipment at the end of the day with a rag soaked in water and a liquid dish soap such as Dawn. This breaks down urushiol oil that can remain on surfaces for weeks. Even vehicle seats that come in contact with contaminated clothing should be wiped down with soap and water.
- Don't shower in hot water until you are sure you've gotten all the oil off your skin; oil can spread into open pores and create a rash over an even greater area of your body.
- Every day, send clothing through a regular wash cycle with detergent to remove any urushiol oil.

Courtesy of Zanfel Laboratories and www.poison-ivy.org.

To find out everything you might want to know about poison ivy and oak – and a few things you probably don't want to know – check out the website www.poison-ivy.org. Be sure to look at the site's "Skin Rash Hall of Fame." It comes with a tongue-in-cheek disclaimer absolving the website from any permanent mental damage caused by viewing "these grody rash photos."

The unpleasant facts about Lyme disease

This is turning out to be a particularly high-population tick season all across the Northeast, and with more deer ticks

come more reported cases of Lyme disease, caused by the bacterium *Borrelia burgdorferi*. Unfortunately, Lyme disease is one of the most misdiagnosed ailments, according to Rolf Briggs, a certified arborist and president of Tree Specialists, Inc., a 32-year TCIA member company out of Holliston, Massachusetts. Briggs has had the disease four times, with the first episode occurring about 10 years ago.

"Back then I wasn't familiar with Lyme



Deer tick on a leaf of grass. Courtesy of the CDC.



The telltale bulls-eye-shaped rash indicating Lyme disease resulting from a deer-tick bite. Photo courtesy of the Centers for Disease Control & Prevention (CDC).

and didn't realize I had it," he says. "I'd heard about it from some hunting companions on Martha's Vineyard, but I thought, since I only hunted in December, I wouldn't have a problem. I was wrong. Ticks can still be active at temperatures as low as 21 degrees Fahrenheit."

Because of its symptoms – fever, chills, headaches, weakness, fatigue – Lyme often is misdiagnosed as the flu if there is no characteristic red bull's-eye rash around the bite area. "I only had the rash once in four times, right above my sock line," says Briggs. "But each time, within 24 hours of being bitten, I had chills, sweats and arthritic joints. I couldn't write, couldn't hold a pen, couldn't do my job."

"Once I was on a course of doxycycline, I started getting better," he says. "Lyme affects everybody differently. Some are fortunate enough to bounce right back with antibiotics, others not so much. I've been one of the fortunate ones."

According to Briggs, the areas in which he and his crews live and work in Massachusetts are notoriously bad for ticks and Lyme disease. "Martha's Vineyard is full of ticks, and so are Sherborn and Dover. I've taken 40 ticks off me at one time with a sticky lint-remover roller after walking on Martha's Vineyard. And Marion is another ferociously bad tick town."

Briggs says that ticks thrive in shady, cooler areas at the edges of woods, living in the ferns and leaf litter where they hang out "ready and waiting with their legs open to latch onto deer, dogs, mice or whatever else brushes up against them." After contracting Lyme, he and his wife took measures to reduce the tick population on their property, putting up a perimeter fence to keep deer out of their gardens and doing a hard spray of the yard's wooded edges with Tempo, a beta-cyfluthrin pest-control spray.

Briggs also suggests treating the perimeter of your property and house foundation as well as your work yard and building foundations, where mice hang out, with something called "tick tubes." These can be purchased from a manufacturer such as Damminix or easily made at home from toilet-paper tubes, cotton balls and a spray can of insect repellent containing permethrin. Google "tick tubes" to find an online tutorial.



Atlantic poison-oak (Toxicodendron pubescens). Note the lobed leaves, which resemble oak leaves. Photo by David J. Moorhead, University of Georgia, Bugwood.org



Pacific poison-oak (Toxicodendron diversilobum) foliage and fruit. Photo by Joseph M. DiTomaso, University of California - Davis, Bugwood.org.



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Blacklegged tick (Ixodes scapularis) also known as a deer tick. Seen above, adults and nymphs with straight pin. Photo by Jim Occi, BugPics, Bugwood.org.

Keeping crews safe

Lyme disease hits tree care workers especially hard. Ron Yaple, president of Race Mountain Tree Services, a 26-year TCIA member company based in Sheffield, in western Massachusetts, says he has had Lyme at least one time that he knows of. “It was about five years ago. I knew the symptoms – joint pain, weakness, fatigue – and figured that’s what I had, so I immediately went on a multi-week antibiotic.

“My wife also had been diagnosed about the same time,” says Yaple. “We live in a wooded area with mice and ticks, and she gardens and we both enjoy walking our dog in the woods. More consistently now, if I find a tick attached to me, I’ll do a round of doxycycline just to be safe.”

Yaple says preventing Lyme disease is part of his company’s safety meeting discussion every spring, when ticks become more active. “We review the whole process of checking

How to Prevent Tick Bites and Avoid Related Diseases

A good way to begin protecting crewmembers from the threat of Lyme and other insect-borne diseases is by having them wear treated clothing whenever they’re on a worksite near heavily wooded areas. You can approach the issue of treated, insect-repellant clothing three different ways: the DIY approach, shipping clothing to a company for treating with permethrin or buying pre-treated clothing from Insect Shield, L.L.Bean, Cabela’s and other companies.

Permethrin is a synthetic form of bug repellent that occurs naturally in flowers like daisies and chrysanthemums. Both Rolf Briggs and Ron Yaple provide their teams with a generous supply of permethrin spray for treating their clothing themselves on a regular basis. According to Briggs, the treatment lasts about a week with regular washings. He adds that the spraying of work boots and shoes, which generally don’t get washed, lasts much longer.

Greg Greene, HR manager with Chippers, Inc., an accredited, TCIA member headquartered in Woodstock, Vermont, says the company started providing employees with permethrin spray last year. “This year we started offering Insect Shield treatment of employee clothing to offer a more durable option,” he adds.

Chippers pays to have employee clothing shipped to Insect Shield, headquartered in Greensboro, North Carolina,

where it is treated with the Insect Shield process that binds a proprietary permethrin formula tightly to fabric fibers. The result is odorless, EPA-registered insect protection against mosquitoes, ticks, flies, chiggers and midges that lasts for up to 70 washes – which Insect Shield claims to be virtually the life of the garment.

Follow these tips to avoid suffering tick bites and the diseases they can convey.

- Keep ticks from attaching by using a repellent that contains 20 percent or more diethyl-meta-toluamide (DEET), picaradin or IR3535, spraying on exposed skin for protection that lasts several hours.
- Spray clothing and gear, including boots, pants, socks and jackets or windbreakers, with products containing 0.5 percent permethrin. Permethrin remains protective through several washings. You also can purchase pre-treated clothing from sources such as L.L. Bean that may stay protective longer.
- Always tuck in your shirt when working outdoors.
- Shower as soon as possible after coming indoors – preferably within two hours – to wash off and more easily find ticks that are crawling on you.
- Conduct a full body “tick check” after working in tick-infested areas, using a hand-held or full-length mirror.
- Tumble dry clothing on high heat (before washing!) for 10 to 15 minutes to kill ticks on dry clothing after you come indoors. Be sure to use a hot dryer to achieve “fatal crispiness.” A hot wash cycle does not kill ticks. And never throw clothes directly in the clothes hamper.

Tips courtesy of the Centers for Disease Control and www.tickencounter.com.

for ticks every night and using the permethrin spray we provide. It’s something we take very seriously.”

To keep his crews protected, Rolf Briggs makes sure every truck has a supply of permethrin repellent for spraying their clothing; he uses one manufactured by Sawyer. “We make sure every employee who works with us gets a generous supply so they can spray their clothes, boots, socks and jackets. It stays in clothes up to a week, even with regular washings. I spray myself every week, and I haven’t had Lyme disease in four years.

“We also go over all the steps to avoiding a tick bite at our tailgate sessions,” he adds, “things like always spray well, go home and shower immediately at the end of each day and throw your outerwear like windbreakers and jackets in a hot dryer to really bake them. A while ago, we actually shut the company down and drove everybody to an ISA New England event where they were doing a sym-

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posium on Lyme disease led by a group of University of Rhode Island researchers.”

As a word of warning, Yaple says he’s heard this year’s tick population is higher than normal due to a relatively mild winter in the Northeast. “Apparently, both ticks and carriers survived in higher numbers. The volume of calls for our landscape spraying service this spring has skyrocketed. We need to be extra vigilant.”

Yaple sprays “bifenthrin, permethrin, cedar oil or a mixture of other essential oils, depending on the situation,” he says.

One spray option, TickKillz, from Natural Repellents, LLC, a TCIA associate member company, is an all natural tick control product made with 100 percent organic ingredients. Apply TickKillz to shrubs, mulch beds, lawn or an entire property – wherever insects dwell. It provides 30 days of residual repellent benefit after each application, and won’t harm beneficial insects such as bees, butterflies and earthworms.

Bottom line, it’s always best to avoid a tick bite in the first place. However, most cases of Lyme disease can be treated successfully if caught in time, according to the Centers for Disease Control (www.cdc.gov/lyme). But if left untreated, the infection can spread to one’s joints, heart and nervous system, creating a lifetime of health problems.


Lyme-disease-related websites & resources

University of Rhode Island TickEncounter Resource Center – www.tickencounter.com

Centers for Disease Control – www.cdc.gov/lyme and www.cdc.gov/ticks

International Lyme and Associated Diseases Society – www.ilads.org

Lyme Disease Association, Inc. – <https://lymediseaseassociation.org>

Out of the Woods: Healing from Lyme Disease Body, Mind, and Spirit by Katina Makris 



An adult female blacklegged tick, engorged after a blood meal, rests on a leaf. Scott Bauer, USDA Agricultural Research Service, Bugwood.org.

Powassan Virus Contracted from Ticks in Maine

Two cases of a somewhat new and potentially fatal tick-borne illness were reported this spring in Maine, according to June 6, 2017, report on Fox News.

Powassan virus differs from Lyme disease in that it can be transferred from tick to human in a matter of minutes. It also differs in that Powassan is a virus, while Lyme is a bacteria, according to the report.

Symptoms of Powassan are more severe than Lyme and can quickly reach a patient’s brain, potentially leading to long-term neurological damage. Symptoms may include fever, headache, vomiting, weakness, confusion, seizures and memory loss. In 10-15 percent of cases, the virus proves fatal, according to the report.



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Doing Good Work and Standing Behind It Defines Sam Hill Tree Care

By Janet Aird

Sam Hill founded his company, Sam Hill Tree Care, in 1998 to specialize in the science behind healthy trees and soils.

“I come from a horticulture and plant-soils background,” says Hill. “When I got into the tree care industry, I chose to focus on that. There’s a big need for it.”

Sam Hill Tree Care, a 19-year TCIA member company based in Dallas, Texas, covers the Dallas/Fort Worth area. Approximately 98 percent of their customers are residential. The remaining 2 percent are commercial or municipal. The company’s specialties are still science-based – pest and disease management and soil testing, says Hill, who has become an ISA Board Certified Master Arborist, ISA Tree Risk Assessment Qualified and Texas Oak Wilt Qualified.

“Oak wilt is a big problem, especially in Central Texas, but it’s also a problem in Dallas/Fort Worth,” he says. “It can affect all species of oak. There are very effective therapies, especially when you start early. You can get to the point when you can just maintain.”

Other services offered include tree planting, pruning, cabling and bracing, fertilization, removals and stump grinding. Their consulting services include house calls, tree protection plans, tree inventory and management planning and hazardous tree evaluations.



Sam Hill



Sam Hill discussing the findings of a root-collar excavation during one of their training sessions. Courtesy of Sam Hill Tree Care.

“I’m just trying to make my small corner better,” he says. “Being a good employer is beneficial. I like to think I create a good working environment.”

The company has 22 employees, with 18 in the field as arborists, plant health care technicians and production crews.

“Being here in Texas, a lot of our employees are Hispanic,” Hill says. “We’ve provided the majority of them with TCIA’s Tree Care Academy training. It’s great to get bilingual training. That’s been a great help.”

Hill is a strong believer in training, for both employees and the company. The amount of training they do is a big investment for a company their size, but, he says, “I’m planning to do this for a while, so I’m invested.”

Hill attends TCIA workshops and takes the company’s manager to TCI EXPO every year. He augments TCIA’s

programs by bringing in other companies to do training such as for climbing and rigging.

When he started the company, his employees came from different places and backgrounds. There were sometimes conflicts, for instance, when some didn’t want to wear safety equipment.

“I’m very proud of them,” he says. “Now they work very well as a team. I can meet a crew at a jobsite the first thing in the morning and know the job will be executed perfectly. And the company has an outstanding safety record, which helps with workers’ comp and is great for morale.”

Hill’s employees also have a complete understanding of proper tree care and why it’s important, he says. They’re very confident in how to do the work and very comfortable talking with clients. And they’re even confi-

dent enough to remind Hill, their boss and owner of the company, to put on a hard hat when he's visiting a site.

The training has helped the company as well, he says. "It's given us a reputation in our market as a premier provider. We have both breadth and depth of knowledge.

"I spend about 3 percent of our revenue on training," he says. "We have lots of business. My marketing dollars are better spent on training our people."

Their only advertising or marketing is their website and their Facebook page. They probably spend \$1,000 to \$2,000 per year on those, he says. Some 80 to 90 percent of their business comes from repeat customers and referrals.

"We always ask new clients where they got our name, and it's always been a recommendation from a client or a trusted professional, such as a landscape architect. They always tell me the story of how the person said we're the best at what we do, we're very

knowledgeable and we do what we say we're going to do. If something goes wrong, we're quick to follow up and make it right. We get a lot of referrals that way," he says, "doing good work and standing behind it."

They donate tree services to school auctions, Boy Scout camps and churches their employees attend. They do pro bono work such as tree-risk assessments and tree removals in addition to their paid work at the Dallas Zoo and a historic park.

The company earned TCIA Accreditation in January 2017.


"What I liked about Accreditation was the comprehensiveness," Hill says. "It addressed every part of the company. It was a comprehensive look at my business, and sharpening and aligning the processes. Accreditation gave us new ideas on how to approach everything."

For example, before they became accredited, their method of reviewing

employees at the 90-days and one-year points was complicated. The auditor suggested a simpler method that would get the same result.

They already had standardized written specs, policies and procedures and a safety manual, and they used ANSI standards. During the Accreditation process, they updated their business plan and began using it more effectively, and they added more variety to their safety training.

In the future, the only change they'd like to make is the ratio of their services. Instead of the current 70 percent tree services and 30 percent plant health care, Hill would like to see the company doing 35 to 40 percent plant health care. They've projected a 10 percent annual growth.

"The biggest benefit of Accreditation for us is that it gives us a place to start having conversations with our clients," he says. "We tell them we have Accreditation and are at a higher level." 

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THE IMPORTANCE of CRANE TRAINING

By FJ Runyon

Today, many tree companies rely on the use of cranes for removing trees. Whether a tree company owns or rents cranes, employers will be held to the standards and requirements of Occupational Safety and Health Administration (OSHA) and the ANSI (American National Standards Institute) Z133 Standard.

Currently, OSHA does not require tree care operators to comply with its Construction Crane standard. However, tree care companies that own a crane and perform at least one non-tree-related job at any point during a year, such as lifting an air-conditioning unit atop a building or setting trusses, will need to comply. That standard's compliance deadline for operator certification is November 10, 2017. In any case, arborist crane operators and riggers need to be properly trained on

crane-related safety and operational procedures.

The moment a crane is employed, the environment can become extremely hazardous for anyone in the crane's path or the work area. Between October 2015 and September 2016, OSHA reported 18 fatal crane-related incidents. Although these were not necessarily tree-related incidents, arborists need to be trained on the equipment that is located on their job site and how to properly execute safe work practices.

Probably the most critical task during the tree removal process involving a crane is the clear, concise communication between the signal person (arborist in charge) and the crane operator. Having clear communication, beginning with a detailed plan before starting the job and continuing by use of a radio or with hand signals during the removal process, can prevent costly incidents, from damage to the customer's property to physical injury of a worker on the job site.

Rigging, the system of slings or ropes (sometimes cables or chains) employed to support a suspended load, requires expertise that calls for a true understanding of the limitations of the equipment in use and the proper signals, as well as a keen ability to estimate the weight and center of gravity (mass) of the piece being picked.

When OSHA enforces its crane standards in the tree care industry, not having the proper qualifications could make you subject to "serious" violations and hefty fines. More importantly, those who are not properly trained could place the safety of workers and innocent bystanders at risk.

FJ Runyon is senior operations manager with Timber Warriors LLC, a TCIA



Crane use is common in tree care today, and it is important for users to be trained and certified. Courtesy of Timber Warriors LLC.




This comprehensive, updated manual from TCIA combines technical knowledge and industry standards of crane use in tree care and demonstrates important methods for safe crane/tree operations.

- combines technical information from professional crane operators and arborists who use cranes.
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associate member company based in St. Charles, Missouri, that manages an emergency tree removal, tarp and board-up service network across the U.S. Timber Warriors, along with Cranes101, a TCIA associate member company based in Bellingham, Massachusetts, will present a Crane Operator and Arborist Rigging Certification training event August 21-26, 2017, in Livermore, California. The event will highlight rigging procedures, safe practices for cranes during tree operations and techniques to minimize and eliminate job-site hazards. The event is open to all tree care professionals and crane owners and/or operators. For more details or to register for Crane Operator and Arborist Rigging Certification, visit www.TimberWarriors.com. 

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Rainbow Treecare Demonstrates a Broad Commitment to Safety

By Tamsin Venn

“We’re very committed to the whole tree care industry,” says Tom Prosser, founder and owner of Rainbow Treecare, a 30-year TCIA member tree care company based in Minnetonka, Minnesota.

Rainbow recently pledged a generous \$25,000 to TCIA’s Arborist Safety Training Institute (ASTI) to help provide cost-subsidized safety training and education for tree care companies nationwide.

Prosser is also founder and CEO of Rainbow Treecare Scientific Advancements, a TCIA associate member company that provides tree healthcare products and equipment and which is also based in Minnetonka.

“Our purpose is, one, to save trees and help other people save trees, and two, to professionalize our arboriculture business with predictable treatments and products. Safety is a very important part, and we wholly support what TCIA is doing with that.”

Rainbow Treecare employs 56 tree workers, making it one of the largest tree care companies in the Minneapolis-St. Paul area.



Tom Prosser

“We’re very safety conscious. About three years ago, someone in the company broke a hip falling from a ladder, and we as a company came together and said, ‘Never again.’ We have invested in and are committed to a culture of safety and how we go about creating it,” says Prosser, who joined TCIA’s Board of Directors in February 2017.

Rainbow Treecare recently won a TCIA Safety Award, presented at Winter Management Conference, for “proactive incremental training and safety discussions to



Demonstrating safety. “We have invested in and are committed to a culture of safety and how we go about creating it,” Tom Prosser, says of Rainbow Treecare.

reduce incidents.”

Prosser believes TCIA is the best entity to deliver this much-needed training to the industry.



“TCIA has focused on safety for a long time, and they understand and engage in it. They work with all the people in the industry and have the most impact,” says Prosser.

“We’re really happy TCIA is putting this (subsidized training) together and think it is very important. I know only 10 percent of tree care companies belong to TCIA, so that is 90 percent that aren’t necessarily getting the message. It’s a matter of really promoting mem-

bership in TCIA.

“I don’t know how you reach people who aren’t interested and not involved. You can’t really go into their office and demand it. You just continue to have outreach and local programs that teach companies how to create safety programs and continue to reach out to smaller companies, the ones with two- or three-person operations, where safety training is not necessarily on their radar.”

What thoughts does he have for making that happen?

One aspect to it, he says, is to grow a workforce with community colleges and to create professional development through endowments in major universities that have lost their arboriculture programs.

“Really professionalizing our arboriculture business, that is a future we have to create.”

For more information about the ASTI program, contact Amy Tetreault at 800-733-2622 or atetreault@tcia.org. You also can visit <http://tcia.org/foundation/asti>.



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The ABCs of Large-Tree Pruning – An Introductory Discussion

By Andrew G. Pleninger and Christopher J. Luley, Ph.D.

We hope most of you are familiar with the *ABCs Field Guide to Young & Small Tree Pruning* (hence referred to as the *ABCs*), which we co-authored. We developed the *ABCs* pruning method to simplify teaching and learning, and to address the most important pruning needs of small and young trees. The method is the *ABC* acronym that guides the pruner through the pruning process and makes it easier to recall. We also suggested these principles could be applied to larger trees. So here we go – a case study for the *ABCs* of large-tree pruning.

For purposes of our discussion, we will walk through the *ABCs*, discuss the differences when applied to large trees and the adjustments to the method for use in large-tree pruning. We are going to limit our definition of a large tree to one that cannot be pruned from the ground and is still growing in height. Mature trees that have stopped growing in height have different pruning needs. Having a copy of the *ABCs* for reference would be useful for this discussion.

The “large” differences

Objectives

The ISA Tree Pruning BMP directs the user to define the objective of the pruning. The overall objectives of the *ABCs*, and as they would apply to pruning for larger trees, are health, structure, clearance and safety. Qualifying structural pruning further, in the *ABCs* we are working to “train” a tree so as not to develop structural problems that we know will fail in the future. On a large tree, our primary objective is pruning for safety and to “treat” structural problems present that may lead to a catastrophic failure, shortening the lifespan of the tree. Overall, though, the objectives are “largely” the same, just on a larger scale, and there are larger implications of your work. We can also add an additional objective: this process can be a



Photo 1. Examples of “poor” pruning can be seen every day in large and small trees. Here, over-raised and codominant stems were ignored. Using the ABCs, these branches would have been addressed several times. Unless otherwise noted, all images courtesy of the authors.

tool for a salesperson to specify a service.

Safety

Another difference is safety – for the pruner, co-workers, bystanders and the property. It requires a trained and qualified arborist and workers furnished with the proper PPE, tools and equipment. We will not delve into safety procedures other than to direct you to review your company standards and our industry standards (ANSI, etc.), and reinforce the need for you to complete pre-work safety assessments and inspections.

Biology

The implications of your pruning a large tree are, well, “larger.” The removal of energy-producing leaf area has a more significant impact on tree health. Removal of structurally defective branches may not be an option because of the impact on the total amount of leaf area you can prune (the dose), the size of the resulting pruning wound and aesthetics.

Pruning plan

In the *ABCs* for small trees, the method-

ology is the plan. On a large tree, however, you will need to develop a pruning plan before you begin pruning to assess safety conditions and the logistics of your working in the tree to ensure efficiency.

Bring your tools

In the *ABCs*, our “tools” include pruning tools, terminology, pruning cut types and objectives. The most obvious difference in large-tree pruning is the tools – adding safety equipment, rigging and power saws. You should add a probe and sounding mallet to inspect for decay and other defects.

The other differences are emphasizing appropriate pruning cuts. The use of heading cuts will be limited to twig-sized branches. In addition, you should limit the size of the pruning wounds. Pruning wounds that expose heartwood are more likely to become infected by decay fungi. If possible, remove larger branches over a period of pruning cycles. (Photo 1)

The ABCs method for large-tree pruning

Applying the *ABCs* to large-tree pruning begins with developing a pruning plan. For purposes of our discussion, we will use the plan to discuss the differences for each of the *ABCs* steps.

A – Assess the tree

There is clearly more work here. As you develop your plan and complete the pruning, we suggest using the central stem (A-Form) and each scaffold branch as an organizational module.

- Scan the central stem (A-Form), visually completing the *ABCs*
- Scan each scaffold, visually completing the *ABCs*

A – Assess the tree for safety

The *ABCs* does not have a step that includes assessing safety, but with a large tree this is a requirement. Paraphrasing the ANSI Z133.1 standard, a visual hazard assessment shall be performed prior to performing any work in a tree. You are responsible for your safety and the safety of others in and around the work zone. Your safety assessment should include a visual inspection and sounding/probing for decay, including assessing:

- the roots and root crown

- the trunk
- scaffold attachments
- the work zone

A – Assess the tree – determine the pruning dose

Assess the health of the tree. Use visual indicators such as twig elongation, leaf color and size, crown density and dieback. Based on your assessment, you will set a pruning dose of low, normal or high, as in the *ABCs*. The ISA Tree Pruning BMP states that “there should be a good reason to remove more than 25 percent of the live crown in a single year.” So the high dose should be 25 percent, versus the 33 percent stated in the *ABCs*. You will still need to measure the dose as pruning proceeds and *stop* when the dose is reached. As in the small tree *ABCs*, only use the dose you need to accomplish the pruning objectives.

A – Assess the tree – tree structure & ABCs pruning forms

As in the *ABCs*, you will need to select the *ABCs* pruning form: A-Form or B-Form. At this stage, the tree is an A-Form or a B-Form and we will not try to change that. If it is an A-Form, select a



Photo 3. A heritage red oak with an over-extended branch and codominant stems. Courtesy Chris Hanstein, Aspen Tree Service.



Photo 2. Reduction cuts of branches competing with the central stem were made on this A-Form oak.

central stem, as in the *ABCs*.

A – Apical dominance pruning

In the *ABCs*, we quickly head any branches competing with the central stem. In a large tree, we will work to promote the central stem’s dominance by suppressing codominant stems with reduction cuts. (Photo 2) We may also consider other treatments such as cabling and bracing.

B – Bad branches

- Broken, dead, diseased, rubbing
- Bad branch attachments – be sure to address attachments with included bark.
- Over-extended branches – This is an addition. Over-extended branches are more prone to failure and apply torsional stresses on the trunk. Suppressing with a reduction cut will be your most likely treatment. (Photo 3)

C – Competing branches

Each of these steps will apply as in the *ABCs*, however, you will need to be more conservative. Focus on more severely defective branches.

- Clearance
- Codominant stems
 - suppression with reduction cuts will be your most likely treatment.
- Cabling & bracing is another option
- Competing laterals



Photo 4. Apply the ABCs to each scaffold in your plan development and when implementing pruning, as though it was an individual tree.



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- diameter of lateral relative to the scaffold
- competing with adjacent scaffolds
- Multiple attachments – In the *ABCs*, this step is focusing on the central stem. Here, most of your work will be on the scaffolds and branches. Focus on severely defective attachments.
- Vertical spacing – In the *ABCs*, this step is focusing on vertical spacing on the central stem. Here, most of your “spacing” work will be on the scaffolds and branches.
- Crossing branches

Your end product is your pruning plan and should include the following:

- Safety considerations
- Pruning dose
- A-Form or B-Form pruning
- Review your plan with the crew

Pruning

We all know that the best-laid plans require adjustment in implementation. Two predictable challenges are monitoring your dose and coming upon a “problem” you could not see from the ground. With your plan as your guide, perform the *ABCs* on each scaffold branch, as if it was an individual tree, using the following guidelines/alterations to the *ABCs*. (Photo 4)

A – Ascend the tree

- As you climb or ascend in an aerial lift, inspect the scaffold-branch attachments for bad branch attachments that may require reduction of the scaffold branch or other significant defects and adjust your pruning plan accordingly.
- Identify the scaffolds that will require more pruning than others. Select the order you will complete pruning on each scaffold.

B – Begin pruning

- Perform the *ABCs* on each scaffold and then on each lateral branch, if the pruning specifies and your dose permits.

C – Complete your pruning

Before you leave the tree, confirm the tree is free of hangers and pruning stubs.

Monitoring the dose

Unlike small trees, piling the branches

to monitor your dose may not be practical. Cleanup of pruned branches will proceed with the pruning. Here are suggestions for monitoring your dose:

- Apply your dose to each scaffold as you prune.
- Trees in poor health – If the health of the tree is poor, then you may have to sacrifice efficiency and pile prunings to monitor the dose throughout the pruning process.
- A-Form trees – If you are using an aerial lift, it may be practical to complete your suppression pruning on each defective scaffold or scaffold competing with the central stem (A-Form), and assess your dose before working the interior of the tree.

Conclusion

Large-tree pruning is the most frequently applied plant health care treatment. It is also a treatment that has a high variability in practice. Like young-tree pruning, focusing on mitigating structural defects will prolong the longevity of a large tree. Applying the *ABCs* method to pruning large trees may provide a practical methodology for reducing the variability between pruners and help to ensure that the most critical pruning needs of a tree are addressed.

Our hope is to take this introduction to applying the *ABCs* to large-tree pruning and hone it into a well-defined pruning methodology. We welcome your comments and suggestions.

Andrew Pleninger is a consulting arborist with Aspen Tree Service, Inc., an 11-year TCIA member company based in Carbondale, Colorado. This article was based in part on his presentation, “The ABCs Field Guide to Young & Small Tree Pruning,” at TCI EXPO 2016 in Baltimore.

Christopher J. Luley is president and pathologist at Urban Forest Diagnostics LLC in Naples, New York, author of the manual Wood Decay Fungi of Living Urban Trees, and developer of TreeRot.com, a website dedicated to decay fungi of urban trees. The ABCs Field Guide to Young & Small Tree Pruning can be purchased from TCIA’s online store at www.tcia.org.



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Tree Climbing – Part I: Modern Tree-Climbing Techniques and Technologies and Administrative Decision-Making



Modern tree climbers still set and reset tie-in points and climbing lines while in the tree; however, today, resetting can be safer and a lot easier. This climber is repositioning by using the lanyard as a suspension point. All photos courtesy of the author.

By Ken Palmer

Are you a tree company owner, business manager, safety director or supervisor spending money on ropes and technical hardware for tree-climbing systems you don't really understand? Are you tempted to throw it all aside and just buy an aerial lift? If so, then this article is for you.

Modern tree-climbing techniques and technologies present complex safety, skill and productivity concerns for management, affecting employee recruitment, retention, compliance and administrative decision-making. Let's see if we can help make it less complex.

Tree climbing has changed so much in recent years that it can be nothing short of a mystery for recruiters and administrative decision-makers to hire a tree climber or climbers who will fit well within the culture and best-management practices of a tree care organization. Imagine the po-

tential concerns for management with respect to safety and productive, situational awareness and critical thinking when only the climbers themselves are knowledgeable enough about the tree-climbing methods to make critical decisions.

Some of the modern tree-climbing equipment that young tree climbers are drawn to is great for getting up into a tree quickly, but more cumbersome for climbing around and working in the tree. And some systems are not well suited for heavy removals at all. Whether an owner or manager wants to shave production costs by 5 percent or to increase safety by 10 percent, how does one do so without knowledge of the techniques and equipment being used?

This is the first of a planned three-part series of articles intended to support and enhance critical thinking and compliance for safety managers and business decision-makers pertaining to work-related tree climbing. The objective is to help connect modern tree-climbing methods to

workforce-development initiatives and business-related decisions and objectives.

In this first article, we will provide a very abridged history of rope and tree-climbing development over the past 35 years or so in order to help put these tools and techniques into a clearer perspective. Then we will dial down into more recent history and development. In subsequent articles, a number of friends and colleagues will contribute and help profile very specific functions, features, benefits and pros and cons of modern tree-climbing methods and technologies, all aimed at assisting supervisors to better drive safety, skill and productivity with confidence.

The traditional one-rope system

For me, the age of modern tree-climbing techniques and technologies began during the 1980s, with braided synthetic 12- and 16-strand climbing lines, more comfortable and more versatile tree-climbing saddles, and locking rope-snaps. The

'80s also mark the beginning of the end of tree-pruning practices such as topping, lopping, lion-tailing and painting of pruning cuts. Thank you, Alex Shigo!

For most of the 20th century, the one-rope, "traditional" tree-climbing system consisted of one climbing line that was attached to the suspension D-rings of the saddle, typically with a bowline or multiple half-hitches leaving a long tail. The tail was then attached to the other part of the climbing line with a climbing hitch, originally a taut-line hitch. The Blake's hitch was popularized in the early '90s and has since become the climbing hitch of choice for this application.

The older three-strand natural-fiber ropes, and later three-strand synthetic and braided-synthetic climbing lines, all behaved and held knots a bit differently from one another. The strengths of synthetic ropes doubled overnight! Rope care, inspection and retirement criteria were changing also. Newer, braided-synthetic lines were also well suited for splicing eyes, making rope tools, attaching hardware and building better work-positioning lanyards. These braided, synthetic climbing lines held attachment knots better, performed better in trees and were well suited for professional tree climbing. However, we needed to update our climbing-hitch techniques because the traditional taut-line hitch would tend to roll out on the tail and bind excessively with modern synthetic fibers and rope constructions.

In August of 1989, the International Tree Climbing Jamboree was held in St. Charles, Illinois. At the climbers, judges and technicians meeting, the Jamboree Committee chairman informed the climbers of a new insurance safety mandate for all competitors. We were to be "secured from a fall" whenever we were more than 15 feet above the ground as opposed to the more widely accepted practice/tradition of "tying in before working in the tree." Three-point climbing, unsecured footlocking and many of the old gray areas in fall protection were coming to an end, and the tree-climbing competitions were positioned to help drive tree-climbing safety well into the future.

These safety requirements caused a paradigm shift and triggered the necessity for further innovation that motivated us to



Some of the modern tree-climbing equipment that young tree climbers are drawn to is great for getting up into a tree quickly or for long ascents, but more cumbersome for climbing around and working in the tree.

develop the art of setting our tie-in points and climbing lines much higher in trees with throw lines from the ground. Then we could secure ourselves to the rope and enter trees on rope, as opposed to our previous dependence on climbing the tree itself to gain access and setting tie-in points and climbing lines as we climbed the tree. Modern tree climbers still set and reset tie-in points and climbing lines while in the tree; however, today, resetting can be safer and a lot easier.

Safety precedence and modern technologies were driving modern climbing

methods, and competitive tree-climbing techniques encouraged new thinking and newer technologies throughout the 1990s. In the spring of 1993, the first European congress on tree care and tree-climbing competition was held in Germany. A small team of American climbers went to assist and support the event, which launched tree climbing to a whole new level. Enthusiastic tree climbers from around the world began sharing ideas on a regular and increasing basis. North American tree climbers began to study, modify and integrate some European tree-climbing methods such as

the “split-tail” system, which opened the door to new, higher-performance rope and mechanical-climbing hitches. The brave new world of modern tree climbing was very much alive and growing.

The “split-tail” system

Advances in technology have led to the growing popularity of the “split-tail” or “split-bridge” system. The end of the climbing line is passed over a tree crotch or through a false crotch in the tree canopy and attached to a connecting link with a splice or a secure termination knot. A short piece of rope (split-tail) is attached to a connecting link in a similar way and then secured to the other part of the climbing line with a climbing hitch. Mechanical-climbing hitches may also be used in a similar way.

By the turn of the century, many modern tree-climbing methods, systems and techniques appeared to have little in common with the 1980s. Fundamentally, however, many of the basic physics, safety and productivity concerns did not change that much in North America until single-rope techniques (SRTs) were popularized in the 21st century.

Benefits of the modern split-tail system include:

- ability to replace the tail without reducing the length of the climbing line

- two attachment points on the saddle for added comfort and work positioning
- easier to change the tie-in point
- allows climbers to use the climbing line as a second lanyard
- helps make the climbing line more versatile in the tree
- contrasting colors provide easy identification of the system components
- many climbing-hitch options

Modern tree-climbing systems

Today, there are two very different methods of professional tree-climbing systems in use: the moving-rope tree-climbing systems and the stationary-rope tree-climbing systems. Both involve the use of one climbing line; however, in a moving-rope system (MRS), the climber is working on two parts of rope (doubled), whereas with a stationary-rope system (SRS), the climber is generally climbing and working on a single part of rope.

Moving-rope & doubled-rope systems: There are fundamentally two types of moving-rope or doubled-rope techniques (DdRT) that tree climbers use today: the “traditional” one-rope system and the “modern” split-tail or split-bridge system. These are known as moving-rope systems because the rope is moving over or through a tie-in point as the climber as-

cends and descends on the climbing line.

Stationary-rope & single-rope systems: The single-rope techniques, now known as stationary-rope systems, have been gaining popularity. Unlike the moving-rope systems, where the climber is working on two parts of the same climbing line, a climber using SRS is generally climbing on a single part of the climbing line. The climbing line is passed over a tree crotch or multiple crotches in the tree canopy. The line is anchored in the tree canopy or down at the base of the tree, and the rope doesn’t move up or down during the climb. The climbing hitch/device moves over the rope during the climb.

Load forces in this type of system (the tree and the climbing line) have the potential of being considerably higher. Special care needs to be taken when the line is passed over a crotch(es) in the canopy and anchored at the base of the tree because the load forces on the crotch(es) in the tree are greatly increased, often two-fold. It is very important for the climber to assess the tree, anchor point and the potential forces prior to climbing to ensure that the tree can sustain these forces.

This stationary-rope system may be used for ascent into the tree canopy before changing to DdRT, or the system can be used for climbing the entire tree and for work positioning. When used for work positioning, the climber may use a split-tail to tie a climbing hitch or secure an approved mechanical device onto the climbing line. When using hitch cord to tie a climbing hitch, additional friction needs to be added with the aid of a device such as a Rope Wrench or a Hitch Hiker to allow for controlled descending. This system can be much easier for long ascents into a tall tree because the rope is not moving and the climbing hitch/device can move easily over the single part of rope and in a more efficient way.

Summary

Tree-climbing methods have certainly become more complex than ever before. However, with informed decision-making and proper application, modern tree climbers have many opportunities to work more safely, skillfully and productively on rope than ever before.

Tree climbers will likely continue to in-

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Rip Tompkins, a climbing instructor with Arbormaster, Inc., climbing on an open DdRT system. A better understanding of modern climbing techniques, systems and equipment will help decision-makers manage and develop tree climbers in a manner that will help make their businesses safer and more profitable.

novate and experiment with new technologies and new techniques. Education, train-


ing and systematic experience-building are the keys to critical thinking and

modern-day professional tree climbing.

Likewise, a better understanding of the modern climbing techniques, systems and equipment will help decision-makers manage and develop tree climbers in a manner that will help make their businesses safer and more profitable.

In the second article in this series, we will define and describe a number a critical professional tree-climbing operations. We also will define and describe a number of modern professional tree-climbing methods, systems and equipment. We will discuss strengths and weaknesses of specific climbing systems applied to, and used in, a number of critical professional tree-climbing operations, as well as work-positioning best practices with both handsaws and chain saws.

See you at the top!

Ken Palmer is president of Arbormaster, Inc., a 20-year TCIA associate member company based in Willington, Connecticut, and a long-time participating instructor in the tree demonstrations at TCI EXPO. 



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Root Rot Part 5: Don't mess with *Inonotus dryadeus*

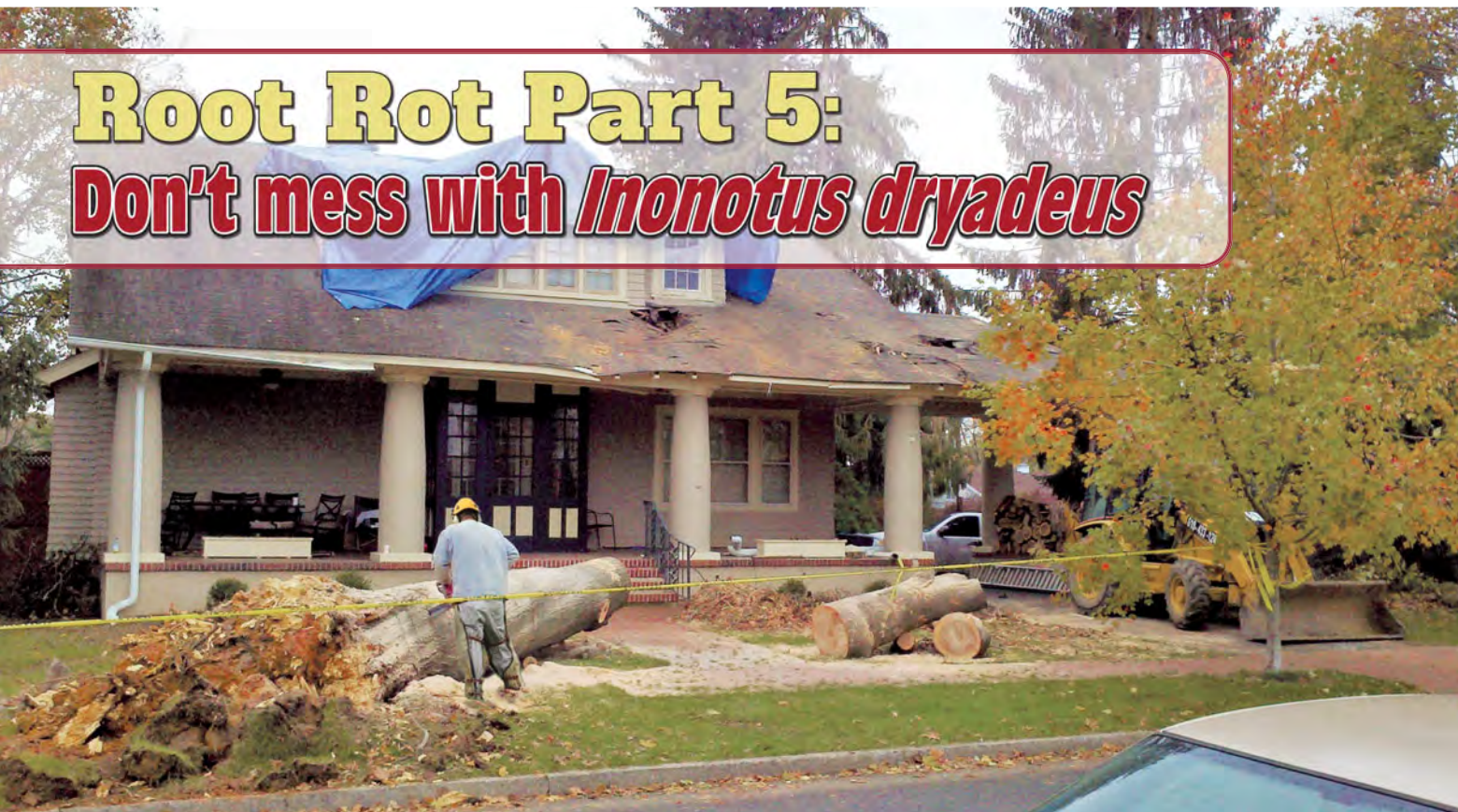


Photo 2. *Inonotus dryadeus* decays the structural roots, which can lead to failure of the entire tree. The decay is primarily in the roots and seldom progresses much above the soil line. Photo by Russ Carlson.

By Christopher Luley, Ph.D.

The warted polypore (aka weeping conk or weeping polypore) *Inonotus dryadeus* is one of the more insidious and difficult to manage root-decay pathogens of urban trees.

The fungus is common on oaks (less common on other hardwoods) throughout the United States (Photo 1) and is reported on conifers in the Northwest. It is particularly common on oaks in southern states east of the Rocky Mountains. The fungus acts primarily as a structural root decay

leading to windthrow or failure of the entire tree at the soil line or from decayed buttress roots (Photo 2). Arborists dealing with the fungus need to be aware that in-



Photo 1. *Inonotus dryadeus* fruiting on the roots of an oak, the most common host of the decay fungus. Unless otherwise noted, photos courtesy of the author.

Decay Fungi Series

This is the fifth article in a series on decay fungi species found in urban trees that will run in *TCI Magazine* this year. Previous articles, all from Christopher J. Luley, unless otherwise noted, included:

March, Part 1: “Berkeley’s Polypore”

April, Part 2: “*Ganoderma sessile* (aka *Ganoderma lucidum*) – An Important Root Disease and Butt Decay by Any Name”

May, Part 3: “Burnt-Crust Root and Butt Decay and Canker: *Kretzschmaria deusta*, a Common Decay Fungus You Might Not Recognize”

June, Part 4: “Wood Decay and the Cleanup Crew,” by Kevin T. Smith, Ph.D., and Jessie A. Glaeser, Ph.D.



Photo 3. The top of *Inonotus dryadeus* is light cream- to yellow-colored when fresh. Amber-colored drops of liquid may form on the top of fresh conks, helping in field identification. The drops eventually dry and may leave depressed areas on the surface, hence the name warted polypore.

ected trees may have relatively healthy-appearing crowns, thus cloaking the amount of decay in the root system.

Identification

Inonotus dryadeus is relatively easy to identify in the field when conks are young because it often produces fresh drops of amber to clear liquid on the top of the conk (Photo 3). As the drops dry, they sometimes leave



Photo 6. The pore surface or underside of the conk is light colored when young and pores are small, so they are difficult to see with the naked eye.



Photo 4. *Inonotus dryadeus* conks may be large and often irregular shaped, but always form on larger roots at or near the soil line.



Photo 5. Conks are cream or yellow colored when young and darken brown with age. The very dark conk on the top of the group is from previous years' fruiting. Inset - 5A. The interior of the conk is yellow-brown when young and becomes darker brown with age. Note the lighter-colored pore surface (underside of conk) and weeping.

a depressed area, hence the name warted conk or polypore.

The fungus can produce large (sometimes 10 to 15 or more inches in diameter), irregular-shaped, annual conks that form on larger-diameter roots or right at the soil level on the main trunk (Photos 1 and 4). The conks may join together, forming larger masses of conks on the soil surface or on roots near the base of the tree. Smaller, individual conks may also develop on some trees (Photos 4 and 8).

The top of the conk is a cream to yellow color that is velvety textured when fresh but then roughens and darkens to gray or brown with age (Photo 5). The interior of the fruiting is 2 to 4 inches thick and is yellow-brown to reddish-brown and then brown depending on its age (Photo 5A, inset). The pore surface is light colored or cream or yellow when fresh, and also darkens brown with age (Photo 6).

New conks typically develop in later summer into the fall and usually persist into the following year where they may often be seen intermixed with fresh conks (Photo 5). Older conks are rough textured and black to brown in color throughout.

Biology and importance

Decay from *I. dryadeus* typically begins in the root system and moves toward the trunk where it seldom progresses much above the soil line into the trunk (Photos 1 and 2). The roots are structurally weakened by the decay, but the pathogen also can kill areas of bark and cambium. Decay is of the white-rot type.



Photo 7. Trees with a large number of conks around the base usually have extensive decay and are removal candidates. This is the same tree as in Photo 2 that later failed. The dark-colored conks are from previous years' fruiting. Photo by Russ Carlson.

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Spread of the fungus from tree to tree appears to be primarily by spores, and there is no evidence that root-to-root contact is an important means of infection. Diseased trees often occur singly, further supporting an absence of root-to-root or soil mode of spread. The fungus may remain as a saprophyte in roots and at the base of stumps, where it continues to fruit and release spores after the tree has been removed.

Managing infected trees

Managing *I. dryadeus*-infected trees can be tricky. Trees with a large number of conks are very likely to have extensive decay and require removal (Photo 7). However, decay can be spread out in the root system when there are only a few conks or on trees that have no fruiting (Photos 8 and 8A). Trees with a few conks or conks on more than one side of a tree should be considered for advanced decay testing. This testing may require root-crown excavation to expose roots and testing roots for decay with advanced decay-testing tools. Decay progresses from the underside of the root, so visual inspection of roots alone is usually not adequate (Photo 9).

As trees become over-mature or the condition of the crown deteriorates, the likelihood of impact from *I. dryadeus* is greater. Known infected trees with poor-condition crowns are likely candidates for removal. The crowns of some infected trees may show decline symptoms as the fungus progressively attacks the roots. However, relying on crown condition alone when assessing an *I. dryadeus* infection is unwise as some trees with extensive root decay may still have full crowns that mask the degree of infection of large-diameter

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Photo 8. A willow oak with a single, fresh conk at its base. Trees with fewer conks can still have extensive decay in the root system. See the apparently healthy-looking crown of this same tree in Photo 8A.

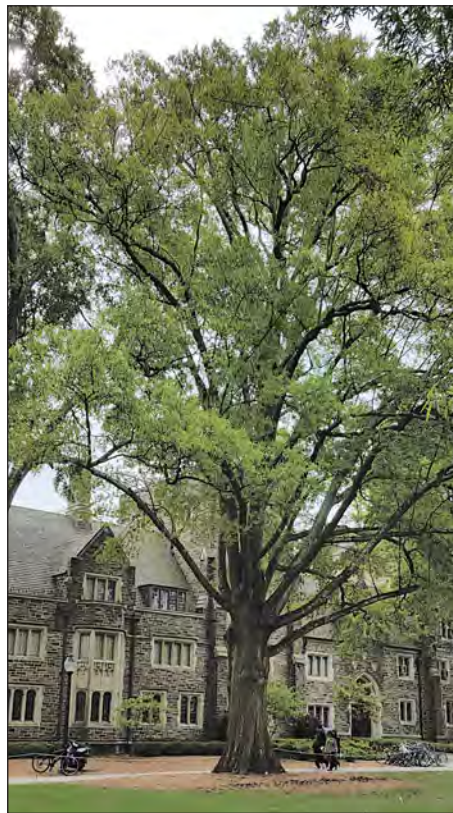


Photo 8A. Trees with one or a few conks should be considered for advanced testing of roots for decay. The crown of the tree cannot be relied upon as an indicator of decay extent in root systems (same tree as in Photo 8).

roots.

Further, sounding the trunk with a mallet or testing the butt of infected trees is

unlikely to help determine the amount of decay because decay reaches the trunk only in later stages of disease develop-



Photo 9. Old conks on a southern red oak; see Photo 10 for image of healthy-appearing crown. In most cases, visual inspection of roots is not useful in determining the presence or extent of decay because decay progresses from the bottom of the root up. Advanced-decay tools and soil excavation may be needed to determine the extent of decay in the root system.

ment and seldom progresses much above the soil line. Therefore, arborists should use caution when assessing trees with *I. dryadeus* by alerting clients that careful consideration of management options, including using advanced assessment techniques, is warranted.

Christopher J. Luley is president and pathologist at Urban Forest Diagnostics LLC in Naples, New York, author of the manual Wood Decay Fungi of Living Urban Trees, and developer of TreeRot.com, a website dedicated to decay fungi of urban trees.


Kevin T. Smith, Ph.D., supervisory plant physiologist with the USDA Forest Service, Northern Research Station (NRS), in Durham, New Hampshire, provided technical editing for this article. 

Photo 10. A southern red oak infected with Inonotus dryadeus. Crown condition may not predict the extent of decay in the root system.



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TREE CARE INDUSTRY – JULY 2017

GUARDIAN of the NORWAY MAPLE



Photo 1: A Norway maple casts welcome summer shade on this old farm house. All photos courtesy of the author.

By Howard Gaffin, BCMA, RCA

I sat under its shade as a boy, already aware of the magnificence. Its fixture to the earth, the strong sinuous trunk and architecture were a comfort. Long before the term “biomechanics” was introduced to my vocabulary, I marveled at the tree’s ability to adapt. I observed the dynamic dance with the wind and the energy transfer from shoots to roots, disseminated to the earth below. The reconfiguration of the foliage produced a surreal effect, the chaotic energy abated through mass damping. The tree was a Norway maple.

I am old enough to remember the last remnants of American elms that once lined the streets of my boyhood town. The inevitable path to arboriculture was no doubt enhanced by watching men with steel colones and ridiculously heavy chain saws remove these huge, stately trees. After great losses of elms put demands on replanting, Norway maple was one of a few appropriate species available in quantity.

Predictably human, we ignored the obvious and planted gazillions to create another monoculture. The proliferation of the species, including the specimen in my backyard, ensued.

The introduction of *Acer platanoides* to America in 1756 is credited to Mr. John Bartram, a noted botanist from Philadelphia. Records show George Washington himself purchased two for his garden in 1792. Its range runs from the Northeast south to Tennessee, and as far west as Minnesota. Isolated pockets are also found in Washington and Idaho. The Norway maple was widely planted on farms, in parks and on city streets for many reasons. Adaptable to a wide variety of soils and sites, it produces a dense, aesthetically pleasing canopy. It is fast growing and tolerant to pollution. One of the first trees to flower, the yellow hues give way to rich, dark-green leaves turning a brilliant yellow-orange in the fall.

Much of my arboricultural experience was gained at the expense of Norway maples in my path. I flush cut, lions-tailed

and wound-painted many a poor subject. “Deep-root” fertilizing, unnecessary cabling and pruning followed, and I was not alone. The lawn industry persisted (persists) in the never-ending yet profitable task of attempting grass establishment under these shallow-rooted species. Skid steers and roto-tillers, tractors and backhoes, root zones filled and cut. The abuses became evident over the years, yet many of the trees still survived or even flourished.

With the ability to withstand a variety of sites and human abuse, the success of the Norway maple may also be its ultimate downfall. Norway maple produces a prolific number of seeds. They are wind dispersed through the winged samaras (aka polynose, helicopter and my personal favorite, wingnut). Along with the ability to attach easily to one’s proboscis, the aerodynamics of the samaras can propel seed as far as 165 feet from the source. The samaras dry substantially before the seeds disperse in autumn. They resist desiccation and are likely to survive under a snow layer. Seeds also have a fairly high

germination rate and will sprout early in the spring.

I was soon on the bandwagon of prejudice toward the immigrants. Though first welcomed to our shores, their success has threatened our nativity. There were plenty of reasons to pursue their eradication. Planted into settings unfriendly to root expansion, girdling and kinked root systems were rampant. Sidewalks raised and driveways cracked. The prized turf carpet was not attainable with the dense shade and shallow, moisture-sucking root system. Seedlings sprouted everywhere, especially within shrubs and hedgerows, the tenacious root system resisting abstraction from its bond to the earth. Tolerance for this colonizer began to wane.

Other, more serious issues were soon becoming evident. In its native European habitat, Norway maple rarely is a dominant species and is usually found scattered throughout the understory. Here, the Norway was outperforming native species in the forest, particularly those close to human development. It is one of few introduced species with the ability to invade an existing forest. Seedlings can sprout and live for decades in the understory until an opening releases them. Once established, the dense shade makes it nearly impossible for other species to grow. Sugar maple/American beech forests are particularly affected by Norway seedlings' dominating affects. The ability to withstand pollution along with suspected alleopathic properties were also providing a competitive edge.

New Hampshire and Massachusetts have banned the sale of Norway maples and more than a dozen other states consider them invasive. They are the scourge of many a garden-club speaker and ecology enthusiast. While I understand and appreciate the ramifications of letting them go unchecked, I still believe there should be a place for them. I have therefore become "Guardian of the Norway Tree."

Darwinism befriends the Norway through no fault of its own. It was brought here to thrive and is now chastised for doing so. In the grand scheme of things, this is but a blip in time, and the Norway is having its due. The basically extinct American chestnut and rarely seen American elm once dominated woodland and urban for-



Photo 2: Still a presence in late October.

ests respectively. In my boyhood town of Worcester, Mass., the Asian longhorn beetle prompted the eradication of almost every maple (Norway and others) in the area.



Photo 3: A huge, girdling root encompasses this Norway.

Nature abhors a vacuum, but it is also generally intolerant of over-productive species and balance is eventually achieved. There are no guarantees that the Norway (or humans) will continue to thrive.

I was not aware of my change of heart toward the notorious Norway until I was involved in a court case in which a tree guy, displaying extreme prejudice, stated (among other alternative facts) that all Norway maples were dangerous trees and should be removed. I began to realize that just uttering the name of this disobedient scapegoat brought on scowls and stink-eye stares in some company. I reflected on all the Norway maples I have come across in my career, providing much-needed benefits to countless individuals. In areas bordering woodlands, control would be prudent, but perhaps this European invader still has its place.

With all its detriments, this is still a fine shade tree in the right location. Urban or suburban settings, far from forested areas, can still benefit from a fast-growing tree able to withstand difficult sites. There are dozens of varieties available in dif-



Photo 4: A healthy well-placed Norway maple. Should it be removed because of its invasive status?

ferent shapes, colors and forms. As long as there is sufficient root space and no expectations of landscaping underneath, the occasional Norway could still be employed. The Crimson King, for example, with its relatively small stature and striking deep-purple leaves, is still an excellent plant. Admittedly anecdotal, I have never seen this particular variety growing in local woodlots or forests.

I have faced much adversity as Guardian. My "Make Norway Great Again" hats and T-shirts were not big sellers. Perhaps someday we can come together as a community and reach an accord. After all, the cat is long out of the bag when it comes to invasive species, especially humans, the most invasive of all.

Howard Gaffin, BCMA, RCA and Massachusetts Certified Arborist, is owner of Gaffin Tree, a TCIA member company located in Rowley, Massachusetts.



Photo 5: The Crimson King is still an excellent choice of shade tree in the right setting.

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Get More Out of Your Stump Grinder with Proper Maintenance and Technique

A technician runs diagnostics during service of a Vermeer SC552 stump cutter. Vermeer has been running the new Tier IV engines using a diesel oxidation catalyst (DOC) in its stump cutters. "These engines run notoriously clean ... so there is not a lot of particle buildup in the catalyst," says Vermeer's Todd Roorda, adding that this adds to the lifetime of the machine. Courtesy of Vermeer.

By Rick Howland

To get the most out of your stump grinder it pays to think on two levels. First, how do I get the most production and throughput from my machine day to day? And second, how can I get the most out of it over the long term?

Interestingly, the two objectives are related largely by care and maintenance. Some things are obvious but bear review; others are common sense, but can get lost in the fog of day-to-day work.

"Maintenance is critical on stump grinders," says J. R. Bowling, vice president of sales and marketing for Rayco Manufacturing. "Unfortunately, people try to shortcut maintenance to their own detriment.

"One needs to get into a maintenance routine so you're always cutting with sharp teeth," he says. "Make sure there is grease in the bearings and pivot joints, and know there is a good air filter for the engine, as well as other filters, and that the fluids are changed regularly."

According to Bowling, the operator also contributes to productivity and longevity. "The other thing a lot of customers may not practice is to make sure they use the proper cutting technique so as not to overload the machine (the cutter) as well as the engine, letting it bog down." That, he explains, puts undue wear on the machine. "Also, manage your chips during the cutting process so you are not regrinding wood chips, which is very inefficient," he notes.

"Don't forget to use the backfill blade for cleanup after the grind," Bowling advises. "This may not be grinding per se, but it is part of getting the job done efficiently. Stump cutters may come with backfill blades standard or as an option. They are far more efficient than using a rake or shovel."

With regard to the process, Bowling says efficiency starts before you cut. "Make sure you start out with a stump cut as low to the ground as possible. Take time with a chain saw to cut closer to the ground. That way, there is less material to cut, and that

means less wear on the machine and fewer chips to deal with."

In addition to those steps contributing to daily productivity, Bowling says they also contribute to longevity of your stump cutter. The best thing he says one can do from the standpoint of longevity is to get into a maintenance routine.

"Before you start your day, go over the machine. Visually inspect it, checking fluids, filters and grease points – all of which are noted in the user's manual – and pay close attention to the condition of the cutting teeth! Once you're in a routine, it is only a few minutes one needs to spend, but those moments can pay huge dividends in the long run," he maintains.

One thing many users overlook is weather. Bowling advises, "Keep the machine out of weather when not in use. This is a very good idea in general, and it becomes even more critical as engines become more electronic and move to the mandated Tier IV Final diesel engines – primarily because of the high level of electronics.

“Repowering an older machine can often make economic sense,” he maintains, “as long as everything is done within EPA guidelines. In most cases you can replace an engine in your machine, and we expect to see this becoming a popular option in the next few years, due largely to the high price of the new Tier IV engines.

“You can pretty much repower a stump cutter to make it like new,” Bowling says. “But you cannot make it something it is not. It always will be yesterday’s technology.” What he is saying is that repowering means replacing the old, worn-out engine with a like engine and not trying to upgrade to a newer or more powerful style. “With new models, we try to make improvements to machines. As you repower, you will have to forego the new and go with what was in the past, and for some guys that is acceptable.

“A new-style engine in an old machine can be problematic,” he says, noting the difficulty in having to accommodate electronics, for example. “When I say repowering, I am saying to replace the engine and keep within the same engine family, replacing a Tier III with a Tier III, and so forth. The objective is to bring the machine as close as possible to its like-new condition versus trying to make it into something it never was in the first place.”

Jason Morey, sales manager for Bandit Industries, agrees that maintenance is the number-one priority in getting the most



A Bandit stump cutter getting a tune-up. “Longevity depends largely on maintenance,” says Bandit’s Jason Morey. “A tough life will show up over time, all the result of dull cutting teeth, non-adjusted belts or poor engine maintenance.” Courtesy of Bandit.

out of your stump grinder.

“We see it all the time,” he says. “Customers say they do not get sufficient production from their stump grinder, and it is usually as simple as finding that the cutting teeth are not sharp or are nicked. This will cause vibration in the machine, in turn causing it to work much harder than needed.

“Always check teeth and pockets for

wear,” Morey recommends. “This simple maintenance step will make stump cutting a lot better and much more productive.”

He notes that most Bandit stump grinders are run via a hydraulic pump with a hydraulic-drive motor mounted on the side of the cutterwheel. So “there is not a whole lot of maintenance at that point, other than to make sure the machine is properly and regularly greased. Also make sure that, for belt-driven machines, the belt is in good condition and properly adjusted.

“If the air filter is clogged or needs cleaning, that can affect the main engine and cut (engine) power and therefore grinding power, which affects production. For the main engine, make it a point to check the filter regularly, along with all fluids,” Morey stresses.

“Of course, all of that also goes to the longevity of your stump cutter. Longevity depends largely on maintenance,” he maintains. “A tough life will show up over time, all the result of dull cutting teeth, non-adjusted belts or poor engine maintenance.

“We can offer plenty of repower (engine replacement) options, including higher horsepower,” Morey says. He maintains that can represent a major savings, given



A Rayco technician performs maintenance on a stump grinder. Keeping the machine out of weather when not in use is always a good idea, but even moreso with the mandated Tier IV Final diesel engines – primarily because of the high level of electronics, according to Rayco’s J.R. Bowling. Courtesy of Rayco.



Keeping sharp teeth on the cutter is key to getting the most out of it in every way. “The cutter will work if the teeth are worn, but it pounds the stump, it does not cut it. That puts undue wear on the cutter,” says Morbark’s Casey Gross. Courtesy of Morbark.

that that the new Tier IV diesel-engine mandate can add as much as 18 to 20 percent to the cost of a new unit.

Cutting down on unnecessary procedures and processes on the worksite also contribute to productivity. According to Casey Gross, tree care products sales manager for Morbark, “Try to position the cutter in the center of the work, allowing for the largest arc (swing of the machine left and right) so you do not have to move the machine, or at least minimize repositioning. Not only does this go to minimizing the time of the job, but it also means less movement and therefore less fatigue for the operator.

“Certainly, the key to efficiency and

longevity is keeping the cutting mechanism in top condition, same as you would a chipper,” Gross says, adding that, “It is important not to overload the machine when cutting.” Gross says overloading is obvious if you listen for it, even with ear protection.

As Gross explains it, “The machine is overloaded if the engine or cutting-wheel sound is different. You also will hear a change in the sound when cutting rock or other non-wood materials. The key component is to know and understand the normal sounds of your stump cutter and pay attention to your surroundings. The machine has a distinctive sound when it is cutting wood correctly, regardless of species.”



A technician checks the belt tension on a J.P. Carlton stump grinder. “Longevity means keeping belts tight, teeth sharp and bearings greased – all routine maintenance,” says Carlton’s Aaron Foster. Courtesy of J.P. Carlton.

Gross echoes the maintenance mantra. “Yes, keep up on grease and on belts, and make sure the wheel is sound and the cutting teeth sharp. People often skimp on that, thinking it’s OK to cut even with rounded teeth.

The wheel and teeth are the heart of the machine,” he says. “The cutter *will* work if the teeth are worn, but it pounds the stump, it does not cut it. That puts undue wear on the cutter. At the start of the day, and periodically during the day if there is a lot of stump cutting, check the wheel and teeth, first ensuring that the wheel has stopped and the engine is not running,” he instructs.

“Teeth are among the least expensive items on the machine, but they are a part of the *heart* of the machine,” Gross says.

Like your machine? Overall, it’s still good? But the engine has had it? Many companies, including J.P. Carlton, offer repowering options

“We do take in trade machines to rebuild and resell,” says Aaron Foster, J.P. Carlton engineer. “It depends on the engine. We replace the engines; we do not rebuild them.” Simply put, Foster says, “Some owners do not want to pay for a new machine and instead favor repowering.”

And Foster echoes the others on maintenance. “Longevity means keeping belts tight, teeth sharp and bearings greased – all routine maintenance,” he says. “It’s not uncommon for customers to get 10 to 12 years out of their stump cutter, and that is strictly due to care and maintenance.”

He offers that one area often overlooked in maintenance is rubber. “Check that out, too. It’s the rubber protective shields,” Foster directs, adding that the shields protect both machine and operator.

He does draw a distinction between care and maintenance, again echoing some of the others in noting that it is important to the life of the stump cutter not to bog down the engine by overloading the cutting wheel, and to protect the machine when not in use. “We’d like to see it out of the elements and covered.”

Foster also makes a point that the Carlton machines utilize very little by way of delicate electronics, favoring instead traditional electrical systems. “The electric parts we do have will withstand the outdoors and better withstand abuse,” he notes. “It’s something to look for.”

Vermeer does not rehab its machines at the factory, instead leaving that up to its dealers, according to Todd Roorda, sales manager for the company. “Some dealers will repower a stump cutter if the engine is

blown or has reached the end of its life cycle,” he says.

As with the others, Roorda champions clean, sharp teeth throughout the life of the machine. “Not doing that really shows up if a customer tries to regularly get a few extra stumps or a few extra weeks without sharpening or replacing the teeth,” he maintains. “At that point they do not make the machine a cutter, rather a hammer, and the vibration transfers into the machine, translating to things like cut hoses, loose bolts and fittings and overall premature wear,” Roorda adds.

“We have been running the new Tier IV engines for a while in stump cutters and brush cutters, but we do not run the type requiring a fuel additive to run clean,” he says. Instead, according to Roorda, “We use what’s called a diesel oxidation catalyst (DOC), which works like the catalyst on a car. There is nothing to maintain at the end of the day. These engines run notoriously clean, and stump



A Rayco R670X Stump grinder. “Don’t forget to use the backfill blade for cleanup after the grind,” advises Rayco’s J.R. Bowling. “This may not be grinding per se, but it is part of getting the job done efficiently. Stump cutters may come with backfill blades standard or as an option. They are far more efficient than using a rake or shovel.”

cutters run best and cleanest under load, which they do most of the time,” he continues. “So there is not a lot of particle buildup in the catalyst.” Roorda’s argument is that this technology option adds to the lifetime of the machine.

In closing, Roorda referred to a series of online videos available on the Vermeer website. “Those videos,” he says, “feature tips such as checking one’s surroundings for objects near the tree stump that could cause damage to the machine or injury to an operator or crew, removing visible barriers such as rocks, and looking for underground objects that may appear during the cutting process. Watch for a change in the shape of the chips,” he also warns, “since that may be an early warning of worn teeth. Be aware that the outer teeth may wear sooner than inside ones,” he says, adding, “And a clean machine is easier to inspect.”

Certainly, most of the comments above are common sense, but they bear review. Others may be less obvious. Mostly, they all are small things that can add up over time, improving your bottom line and breathing added life into your stump cutter. ⬆

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AN ASSESSMENT OF THE TREES OF SOUTHEAST CUBA

By Jim Cortese, CTSP

When many of us think of Cuba, it is of Ricky Ricardo and Lucy of the old “I Love Lucy” TV show. Or we think of Fidel Castro and the Cuban insurgency of the late 1950s that swept the Castro brothers and Che Guevara into power. We have all heard of the many old 1950s cars that are in Cuba that somehow keep running. Or, if you are keeping up with the news, you are aware that former president Obama reestablished American ties with Cuba. This has opened the doors to tourism and commercial trade with the island country, though recent actions by the new administration may temper those changes.

Back in the summer of 2016, Bill Long, a fellow arborist from Oklahoma, proposed a trip to Cuba to assess the status of trees and tree work in that country. This



The best trees were in the old cemetery in Holguin, among the hundreds of above-ground crypts. There are about 40, 25- to 36-inch-diameter trees that look like cousins to the mimosa, Albizia julibrissin.

culminated in a trip during the third week of February 2017.

This essay is a survey of observations and thoughts on the trees, tree companies and “tree-ful” aspects of Southeast Cuba and other general observations, specifically pertaining to the provinces of Holguin and Granma adjacent to Guantanamo Bay. It is not a study of specific trees and it does not include Havana, the country’s largest city.

We made great preparations. We even secured a sponsor in the A.M. Leonard Company, which supplied us with personal protection equipment for us to give to Cuban tree workers we met. In addition, we had a Spanish language edition of the ISA Certification manual donated by Reyaldo Escobedo, Oklahoma City arborist, to be passed along to our Cuban counterparts.

We arrived by plane in the City of Holguin, passed through customs and met our guide: Mr. Yovanis Govín Rivero, an English and French interpreter and translator, and professor at the Tourism School of Granma. He took us to our taxi, a 1953 red Ford. We hired the guide and his taxi-driver friend for the length of our stay, even putting them up for the night at our hotel.

The species of trees we encountered was what was expected. Very few species were known to us. Two species were readily identified: a singular arborvitae grow-

ing at the Holguin Cigar Factory, where they hand-make 30,000 cigars a day; and mangos. Though mangos are everywhere, there is a significant diversity of other eatable fruit trees of many species. Many diverse species of palms are also plentiful. We did notice many of our American “indoor plants” growing along the roadsides.

The number of really large trees is minimal. The largest tree seen was a mimosa-like tree in a plant nursery in Holguin.

Tool use seems to be very basic and primitive compared to the U.S. The machete is the major tool used for tree pruning. There was evidence of some type of saws used,



A machete-topped tree in a plaza in Holguin, Cuba. All images courtesy of the author.



Bill Long, left, and Jim Cortese, right, present Hernando Mendoza, grounds manager at a plant nursery outside Bayamo, Cuba, with a Spanish ISA Certification manual and safety materials.



Bill Long, right, with to Pedro Alvarez, grounds manager at the cemetery in Holguin, with his primary pruning tool.

but the kerf indicates a tool similar to a carpenter's hand saw. If there are chain saws, neither the saws nor any evidence of them were visible to us at any time.

There appeared to be no understanding or concept of tree hazards as we know them. It is common to see large dead branches over targets such as cars, people and buildings. There are no trees with cables or lightning rods. There are many trees with obvious cavities, decay and weak branch crotches in parks and along streets.

Old-style tree topping, round overs, are everywhere, but cut with machetes and not chain saws. The revolution in arboriculture ushered in by Dr. Alex Shigo in the early 1980s has not reached Cuba. The new understanding of compartmentalization and decay is not evident in Cuba.

In conversations with our guide, I was informed that the Cuban economy does not allow for tree work as we Americans know it. I specifically asked our guide, "Who makes a decision on whether a tree should be cut down?"

"The government," he said.

"Do you have any idea what protocol they use to make a determination to prune or take down a tree?"

"No, the government does it."

"Do you know who in the govern-

ment to contact about tree issues?"

"No, the government just shows up and does it."

It probably needs not be said that Cuba is not a litigious society, as we are.

The best trees were, and the most unusual tree-related experience we witnessed was, in the old cemetery in Holguin. There are about 40, 25- to 36-inch-diameter trees that look like cousins to the mimosa, *Albizia julibrissin*. They are all in excellent condition, but exist in a true monoculture.

In between these trees are hundreds of above-ground crypts similar to what one might find in New Orleans, Louisiana. Next to one of these crypts was a horse-drawn cart. There were two people at the crypt and it was open. They very carefully reached into it and lifted out the bones of the long-deceased person and laid them carefully into the cart. Once the crypt was empty, they drove the cart and horse to the other side of the cemetery where there stands a very large solitary old mango tree.

Under this tree were many benches and tables and lots of people. The bones of the deceased were taken out of the cart and placed on a table under the mango tree. There were probably six or eight different skeletons of deceased individuals on these tables and about 20 people. Most of the men and women and a few children were very carefully cleaning the bones with



Under an old mango tree, the bones of the deceased were very carefully cleaned with small brushes and toothbrushes by men and women and a few children.



Old-style tree topping, round overs, are everywhere, but cut with machetes and not chain saws.

small brushes and toothbrushes.

We were informed by our guide that, "These folks who are cleaning the bones are relatives of the deceased. Once the bones are thoroughly cleaned, they are neatly stacked." Ultimately, these cleaned bones are taken to another site within the cemetery where there are lots of boxes, like an old-fashioned post office. "Each box has the bones of many generations of the family members. The newly cleaned bones are added to those of previous generations, and the crypt is ready for whoever dies next."

The plant nursery "research site" that we saw had many varieties of sapling trees and plants. It was a very large nursery, probably 300 or 400 acres. They use these trees, shrubs and other plants to transplant into the city squares and parks. We were able to visit their maintenance offices and storage sheds. They said that these have been under construction since the early 1960s. They have no idea if these buildings will ever be finished. The desks, chairs and furnishings were primitive and spartan. In addition, the tools they have to work with are primitive and few. Stunted and chlorotic plants within the nursery are one of the biggest problems they face. It looked very much like the plants suffered several soil mineral deficiencies.

While in this nursery, I accomplished



The plant nursery “research site” had many varieties of sapling trees and plants. Stunted and chlorotic plants within the nursery are one of the biggest problems they face.

one of my personal ambitions; I free-climbed an approximately 50-foot-tall unknown species of tree. It was very exhilarating.

It is my opinion that the trees of Cuba get minimal to no care after they are transplanted. It is truly a survival-of-the-fittest scenario.

Other impressions

So, what about other aspects of Cuba? There are large numbers of cows, sheep and horses all over these two provinces, and I expect all over the island. Out of 100 people traveling from Point A to Point B, 60 would be walking or riding horses, horse-drawn carts, carriages or buggies, ox-drawn carts, bicycles or in or on bicycle taxis, bicycles with side carts or motorcycles. Of the other 40 travelers, 15 would be driving Russian trucks or Russian or French cars. The last 25 would be driving 1950s American cars. This was true in the cities as well as the rural areas.



The author, the cab driver and the 1950s Ford taxi. Out of 100 people traveling from Point A to Point B, 25 percent would be driving 1950s American cars.

The roads are really quite horrible by American standards. They are very narrow and worse than the American highways of the '50s and early '60s. There are intense numbers of bumps and potholes. There were lots of gravel/dirt streets, and old asphalt streets that have been disintegrating for generations in the cities of both Holguin and Bayamo. There is a noticeable lack of the use of taillights and reflectors on any forms of transportation at night on the highways.

Cuban cigars are one of the major exports of Cuba, but we saw very few folks smoking cigars. When we toured the cigar factory, the guide was asked why we saw very few Cubans smoking them. We were informed that, “An average Cuban wage, regardless of your job, is between 20 and 30 American dollars per month.” The average Cuban Monte Cristo cigar would cost about \$1 American. Thus, it is not within the Cubans’ budget to splurge on something like a cigar. Food, clothing and shelter are much more important to them. It was funny, but everything seemed to cost \$1, including beer and water.

The most humorous experience in our Cuban visit was the beer-drinking donkey at our hotel. There was a lovely, large swimming pool at the hotel. Up a hill above this pool on one end was a bar. Next to the bar was a small 20-by-20-foot pen with a sort of bar top on our side. Inside this area was a donkey by the name of Poncho, a fourth-generation barfly.

When you order a beer for yourself, you can purchase one for Poncho the donkey. The bartender would pour the beer in a plastic cup and hand it to you. You would then hold it out to the donkey, which



When you order a beer for yourself, you can purchase one for Poncho the donkey.

would put his teeth on the lower side of the plastic cup and tilt it up and backwards; swallowing it all in one gulp. The donkey would then leave the cup on top of the bar. The bartender would fill it up with the rest of the beer. The procedure would repeat itself. The guide said that the donkey would drink eight to 15 beers a day, depending on the generosity of the visitors.

A trip to Cuba is not complete without a deep-sea fishing expedition! We gave in to our desire to play Hemingway and did so. I was fortunate enough to catch a 35-pound dorado with Bill’s supervision. It was the only fish caught that day.

Most Cubans we talked with could speak some English. They all know that massive change is coming to Cuba. That change is that the Americans are coming. They are looking forward to the future! And for us arborists, there is tremendous opportunity for us to educate our Cuban neighbors on tree management, tools and other tree-related issues.

Jim Cortese, Board Certified Master Arborist and registered consulting arborist, is owner of Tree Injection Products Company Inc., aka TIPCO, a TCIA associate member company based in Knoxville, Tennessee. Another trip to Cuba is being planned. If you have interest in going, please contact Bill Long at blongarborist@gmail.com by September 2017.



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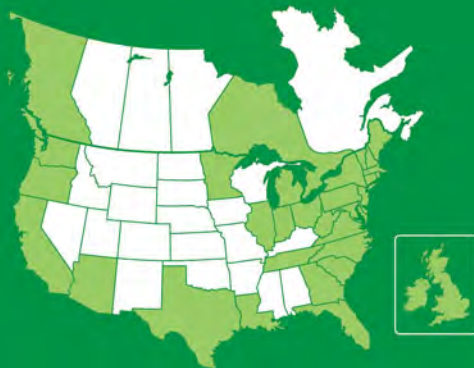
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Accident Briefs

All items taken from published reports or reported directly to TCIA staff, as noted.

Climber hurt when ascender fails

A climber for a tree care company received minor injuries May 1, 2017, in Southeastern Massachusetts after he fell when his Advanced Ropeclimbing Technology (ART) Spiderjack 3 mechanical Prusik (ascender/descender) failed. The climber recounted that the device was not functioning normally. He took his weight off to adjust it and thought he fixed the problem. When he put his weight back into it, the device failed completely and he fell. He injured his elbow and was experiencing back pain, according to information relayed directly to TCIA staff. ART has issued a public notice.

Operator killed in fall from bucket

A lift operator was killed when he was knocked from an aerial-lift bucket while cutting a tree May 2, 2017, in Ashdown, Arkansas, near Fayetteville.

Emergency crews found Tommy Green, 68, of Ashdown, lying on the ground near a tree he'd been working on. The bucket was still about 45 to 50 feet in the air resting against a large pine that had the top cut off.

According to a witness, Green was in the bucket lift with a chain saw. After the tree's top was cut, it started to fall and hit other trees. It rebounded and struck the boom on the truck, causing Green to be ejected.

Little River EMS crews gave aid to Green, but he was unresponsive. Green, who operated his own tree and landscape business, was pronounced dead at the scene, according to a *Texarkana Gazette* and *Northwest Arkansas Democrat-Gazette* report.

Operator hurt when tree strikes boom

A bucket operator was hurt but may owe his life to his fall-restraint harness after a portion of the tree he was working on struck the boom, tossing him from the bucket May 2, 2017, in Overland Park, Texas.

A tree crew was dealing with a storm-damaged black oak that was uprooted and leaning into another tree. They set up rigging on the top portion of the tree so they could cut in the middle, allowing the trunk to fall. They would then rig out the top of the tree with the two rigging lines.

Aaron Kiefer was working from the bucket truck about 30 feet off the ground. He remembers making his back-cut with the saw after putting a notch in, and the next thing he remembers is coming to on the ground as a

neck brace was being applied.

Those on the crew who saw it said that one of the rigging lines snapped and the top of the tree smacked the boom. Kiefer was flung around in the harness system like a rag doll, he was told, as the boom violently swung up and down from the impact. He had no broken bones but was off work for about the next three weeks, according to a report relayed directly to TCIA staff.

Man electrocuted trimming branches

A man trimming tree branches at a home in Far North Bexar County, Texas, died May 4, 2017, after he hit a power line with the equipment he was using to cut the branches. The man fell from the tree after getting shocked.

Neighbors reportedly said the victim, Jesse Garza, 58, was not the homeowner and suspected he was doing work at the house. It was unclear whether the fall or the shock killed Garza, according to a KABB Fox 29 report.

Employee killed clearing tree from road

A highway employee was killed May 5, 2017, in northern Gosport, in Owen County, Indiana, while trying to move a tree from the roadway. The man was struck by a vehicle while trying to move the tree, according to a WISH-TV report.

83-year-old man killed by cut tree

An 83-year-old man was killed when a tree he was attempting to cut down fell on him May 5, 2017, in Porter Township, Michigan. Based on evidence at the scene, Gordon Jackson, of Cass County, Mich., was cutting down a large tree when it broke free and landed on him, according to a *South Bend Tribune* and WZZM 13 report.

Tree kills man clearing brush with tractor

A man using a tractor to clear brush on a hillside died May 11, 2017, in Magnolia Township, Putnam County, Illinois, when a tree fell on him, pinning him.

Responding emergency personnel found John W. Rott, 54, still pinned. He was pronounced dead at the scene.

It appeared a tree gave way on a hillside as Rott was clearing brush, with the tree falling onto Rott as he rode on an open cab



Accidents in the tree care industry that occurred during the month of May 2017. Graphic compiled from reports gathered by, or submitted to, TCIA staff.

tractor, according to a *News-Tribune* report.

Man hurt in 20-foot fall from tree

A man was seriously injured when he fell about 20 feet while cutting a tree limb May 16, 2017, in Edgewater, near Annapolis, in Anne Arundel County, Maryland.

Responding firefighters found the 67-year-old man, and he was flown by a Maryland State Police medevac helicopter to the R Adams Cowley Shock Trauma Center. His injuries were not believed to be life-threatening, according to a patch.com report.

Tree worker hurt in struck-by

A tree service worker was injured May 17, 2017, in Framingham, Massachusetts, when he was hit in the shoulder by a falling tree branch. The 34-year-old man did not lose consciousness, but was taken to UMass Memorial Medical Center in Worcester, according to a *Boston Globe* report.

Climber pinned, injured

A climber working in a tree at a resident's home May 19, 2017, in Suffolk, Virginia, was injured and had to be rescued after being pinned in the tree by a cut limb.

Crews were called for a report that a man was stuck in a tree. The man, who was believed to be in his late 30s, was pinned by a 20-foot section of the tree at his torso, right arm and right leg – suspending him nearly upside down about 24 feet from the ground.

Technical rescue teams from Chesapeake, Virginia Beach and Norfolk responded along with local emergency crews. A local manufacturing company provided a crane to help in the rescue. Thunderstorms and lightning moving across the city complicated rescue efforts.

The victim was removed from the tree and flown to the hospital with life-threatening injuries, according to a WAVY-TV report.

Landscaper shocked trimming trees

A landscape worker was shocked May 20, 2017, in Palm Beach, Florida, when he struck a power line while trimming trees. The extent of the 33-year-old man's injuries was not immediately known, but he was taken to St. Mary's Medical Center, where he was stable and under cardiac monitoring, according to a *Palm Beach Daily News* report.

Tree service co-owner killed in struck-by

The co-owner of a local tree service was killed by a falling tree May 22, 2017, in Chattanooga, Tennessee.

Chasity Elaine Wileman, 39, from Bradley County, Tenn., and co-owner of a local tree service company, was struck by a falling tree outside a home. She was pronounced dead at the scene.

The circumstances of the incident were being investigated, according to a

Chattanooga.com report.

Climber killed in fall

A climber was killed May 27, 2017, in Dekalb County, Georgia, after he fell while cutting limbs in a tree.

Brandon LeBlanc, 39, of Acworth, Ga., was cutting limbs when he fell and hit the trunk of the tree. Investigators said the skilled tree cutter was wearing a double safety harness and his helmet,

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Certified Treecare Safety Professionals can earn one quarter (.25) “professional development” CEU’s toward their recertification by taking this short comprehension quiz that is tied to one or more safety articles in this issue of *TCI Magazine*. The CTSP CEU Quiz is a bimonthly feature in *TCI*. This quiz is based on the article “More Hazards on the Job – Poison Ivy and Ticks” by Patricia Chaudoin, which begins on page 24.

1. What are the two species of poison ivy in North America?

- a. Canadian and American
- b. Eastern and poison
- c. Californian and Canadian
- d. Eastern and western

2. How long after poison oak or ivy exposure do you have to wash your skin before contact dermatitis takes hold?

- A. 15 minutes
- B. 30 minutes
- C. 60 minutes
- D. 2 -3 days

3. Ticks prefer ____ as habitat.

- a. sunlight on the edges of woods
- b. shady, cooler areas at the edges of woods
- c. mainly swamps
- d. along house foundations

4. According to this article, which would NOT be a symptom of Lyme disease?

- a. joint pain
- b. weakness
- c. fatigue
- d. hair loss

5. If left untreated, infection from Lyme disease can spread to:

- a. mice and birds
- b. joints and nervous system
- c. other workers
- d. other tree species

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To obtain CEU credit: you may copy this page, answer the questions and either fax the answer sheet to TCIA at (603) 314-5386; scan and email it to ctsp@tcia.org; or mail to: TCIA - CTSP, 136 Harvey Road - Ste 101, Londonderry, NH 03053. Only current CTSPs in good standing who qualify for professional development CEUs may obtain CEUs for this quiz. Other readers are encouraged to use *TCI*'s safety articles for training and may wish to use this quiz to test comprehension.

and were unsure why he fell, according to a WSB-TV Channel 2 report.

Property owner killed by cut tree

A property owner was killed May 27, 2017, in Barnesboro, Pennsylvania, when a tree he was cutting down fell on top of him.

Jesse Snyder, 37, was using a chain saw to cut the tree on his Susquehanna Township property in western Pennsylvania. The tree began to fall but hit a nearby branch and was redirected toward Snyder, hitting him on the head.

He was pronounced dead at the scene due to a head injury, according to a report in *The Pocono Record*.

Landscaper electrocuted trimming trees

A man was electrocuted May 27, 2017, in Cape Coral, Florida, while he was trimming a tree for a client at a residence.

The victim, a local landscaper, apparently touched a power line with the pole saw he was using, according to a WFTX-TV/FOX 4 report.



Letters & Emails

Call Back ... That's not our name

Greetings from The New York Botanical Garden.

The article in the November 2016 issue of *Tree Care Industry Magazine* about Fordham University's magnificent collection of American elms recently came to our attention (“A Sparkling Green Jewel: Emerald Tree is Preserving American Elms at Fordham University”). It was particularly interesting to me because I frequently walk across the Fordham campus on my way to work and never fail to notice the elms. I enjoyed learning about the care that goes into keeping them healthy.

There were two references in the story to the Botanical Garden (at the beginning and end), but unfortunately, our name was given as “Bronx Botanical Garden.” It's an understandable error because there's a Bronx Zoo and a Brooklyn Botanic Garden, but our name is The New York Botanical Garden.

Could you please correct this mistake, either by fixing it online or running a correction in a future issue? We try to make sure our name is correct in any printed reference to avoid creating confusion in readers' minds that there might be two botanical gardens in the Bronx.

Stevenson Swanson, science media mgr. The New York Botanical Garden Bronx, New York

Ed: We updated the online version to reflect the correct name. We apologize for the error ... poor fact checking on our part. Thank you for pointing it out and giving us the opportunity to set the record straight.

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Habits and Routine Tasks

By Tim Ayers, CUSP

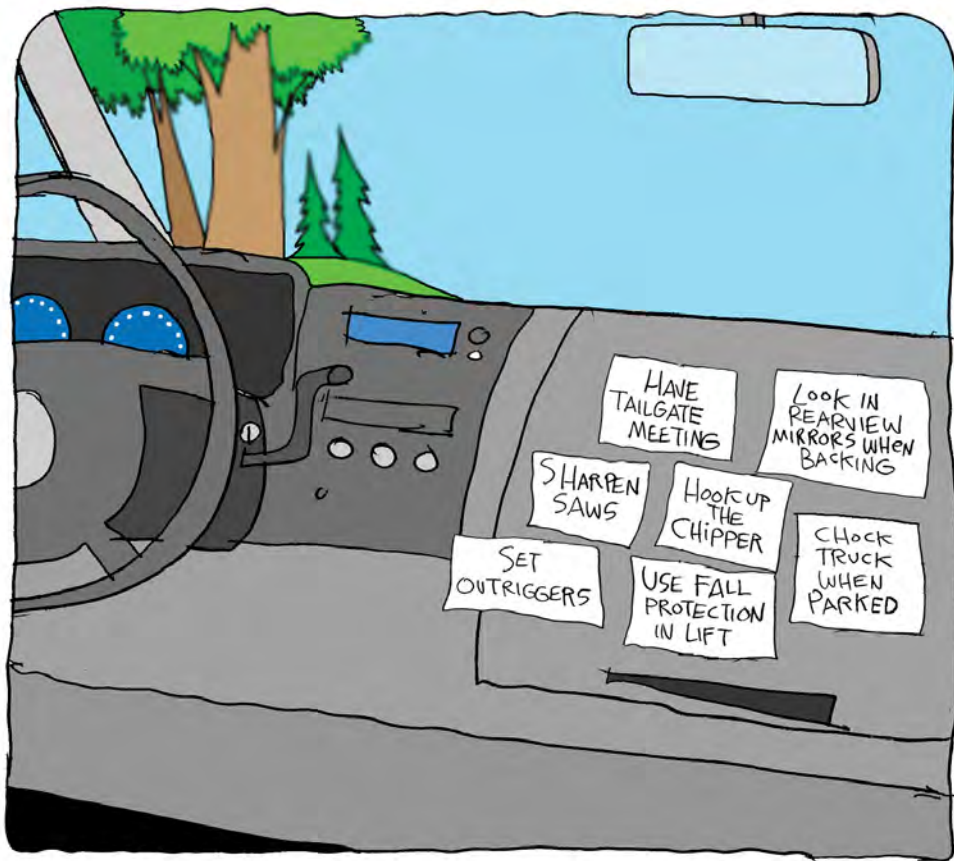
I've been taking a maintenance medication for some time now. I started it after my wife sent me reluctantly in for a physical and the doctor determined I would need it for the remainder of my life. Not a big deal, but without it, he says, my days are numbered.

When I first started taking it, there would be days when I would space it out. I remember going on a trip and not bringing it along. Thankfully, I could go to the local pharmacy and pick it up. Now that I've been taking it for years, it's almost like reaching for my car key or wallet. I hardly think about it. It has become nearly automatic. Some days I'll go to the cabinet a second time, stop and stare at the pill bottle, then recall that I already took it.

I recently noticed a post-it note on the bathroom mirror at home with a note for my youngest son. It's a reminder to take his pill. Apparently he has some new medication to take, and my wife wants to help him remember. He is forming a new habit on a critical task.

A few days later I noticed the post-it curled up a little and dropped to the counter. You could still see the reminder, but it was no longer in that same prominent position as before. One day I noticed the post-it somehow got shoved behind the Kleenex box and you could no longer see the reminder. I took it and posted it back up on the mirror in its original position.

Each time I noticed it in a different position, I wondered what sort of impact the position of the note was having on my son's effort to build a new critical habit. Is he still taking the pill even though the note isn't in front of him? I wonder if the note is even the type of reminder he needs to accomplish the task. I think back to the




Jerry King sketch

many times we left a note about taking out the garbage, changing the cat litter or cleaning his room, not-so-critical tasks. Notes weren't always effective in creating the motivation to get those jobs done. Not taking medication can at times be life threatening, so isn't it important that we use the best sort of motivation to ensure the task gets done properly?

The human mind is pretty tricky when it comes to routine tasks, no matter how important they may be. When a task is almost second nature, we are on auto-pilot. Your mind tells you the little details don't matter and usually gets the job done. You need to fight human nature and the brain to

get yourself to really truly be involved in a routine task.

Many of our tasks at work are just as critical as taking a life-sustaining medication. We need to consider whether the cues in place are enough to ensure that we follow through on the critical steps each and every time to get the job done safely.

Tim Ayers, Certified Utility Safety Professional (CUSP), is director of safety & quality with Intren, Inc. in Union, Illinois. He is also a former Certified Treecare Safety Professional (CTSP) and safety & performance manager with accredited TCIA member Kramer Tree Specialists. 

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