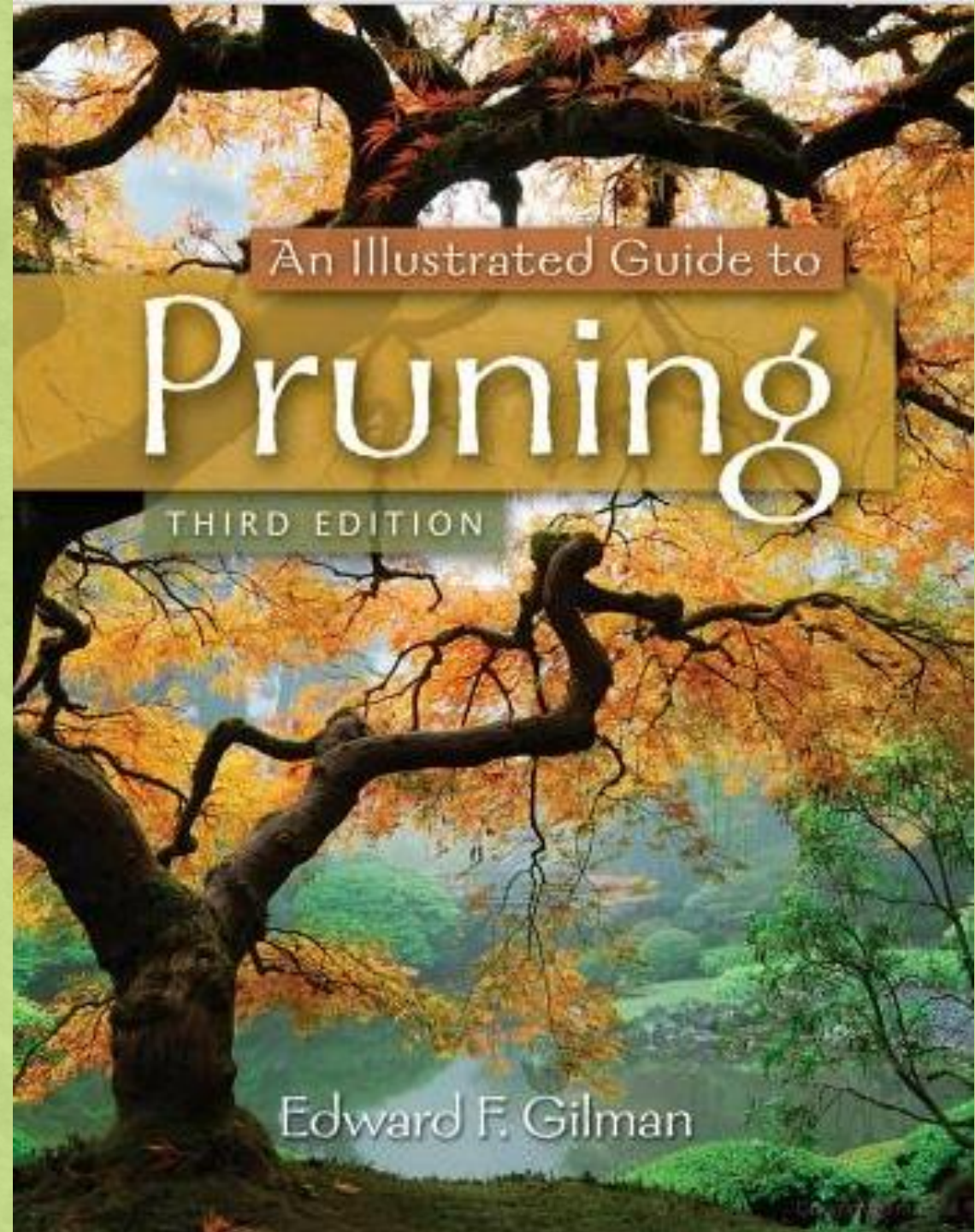


Dr. Ed Gilman, University of Florida:

“In Sweden, 600 to 800 year old trees have been reduced for hundreds of years.

4 or 5 foot trunks-some even larger - with 4 inches shell wall.

We remove too many trees and prune too few!”









































MD DNR: ~2-3 miles of cable attached. No reduction pruning.

1989: Drilled ~2' above grade, 4.5" sapwood measured

1997: Drilled ~2' above grade, 4.5" sapwood measured.

2006: Wye Oak fails ~2" above grade...

Reports disclaimed: "Even if these rings were counted, to prorate this very small sample across the diameter of the tree (112" @ dbh) would provide very unreliable results- a 'guesstimate' at best."

Was more drilling needed? No amount of this data can be used without overextrapolating. Is such guessing better, or worse, than no invasive assessment at all?



This is our former national champion white Oak the Wye Oak.. How did the cabling affect biodynamics? Support systems are good strategies, but reduction pruning should be the first option considered.



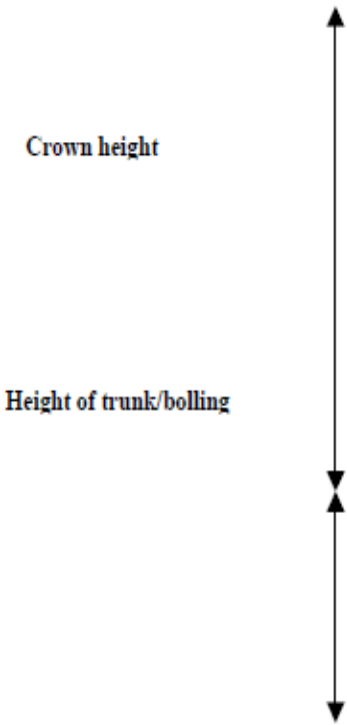
Fay's graphic here illustrates progressive retrenchment, with pruning cycles of 5 or 10 years, or longer. Reducing the tree reduces the grandeur, and should only be done when strength is lost.

The retrenching processes is mimicked by pruning on a cycle determined by the response of the tree. If it responds better than expected, they might stop at 1. or 2. Maybe wait more time, or take less off.

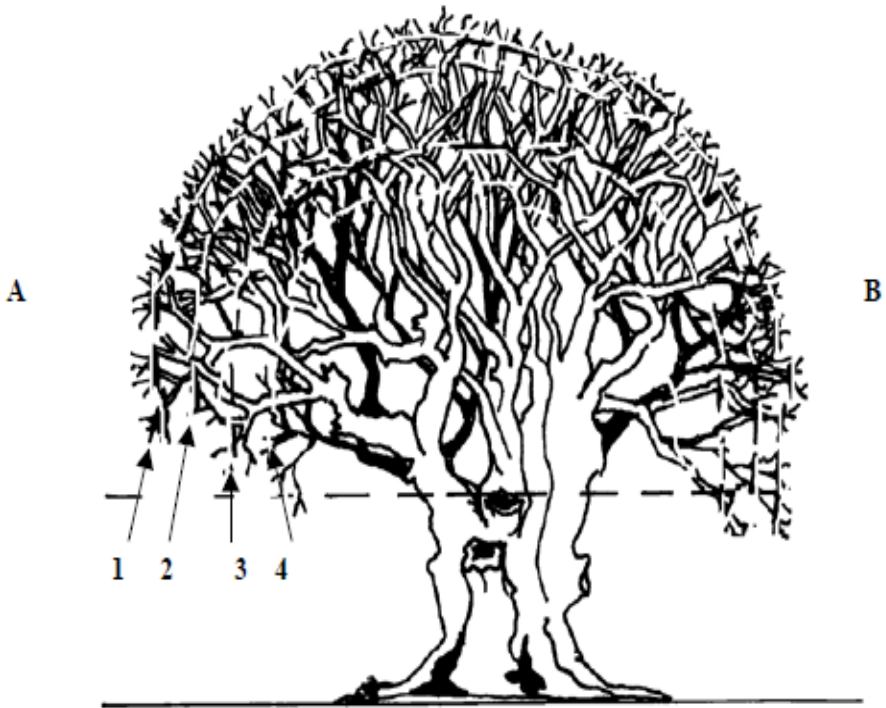
Management programs always have to be adaptable to site conditions, and tree response, and the objective.

Observing the tree and letting it set its own ultimate dimensions is best.

Neville Fay (2004) *Tree-work Environmental Practice*



Guidance Example for Retrenchment Pruning  
based on  
Individual Tree Management Plan (ITMP)



| Ratio of trunk/boll to crown height         | Total number of years to carry out reduction | Number of stages to carry out phased reduction   | Period between stages (years) |
|---|--|--|-------------------------------|
| 4:1   | 30   | 6  | 6                             |
| 3:1   | 20   | 5  | 5                             |
| 2:1   | 16   | 5  | 4                             |
| 1:1   | 12   | 4  | 4                             |
| Example for tree with trunk/crown ratio 1:3 |  |  |                               |
| Stage 1:                                    | Intervention stage                           | Typically involves 10% reduction targeted to end-growth (degree will depend on current vitality) |                               |
| Stage 2, 3 & 4                              | Intermediate stages                          | Six years apart preceded by reinspection & moderated in response to vitality indications         |                               |
| Stage 5                                     | Final stage                                  | Preceded by reinspection & carried out to achieve target height (Six years after stage 3)        |                               |



The Bedford Oak in Connecticut:  
Retrenchment pruning was proposed (along with an illustrated image, as the British Standard advises), to address structural concerns.

Credit: Michael Galvin,  
Director of the  
Consulting Group at  
SavATree





# 1999: Journal of Arb

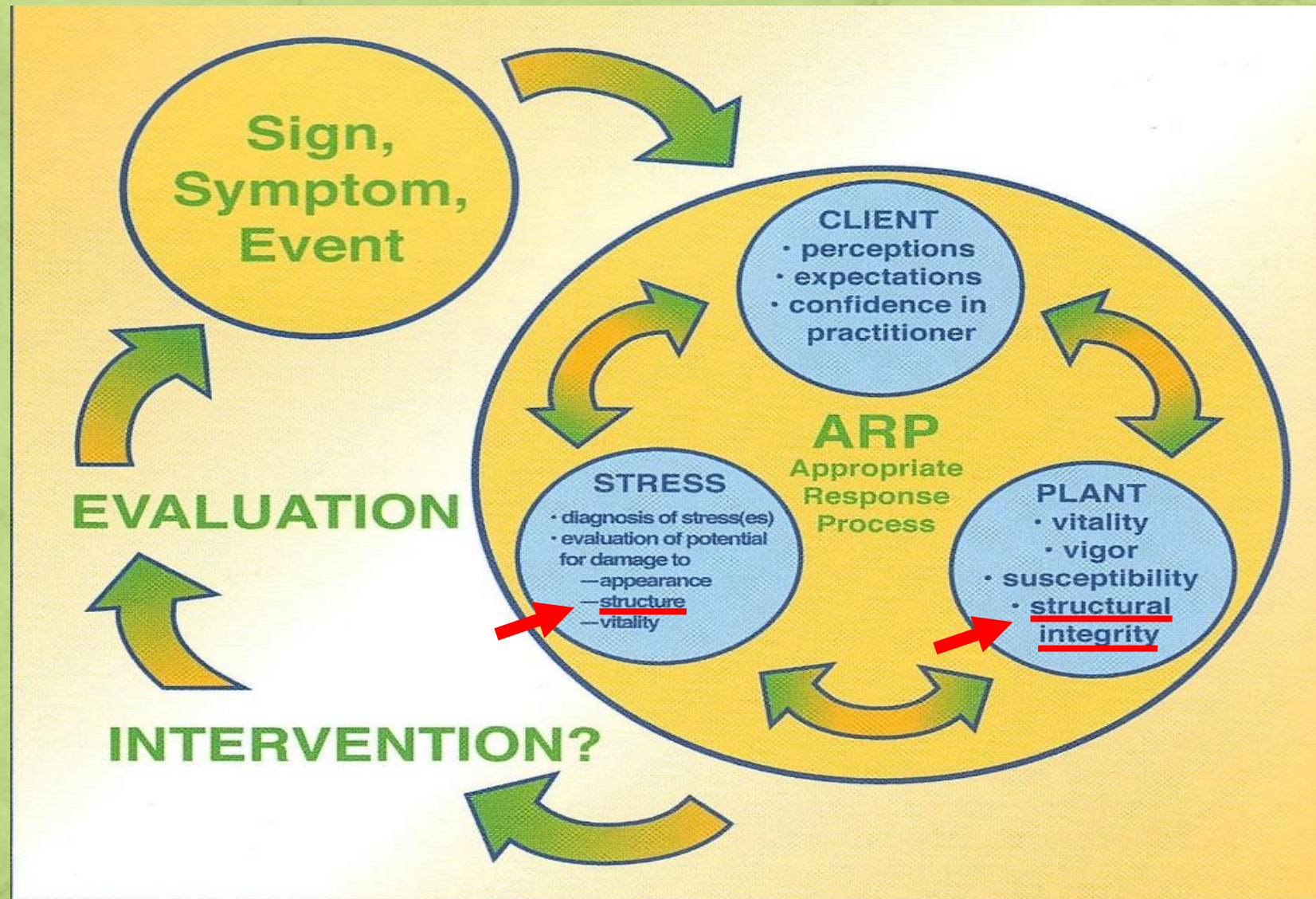
The appropriate response process (ARP) demonstrates decision-making in a PHC program.

After site changes or treatments, a follow-up evaluation is made.

Structure is one aspect of a comprehensive PHC program, an integral part of tree care.

Health and structure and risk are interdependent. They cannot be completely separated .

Ball, Marion, Lloyd







## DETECTIVE DENDRO® THE DIAGNOSTIC SLEUTH

By Guy Meilleur

### The Case of the Detectable Decline

The sound of the door slamming was followed by the thumping of boots. Codit entered the study and pointed to my headphones. "Hey Dendro, what-cha listening to? Is it true that Bach is best for reading comprehension?"

I set the book, pen, and clipboard on the table, pulled off the headphones, and clamped them over Codit's ears.

His face crinkled with curiosity as he muttered the words he heard—"escape routes... treatments... arboriculture..."

The same kind of the die back, a combination of old age and lightning strike. There is often a naked shank, with no laterals on it and a tuft of laterals below.

The podcast ended, so Codit switched on the jazz. "Diagnosing this oak's decline will require deductive reasoning, pulling observations and analysis into a specified solution," I added, "but enough speculation—back into that driveway, and we will see for ourselves."

I hopped out and walked behind, confirming the coast was clear as Codit parked the car. He met me at the tailgate, looked up, and marveled as he grabbed his gear, "Wow, that tree sure is a beauty. I can't wait to show you how it looks from above."

"Me neither," came a melodious voice from behind us. Dagny was not as tall or as brunette as I remembered, but the same air of amusement emanated from her. "That report caught me by surprise. I had no idea my tree had so many problems. I'd like to know your view, and the age of the tree."

"You'll get many views, Ms. Spirande," Codit cinched his saddle and pointed upward. "I'll ascend to that fork near the very summit to measure the height, then inspect these areas of concern. From the ground we can't see the dieback with any detail."

"Good plan, Codit—up you go." I grabbed my binoculars and led Dagny to a better view of the crown, from the lounge chairs on the deck. "I love the way you have mulched your yard, and planted that stoloniferous groundcover to accompany your tree. It looks to be about 85 feet (25.9 m) tall. Size is so much more interesting than age, don't you think?"

"Hmm... your specifications on landscaping were easy to follow, but those dead branches in the top concern me," she replied, scowling



Dieback is detected, but the implications are not clear. Could this be a full spin down, into a mortality spiral?

"Something like that," I laughed. "On a smaller assessment job, I'll let you dictate a draft into your smartphone. According to Dagny's e-mail, the neighbor's arborist—I have a good idea who—noted 'dieback in the upper crown, epicormic sprouting, limited rooting area, old age, and excessive pollen and acorn production. Wrong tree, wrong place. The only end to this mortality spiral is removal.'" I resumed the podcast for Codit, making time to mull over the conditions as I copied them onto our assessment form.



## WHAT'S THE SOLUTION?

I swallowed the last of the scallion and half-turned in the deck chair, one eye on the tree and one on Dagny. "The branch dieback is concentrated in the central leader, so it seems directly related to the lightning damage, which the report did not mention.

Your tree has no epicormic sprouts, which typically arise between growth points, called nodes. These can indicate a strain, an intense demand on the tree system. The sprouts on the screen here arise at a node, next to a branch, where preformed buds lay dormant. This pattern of regrowth can go on indefinitely. Dr. Treevorkian's report did not mention this."

"No—so you can tell who wrote this! Some years there are more acorns than others, but last year was a bumper crop, and they complained about the noise on their metal roof. This report says the tree is in a panic to reproduce, another sign of this mortality spiral." Her brows were knitted with worry. "Is death inevitable?"

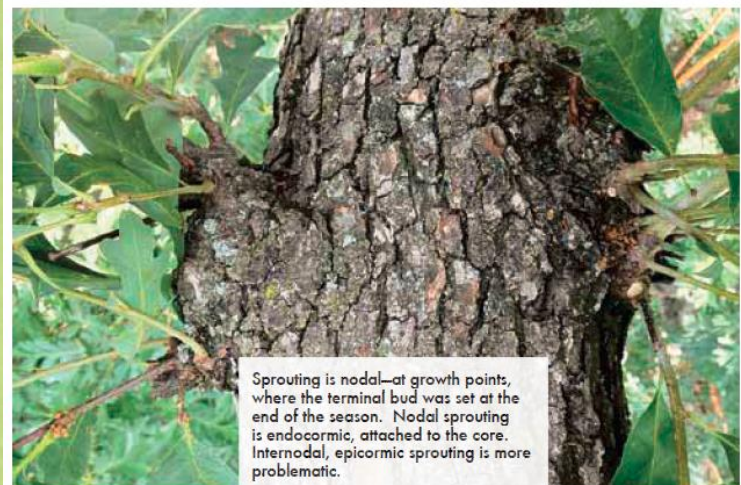
"Many factors contribute to acorn production and tree decline, which creates the impression that it's very complicated. But it is not!" I emphasized. "Treevorkian's impressions are based on looking at the past, and jumping to the future. Such a reactive, one-way approach makes it hard to diagnose problems and prioritize solutions. We follow the ISA's Best Management Practices on tree risk, systematically

examining the present biological state of organisms and ecosystems, then analyzing them in a multidirectional matrix. This approach reveals arboricultural escape routes for trees, out of decline spirals."

"Dendro's not so smart, we just heard that in the podcast," Codit sauntered up sassily and slipped me a book on arboriculture. "Even spirals that seem inescapable can be slowed down. For instance, advanced basal decay, high winds, and overextended branches add to one such spiral. We can't do away with the first two factors, but the third can change in a hurry, plus the possibility of propping, or other supplemental support. The matrix approach is more like real life, recognizing a number of causal combinations. These point to treatments that improve the tree's condition, like managing the lightning damage and improving root health."

My assistant really had been paying attention as he drove! I opened the book and read: "Old trees that are weak and dying back can be kept healthy and attractive for years by removing the weak-growing and dying limbs from the outside, especially the top. Remove weak and failing branches after leaves fall, so more resources can sink into the tree. No need to prune now; the dead ends are not large enough to hurt anything, in the unlikely event they should shed in one piece. They typically crumble from the tips."

"The only person using the yard regularly is me, mitigating Treevorkian's issue of limited root area by maintaining the mulch and plantings that you specified." Dagny was looking relieved by our assessment. "As you told me at the time, that work is vital, considering



Sprouting is nodal—at growth points, where the terminal bud was set at the end of the season. Nodal sprouting is endocormic, attached to the core. Internodal, epicormic sprouting is more problematic.

how the neighbors extended their house in their half! I trust that I am safe under this canopy." The time was right to wrap it up.

"I first heard of the decline spiral in a pathology class, way back when Codit was just a glow in his mother's eye. Ecologists, and arborists like Dr. Treevorkian, exaggerate this trend as a "mortality spiral" for which they prescribe proactive euthanasia. But consider signs of adaptive growth and rejuvenation, like this interior sprouting, all around the crown, in tree time. Can you conceive that your tree may never grow beyond 87 feet, but that it is nowhere near death?"

Dagny leaned back in her chair and took it all in. "So my tree will grow upward no more." Her eyes relaxed as she turned to me. "You know, my last name, Spirande, is Swedish for "sprouting." As outer branches are shed and interior replacements arise, my tree is growing downward, as veteran oaks in Sweden do. Your report will describe this graceful and gradual aging, and dispel the myth of the mortality spiral."

"Yes, ma'am!" I gushed, gratified by her grasp of the grand event slowly unfolding before us. I fell deeper into her eyes, at a rare loss for words.

Codit cleared his throat and stood up. "I guess I'll sample some roots and soil, and get more pictures from different angles. We don't want to 'myth' anything!"

#### Additional Reading

- Clark, J. 2010. Tree Decline. Science of Arboriculture (podcast). <<http://www.isa-arbor.com/education/onlineLearning/podcastDetail.aspx?ID=7>>
- Green, T. 2009. "An ageing strategy for survival and longevity." <[www.treeworks.co.uk/downloads/Veteran\\_Environmental\\_Papers/Growing\\_Downwards\\_ancient\\_trees\\_Jan\\_05.pdf](http://www.treeworks.co.uk/downloads/Veteran_Environmental_Papers/Growing_Downwards_ancient_trees_Jan_05.pdf)>
- Harris, R. J.R. Clark, and N.P. Matheny. 2003. Arboriculture: Integrated Management of Landscape Trees, Shrubs, and Vines (4th edition). Prentice Hall, New Jersey, U.S. p. 365.
- Manion, P.D. 1990. Tree Disease Concepts. Prentice Hall, New Jersey, U.S. 416 pp.
- Ostry, M.E., R.C. Venette, and J. Juzwik. 2011. Decline as a disease category: Is it helpful? Phytopathology 101:404–409.

Guy Meilleur is a practicing arborist and aerial consultant with HistoricTreeCare.com.



This opening is 30' up. When the light is right you can see through the trunk and up into the branch opposite.

This sight can cause panic in the less experienced.

Trees this hollow:  
Common in Europe and Asia,  
Commonly condemned in US.

Familiarity leads to higher tolerance.







# Case Study: White Oak



Owners wanted to see if this tree was inclined to fail, and what to do about it. That means specify mitigation options. On large trees of significance, there is a need to make recommendations. I recommend that you do not offer to make recommendations.

Who do we think we are we are? We were hired to provide information, so the owner can make the decision about the treatment options. If we tell them what to do, we're often taking on more than we can chew.

In order to tell somebody how to manage their tree we have to understand their budget, and what they think of the tree. Unless you are specifically assigned to, and given a budget to competently make recommendations, why stick your neck out? Consider Ken James' approach: "I just give information and let the customer decide what to do with it."



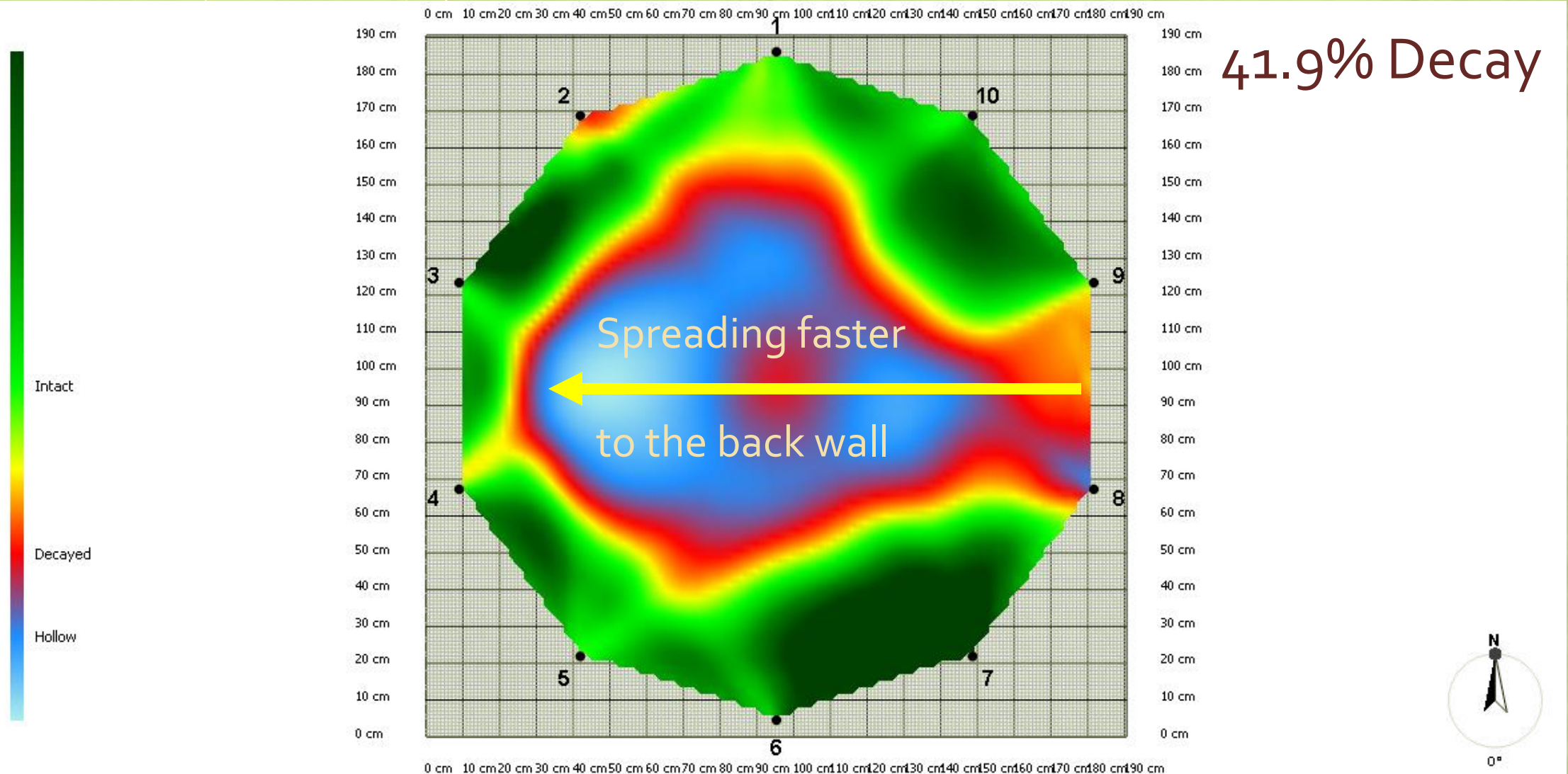
*Bodnarzewia berkleyii*: a rare fungus known to cause white rot.

Weighing in at....

19 Pounds!



## Reading 3 : 5 cm high





2013

- Advancing basal decay called for further reduction of the crown by 9%.
- Response growth seen in scarring, buttressing.
- Response in sprouting highly significant.







Basal decay and a lean toward the road called for crown reduction. After this white oak branch was reduced 12' with a 2.5" cut, sunlight increased, and the tree's hormonal balance shifted. Apical dominance at the tip was gone. In Claus Mattheck's colorful language, the king was dethroned, so dukes and earls and lesser lords increased.

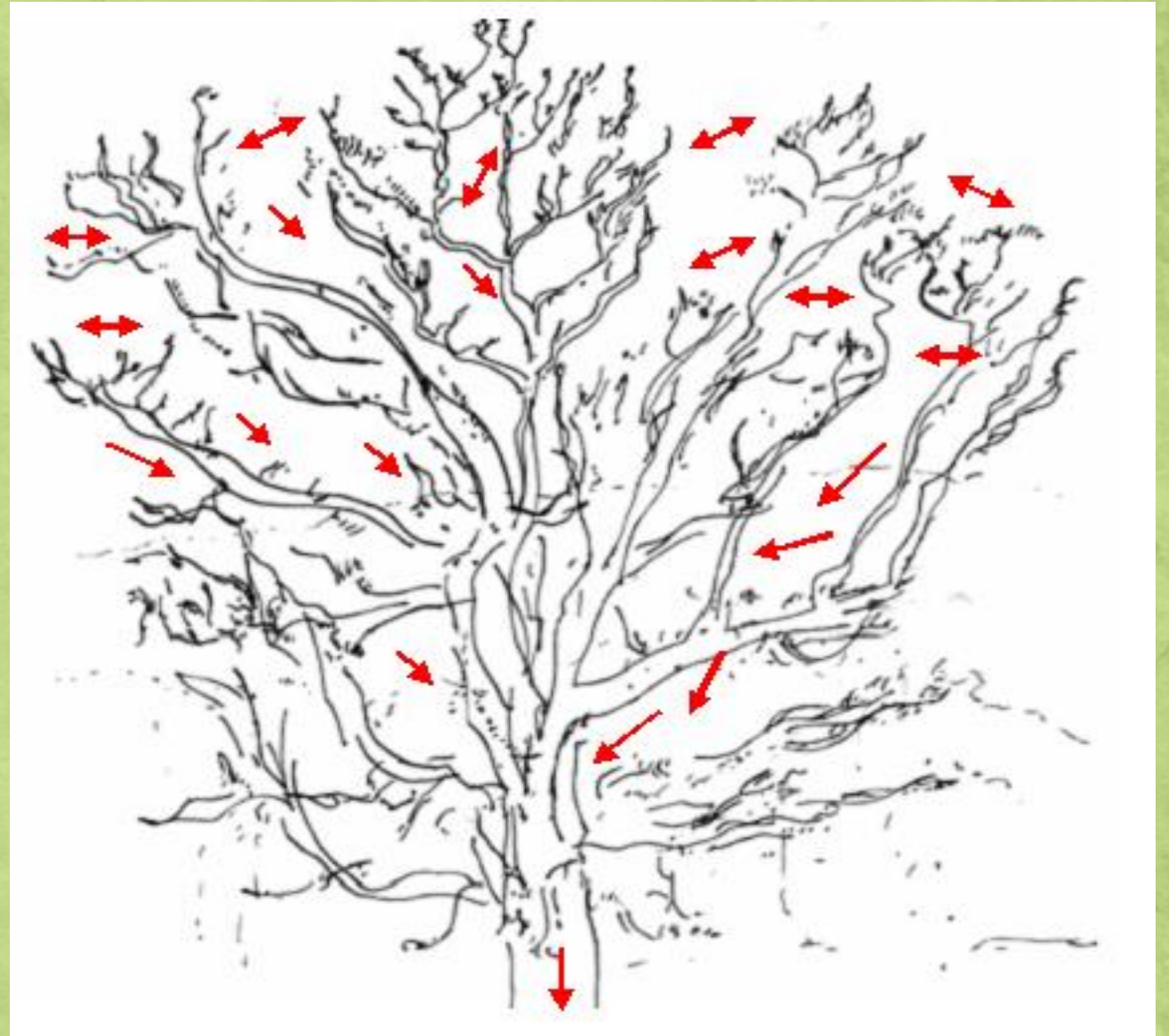
Accessory buds at nodes (growth points) released and started growing. This resprouting--yellow arrows--put new leaves in position to harvest sunlight. This growth is not the weakly attached, overextended "epicormic" sprouting that arises after a tree is cut back too hard, or "topped".

Because the pruning was done in a controlled dose, following the A300 Standard, these sprouts grow in a controlled fashion. If basal decay worsens in 3/5/10 years, the sprouts will be strong and productive enough for the tree to maintain vitality while sustaining further branch reduction--red arrow.



“A tree’s crown acts as a dampener of force – via multi directional oscillation of twigs and branches – which dissipates force both via stepping it down and channelling it toward the ground”

*Ken James, Engineer & tree mechanics specialist ISAAC Conference 2008*





Objective: Reduce risk by reducing load from the crown, while retaining the damping effect of interior foliage.

Spec: Reduce upper and southward branches 6-16'. Cuts <3". <9% off.

Here's a climber reaching above some healthy new growth to reduce a leader.





A 2" cut removes 10' of lever arm.





All the existing tips  
had what looked  
like damage by lack of  
water + air pollution.

No blistering seen on  
new growth since  
pruning began in  
2006.

Retrenchment =>  
Rejuvenation.

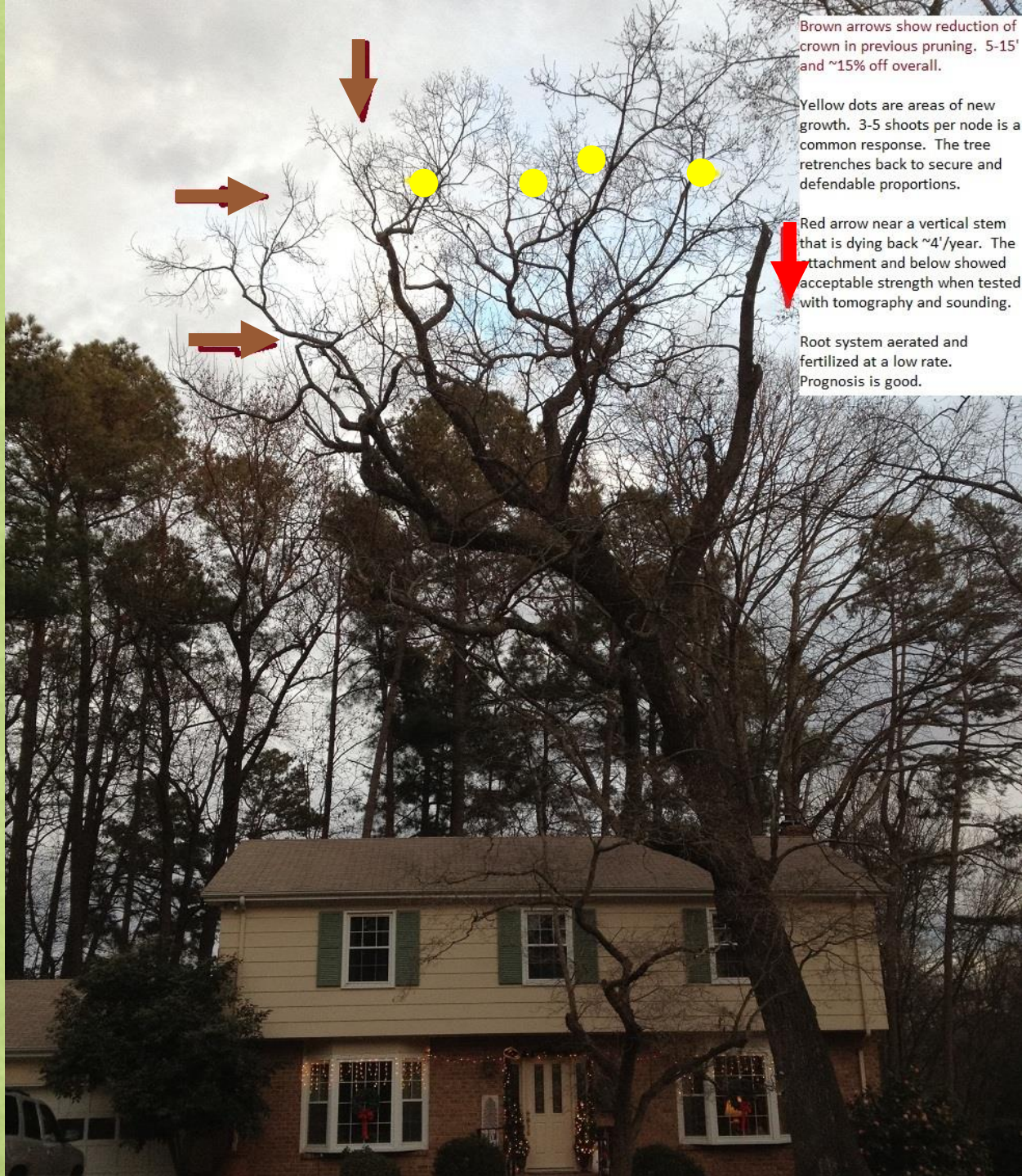




# Case Study: Southern Red Oak







- Brown arrows show reduction of crown in previous pruning. 5-15' and ~15% off overall.
- Yellow dots are areas of new growth. 3-5 shoots per node is a common response. The tree retrenches back to secure and defensible proportions.
- Red arrow near vertical stem is dying back ~4'/year. The attachment and below acceptable when tested with tomography and sounding.

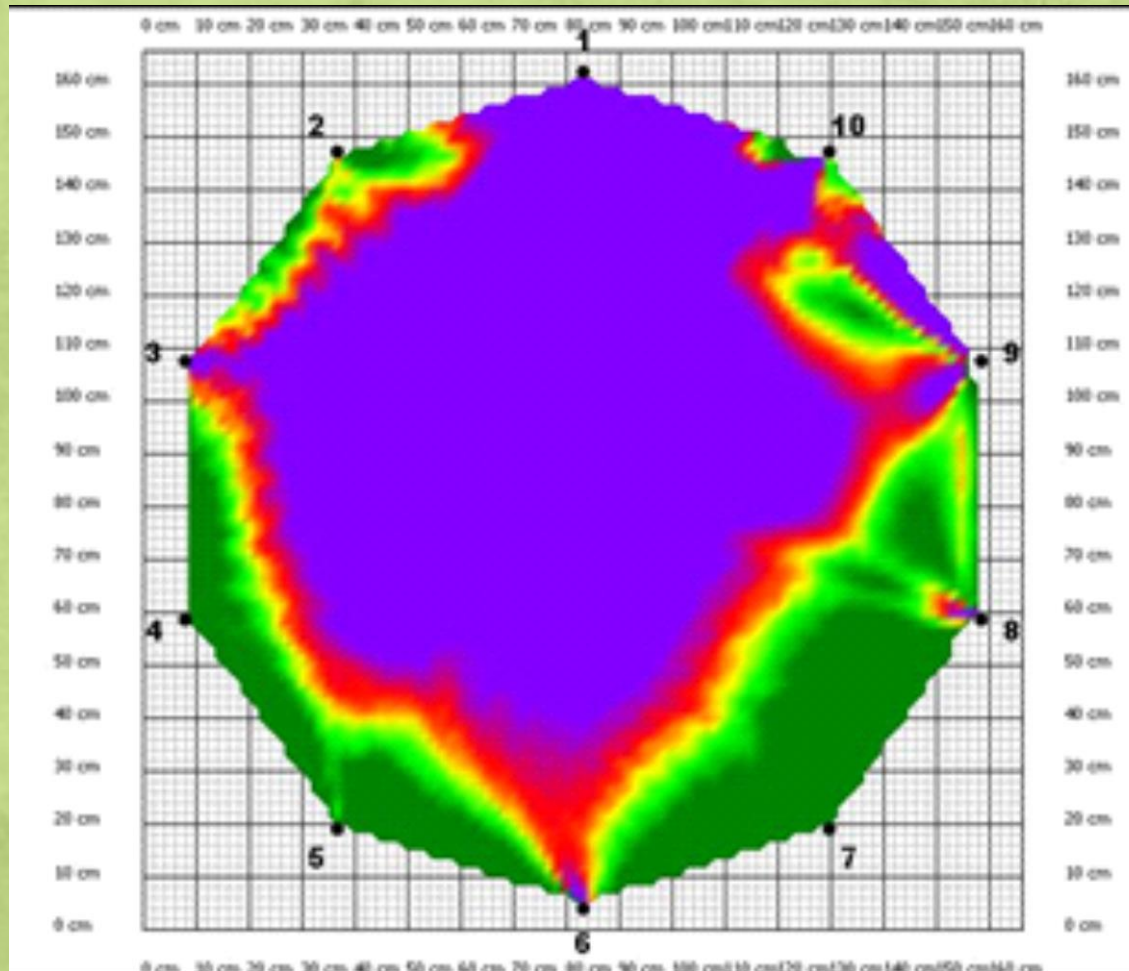
Root system aerated and fertilized at a low N rate. Prognosis is good.







## Reading 3: 5cm high



71.6% decayed area





After reduction: Reiteration! The sprouts form at nodes, growth points where terminal buds were set and axillary buds formed, and lay dormant. The distal 'stub' is left to avoid drying and dysfunction of the new terminal. With this new growth underway, removing the 2 downright laterals maintains health and further reduces load and risk.











May 12, 2014:

Interior growth  
response abundant

More reduction to  
mitigate lean

Covered the hollow  
with window screen,  
to lessen concern.

Tree advertised to  
buyers as an asset







# Case Study: Post Oak



# 1999

- Site plan created for installing streetlights around tree. TPZ established, fence specified
- **2004** 5 wounds from clearance pruning 4-10" diameter. Heartwood exposed
- **2006** Soil amendment & root invigoration, fertilization, grass removed & mulch applied
- **2011** Staff notices conks on stems. State Forester notes over-fertilization
- **2012** Soil tested. Fertilizer & gypsum applied. Staff notices hole 62% hollow at 20" high, buttress roots drilled and decay found. Wounds covered back up with dirt.  
3 assessments, 3 condemnations. Town ordered a non-invasive assessment

Utility lines marked: >1000 additional cubic ft. of rootzone was cut off in 1999!!!!

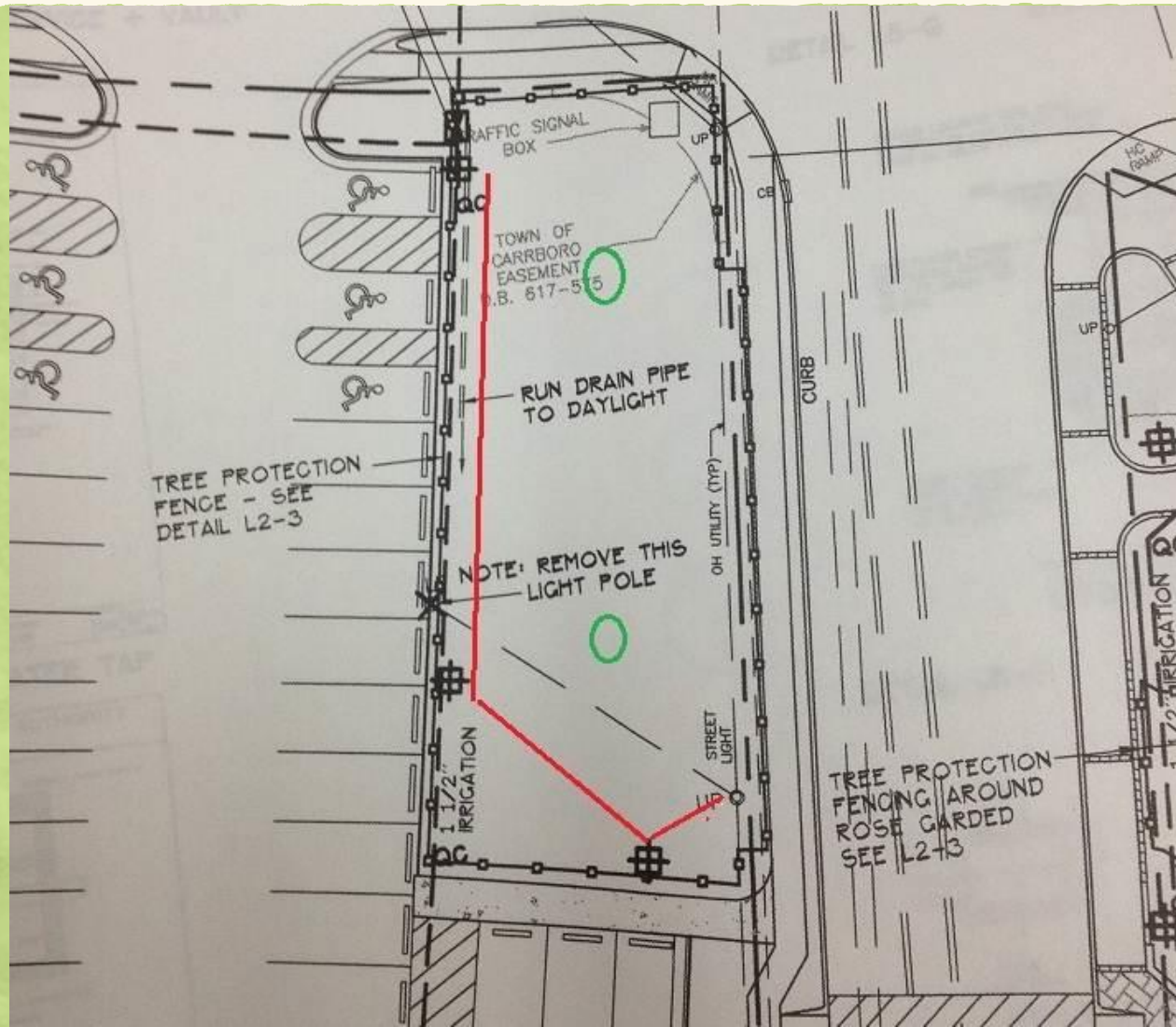
Tree structure assessed in the crown, and root health in the ground

Decay at the flare was assessed. New roots found at the root collar, left exposed

Specs: Retrenchment pruning, standard flare care including IPM, and drainage work



# Root Damage



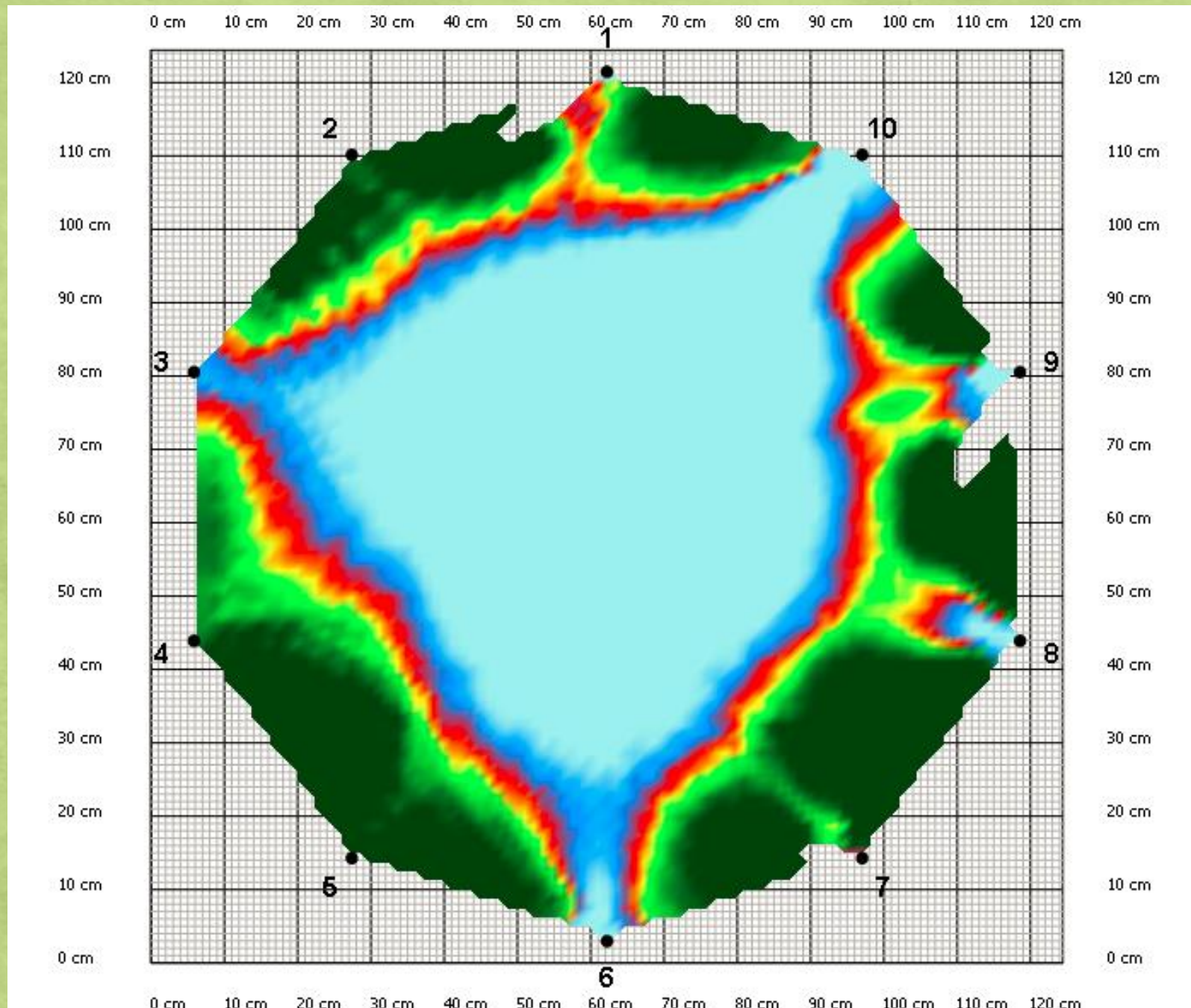
- Green circles – Post oak
- Dotted line protection fence
- Red lines - trench location
- Unnecessary 500 square feet rootzone damaged
- Did the fence prevent the trencher from going along the pavement?





Stem



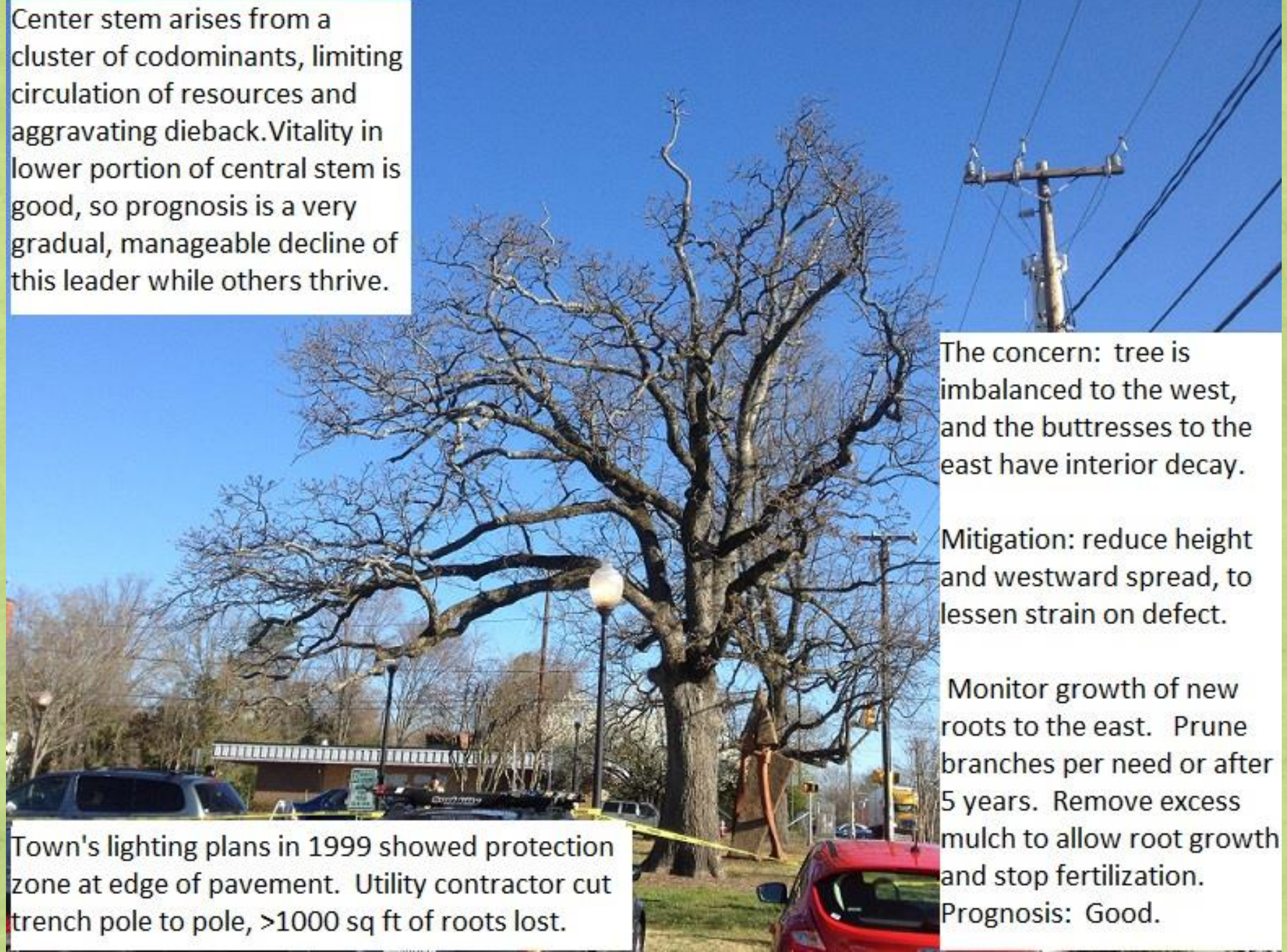


*Previous report:  
"...reading was taken  
20 inches (51cm)  
above the ground.  
Results indicate 61%  
decay."*

*No tomography near  
grade, ~80%+ hollow*



Center stem arises from a cluster of codominants, limiting circulation of resources and aggravating dieback. Vitality in lower portion of central stem is good, so prognosis is a very gradual, manageable decline of this leader while others thrive.



The concern: tree is imbalanced to the west, and the buttresses to the east have interior decay.

Mitigation: reduce height and westward spread, to lessen strain on defect.

Monitor growth of new roots to the east. Prune branches per need or after 5 years. Remove excess mulch to allow root growth and stop fertilization.  
Prognosis: Good.

Town's lighting plans in 1999 showed protection zone at edge of pavement. Utility contractor cut trench pole to pole, >1000 sq ft of roots lost.



Oververmulching = Sterility



Response Growth





Specifications written as part of the assessment. There is no better time for this vital service. The owner cannot understand mitigation options unless they are spelled out.

Town arborist wanted more than 6' off. This was granted, on a few limbs. Town arborist also voiced concern that all cuts be made at optimal locations.

Explanation: cuts cannot all be optimally located due to difficult access, and inherent imprecision of tool (pole saw). However, cuts will expose minimal heartwood, so precise location is less crucial.



Reduce height and spread with cuts at red lines. Remove 5-10% living mass in the tree. Cuts to vigorous laterals. Specs were to reduce 3'-6', but changed to <9'. Portions that collide with adjacent oak retained for stability.



Total removed from tree. Approximately half living mass, half dead.

Red line: Largest cut on living wood, <4"





# ANSI A300 U • P • D • A • T • E

By Guy Meilleur



The health, stability, and longevity of this veteran oak tree are greatly improved, by using the A300 Tree Care Standard to develop simple specifications, following 83.1.3. Soil volume, fill, air and water movement, drainage, and the distance between roots and infrastructure should be considered.

"All work shall be performed according to ANSI Standards" is common language in U.S. contracts these days. Unfortunately, those words alone mean very little, in the landscape or in courts of law.

The American National Standards Institute (ANSI) A300 Tree Care Standard, Parts 1 through 9, covers Pruning, Soil Modification, Support Systems, Lightning Protection, Construction, Planting, Vegetation Management, Root Management, and Risk Assessment. In other countries,

the A300 is used as a reference, just as other countries' standards are referenced when the U.S. standard is revised. The first step in applying this standard is to establish the *objective*. The client's goals are not automatically adopted. They are adapted, in the light of the A300, best practices, and observations, arborists establish the objectives, defining their own assignments.

The A300's mission: *To develop consensus performance standards based on current research and sound practice for*

writing specifications to manage trees, shrubs, and other woody plants. With the client agreeing, the second step is to describe specific tasks, or *specifications*. These "specs" keep everyone literally on the same page. Simple jobs can be spelled out in 20 words or less, as a proposal to a client, or the brief work order on this post oak: 1. Clear flare 6". 2. Expose root collar. 3. Measure adventitious roots. 4. Reduce branches south and west 1-9" using 1-3" cuts, <10% overall.

The A300 Standard helps determine and communicate these details. Brief or long, written specifications connect performance and management with a common objective. Without this connection, chaos is more likely. To avoid chaos in this article, we'll update the current state of all 11 Parts in order, showing the (date) of the current publication. The images are from a hollow post oak (*Quercus stellata*). The captions contain excerpts from the new Part 8, Root Management. From the beginning:

Part 1 (2008) **Pruning** is currently in revision, most recently at the semiannual A300 meeting of October 2013. The committee heard from arborists who find A300's stripped-down style needs interpretation, and are requesting a more user-friendly format. One change underway is to describe potential Objectives in more detail and toward the front of the document, because the pruning objective has to be established by the arborist and the owner before Specifications can be written. Another fundamental change is to incorporate utility pruning, instead of confining it in its own section.

Part 2 (2012) **Soil Management: Modification, Fertilization, and Drainage** now has a broader range of potential practices, like soil aeration, replacement, injection, and amendment. Increasing the amount and activity of beneficial microorganisms is a vital objective, but more guidance is needed. By referencing the section on soil drainage, the movement of air, and water, arborists can enable healthy growth in tree roots and their associates.

Part 3 (2013) **Supplemental Support Systems** has also evolved to embrace new procedures. Installing through-cabling systems "into decayed areas where sound wood is less than 30% of the trunk or branch diameter" complies with 33.4.3, because only the cable itself passes through the tree. Washers are no longer required with through-hardware, unless the manufacturer recommends them. The use of offset washers to align systems was not included in this revision, and lag hooks are still not acceptable in wood over 10" diameter.

Part 4 (2013) **Lightning Protection Systems** now incorporates more terminology and parameters from the National Fire Protection Association (NFPA), to be consistent with the broader national standard. These systems can protect adjacent property by preventing sideflash to buildings, and damage to utilities through contact with roots. Those benefits are not mentioned, because that would conflict with the NFPA standard.

Part 5 (2010) **Management of Trees and Shrubs during Site Planning, Site Development, and**



Section 83.3.4 states, "Inspection should include... Conditions in the crown that reflect root conditions..." Branches that had historically been reduced were removed, aggravating health and stability concerns. Wound closure was poor.

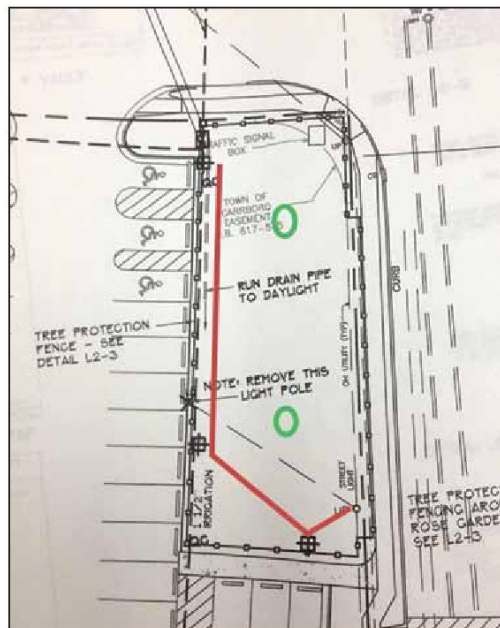


Section 83.3.5 states, "Mulch, soil, and other materials should be removed as needed to allow for inspection." After fresh mulch was removed, a 2" layer of compacted mulch remained above the soil. No root growth was found in this shredded hardwood, which looked and smelled as sterile as peat.

**Construction** has grown substantially. Many contracts call for a certified arborist to be involved in development, but this involvement is too often too little, too late. Per 53.3.9.2, "The arborist **shall** note the trees' function in the ecosystem, the incentives for conservation, and mitigation potential for the site." ("Shall" indicates a requirement, "should" indicates a recommendation.) This echoes our roles and responsibilities in risk assessment, and IPM as well. Part 5 empowers arborists to persuade towns and developers to proactively manage trees before, during, and after construction.

Part 6 (2012) **Planting and Transplanting** can also improve the odds for success when a knowledgeable





Town planners specified the power line just inside the pavement, following **84.5.1**, "When non-selective root cutting is necessary, roots shall be cut as far from the trunk as practical." Unsupervised, contractors trenched the shortest path possible (red line), cutting off over 500 square feet of rootzone. This damage was discovered via **80.4.5**, "The location of utilities and other obstructions both below and above ground shall be considered prior to root management operations."

arborist is involved. Most arborists know **64.5.4**, "The bottom of the trunk flare shall be at or above finished grade." Now, **64.4.3** clarifies that "The soil **directly** beneath the rootball should be undisturbed or prepared to prevent settling." Soil deeper than, but outside of the rootball can be aerated and amended to promote healthy roots.

Part 7 (2011) **Integrated Vegetation Management (IVM)** is intended to "promote sustainable plant communities that are compatible with intended uses of the site, and discourage incompatible plants. . ." Part 7 calls for proactive communication with stakeholders, cultural and biological control, and a quality assurance program. Dave Nowak provided technical advice based on a mutual understanding that "IVM is used to understand, justify, choose among, selectively apply, and monitor different types of treatments, with an overall goal of eliciting site-specific, ecosystem-sensitive, economically sensible, and socially responsible treatment effects that lead to refined achievement of management objectives."

Part 8 (2013) **Root Management** is the newest Part of the A300 Standard. First conceived as Root and Root-zone Management, Part 8 was revived when Part 2 Fertilization became Soil Management. Part 8 focuses on inspection, establishment, pruning and cutting roots, blocking roots with barriers, and guiding roots with channels. Defining selective root pruning as distinct from non-selective cutting was a turning point in Part 8's development. The same distinction applies to cutting or pruning branches, in Part 1. The root subgroup included talented and tenacious technical advisors, and public commenters also played a key role. After several years of discussion, Part 8 passed a final public review and was approved by ANSI.



Section **83.2.8** states, "Evaluation of decay, callus and woundwood growth, and response growth in the trunk and crown shall be considered." Adventitious support roots were found on both sides of the cavity and in the other sinuses. These were measured up to 2 3/4". Measuring response growth over time documents a gain in strength with numerical data.

Part 9 (2011) **Tree Risk Assessment**, in its first edition, has been the basis for the ISA BMP, assessments done by the U.S. Forest Service's Urban Forest Strike Team, and the Tree Risk Assessor Qualification (TRAQ). Section **93.6.2.1.2**, "All recommendations should include a statement addressing residual risk following mitigation," is echoed four times at the end of the TRAQ form, emphasizing the need to consider the positive effects of a range of mitigation options.

Part 10, **Integrated Pest Management**, was reviewed as a working document by the A300 committee at its October 2013 meeting. The committee is advised by Mike Raupp, whose textbook teaches interdisciplinary ecosystem management and "A third basic premise of IPM is that the use of natural control agents is maximized. A great diversity and number of beneficial organisms inhabit the landscape." IPM guidance involves details on working with "Mother Nature's Hit Squad," along with synthetic alternatives.

Part 11, **Urban Forest Products**, is also moving forward, with a defined scope, purpose, and application. The current draft states, "Objectives for urban wood resource recovery shall be established to address management of the urban forest, planning for tree removals and recovering the maximum value in available wood resources." A draft Part 11 will be circulated among experts in the next few months, and reviewed at the spring 2014 meeting.

The ANSI A300 Committee is charged with writing and updating a meaningful performance standard for the tree care industry. The challenge has always been to write a standard based on proven science and practice, not just introduce ideas that seem good at the moment. It is critical for users of the standard to review them, to assure they are credible and usable. Comments are accepted from around the globe during preannounced 30- or 45-day public review periods, and at any time by your representative(s) or other committee members. ISA's rep is Richard Hauer (Richard.Hauer@uwsp.edu).

"All work shall be performed according to ANSI Standards," when arborists establish clear objectives and write better:

- Proposals, to communicate and compete effectively,
- Objectives and Assignments, so everyone expects the same results, and
- Specifications, so everyone stays on the same page.

Please visit the website for the ANSI Standard ([www.tcia.org/business/ansi-a300-standards](http://www.tcia.org/business/ansi-a300-standards)) for public review opportunities and more information.



Guy Meilleur is a practicing ISA Board Certified Master Arborist and aerial consultant with *HistoricTreeCare.com*. The author thanks Gordon Mann and Neville Fay for substantial contributions.

Images from previous tree chosen to illustrate this article, because root management was the most important aspect of the job.

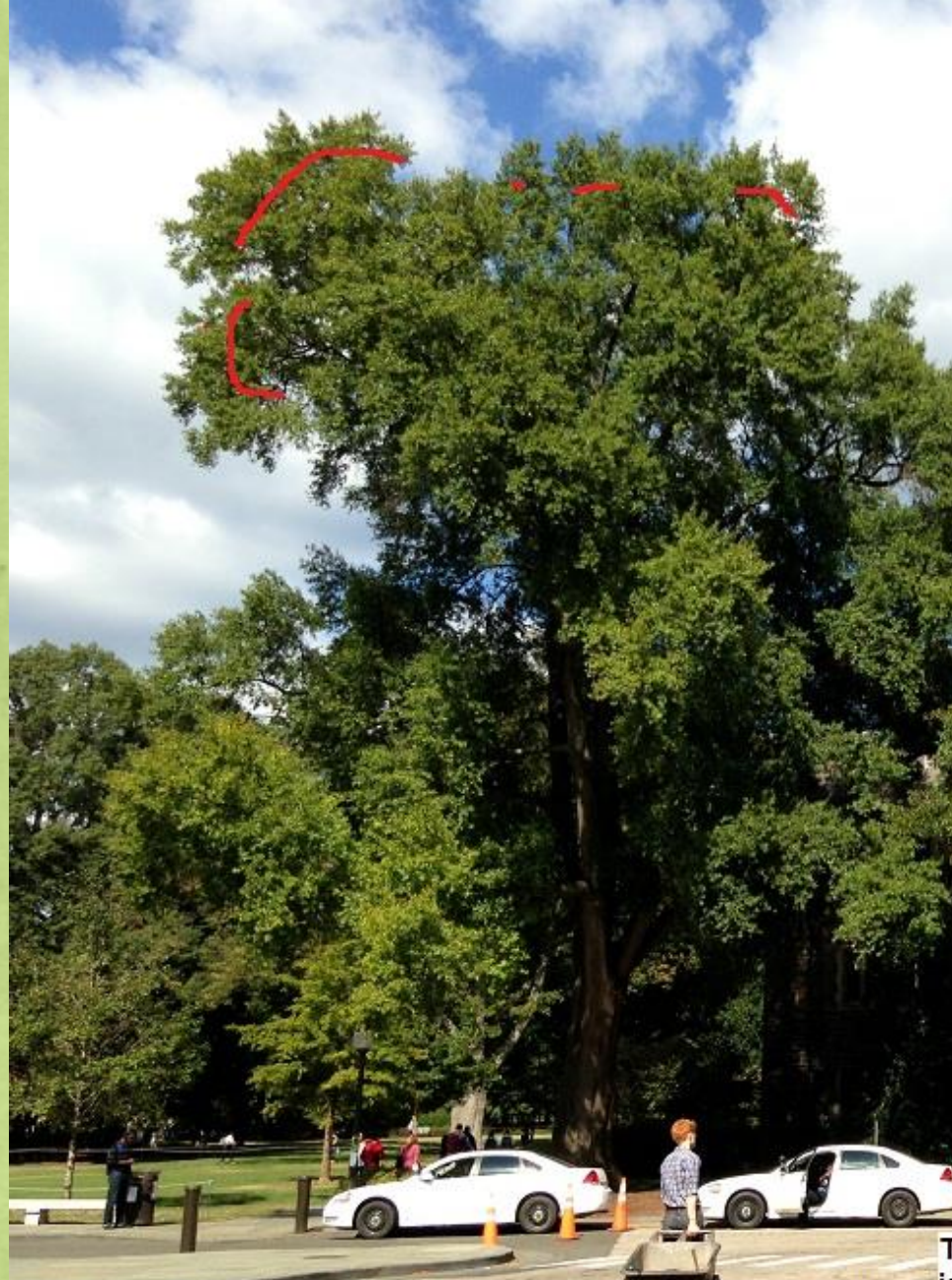
A300 Part 8 subclauses relied upon by the practitioners "83.2.8 Evaluation of decay, callus and woundwood growth, and response growth in the trunk and crown shall be considered.

■ "Inspection should include conditions in the crown that reflect root conditions.

■ 83.3.5 Mulch, soil, and other materials should be removed as needed to allow for inspection."



- Case Study:  
*Quercus phellos*
- Decay conks spreading around the base
- Target rating is mitigated by occupancy: people don't hang around when it's storming!



The willow oak on the left could be pruned to lessen risk of failure.  
A 10% reduction off the ends would remove ~2-6' branches, with cuts <2".





## Case Study 5: Osage Orange Tree

The last remaining *Maclura pomifera* in a 'hedge' planted in the 1840's by Dr. Potter, a forefather of extension education.

Maclura were planted extensively to conserve soil during the 'Dust Bowl' losses of the 1930's.





Cuts made at red lines would mitigate the risk associated with the size and the lean of this tree. Cuts made at the orange line might be sufficient, depending on conditions. This species is very tough, so stem failure is very unlikely. Pruning would save money, and the tree.



An excellent job was done correcting the lean by pruning. If the base and roots have lost a lot of strength, and a support system is deemed impractical, further pruning at the red lines would increase stability even more. If loss of support is not extreme, smaller cuts in the upper crown would increase stability with much less shock to the tree.



Stem-girdling root formed in response to sidewalk damage--should be pruned. (straight orange line). Area bounded by orange appears to be dead tissue due to root damage from sidewalk construction. Probing into lower left corner with a long rod will reveal extent of hollow inside--no need to drill through living tissue! Hollow may be extensive even in stable trees. Tissue to right of this area appears to be formed afterward, a sign the tree is adding tissue in the right place to hold itself up.







Aerial assessment confirms durability of Maclura wood. The 'stub' from the city's pruning job is left alone for now, to avoid drying and decay of the stem. The sprouting will be monitored during the next inspection.

Tour des Trees riders give the tree encouragement.

"Grow, Tree, Grow!"







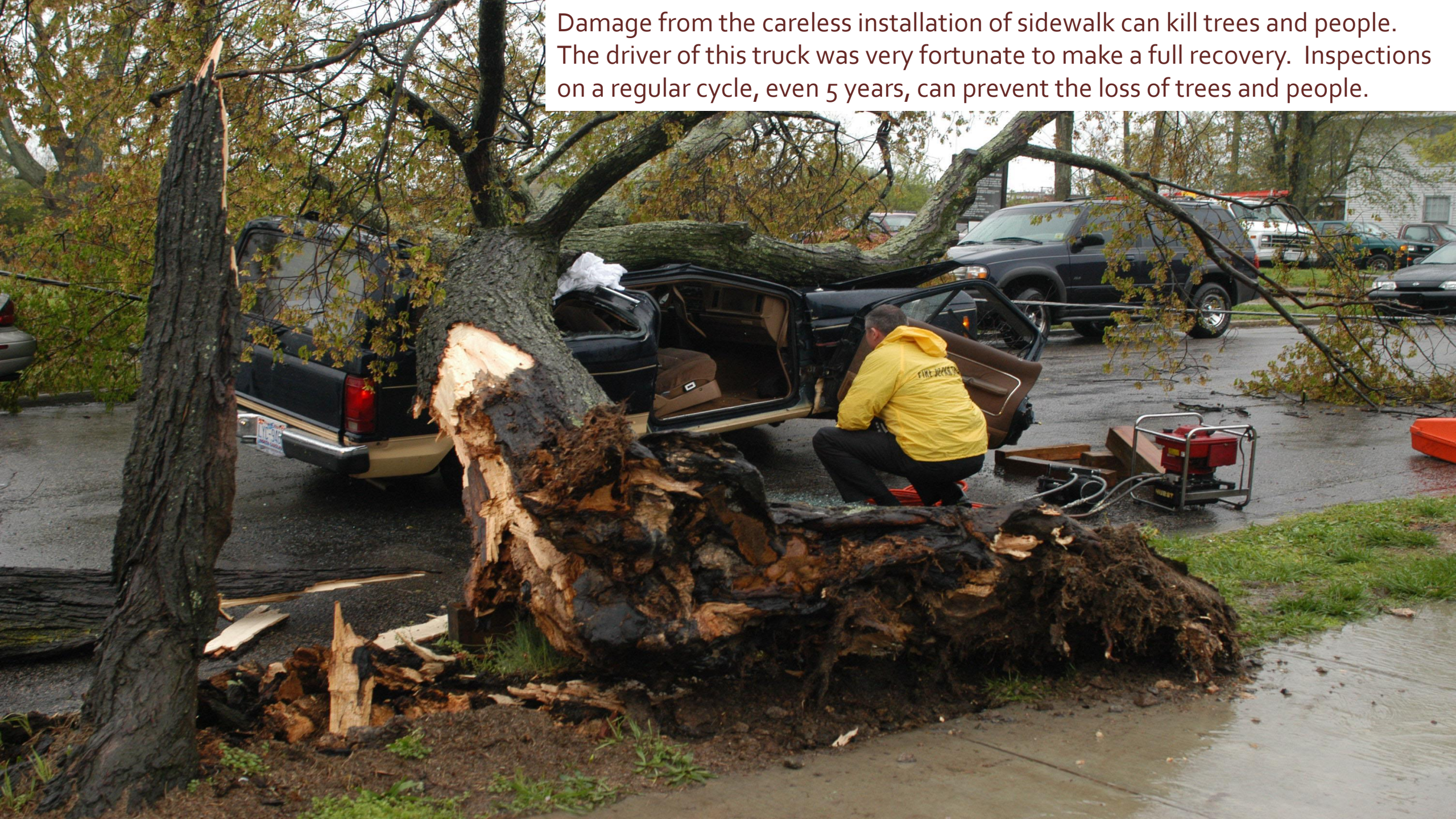
This 'After' shot shows thinning done to tallest leader. Specifications for aggressive pruning mitigate an unknown amount of root damage under the sidewalk.

A summer storm packing 70 mph winds did not damage the tree.

City executives are comfortable with current condition and prognosis. (Arborists are not comfortable with root damage, but manage conditions in the best ways possible!)



Damage from the careless installation of sidewalk can kill trees and people. The driver of this truck was very fortunate to make a full recovery. Inspections on a regular cycle, even 5 years, can prevent the loss of trees and people.





## Case Study 6:

*Acer negundo* in  
Ontario, Canada

Pruning at the same  
nodes, like pollarding.  
Small cuts made  
“after sprouting  
slows”, when the  
replacements are  
established.

The crown is reduced  
due to the loss of  
strength at the base.





The stick goes through the base of this boxelder, and out the other side

The sinus to the south is also open.



Woundwood is developing at all of the margins of the cavity.

Maintaining screen and air quality and wildlife values are among the objectives.





Aussie Cassian Humphreys on the left,  
Ryan Redvers, who drew a thesis on a T-shirt, in  
the middle.


I was glad to work with someone who sweats  
more than I do!

Ryan is presenting at ISA International August  
8. Reduction and retrenchment pruning are also  
in the main Program, but we will be in a  
breakout session called  
'Restoration and Heritage Tree Pruning'.

Most of the trees we are called to care for are  
mature, so retrenchment pruning is common  
practice. But it's not "acceptable" unless it's in  
the A300 Standard. Will you help?





A photograph of a blue heron standing on a thin, translucent layer of ice in a pond. The scene is captured at dusk or dawn, with warm, golden light reflecting off the water's surface. In the foreground, the dark, vertical trunks of trees frame the left side of the image. The heron is positioned in the center-right, facing left. The background shows a calm body of water with a building visible in the distance. The overall mood is serene and contemplative.

On thin ice—  
Out of time—  
THE END



Please ask for changes, to recognize good practice and Harmonize with other Countries!

Public Review period ends June 23, 2014.

Send questions or comments to Bob Rouse, [rrouse@tcia.org](mailto:rrouse@tcia.org)

And your voting representative:

Bartlett Tree Experts [-pbecker@bartlett.com](mailto:pbecker@bartlett.com)

Asplundh Tree Expert Co. [gkemp@asplundh.com](mailto:gkemp@asplundh.com)

Davey Tree Expert Company [chris.klimas@davey.com](mailto:chris.klimas@davey.com)

**Tree Care Industry Assn.** [tmugridge@forestcitytree.com](mailto:tmugridge@forestcitytree.com)

**PLANET Alice Carter** [acarter@valleycrest.com](mailto:acarter@valleycrest.com)

**SMA Nolan Rundquist** [nolan.rundquist@seattle.gov](mailto:nolan.rundquist@seattle.gov)

**ISA Richard Hauer, PhD** [rhauer@uwsp.edu](mailto:rhauer@uwsp.edu)

**ASCA Torrey Young** [torrey@dryad.us](mailto:torrey@dryad.us)

**PGMS Gene Pouly** [gpouly@efpouly.com](mailto:gpouly@efpouly.com)

**UAA William Rees** (410) 291-3633

**USDA Ed Macie** (404) 347-1647

**Alliance for Community Trees** [carrie@actrees.org](mailto:carrie@actrees.org)



ANSI A300 (Part 1)-2001 Pruning  
Revision of ANSI A300-1995

*for Tree Care Operations —  
Tree, Shrub, and Other Woody Plant  
Maintenance —  
Standard Practices (Pruning)*





Published guidance on pruning older trees is scarce in the US, so one must look abroad. 11, 12  
Respect your elder trees. Send positive messages about tree care, and the tree care industry!

1. *BS 3998: 2010 Tree Work—Recommendations* British Standards Institute
2. *Best Management Practices on Tree Risk Assessment* International Society of Arboriculture
3. *Arboriculture: The Integrated Management of Trees, Shrubs and Vines* Harris et al
4. *ANSI A300 Tree Care Standard, Part 1 Pruning* Tree Care Industry Association
5. *Basic Tree Risk Assessment* CEU article, Arborist News October 2006
6. <http://www.isa-arbor.com/store/product.aspx?ProductID=484&CID=56>
7. <http://www.ecosync.com/tdworld/Branch%20Failure%20Investigation.pdf>
8. [www.tree-consult.org/index.php?option=com\\_joomdoc&task=cat\\_view&gid=131&Itemid=239](http://www.tree-consult.org/index.php?option=com_joomdoc&task=cat_view&gid=131&Itemid=239)
9. *How Hollow may a Tree be?* Neue Landschaft 11/96 p. 847-850
10. *Foundations of Tree Risk Analysis* Arborist News December 2006
11. Fay, N. (2002). *Environmental arboriculture, tree ecology and veteran tree management. Arboricultural Journal*, 26(3), 213–238.
12. Forbes, V & Fay, N. (2006). *Träd inventering på Hallstad Ängar. Rapport Ostergötland.*
13. Lonsdale, D. (ed). (2013). *Ancient and other veteran trees: further guidance on management. The Tree Council, London.*
14. Read, H. (2000). *Veteran trees: A guide to good management. English Nature, Peterborough.*

[www.HistoricTreeCare.com](http://www.HistoricTreeCare.com) for more