

# Tree Risk Assessment



*"I really hate to think about losing that old tree, but at night, when the wind blows, it scares me. What do you think we ought to do about it?"* Or it could be phrased like this: *"You know, I've been watching squirrels go in and out of that hole for years, but then the other day when Aunt Bessy was looking at those mushrooms down there at the bottom, she asked me if I thought there was enough good wood in there to hold that tree up over my den."*

Expressions of concern and questions like that are fairly common when large trees that have for years been enjoyed as amenities and assets on a property suddenly for one reason or another begin to be understood as possible simultaneous liabilities. No one wants to go to the unnecessary expense of cutting down a perfectly good tree or, for that matter, even one that has some flaws, but is reasonably safe for the next given period of time. Yet alternatively, no one wants to ignore potential warning signs and then one night have ten tons of wood come crashing through their roof.

I have been involved in preparing what is commonly known as Tree Risk Assessments for several decades now. These studies particularly appeal to me in their resemblance to what might be half detective work and half information synthesis and interpretation. While this effort is never an exact science, it does offer collected information based on on-site investigation, published studies, strength formula and experience that in turn can provide a basis for intelligent management decisions. I have a rubber stamp that I at times use on particularly appropriate documents. It says,

*"The last decades have seen remarkable advances in the technology . . . in accurate assessments of tree risk"*

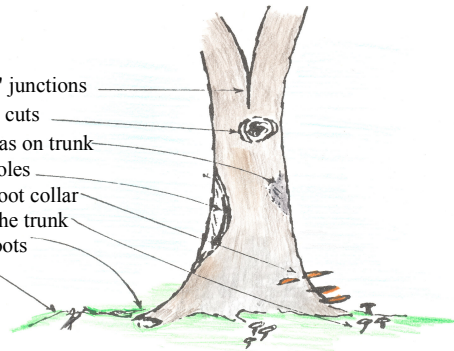
## DISCLAIMER:

All trees represent a certain inherent degree of risk. This evaluation does not preclude all risk of failure

Of course while any tree can topple given the right wind or weather conditions, many large trees over time exhibit additional flaws, disease symptoms or mechanical issues that predispose them to an *elevated risk* of failure that becomes intolerable. When the risk of tree failure is high and a legitimate target is present, that tree then becomes a hazard. The classic and accepted definition of a hazard involves three component parts: A. **SIZE** of the tree (or tree part) has damage potential B. **PROBABILITY** of failure becomes significantly high and C. A **TARGET** is present.

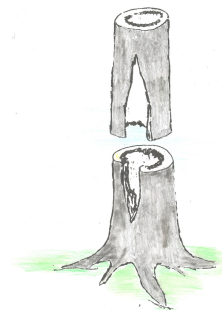
The last decades have seen remarkable advances in the technology, equipment and information useful in making intelligent and reasonably accurate assessments of tree risk. But what are the classic indicators of potential trouble for the professional . . . or for that matter, the average property owner. Here is a list:

- Large forks with deep "V" junctions
- Holes and rotted cavitation behind old pruning cuts
- Canker = discolored areas of soft flaky mushy areas on trunk
  - Cavities or suspicious holes
  - "Shelf fungi" on trunk or root collar
- "Mushrooms" on roots or in soil near the trunk
  - Broken and/or rotted roots
- Heaving (unnaturally raised) soil



It is also important to remember that the simple presence of green leaves does not necessarily mean that a tree is mechanically safe. Green, alive and growing does not always equate to

mechanical stability. They are two entirely different issues and it is very possible to have one without the other.



**So, are all hollow trees dangerous? Ans: No!** . . . not if enough circumference of solid healthy wood surrounds the hollow area to provide support. Think of a steel construction beam or pillar. It does not have to be solid if there is enough wall thickness to support the load.

**So, how much solid wood is enough? Ans: It depends.** It depends upon the species of tree, its size, its shape and the shape of the cavity. It also depends on whether it has an open face and how large that opening is as a percentage of the circumference.

And can this mechanical condition change over time? Ans: Yes! Very often mechanical flaws in trees can deteriorate, especially when there is access to moisture. What may

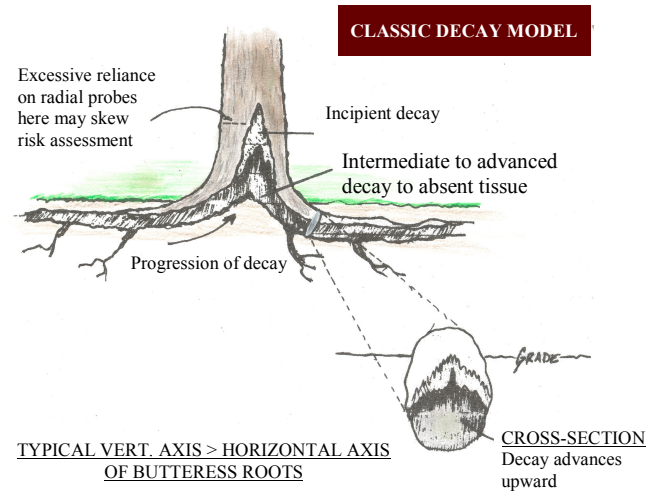
be safe today may not be safe in a year . . . or in five years. Investigative follow-up may be needed.



Another problem that can mark a tree as a candidate for removal is the presence of various root rots. Some of these rots give typical indication of their presence (fruiting bodies) while other rot diseases may not. But almost all of them are pernicious and the damage caused is generally irreversible. Consequently, timely identification is important. While damaged tissue cannot be replaced, improved cultural practices and other actions can slow down the degenerative process. The drawing at the right

is a model of how many wood rots work from the bottom up, often becoming advanced before they are discovered. This can be especially serious where old trunks are hidden from view by surrounding dense plant material. In addition to hiding a potential problem, lack of sunlight and air space can exacerbate moisture problems / drying potential. Moisture is a precipitator of rot development. Old oaks seems especially susceptible to this sort of thing.

If you notice any of the above symptoms around your tree(s), it will be a good idea to have it checked out.



## When Lightning Strikes Your Tree



There is no pattern or “norm” to be expected from the effects of lightning when it strikes a tree. Two classes of damage can and often do occur in a wide variety of combinations.

First, the mechanical and structural damage to a tree may be very slight to the point of being almost unnoticeable, or it may be extensive as though a bomb had exploded from inside the tree. A very common physical indicator of a lightning event is the classic vertical stripping where bark, and sometimes the wood underneath, is torn from the trunk or major scaffold limbs. This stripping may skip or it may be continuous most the way up the tree. As well, it may rise straight up vertically or it may spiral around the trunk like a peppermint candycane. With some events, bark can be violently blown off the tree in circumferential sections partially or completely around the trunk or limb(s). This stripping may also physically interrupt the vascular tissues that conduct fluids up and down in the tree’s living cambial structures under the bark.

The second kind of lightning damage is the systemic and may not be easy or immediately observable. This is the

functional interruption of the tree’s vascular function due to burning and traumatization of root hairs and conductive tissues. Once again, this phenomena may be very slight or extensive to the extreme of complete vascular shut-down. Also, mechanical and systemic damage can combine in a struck tree in any number of ways. A badly (physically) damaged tree may continue to live while a tree that hardly appears touched may brown out quickly and die.

Large tall trees that carry high volumes of water during the hot summer seasons when electrical storms are common are most likely to be lightning victims. Mature old oaks are common classic examples of this kind of tree.

If your tree is truck by lightning, the immediate physical damage and safety considerations will need assessment. If the tree does not exhibit obvious safety concerns (structural or mechanical) and seems generally intact, the next step is likely to wait until the end of the summer or even until the following spring to evaluate the tree’s ability to bud and produce functioning leaves. A **valid assessment of sys-**

**temic function alone is difficult-to-impossible immediately after a strike.** If the root system is seriously damaged or destroyed, no amount of immediate fertilization or other treatment will help or turn it around. There can even be an economic advantage in “waiting to see”. Little remedial advantage is usually lost in the interim.

If the tree is substantially green two to four months after the strike, it is advisable to bark trace the wounded areas, cutting away loose separated bark back to point of solid attachment to the underneath. Then apply a good wood tissue insecticide such as dursban or lindane to all exposed wounded areas/surfaces. This will help to repel borers and other wood-inhabiting or wood damaging insects. Then, in the fall, a quality soluble root-builder fertilizer will help to restore root function. Soil texture and compaction tests may indicate that mycorrhizal inoculation and/or soil aeration (for clay soils) can also do much to restore vitality through restoration of a hospitable environment. Dead and damaged limbs and parts should then be removed. Premature deadwood removal may necessitate a second follow-up operation.



# From My Journal: Stories That Define Us



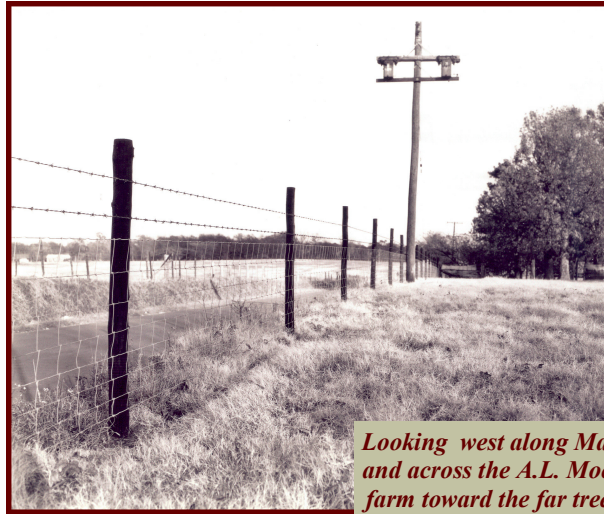
A few months ago, when I was writing the copy for the Winter edition of this newsletter, I especially enjoyed a brief nostalgic indulgence amid the recollections of my own boyhood years in the Cordova community of the 1950's. During the process of that writing I had been on a search for old photographs to use for the article. I came to realize again as I searched just how few of us have learned the lesson of taking timely notes and snapping pictures of ordinary everyday things. How many of us were wise enough in 1950, or at any other time, to take an extra moment to photograph what might have seemed then to us very ordinary and familiar subjects. It might be a section of a road or a school building, a pet or a favorite aunt smiling on the porch with a plate of cookies. It's a lesson for the wise. Somehow we are deceived by familiarity into thinking those things, those people, will always be that way . . . and they won't.

Anyway, in the process of looking for what turned out to be rare and hard to find old photos, I called a few of the (very) long time residents who are still here, albeit in diminishing numbers now. They were all folks I'd known when I was a kid. I told them what I was looking for and why. Not surprisingly, I received unanimously enthusiastic support.

It occurred to me that there may be some useful photos in the museum room at the community center, in what used to be my 3<sup>rd</sup> grade classroom. These days Ray Morton is the caretaker and the person to call about that, so I did. Ray was still in his pajamas when I made that early phone call to him. But even so, he was more than glad to dress and drive over to turn off the alarms and open up the doors for me, so that I could browse the walls and the cases in hopes of finding and borrowing just the right image. While in there I was frequently sidetracked looking at old scenes and old faces now fifty years old. It was a veritable time machine for me.

Later I was invited to drop by and talk to Norma Rogers, another Cordova veteran who is now a published author. Norma enthusiastically shared stories with me about how her husband's ancestors first settled in the Cordova area in 1835, about how the alignment of the Macon Road evolved out of a dispute between two neighbors, and about her own introduction as a young Vassar girl to FDR and Mrs. Roosevelt, who was at that time a patron of Vassar College. In Norma's

story, the Roosevelts were hosting as part of a state visit the future king and queen of Norway. The Norwegian royalty had been in the U.S. in an effort to encourage U.S. participation in the war against Hitler, whose Nazi armies were soon to overrun that Scandinavian country. So her choral group had been invited to D.C. to perform some after-dinner selections for their special guests, after which each member of the choir was introduced to the president, his wife and the visiting royalty.



*Looking west along Macon Road and across the A.L. Moore flower farm toward the far tree line that is now Germantown Parkway*

Dr. Norma Rogers also retold the story for my digital recorder of how her husband's letters from his days with General Patton in Europe during WWII eventually led not only to her book, *Until The Final Gun*, but as well to her current support of our troops in Iraq. Then more recently, through a series of near-miraculous events, that correspondence led to a presentation of a triangular-folded U.S. flag, enclosed in a glass case and inscribed to *Norma Rogers, American Patriot, in recognition of your steadfast support of the American service men and women during the war on terror.*

I visited another old schoolmate whose mother taught second grade at Cordova School in 1953 and for years before and after. It was Carolyn Bazemore's family that imparted its name to Bazemore Road. Carolyn herself is now retired from the Shelby County School system. She was glad to loan the photo of the school that appeared in my last newsletter.

But I've missed a few opportunities as well. It was a bit over a year ago that Doris Latting died at the age of 96. It was her husband's family that imparted its name to the road I now live on. How could

I have known back on that long ago hot late May evening in 1960 that I would one day reside on that mile-plus gravel drive. Just before dusk on that evening I was driving up to the house with the windows rolled down, embarrassing nervous sweat rings under my arms as a cloud of gravel dust trailed behind me. I arrived to pick up Margaret Ellen, Dot's youngest daughter, as my date to the high school prom. Mt. Airy, the farm itself, first got its name in 1835 when

Roscoe Feild arrived in a wagon train with his father's family, slaves and household goods from Mount Airy, North Carolina. Since then, the house they built here has gone through several additions and six generations of continuous occupation by Roscoe's descendants, right up until Dot died last year. When they first came to West Tennessee, their only neighbors were the also newly arrived Robert Ecklin family from Virginia (Holly Hills Country Club) and the Davies family (Davies Plantation). Maybe in part for lack of numerous choices, Roscoe Feild later married Emily Ecklin.

But surprisingly (and indeed, sadly), I did not take advantage of enough opportunities to talk to Dot. She was always jovial, glad to see you and full of stories. Family stories, for example of how in 1864 Robert Ecklin saw smoke rising from the direction of Mt. Airy, where after marrying Roscoe, his daughter Emily had become mistress of the farm. Believing that Federal troops had set the house on fire, he pulled a wet blanket from the well and dashed his horse across burning corn fields to learn that only the crops were ablaze and his daughter was safe.

Fifteen years earlier, in 1849 as Dot's story went, Roscoe arrived back home from Princeton as a new lawyer. He was home just long enough to have a beautiful hardwood slave-built bookcase constructed for his law books. Soon thereafter he set out again for California in hopes of striking gold. Just a year ago that bookcase with its heavy load of old dusty law books was still there in the now sagging-floored front hall of Mount Airy, a memento of the times of our lives.

So as we sometimes reminisce about the times in our past, we must never fail to pay attention to the present, for it is these friends, these times and these smiles that will soon constitute the heart and soul of the good ole' days.



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## Did You Know . . .

. . . that trees have the ability to compartmentalize the decay process and can in some cases thereby contain and outgrow a wound, which though continuing to be a flaw, may not ever jeopardize the safe continuance of the tree on the site. This unique ability varies in its effectiveness according to *which* defensive "wall" the decay pathogen is attempting to breach. Alex Shigo, in his research, has formulated these processes into a **CODIT model**. The weakest barrier wall is vertical (up and down). The second restricts decay in a horizontal plane across annual growth rings. Wall #3, formed by ray cells in the tree, retards decay in a radial pattern (inward, toward the center) and is the strongest pre-existing wall at the time of wounding. The fourth and most effective wall is formed by the cambium (the living peripheral vascular tissue) in the growing season following the wounding. This wall usually stops the progress of decay pathogen from moving into new (post-wound) growing tissue.

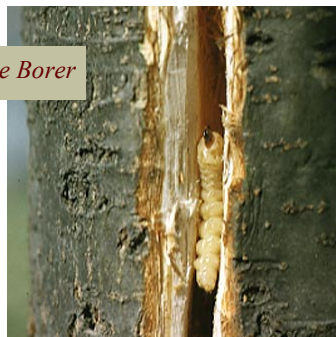
. . . that while the pH of the clay soil in our area tends to continually slide toward the acidic side (below 7.0), excessive liming intended to counteract this for good grass growth can in fact elevate the pH to a point that begins to retard the mineral benefits to lower-pH-loving trees. It is a good idea to get an occasional soil test to insure that soil pH in tree areas is in an acceptable range.



## Another Reminder About Borer Prevention

By the time I get to this last page panel when I'm writing the content of this quarterly newsletter, I have more than once run into a small but recurring dilemma. The space available is by then down to the *short rows*. My job then is to select for it just the right topic that does not need extensive commentary (space), yet is worthwhile useful information. So this time I want to mention a service that harks back to the lead article in my

Apple Borer



Spring '06 newsletter a year ago: **Tree Borers and What To Do About Them.**

There is no surefire cure or preventative guarantee against the advent of boring insects (usually the larval stage of several flies or moths) in weak and/or species-susceptible trees. However, regular topical applications with a borer control insecticide like chlorpyrifos can provide significant help as a preventative. We have been doing

this for so long now as a standard part of our client care program that it has in some ways become almost invisible . . . or maybe better to say, unconsciously and unintentionally downgraded by familiarity to an expendable service that is too often taken for granted and dropped.

So whether our folks are doing it for you or you are doing it yourself, let this be a reminder that you are not wasting your time with quarterly (at least) topical applications to oak, dogwood, and maple collars and lower trunks.

