



Integrated Pest Management: Tactics

Part two of our CEU series on IPM covers preventive and control tactics. **Page 12**



Double, Double, Fisherman's Trouble

Different knots—same name. Mark Adams clears up the confusion. **Page 50**

The Case of the Terrible Tar

No one's been painting these tree wounds, so what's with the black substance on the maple tree? **Page 20**



Behind the Scenes of Detective Dendro

Understanding the diagnostic process. **Page 54**



City Trees, Nature, and Physical Activity

A look at what research tells us about the impact of trees on public health. **Page 22**



Reconnecting Young Children with Nature

An innovative program to encourage children to spend more time outdoors. **Page 59**

Trees, Wind, and Dynamic Loads

Measuring wind loads on urban trees during windstorms helps researchers understand tree failure and how to help a tree withstand high winds. **Page 44**



Cooling or Fooling?

Environmentalists split on tree planting as a climate solution. **Page 63**



Editor's Branch	6	What's Up at ISA	29	ISA Membership Application	41
ISA Perspectives	7	Profiles in Arboriculture	31	Student Corner	43
Officer Speaks Out	9	Pruning Summit for Researchers	32	Research You Need to Read	48
Tree Industry Calendar	10	Global Challenges and Rewards	33	ISA PR Update	57
Just for Fun	11	Phloem Nodes on Trees and Shrubs	34	ISA Member News	66
Professional Affiliation Briefs	21	Readers' Forum	37	Global Perspectives	69
Headquarters' Bulletin	27	"Sick-Amour" Tree	38	Arborist Marketplace	71
New Publications	28	Chapter/Associate Organization News	40	Advertiser Index	71

Publications Agreement No. 1506226
ISSN 1542-2399



is a registered trade and service mark of the International Society of Arboriculture, Inc.



Cover photo credit:
Andrew Koeser

Statement of Ownership *Arborist News* is published six times a year (bi-monthly) by the International Society of Arboriculture, a nonprofit professional association, as a service to its membership. Membership in ISA includes a subscription to *Arborist News*. Send change of address (U.S. and foreign except Canada) to Membership Department, ISA, P.O. Box 3129, Champaign, IL 61826-3129.

Canada Subscriptions: Canada Post Agreement Number 40032651. Send change of address information and blocks of undeliverable copies to P.O. Box 1051, Fort Erie, ON L2A 6C7.

Subscription Information Annual subscription price, including postage: US\$105. Subscription orders can be entered only by the calendar year (January–December) and should be sent to the publisher, ISA, P.O. Box 3129, Champaign, IL 61826-3129, U.S.

Claims for Missing Issues Claims for missing or damaged issues must be made within three months.

Your contributions to and comments about *Arborist News* are welcome. Please submit all materials to *Arborist News*, P.O. Box 3129, Champaign, IL 61826-3129. The deadline for the April issue is February 20, 2008.



DETECTIVE DENDRO THE DIAGNOSTIC SLEUTH

By Guy Meilleur

The Case of the Terrible Tar

It was a wicked thunderstorm, the kind you only get in the tropics. Lightning lit a fireball over the huge Bodhi tree in the center of the temple square, blazing her silhouette onto a building as she rounded the corner. I had been gaining, but as I rounded the corner, the power of thunder rocked the earth. She was nowhere to be seen. I slapped my fedora against my trench coat, and the large raindrops stung my cheeks like tears.

She had eluded me again, and the trail turned as cold as it could in that sauna-like tropical city. Speculation raced rampant through my brain as I strode through the stinging rain. I shivered as I shook my head clear. Water sprayed around her fading silhouette like a doubly helical halo.

The office printer beeped and churned out a color picture as the telephone rang. Codit's number showed on the Caller ID window, so I hit the speakerphone button. "What's up, Codit?" I asked my assiduous apprentice as I yawned and stretched.

"Dendro, there's something really weird about this maple tree."

His voice was palpitating with puzzlement. "Someone put pruning paint in blotches on the stem, and I can't figure out why. I sent you the picture so you can tell me what to tell the client."

I looked at the shiny black blotches, and the smooth gray of the maple bark around them, and shook my head. "Don't tell her anything yet," I said. "You and Rodrigo wrap up your IPM and soil assessments, and then scout the neighborhood for more clues to our client's landscape issues. Remember to take along some consumer information brochures in case the neighbors have questions. I'll be right over."

It had been a long time since I had thought about that steamy night in Singapore, and I reminisced as I drove to the job site. My mentor there, named Saiful Naciens, was celebrating Vesaka Day with members of a local temple by caring for ficus trees. We literally dug into problems people had with planting

and with installing ground rods for lightning systems. The earth's organic content was dissolved by the high night temperatures and high rainfall, so the blended backfill was 25 percent composted woodchips.

The rubble in that Garden City soil was more extreme than any I'd seen before or since. It seemed to take as much time for me to install the ground rod as it took Saiful to climb the tree and install the conductor. While digging, I found a sealed chest of books buried by the brilliant British naturalist and proto-arborist E.J.H. Corner during World War II, to save them from the Japanese occupation. My mentor told me later that Corner's durian theory had implications for urban forestry, but he did not develop that connection before I had to leave. Another book had engravings of trees now extinct in that tropical city state due to development, which is why there was such a heightened local awareness of tree value. Singapore's experience foreshadowed what was to come in other world-class cities, I realized as I parked and walked to the backyard. The guys were still studying the multistemmed maple tree.

Codit tapped the trunk with a rubber mallet, eliciting a solid sound. "See?" he asked. "My resonance test does not indicate a cavity, so can there be decay inside this area? And does the pruning paint stop at this slightly raised tissue at the base of the stem because the wound stopped at the collar?"

"In Chile, I learned that pruning paint is terrible tar, because it seals in more problems than it seals out," Rodrigo Robledo, Codit's classmate, added. "Is that true? And if there is no decay, does this tree need any treatments to reduce its risk of failing toward these houses?"

"The answers to your questions are Yes, Not Exactly, Often, and Yes," I told the budding arborists. They exchanged looks of utter confusion. "Remember what the fictional detective Sherlock Holmes said. 'Don't theorize before getting the facts.' Collect information and keep your senses and your mind open. Perhaps a blooming onion or two for lunch will open our minds as well as our sinuses."

What is going on with this maple tree? Will our heroes arrive at a conclusion? Turn to page 62 for the answers.



Black blotches in an unusual pattern for pruning paint create confusion. Roughened, brown bark looks scuffed, like an abrasion. The crew contemplates various theories, including physical injury.

SCA on the Move

By Eric Duchinsky, SCA Executive Director

Santa and the elves aren't the only folks busy at the end of the year. As of this writing, SCA's Board of Directors, volunteers, and yes, a helpful someone at the United States Internal Revenue Service (IRS) have been busy and are now on Santa's "good" list.

On December 6, 2007, SCA received the tax designation of 501(c)(3) from the IRS. Other than the official recognition of SCA as a not-for-profit organization, that tax status allows for the collection and disbursement of donations for special programs, such as student scholarships or public education programs. These are just two of the strategic initiatives SCA's board identified as important growth areas.

More than anything, this recognition marks a milestone for the organization. Since its inception in December 1980, SCA has grown at a steady pace, building a unique identity in the profession. The 501(c)(3) classification reinforces SCA's progress and provides a structure for accomplishing more in the future.

The First SCA Regional Seminar

(This article was written before the first SCA regional seminar in Lancaster, Pennsylvania, on January 30, 2008. A summary of the event will follow in the April issue of Arborist News in this column. —Editor)

Members requested, through a recent survey, to provide local training at a reasonable price. Special thanks go to SCA board members Frank Gifford and Jim Zwack for pulling together an interesting and relevant program. Thanks go as well to ISA's Penn-Del Chapter for working with SCA to coordinate the seminar's program to complement the chapter's annual conference. The seminar added an additional day to the chapter's well-attended annual event.

Special thanks and recognition go to the initial group of sponsoring companies. As of this writing, Vermeer, Buckingham, Rainbow Treecare Scientific Advancements, and ArborMaster Training are financially supporting this first event, and Samson Rope is providing door prizes.

Here are some of the presentations scheduled for the seminar. SCA plans to offer this type of programming in various locations, starting in the United States.

Think Twice. Measure Once.

Save lives and save time by integrating the right systems in your company. Go beyond tailgate training to building a culture of safety for all employees.

To Serve Customers . . . A Cookbook Approach

Learn the techniques directly from a high-performer in tree care sales. Turn client questions into better relationships and return work. Make customer calls educational opportunities for your clients and for your sales representatives.

Roll the Dice

Assessing a tree's level of risk plays a vital role in your organization. Whether risk assessment is part of your services to clients or for

your crews before they work, do it right.

Reach the "Cream of the Crop"

Build it and they will come? You have training, equipment, and energy, but where are the most profitable customers? How can you find them? How can they find you?

Employees: More Than Hat Racks

The best, most successful companies invest in their employees. Learn how to make the right investments in personnel from representatives of three outstanding organizations. This panel of experts will discuss programs that worked for them. No matter the size of your own company, you'll find useful tips here.

If you are interested in seeing this type of programming in your area, send an e-mail to sca@isa-arbor.com and let us know.

Scholarships and Student News

The Thomas Mousley scholarships are the cornerstone for SCA's outreach and support for students. If you have any employees or know of any students majoring in arboriculture, urban forestry, or horticulture, please tell them about this opportunity for financial assistance. The form can be downloaded from SCA's website at sca.isa-arbor.com/students/students.aspx.

Look for SCA and ISA at the National Student Career Days at North Metro Technical College, Atlanta, Georgia, March 27–30, 2008. It's an annual, three-day, competitive event among students enrolled in horticulture programs from colleges and universities across the United States.

Students have the chance to compete in events directly related to the skills they need for a career in the green industry. The event also offers a career fair that gives students the opportunity to meet prospective employers in the industry and discuss employment opportunities. For more information, visit www.landcarenetwork.org/cms/studentcareerdays.html.





WHAT'S THE DIAGNOSIS?

As we ate, I told Codit and Rodrigo about my arboricultural adventures in Singapore. “Lightning there strikes down many trees. Some die right after being zapped, but usually they are left standing, to struggle with insects, and diseases both preexisting and introduced. Ambrosia beetles transmit disease there, as they do here. I saw black blotches on some trees, similar to what you found on the maple stem.” Codit dropped his sandwich. His eyes grew as wide as a tarsier’s, and he clapped the side of his head with the heel of his hand. I smiled inwardly at his reaction and continued. “My mentor’s approach was to increase the tree’s powers, which he called ‘Devas,’ so they could overcome disease.”

After lunch, Codit grabbed the tool bag and picked at the shiny, black coating. “The black stuff crumbles, instead of bending like tar-based pruning paint usually does, and the wood inside is decayed.” The stem gave little resistance as he drilled through it with the slender bit. “The wood is so weak—why didn’t it sound hollow when I hit it?”

Rodrigo held up a copy of *Fungal Strategies of Wood Decay in Trees*. “Here’s the answer, amigo—it looks like this picture of *Ustulina deusta*,” he said, quoting a passage from the book: “With this kind of decay, acoustic velocity is not reduced, even at the late stage of decay.” He put the book back into our crate of references. “The other stems and the root collar appear sound, but the root zone is limited by terrain and many competing shrubs and trees around it. Now that we have collected more information, we can form new theories.”

“Exactly!” I said, clapping him on the shoulder. “When your working hypothesis does not make sense, return to your senses. Preclude premature preconceptions as you systematically assess the evidence. If you had used your hand lens on those blotches, you would have

seen perithecia, openings like pores, not looking like tar at all. The epistemological order is sensation to perception to conception, also known as

data to analysis to conclusion. We must fit our theories to the facts, not vice versa.”

“As for nomenclature, this disease has been reclassified from the genus *Hypoxyylon* to *Ustulina* to *Kretzschmaria*. In the field, we will stick to the more general term ‘hypoxyylon,’ with a small ‘h’. As for sealants, some formulations have improved on tar, but they are still experimental. So what management options would you consider if this multi-stemmed specimen was yours?”

“In a healthy tree, the pathogen is usually compartmentalized and invasion or spread is stalled,” Codit said, remembering his *Modern Arboriculture*. “The big question is, will the infection break the interior barriers and infect the other stems? For now, I would lightly reduce the sprawling ends, cable these two stems on either side of the infected stem, and check once a year to see if the hypoxyylon is spreading.”

“We have time to see how the tree responds to root invigoration,” Rodrigo added. “This prescription for soil improvement and mulching might increase the tree’s health and resistance to disease. Research shows that mulching with chipped hawthorn wood may inhibit decay, so we should spread some.”

Our client had been listening as she approached the arborists from behind. She

was alight with anticipation. “That all sounds good to me, gentlemen,” she agreed. “Please proceed promptly, and leave the bill in the door when you are done.” Her voice was fainter as she saw me turn. “Where are you off to now, Dendro?”

“I’m pursuing a clue to an old, cold case,” I answered with a nod, pulling my hat brim over my brow. “Drop me a line if anything arboricultural goes awry.”

Guy Meilleur is an ISA Board-Certified Master Arborist, Municipal Specialist, Utility Specialist, and Certified Tree Worker. He is an instructor at Duke, Virginia Tech, and North Carolina State universities. Detective Dendro fights for Truth, Justice, and the Arboricultural Way.

Photos courtesy of the author.

References

- Corner, E.J.H. 1949. The durian theory, or the origin of the modern tree. *Annals of Botany* 13:367–414.
- Schwarze, F.W.M.R., J. Engels, and C. Mattheck. 2000. *Fungal Strategies of Wood Decay in Trees*. Springer, Berlin, Germany.
- Shigo, A.L. 1991. *Modern Arboriculture*. Shigo and Trees, Associates, Durham, NH. 423 pp.
- Tee, S.P., and M.L. Wee. 2001. *Trees of Our Garden City: A Guide to the Common Trees of Singapore*. Nature’s Niche, Singapore.



The infected stem was carefully cut loose with the tip of the chain saw, avoiding damage to the adjacent stem. The advanced decay contains black zone lines. Adventitious roots grew in decaying organic material in the crevice between the stems.