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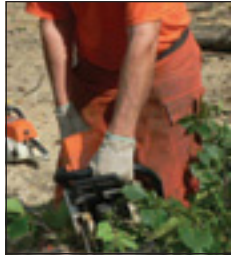
INTERNATIONAL SOCIETY OF ARBORICULTURE
ARBORIST NEWS



**MFI 2010: Nebraska
Trees Are Good, but...
Preventing Chain Saw Injury
The Case of the Spurious Spikes
Climbers' Corner: Aerial Rescue Scenario**

Preventing Chain Saw Injury

This month's CEU article is all about chain saw safety. Training and personal protective equipment is indispensable as a chain saw operator. **Page 12**

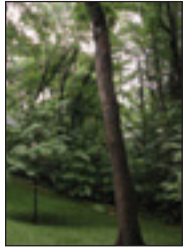


Part of the Solution

It isn't enough to simply identify a problem in the arboriculture or urban forestry profession . . . pursuing a positive change in unsafe work practices is one goal we should all aim for. **Page 37**

MFI 2010: Nebraska

Ian McDermott, UK/I, offers his thoughts and experiences attending the 2010 Municipal Foresters Institute training earlier this year in chilly Nebraska. **Page 48**



The Case of the Spurious Spikes

Trick or treat! Witch will Codit and Dendro find within this crooked hickory? Are the fill dirt and pruning wound clues to the crime, or ghostly distractions? **Page 22**

Climbers' Corner: Aerial Rescue Scenario

Chris Buck offers a detailed breakdown of the aerial rescue competition from this year's annual conference. **Page 50**



2010 ITCC Climbing Champions

This year's Masters' Challenge winners, Mark Chisholm and Jo Hedger, discuss their enthusiasm for arboriculture and tree climbing. **Page 28**



Trees Are Good, but...

We all agree trees are a great benefit to those in the urban environment. Or do we? **Page 58**

2010 ITCC Award Winners

Read about the event award winners for the throwline, belayed speed climb, aerial rescue, and other categories. **Page 32**

Research Week: Tree Biomechanics

The Tree Biomechanics Research Week and Symposium wrapped in late August. Read up on some of the event's highlights. **Page 62**

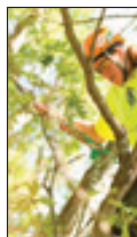
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Jo Hedger, 2010 Women's ITCC Champion

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DETECTIVE DENDRO™ THE DIAGNOSTIC SLEUTH

By Guy Meilleur

The Case of the Spurious Spikes

“I vaahnt yorr blaahd,” the pale creep in the black cape rasped, closing in on the damsel in distress. A dashing young man entered stage left, a hammer in one hand and a wooden spike in the other. “Back to the casket, vampire!” he bellowed, throwing the fiend to the floor. He pinned its chest down, the spike in his left hand glistening blood-red like the

heartwood of cedar. He raised his hammer with his right hand and drove the spike through the vampire’s heart. Arising triumphantly, he swept the damsel into his arms and sped away from the grisly scene.

“Codit, that crazy TV drama is rotting your brain,” I grumbled. “What good will that do you in the real world?”

“You never know. Maybe...” Thankfully, the telephone interrupted Codit’s speculation.

“Detective Dendro?” Her voice was quick, and to the point. “My landscaper noticed insects in the tree nearest my house. This tree leans quite a bit, and a nearby tree has a similar spot, so I would like you to check them out and tell me what to do.”

“Well, even after a thorough inspection I may not be certain enough to tell you what to do,” I confessed. “I’ll describe what you can do, and how the tree might respond.”

“That’s good enough for me,” she said. Codit e-mailed our assignment and other information, she replied with the address, and we arrived at the appointed hour. As we grabbed our gear she marched up and introduced herself, a notebook in one hand and a pen in the other. “I’m Elvira Morgan, thanks for coming.” With her confident stride, raven-black hair and sharply inquisitive nature, she reminded me of Lois Lane. My chest swelled like Superman’s as I pulled up my diaphragm and eagerly followed the gesture of her arm toward the ground. “There’s the problem,” she said.

I probed the basal cavity between two buttress roots with my icepick. The inner wood did not give way. As I looked up the trunk I noticed the surface was not smooth, but blotchy and irregular. I looked farther up and saw a 10-inch (25 cm) pruning wound facing the house, right at the crook the tree took to get away from the big oak on its southern side. I looked a little higher and zoomed in with my digital camera to study a rough circular swelling. It looked like woundwood closing an old wound where a branch was shed. “What kind of tree is this?” she wondered, pulling me toward earth. I squinted at the lower leaves, far beyond my reach.

“I’ll grab the 21-foot (6.5 m) pole pruner and clip off a tip that is not important to the tree’s shape,” Codit volunteered. He made the cut cleanly, retrieved the tip, and inspected it with his hand-lens. “Wow, that terminal bud is sulfur-yellow, and the accessory buds are small, and 4-cornered. It doesn’t look like a pignut or mockernut hickory, though it’s better to look at leaves higher in the crown too. We usually treat hickories pretty much the same, don’t we?”

I opened my well-worn woody plant manual to page 211 and looked over to the client, pulling her gaze to the crown. “Your tree is a *Carya cordiformis*, the “bitternut” hickory. The slender crown is



This old branch wound is more open after loose material is excavated. The smaller cankers resemble damage from climbing spikes, but are more irregular and less angular.

typically like yours, widest at the top. It is supposedly the fastest-growing of the hickories. **This basal infection has little callus, “scar” tissue on the edges, indicating that tree defenses are down.** I pulled out soft, crumbly, white/yellow rot, along with a variety of insects. “These scavengers aren’t bad. They can’t eat wood unless fungal enzymes predigest it. Saddle up, Codit—time to check out that crook.”

Codit ran his hand over the trunk and grumbled, “Looks like the last climber used climbing spikes on this tree.” After ascending up his rope to the crook, Codit tapped the big pruning wound and all around the stem with his rubber hammer. “Sounds pretty solid. There is a little callus on the lower margin of the wound. The top edge was cut more flush, and is not closing well. But the wood sounds and feels hard, so I’m coming down.”

“Before you do, a request,” I pointed above him. “Please assess that circular swelling just above you, and extract a tissue sample.”

“Oh come on, Dendro,” Codit said, shoving the screwdriver end of his saw wrench into the hole. “Sure, this four-inch (10 cm) tool goes in where the branch broke out. That doesn’t mean a lot—Hey, it’s lunch time.” He pried out some tissue, which I caught, squeezed, and put in my pocket as Codit slid down his rope to the ground.

“While dining, you can catch up on your pathology,” I smiled, “and **reflect on three signs and one symptom of a disease that we have seen, three characteristics of the tree that make it susceptible, two site factors that aggravate its condition, and two tools you will need to finish your assessment.** Pardon us, Elvira, as we take a break for lunch.”

Will Dendro figure this one out? Turn to page 66.

CERTIFICATION INFORMATION

Can You Benefit from ISA Certification? Take the Quiz!

By Anne Jerutka, ISA Certification Manager, Compliance & Promotions

Have you made arboriculture your career choice?

Are you looking for a competitive edge in the industry?

Is your employer pushing you toward more professional development?

Would earning an ISA Certification help you stand out among your peers?

Do you prioritize professionalism when engaging your customers?

If you answered “Yes” to any of the above questions, we believe an ISA Certification can benefit you. Currently, ISA has more than 26,000 credential holders who have taken advantage of an ISA Certification to further their career in arboriculture and urban forestry. Many eligible arborists are not aware they meet the requirements to be ISA certified and are missing out on opportunities to take their career to the next level. Don’t wait until an opportunity is about to pass you by, get ISA certified now and let those opportunities come to you.

ISA Certified Arborist

ISA Certified Arborists make up the largest percentage of credential holders ISA has in the Certification Program. They are well-trained and knowledgeable in many aspects of arboriculture. This credential adheres to a Code of Ethics, which is intended to serve as a central guide and reference for arborists in support of their day-to-day decision making. The policy is meant to define our organization’s mission, values, and principles, linking them with benchmarks of professional conduct and industry standards.

To become an ISA Certified Arborist you must have either (1) three or more years of full-time, eligible, practical work experience in arboriculture or a related field, (2) an associate’s degree in arboriculture from an accredited educational institution and two years of full-time work experience, or (3) a bachelor’s degree in arboriculture, horticulture, landscape architecture, or forestry with one year of full-time work experience.

ISA Certified Arborist/Municipal Specialist

A Municipal Specialist must be an ISA Certified Arborist with a minimum of three additional years of documented work experience in a position managing the establishment and maintenance of urban trees. Experience requirements include practical communication skills, public relations, administration, risk management, arboricultural practices, and policy planning in a municipal setting. Employment examples include city/municipal arborist or forester, park superintendent, urban forester, and municipal/urban forestry consultant.

ISA Certified Arborist/Utility Specialist

A Utility Specialist must be an ISA Certified Arborist with at least 2000 hours of verifiable work experience in electric utility vegetation management. Experience in electric utility vegetation management can be obtained as an employee of or as a consultant to a utility over the past two years and/or one of the following: (1) Full-time employment as an electric utility arborist/forester/vegetation manager for at least 36 cumulative months during the past 10 years. (2) Full-time employment on a project as an electric utility vegetation management contract employee/consultant for at least 36 cumulative months during the past 10 years.

Board-Certified Master Arborist

The Board-Certified Master Arborist (BCMA) credential is different from other ISA certification credentials. It is considered the pinnacle of certifications obtained in the field of arboriculture and is backed by a Standard of Practice set forth by the American National Standards Institute (ANSI). To sit for the BCMA exam, one must be an ISA Certified Arborist in good standing and have obtained eight points from any or all of the following four categories: measurable experience, related credentials, formal education, and professional experience.



WHAT'S THE SOLUTION?

The shish kebab at the diner that Elvira recommended didn't have a lot of onion, but it had enough. I bit a chunk off the long shiny metal skewer as Codit described his diagnosis. "Okay, we saw two signs: rotten tissue at the base, and sunken areas with dead bark on the upper trunk. Poor callus growth around the pruning wound is the symptom, the tree's response. The tree is susceptible to failure from disease, because its defenses are weaker, because it is fast-growing. It's also top-heavy and leaning. Fill dirt limits the tree's response, and being an 'edge tree' heavily suppressed on one side by that big oak aggravates its risk of failure. I don't know the third sign, or what tools I need."

"Good work, so far." I smiled and handed Codit the disease reference book. "Here's your first tool. See if you can identify the pest," I challenged him.

Codit flipped through the index in the back as he continued, "Our job is diagnosis of the tree's condition, reviewing reasonable ways to manage it, and prognosis—forecasting how it may respond to present and future treatments and conditions. We don't need to assign numbers to assess risk. It says here that *Carya* gets two kinds of cankers, *Botryosphaeria* and *Nectria*, so it must be one of those. They're mainly bark and sapwood diseases, and there's probably not much strength loss in those small cankers. So, pruning up to 20% of the sprawling branches and periodic monitoring might be reasonable. Depending on the owners' goals, it could also be removed."

"We can't know all that until we understand this disease." I reminded him as I subtly stabbed the index with my skewer. "Under *Carya*, what is listed after 'canker'?"

"Uhhh... it looks like 'canker-rot.'" he stammered. "I never heard that term before."

"Unlike surface cankers, canker-rot indicate deep wood decay. Here is the fourth sign," I said, pulling the tissue sample out of my pocket and placing it on a napkin before him.

Codit rolled it between his fingers. "When I popped it out I thought it was just decayed wood, but it feels like foam rubber," he marveled at the two-inch (5 cm) cylinder, "It's really soft, yet I can't rip it. It's brown, but

it's not crumbly like most brown rot. And it's much more flexible than the cellulose left over from white rot diseases." My stymied assistant scratched his head so hard he almost drew blood.

I flipped to page 312 and slipped my skewer into the seam of the book. "Sterile brown fungal tissue forms at branch stubs," I read. "The reason this looks like no decayed wood you've seen is that this is not wood, but fungus. The advanced decay caused by *Phellinus spiculosus* is soft, crumbly, white/yellow rot, like we saw at the base. The disease apparently entered after that big branch was removed, which demonstrates that the size of the wound is what matters, not the relative size of the remaining lateral. Anyway, the columns of decay are marching down to the ground. Look at this picture—spike-like projections simultaneously extend the decay outward."

Codit jumped up, his eyes bulging as he rasped, "Like a cedar spike killing a vampire, *Phellinus spiculosus* stabs its way out of the xylem and into the tender, juicy sapwood.' See, Dendro? Television helps me understand tree science."

"Sure, sure," I said as I paid extra for the skewer and handed it to Codit. "This skewer is the second tool you need. Let's head back to the tree."

As we walked around the house, Elvira descended from the deck. "Well, what can I do with this tree?" she inquired, clicking her pen with her thumb.

"With this many issues, removal and replacement should be considered," I began. "At first it seemed reasonable to reduce up to 20 percent of the crown to lessen the lean, but Codit is ascending again, with a new tool. We may get new information from it."

Codit poked the skewer into the hole, wiggling here and there. "Sure enough, I can probe deeper at some angles, especially downward," he said, shaking his head. "There's major strength loss at the crook, and little strength gain from reaction wood. Lacking aerial lift access, if I had to work on this tree I'd first tie into that adjacent tree. Then I could reduce the ends of this hickory with a polesaw before putting any load on the stem. I'd definitely avoid loading the stem by rigging from it."

"Got that right, partner," I nodded. "Most of these cankers are too irregular to be caused by climbing spikes. Those are signs of rot. Elvira, I'm sorry we took so long to reach our conclusion. We could have gotten information



Fungus filled the branch cavity with a rubbery plug (above). The plug from Elvira's tree (middle). The fungus stabs the sapwood (below).

faster by resistance drilling, but breaking barriers is a last resort. Probing into open cavities avoids spreading infection, and this new data indicates that a harder reduction might be more appropriate. The branches growing upward get much more sunlight, so the tree can afford to lose branches that are growing outward. Some trees can battle pathogens for decades, stopping their spread indefinitely."

“But the canker-rot caused by advanced *Phellinus spiculosus* typically overcomes defensive barriers, so the prognosis is still poor. *Phellinus linteus* makes antitumor drugs, so this genus is something to reckon with. As the fungus attacks cambium at the branch stubs, new columns of decay form within. The rot at the base indicates the whole bole has a hole. All these cankers—the disease seems too entrenched for the tree to overcome. **If you decide on pruning, a tree-to-tree guying system back to that big oak could be designed to catch this tree if it fails later on.**” I added, showing her page 26 of the tree support BMP.

“I’m pleased that you are super-careful,” she thanked us as she shut her notebook and pulled out her checkbook, “and super-thorough. I will consider removal, given the poor prognosis.”

“A sourwood, *Oxydendrum arboreum*, might do nicely in its place,” I suggested, squeezing her right hand as I accepted payment from her left. “In midsummer, its flowers hang like bright white spikes.”

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Guy Meilleur is an ISA Certified Tree Worker—Climbing Specialist and international tree consultant. *Detective Dendro* quests for Truth, Justice, and the Arboricultural Way

Dendro’s Defining Terms

This letter is in response to the article “Restoring Trees” in the Volume 19, Number 3 issue (June 2010).

Guy Meilleur is one of my favorite contributors to *Arborist News*. Among other things, I appreciate his optimistic style. In the recent article, “Restoring Trees,” Mr. Meilleur discussed methods to help preserve damaged trees. Literature references included Alex Shigo’s *A New Tree Biology* (1986), where the terms “adventitious buds” and “bud traces” are used. Dr. Shigo later amends those terms to help clarify the sources and types of sprouts (see 1994 *Tree Anatomy*): meristematic point and trace versus dormant bud from a dormant trace. His earlier clarification between callus and woundwood is also related in that it discusses undifferentiated versus differentiated tissues.

Buds are performed structures of aerial stems (roots don’t form buds), which form during the seasonal growth period. Many (not all) functionally open and grow a leaf or flower-bearing sprout the following growth season. Epicormic sprout growth on aerial stems is associated with injury or stress. The two types of epicormic sprouts include adventitious sprouts from callus tissue (injury related) and meristematic sprouts from meristematic points (stress related). Successful bud or epicormic sprouts with foliage provide

READERS’ FORUM

photosynthates to their localized region and the tree system in general.

Thank you Mr. Meilleur for the informative article.

Richard C. Murray
ISA Certified Arborist
Silver Spring, Maryland

Tree Biology Information Transfer

Kim Coder’s article on photosynthesis in the Volume 19, Number 4 issue (August 2010) is one of the best technical-to-practical application information transfers I have encountered in 30 years of forestry/arboriculture.

Stephen L. Edgar
Forester/Arborist
Sanford, Florida

CORRECTION: Pruning Effects

In the June 2010 issue of the magazine, *Arborist News* accidentally transposed two images published in the article, “Getting in Touch with Trees: The Urban Tree Arboretum in Hørsholm, Denmark.” The photos on the upper-half of page twenty-eight should be switched, with the first figure (labeled “a”) having undergone formative pruning, and the second figure (“b”), unpruned. We apologize and regret the error. **AN**

Tree Talk For Tree People

