

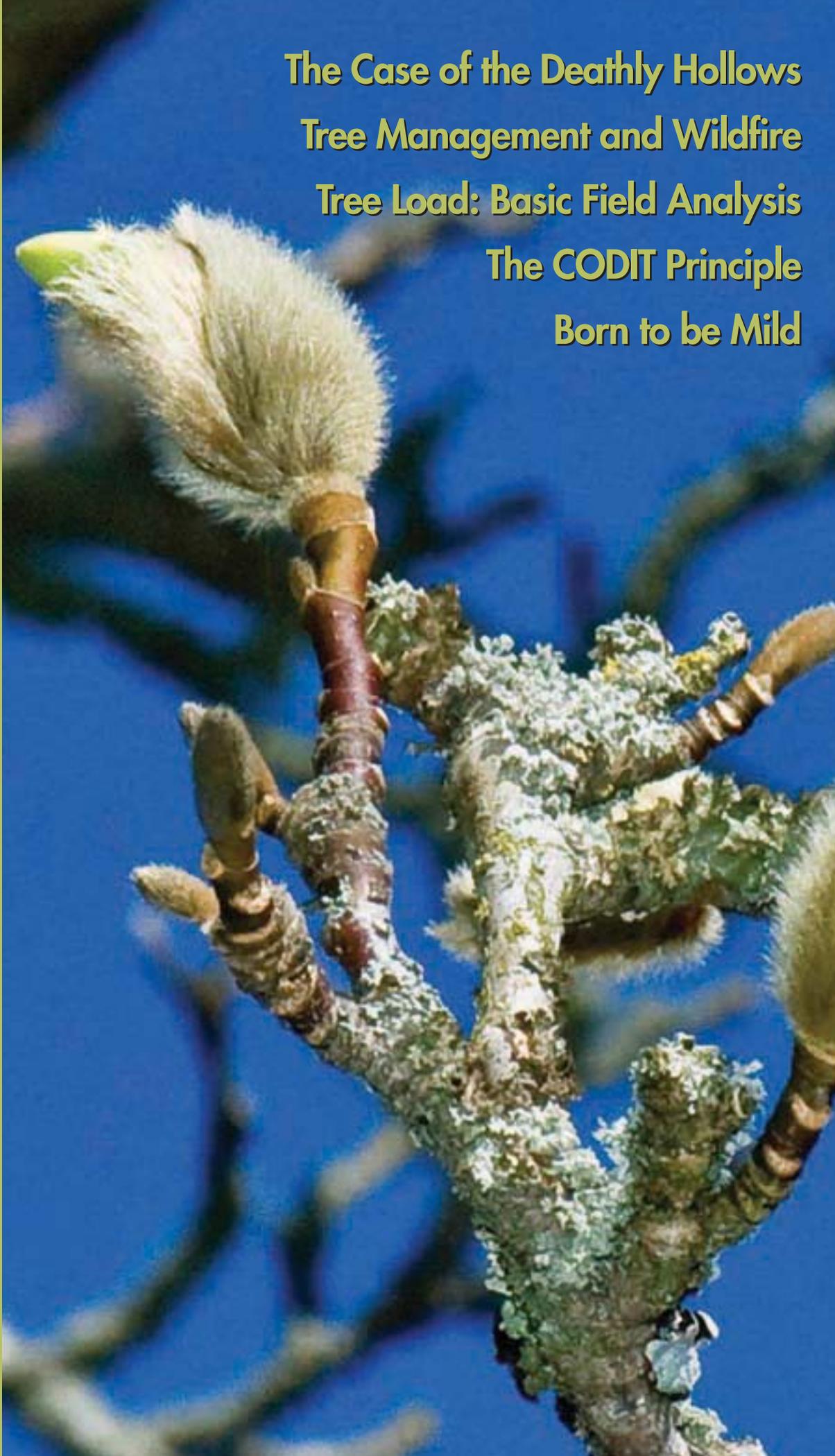
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INTERNATIONAL SOCIETY OF ARBORICULTURE

ARBORIST NEWS



The Case of the Deathly Hollows
Tree Management and Wildfire
Tree Load: Basic Field Analysis
The CODIT Principle
Born to be Mild



Born to be Mild

The April issue's CEU article is all about identifying relatively harmless tree disorders. The disorders analyzed here are common to a wide range of urban environments. **Page 12**



The Sustainable Prisons Project

A program involving the Washington State Dept. of Corrections and Evergreen State College (Olympia, WA) is providing inmates with the opportunity to train and learn about arboriculture and forest ecology. **Page 46**



The Case of the Deathly Hollows

Hollows like this tearout wound can look deathly. What will Dendro and Codit find in their historic holly tree? **Page 22**



Climbers' Corner: SRT Systems

This month, familiarize yourself with Single Rope Technique systems. **Page 50**



Tree Load: Basic Field Analysis

Jerry Bond explains why it is important to develop a protocol for assessing potential tree load while out in the field. **Page 24**



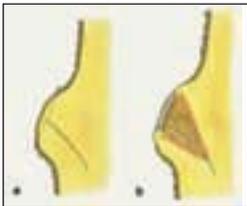
Tree Management and Wildfire

Read the third and final part of a series on wildfire, landscape management, and the role arborists have in keeping urban and peri-urban landscapes healthy and beautiful. **Page 54**



The CODIT Principle

A review of the Shigo and Marx model for interpreting wound reactions in trees using the latest research results. **Page 28**



Who is the CTLA?

The Council of Tree and Landscape Appraisers represents several international tree and landscape industries. This article provides an overview of the group's goals. **Page 59**

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DETECTIVE DENDRO™ THE DIAGNOSTIC SLEUTH

By Guy Meilleur

The Case of the Deathly Hollows

The trunk of the holly tree shone bone-gray in the low evening light. It was clear of foliage for the first 20 feet, where the broad crown spread symmetrically under the upper canopy of *Quercus* and *Liriodendron*. Big black cavities remained after heartwood exposed by pruning wounds was transformed into more basic compounds and returned

to the earth. The looming voids looked like earholes and eyeholes and extra holes in the skull of someone impaled from several angles.

"H-how can we leave such a d-deathly, hollow tree here in this public g-garden?" the young woman shivered, as the rest of the class huddled around her. The wind whistled through the orifices and lashed the air around them. "You can see right through those holes, and the historical record says the tree has been around since the 1840's. Isn't its natural lifespan about over?"

"The tissue around the wounds is highly irregular," a tall fellow observed. "Reaction wood is different from normal wood, and could be a sign of a defect. Those wrinkles are clustered below the two largest cavities, where the trunk tapers inward. That could be a stress point. These deformations could indicate accelerating interior decay and imminent failure. That cylinder sticking out from the cavity on the right looks like the tree has been impacted by construction activity, another risk factor. That large branch to the right has a very tight attachment. The bark is badly included, so the branch is at a high risk to fail."

"Let's see what else we can see," I replied, extending my wooden yardstick before me like a wand as I marched on the ancient *Ilex opaca*.

Codit leaned the ladder against it, the padding on the top rung nestling against a flat area. After he tied in, I tossed him the tool and he thrust it into the largest hole. "I hit hard tissue on the opposite wall."

He read the number visible inside the gnarled margin of the wound. "That's 10 inches, and the diameter at this point is 12 inches," he reported. "That's 83 percent from this angle."

Looping a second lanyard higher up for stability, he leaned over and thrust the yardstick into the other side of the hole. The group gasped when the sounds of squeaking and rustling emerged from the tree. Codit jumped back, leaning on his second lanyard to get away. The yardstick stuck out of a hole on the opposite side, its dull silhouette illuminated by the glow of sunlight reflected off of clouds low in the western sky.

"When defects are located across from each other, the risk of f-failure increases geometrically," the tall guy said. "This tree is over 80 percent hollow—even 100 percent at some angles! The abnormal growth around the holes and the included bark increases the risk even more."

"It's true that this strength loss due to missing wood significantly affects our assessment," I agreed. "A basic tenet of pathology is that deformations and abnormalities can only be observed in contrast to what the healthy or "normal" form should look like. We are



Coalescing wounds form hollows deep and wide, as fungi and other associates lighten the load as they free up the nutrients once held in wood.

familiar with younger *Ilex opaca*, but has anyone ever seen one this old?" They all shook their heads. "Then perhaps these growths are quite normal for this stage of the holly tree's life. To understand the decay and form a prediction, or prognosis, we must first perform a diagnosis, and learn the cause."

The squeaking and rustling continued as Codit pulled out the yardstick and scampered down the ladder. "Those sounds are s-scary," he said, rubbing his eyes. "The fumes in there are harsh—I'm sure glad I was tied in twice, so I could move fast without twisting the ladder."

"Even from our admittedly limited perspective of one view, we can also see several conditions that add to the tree's stability," I went on. "Can you identify five of these positive risk factors, and provide some support for their contributions to tree stability? And what should be done about the branch with included bark?" The group shifted on their feet to relieve the numbing cold, and ruminated on the questions. "Also, the sounds in the tree raise four more questions:

- 1) What creature made them?
- 2) How does it make visiting here in the summer more pleasant?
- 3) How does it control the pest *Rhopobota naevana*? and
- 4) How does its presence affect the risk assessment?

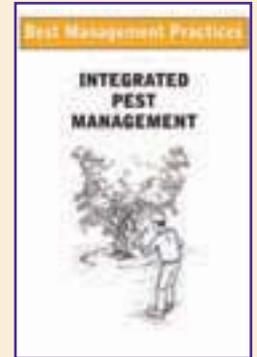
"I smell the savory aroma of French onion soup, blowing over from the meeting house—let's go in and warm up."

Will the group thaw out and reach the solutions? Turn to page 60.

Best Management Practices

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Answers on page 68



WHAT'S THE SOLUTION?

The soup bowls were stacked at the sink and the group convened around the table, coffee in hand. The site historian pulled out a picture album, passed it around, and proceeded to interpret her findings. “You will see that the pictures from 1973

show a lower crown, while those from 1978 show the height about the same as present. In the mid-1970s a new supervisor came on board, and several plants were pruned to enhance the feeling of openness in the garden.”

“The sudden removal of lower limbs raises Cain on trees,” Codit pointed out. “The five positive risk factors are:

- 1) The wound to the left is totally closed, completing Wall 4.
- 2) The horizontal wrinkles look like tissue added in response to movement—mechanoperception, and weight—gravitoperception.
- 3) Hard tissue inside the trunk indicated compartmentalization.
- 4) Shelter—this tree does not get much loading due to the overstory around it.
- 5) Symmetry—the crown is balanced, which distributes the loading throughout the tree. Due to the shelter and the symmetry, the branch with the included bark is not at a high risk to

fail. We could prescribe a cable for it, but there seems little need for that at this time.”

“Excellent,” I beamed at my assistant. “Now, who wants to identify the source of those scary sounds?”

“It may have been birds, but how could they fly in and out?” one woman wondered. “It could be raccoons, but they’d have to be small... I give up—anyone else?” The rest of the class shrugged.

“The sound was distinctly that of roosting bats,” I said. “They make visiting here in the summer more pleasant by eating mosquitoes, and control the pest *Rhopobota naevana*, the holly bud moth, by eating the adults. The adult holly bud moth is a mottled brown and black insect with a wingspan of approximately half an inch, or 1.3 cm. The larvae are half an inch long, colored greenish-brown with dark heads. This insect overwinters as eggs, which hatch in the spring. The new caterpillars feed on buds. Older caterpillars feed on leaves, first webbing them together. The feeding damage includes rolled leaves, holes, and blackened tissue, including tip dieback. The caterpillars generally pupate in leaves on the soil, although pupae can be found on occasion within the rolled leaves while on the plant.

“The moth generally emerges in June and then lays eggs on the leaf underside. There are two generations a year. Other hosts include apple, blueberry, cherry, *Crataegus*, *Fraxinus*, *Ilex*, *Prunus*, *Pyrus*, *Sorbus*, *Spiraea*, *Syringa*, and *Vaccinium*. The best control is cultural—hand-pick the rolled leaves with

the larvae inside, prune dead and dying branches, and remove the fallen leaves to reduce successful emergence from the pupae. Applying mulch over the raked area improves the root function as it provides a neat appearance to the landscape.

“The presence of bats affects the risk assessment because bats are a valued species here, and add significant wildlife value to this tree. In some countries, even tiny wildlife like beetles and highly specialized fungi are highly valued. Many creatures great and small are tree associates, worthy of our consideration.”

Full of coffee and curiosity, the group went back outside to the tree. The setting sun streaked the sky as they looked up to the deathly hollows in the holly trunk. After a quiet moment, one small brown creature took flight, then another, then several. The group burst into applause. “A reduction in the mosquito population would make the summer evenings much nicer for long walks,” the young woman mused dreamily, looking from me to the rising mammals, flying up and away.

Suddenly I felt quite warm, and concluded, “Bats are becoming endangered due to white-nose syndrome, which can be carried into their caves by unsuspecting humans. It’s up to arborists to preserve bat habitat in trees, and install bat houses in favorable locations. These valuable associates can roost in trees during the day, and control insect pests by night—a win-win-win deal for bats, trees and people.”

“It’s a bad deal for the insects”, Codit pointed out, “But we don’t want to facilitate closer coexistence with them.”

Guy Meilleur is an ISA Board-Certified Master Arborist and international consultant with Better Tree Care of Apex, NC, U.S.



Eastern red bat (*Lasiurus borealis*). An eastern red bat mother and pups roost in a tree.

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