



Integrated Vegetation Management: Best Management Practices

Our CEU article discusses the need for IVM, its elements, and various vegetation control methods. **Page 12**

The Case of the Tearing Tilia

Lindens, the national tree of the Czech Republic, line the sidewalk to the capitol building Dendro and his team join their Czech colleague to solve the latest mystery. **Page 20**



Urban Forestry and Civil Progress in Hyderabad, India

An innovative tree planting program provides jobs to the urban poor and helps alleviate the environmental costs of urban growth. **Page 44**

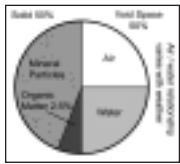
Does Pruning Reduce the Risk of Tree Failure?

Findings from a study on how pruning affects wind loading of shade trees. **Page 46**



Arborist Training: Goals and Options

Training needs change, and new options are available. Here's an overview of what you should know. **Page 22**



Urban Soils, Part 1: Understanding Compaction

Understanding and identifying soil compaction is a critical step in creating good growing conditions for trees. **Page 25**



The Loop-Runner Climbing Technique

This month's Climbers' Corner presents a new way to climb. **Page 50**

Behind the Scenes of Detective Dendro, Part 2

In this article, we continue our exploration of the diagnostic process. **Page 54**



Evaluation of Current Rigging Techniques Used to Dismantle Trees

A pilot study examines a worst-case rigging scenario. **Page 34**



Wind Load Analysis for Trees

A Web-based tool for tree stability assessments. **Page 59**

Editor's Branch	6	New Publications	28	PR Update	51
Officer Speaks Out	9	What's Up at ISA	29	Council Corner	52
Tree Industry Calendar	10	Profiles in Arboriculture	31	ISA News	53
Just for Fun	18	Certification Information	33	Readers' Forum	57
Headquarters' Bulletin	19	Notice of Meeting: ASC Z133	37	Research You Need to Read	64
Citrus Longhorned Beetle Arrives in the Netherlands	21	ISA Membership Application	38	ISA Member News	66
Science, Research, and the Practicing Arborist	23	Student Corner	43	Professional Affiliation Briefs	70
		In the News	43	Advertiser Index	71
		Global Perspectives	49		

Publications Agreement No. 1506226
ISSN 1542-2399



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



On the cover:
Floss silk tree
(*Ceiba speciosa*, formerly
Chorisia speciosa)

Photo credit:
Ann Hopkinson

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 June issue is April 20, 2008.

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.

DETECTIVE DENDRO

THE DIAGNOSTIC SLEUTH

By Guy Meilleur and Jaroslav Kolařík



The Case of the Tearing *Tilia*

The conversation level in the jazz club was as foreign to me as babble from Babel. I leaned in closer, as if to hear her better. Her fair skin had reddened, and it was starting to peel. She lost her straw hat while we were hiking in the Bohemian Forest. Her cheeks caught some serious rays before she replaced it. “Don’t you

think this might help?” I asked, offering her my moisturizer.

“Some scientists suggest it’s better off healing on its own,” Ashley Green answered, awkwardly. I didn’t know how to tell her, so I silently sipped my sweet onion soup. On stage, the Vertigo Quintet mingled a light soprano sax with a hesitant trumpet. It may have been the potent Czech beverage, or the strength of the soup, but I started tearing up, and feeling like the name of the band. Then I heard familiar voices.

“Hey, Dendro. Hey, Ashley,” my apprentice Codit Clutz and utility arborist Electra Cline called out together as they made their way to our table and pulled out two chairs. “That climbing championship was awesome!” they chimed, and they told us all about the new moves they learned from watching Europe’s archetypal arboreal aerialists.

Vertigo finished the ballad and took a break, so the lights went up. Ashley’s eyes went wide. “Electra, what happened to your hair?”

“Oh, that,” Electra blushed, running her fingers above her ears. “I got it cut to fit inside my helmet, but now it’s growing back weird. It sure didn’t help me climb any faster. Should I have it trimmed again, layered maybe?” Codit choked back a protest, and sloshed some suds onto his shirt. Electra patted his leg as she drained her stein. “That potable’s pretty potent, huh, Codey?”

“Uh, maybe it’s better to let nature take its course, until your waves grow back,” Ashley opined. I agreed, but could not comment diplomatically on her chopped mop of a coif.

“Let’s head out while it’s still light,” I changed the subject as I shouldered my diagnostic kit. “We’ve been asked to inspect a grove of young trees. On the way, we can look at local landscapes and learn about Czech arboriculture.”

“That’s our idea of a vacation.” Ashley shook her head as she paid the bill.

As we strolled down the avenue toward the capitol building, Codit played tour guide. “The Czech national tree is the linden and, as a

historical symbol of freedom and independence, it has been overplanted. Unfortunately, lindens are susceptible to damage in areas with salting and temperature extremes and heavy air pollution.”

“This bigleaf linden, *Tilia platyphyllos*, has red twigs, so the cultivar is called ‘Rubra’. The species can hybridize with littleleaf linden, *Tilia cordata*, to create *Tilia × europaea*, also known as *Tilia × vulgaris*, the common lime tree. This natural hybrid is vigorous, growing taller than both its parents,” Codit continued.

“So is it called the mediumleaf lime? And where is the fruit?” Electra’s eyes sparkled electrically as she nudged Codit in the ribs. Spring was in the air.

“You’re full of ‘vulgaris’ humor this evening, aren’t you, Electra?” Ashley’s bright blue eyes glinted. “The name more likely comes from the genus’ preference for alkaline soils, which originate from limestone parent materials. Speaking of bedrock, I wish I could get more power lines in our city buried like they do here, but we lack the budget.”

I pulled down a branch and bit off a leaf. The three of them eyed me oddly. “Young lime tree leaves make an excellent snack. Not as much flavor as sassafras, but a very pleasant texture,” I said, as I chewed it over.

“Now’s the time to try them, if you must,” Ashley said, studying the tree while looking askance at me. “I see no aphids yet, so there’s no sooty mold. There’s not much soot from combustion either—internal or external—from cars or factories.” I didn’t need the report, but it’s good for a loose cannon to have someone chock his wheels once in a while.

We walked under an ancient archway and up to an allée of



***Tilia cordata* bark is typically dark, so this reddish orange color draws concern. Hybridization, pollution, abrasion, or . . . ?**

young *Tilia cordata*.
“These are the trees,” I said grimly, setting down my diagnostic kit. “What do you see?”

“Look at those orange streaks on the stems,” Codit noted. “The color is similar to the woundwood forming in those bark crevices years after we excised *Armillaria* infections on *Quercus alba* back home. Could the bark have been damaged by rough handling, and now it’s sealing the injury?”

“Maybe the coloration is from hybridization,” Electra speculated. “If ‘*Rubra*’ has red twigs, maybe the bark is getting reddish due to the same kind of hybridization.”

“Could it be that the salt used on the sidewalk splashed onto the bark, or other pollution, or are girdling roots squeezing the circulation?” Ashley wondered as she dug with my trowel. “Scratch that last hypothesis—the flare looks good.”

“Let’s look higher, then,” I said, pulling off more leaves to chew.

“Gosh, all that tufted growth on the stem looks like witch’s broom,” Codit said. “That could have been caused by insect oviposition, mites, or mistletoe.”

“Could be a virus, fungus, or phytoplasma,” Electra conjectured. She and Codit huddled together as they examined the growth with their hand lenses.

“Maybe it was hormones,” Ashley said, eyeing Codit and Electra. “If cytokinin affects the auxin gradient, those suppressed buds can release and grow like gangbusters. What do you think, Dendro?”

“I think it’s getting dark, so we should go back to hear some more music, and then sleep on it,” I said, spitting the leaves into my hand and looking them over. “We have several good theories, and the answers are in our sight—and in some cases, on our persons. Tomorrow we’ll meet with the forensic arborist who referred us. He may have clues you can use to crack this case.”

Do our diagnosticians have the answers? Turn to page 71 for the answer.



Crowded growth in the crown must also be diagnosed. Is it the trees’ habit to be so dense?

Citrus Longhorned Beetle Arrives in Netherlands



On December 22, 2007, the Plant Protection Service of The Netherlands reported findings of *Anoplophora chinensis* (citrus longhorned beetle). It appeared to be a small infestation, and only a few exit holes have been found on one maple tree and one shrub. The infestation originated with a company that imported a shipment of maples infected with the citrus longhorned beetle.

During the growing season, this pest poses a real threat to a large number of tree and shrub species in Europe. Until now, The Netherlands has remained free of this invasive pest.

Because of the widespread damage that could occur if an infestation occurs, steps are being taken to control the pest, including legislation that prohibits importation or movement of material containing the beetle throughout the United Kingdom and European Union.

The Plant Protection Service of The Netherlands is currently assessing the extent of the infestation during winter, when adults and larvae are inactive and further spread is not a direct risk.

The contact information for anyone who finds evidence of the citrus longhorned beetle is Dutch Ministry of Agriculture, Nature and Food Quality Plant Protection Service of The Netherlands.



WHAT'S THE DIAGNOSIS?

The next morning dawned brightly—too brightly. I rolled over to escape the glare, and met the floor head-on. I figured things could be no worse outside, so I grabbed my gear and sped to the jobsite. My Czech colleague was feeding the crew fresh kolaches (apple-filled pastries) and steaming mugs of coffee. Things were looking up.

"We saved one for you, Dendro," Jack explained in excellent English as he handed me the last kolache. The spicy sweet smell of apples kicked my mind into gear. "Your crew tells me that they gathered a lot of data yesterday, but could not solve the mysteries of the burnished bark and the sprouting stems. Should I give them more information?"

"Ymfgd," I bobbed my head up and down as I wiped apple filling off my chin. Ashley rolled her eyes.

"I was called as a forensic expert to decide whose fault these problem were," Jack said. "These trees were planted two years ago, with the stems covered by rattan. After eight months, the contractor removed the covering. The following winter was very mild with quick temperature changes. The bark damage is on the southwest side of the stems. The company was found liable because of lack of stem protection."

"But Dendro, you looked at the chewed leaves in your hand and told us that the answers were on our persons," Ashley said. "What did you mean?"

"Your cheeks, dear Ashley, were sunburned after they lost their covering." I gazed at her, and her cheeks reddened all the more. "Our ANSI standards only mention protection during transplanting, not afterward. ISA's Best Management Practices state that 'Where sunscald or frost cracks are common, trunks of thin or smooth-barked

trees are wrapped to prevent injury from the winter sun.' Sunscald is a significant problem in the U.S., but we hesitate to protect our young trunks

because trunk wrap can harbor destructive insects and create temperature differentials. Your rattan shields are fascinating. The air space between them and the stems does not provide habitat for pests. If these shields are standard procedure here, we may be able to learn something from your practices."

"They look nice, too." Codit and Electra said as one.

"Thank you," Jack said. "Also, according to our practices, an aggravating factor in these trees' condition is the lack of thinning. Our publications recommend that interior twigs be removed per need to lessen the imbalance between water uptake and transpiration. Such an imbalance can mean decreased vitality of the whole crown. This is generally accepted in our conditions, so they also call for removing some of the epicormic shoots in the lower part of the crown."

"Epicormic?" Codit moaned. "So those shoots are not a witch's broom mutation?" Jack and I slowly shook our heads, and Codit moaned louder. "So how was the answer to this mystery on our persons?"

"As Ashley said, the leaves were in my hand," I reminded my apprentice. "It is the loss of leaves that forced the tree to make more of those food factories, as fast as it could. In the nursery, too many lower branches were removed, to make these trees look more saleable. After planting, the contractor

removed even more lower and interior growth. This crown raising and thinning resulted in less sugar—food—made by the leaves, less shade and nutrient recycling for the roots, and less shade on the stem to help prevent sunscald!"

"We try to minimize pruning at planting time but excessive transpiration can be a concern. It is a question of dose. Rapid removal of lower branches is 'Raising Cain.' Much of our research indicates, and many of our

publications recommend, that these lower and interior branches should remain. We should be our branches' keepers, if we are Abel. Removing more branches of a troubled tree is like the medieval medical method of 'bleeding' the patient to remove disease. To find a prescription, look to Electra's person," I hinted.

"Excuse me?" Electra pulled back, and narrowed her gaze.

I pulled back as well, and clarified myself. "As Ashley also said, it is better not to get your hair cut again, until it resumes its natural waviness. The tree must also slow its sprouting and resume its normal growth habit before restoration pruning takes place."

"Ohhh, I get it," Electra relaxed, and Codit smiled. Ashley drifted away.

"Detective Dendro, we'll use your information as we refine our plan for restoring these trees," Jack said, shaking my hand. "How can we repay you?"

"Jack, I have learned much from you as well. Come walk under the biggest arch in the world in St. Louis, Missouri, this July 27," I replied, wiping my tearing eye as I looked into the misty distance. "Join our international team, so we can solve the Case of the Seven Scenarios."

Guy Meilleur is an ISA Board-Certified Master Arborist, climbing trees as an antidote to aging.

He is an international consultant for www.BetterTreeCare.com. Jaroslav Kolařík earned his Ph.D. in tree physiology at Mendel University, Brno, Czech Republic. He is the director of www.SafeTrees.cz, a board member of ISA's Czech Chapter, and teaches arboriculture at the Czech Agricultural University, Prague.

The authors thank Rex Bastian, Joe Murray, and Scott Cullen for their timely reviews.



Rattan trunk covering moderates temperature and exposure, without creating pest or moisture problems. The Czech standard is for it to stay on for two years.

ADVERTISER INDEX

ArborSoftWorx	28
Asplundh	3
Bandit Industries	32
Bartlett Tree Experts	48
Bayer Environmental	1
Concept Engineering	21
Doggett	45
Fanno Saw Works	31
Guiffre	53
Husqvarna	7
Jameson	61
Myerscough College	61
SavATree	47
Sherrill	11
Silky USA	24, 43
TCIA	72
TREE Fund	30
Weaver Leather	58