Don Gardner
Consulting Arborist

ASSESSMENT AND EVALUATION

OF TREES

LISTED FOR REMOVAL

AT BARTON SPRINGS POOL

AND

THE CHILDREN'S PLAYGROUND

APRIL 30, 2009

Prepared For
Save Our Springs Alliance
PO Box 684881
Austin, Texas
78768-4881

Prepared By
Don Gardner, RCA
Registered Consulting Arborist #438
Certified Arborist TX 0228

INTRODUCTION AND ASSIGNMENT

On April 19, Bill Bunch of Save Our Springs Alliance (SOS), contacted me. The City of Austin had announced, a couple of days earlier, that 28 trees would be removed from the Barton Springs pool and children's playground areas of Zilker Park "as soon as possible." The public outcry that followed the announcement was predictable.

Bill asked me if SOS could retain my services to do an independent assessment of the trees on the potential removal list. We agreed that my assignment was to assess only those trees that were listed for removal. "We want to know," Bill said, "if we can save these trees. If we can not, then they have to be removed. But, we want to save as many as possible."

Trees and public safety are an important issue. There have been two or three serious injuries due to falling tree parts in this part of Zilker Park in recent years. My granddaughter (now four) and I ride the Zilker Zephyr and play in the playground regularly. Sitting in the playground, watching the children play, I have worried about large dead branches and the deteriorating condition of some of the trees.

Therefore, we owe a debt of gratitude to urban forester Walter Passmore and the Parks and Recreation Department for initiating an assessment of the trees in this vacinity. These trees are treasures. For the first time in quite a few years the city has assessed their health and condition.

It is hitting us pretty hard. Several trees we all love at Barton Srings are no longer safe. There are serious public safety issues that must be addressed in the Barton Springs pool area. In my opinion, there are at least four hazardous and unsafe trees that should be removed soon. Four or five others are serious candidates for removal.

Major maintenance is needed on most of the rest of the trees.

With large, old trees covering one of the most heavily used areas in the entire region, formal assessments, in my opinion, should be conducted every five years. Monitoring by a trained arborist should occur twice each year.

One of the reasons people are surprised by the recent assessment by the Davey Resource Group, which was hired by the city to conduct the evaluation, is because evaluations have not been conducted in many years.

Further, the stand of fabulous pecans at Barton Springs is old. It's an even-aged stand. There has been no on-going tree planting program to insure all aged trees. Now, we are in this situation.

Well, it's never too late to start planting trees. Four and six-inch diameter trees should be planted. With proper care, they will look very good in a very few years and provide critical shade. For many months every year, in the children's playground, for example, if there is shade you can sit and/or play. But if the area is in the sun you can not. There is one, maybe two, trees in the playground area that are no longer safe.

In my opinion, at least four trees on the removal list are not safe and need to be removed. Four or five others need additional testing to determine if they are healthy enough to retain. The rest do not need to be removed. In many cases, there is no proven structural flaw that would condemn the tree to removal by any qualified arborist doing an assessment. For many of the trees on the potential removal list, if health issues are not addressed then structural flaws will develop. In my opinion, there are health care treatments for these trees, and they do not have to be removed.

THE DAVEY RESOURCE GROUP BARTON SPRINGS POOL TREE ASSESSMENTS

The Davey Group produced a thorough, comprehensive, and useful report. It is probably a good thing that someone outside the Austin community did this work. They do not have a personal or emotional attachment to the trees. They can be as objective as anyone can be in a situation like this.

A NOTE ABOUT TREE FAILURES AND RISK

Trees die and trees fail. In general, and for this discussion, trees can die due to many causes. They may be standing, but they are dead. We can see that they are dead and we know that they will begin deteriorating and coming apart in X amount of time. We can see that they are dead and we can remove them before they fall and hurt someone.

When we speak of trees failing, we mean trees that appear to be alive or healthy, that fall over from the base or begin breaking apart.

Trees die because their health has been compromised. Trees fail because their structure has been compromised. Arborists, not long ago, learned that trees have to be evaluated and assessed for health and structure.

Obviously the two are connected, but if we just evaluate for health we can miss serious structural issues that cause trees to fail.

Tree failures are what cause injury to people.

Determining whether a healthy looking tree has serious structural problems that will lead to failure is the cutting edge of arboriculture world wide. "Tree risk assessment" is probably the most widely discussed and studied area in arboriculture.

Tree risk assessments have subjective components and good arborists can have strong disagreements about the same tree.

When it is not clear, which is often the case, that a tree has a high potential for failure, the whole subject of risk takes center stage.

There are several trees in the gray area of risk assessment at Barton Springs. If we do not remove certain trees in the pool area or the children's playground, are we willing to live with the risk?

The person responsible for the tree (property owner, property manager, or parks manager) is the person who has the legal obligation to determine what amount, or level, of risk is acceptable.

STORMS

I believe the potential risk of tree failures injuring or killing people at Barton Springs or the playground is low.

Almost all tree failures happen during storms.

Some tree risk assessment methodologies now use frequency of use near the tree during storms, as a major rating factor for determining if a tree is safe.

People are rarely under big trees during violent storms. And a policy of clearing the area of people during storms would greatly decrease the risk of injury. Also, signs can be posted and risks can be reduced even more by monitoring.

METHODOLOGY

The standard method for determining an unsafe tree is having a trained arborist walk around the tree and make visual observations.

Several guides or forms are used to assist the arborist. The Davey report does a good job of explaining what arborists look for. Primarily, in assessing whether a tree is safe, it is structural flaws, or diseases that cause structural issues.

The Davey arborists used the Matheny and Clark point method that is widely used and somewhat accepted. I have been trained in the method and use it occasionally. I find it to be weighted toward removal. I prefer to go with my observations, knowledge of the species, and experience.

It is always safer, easier, and liability free for an arborist to say that a tree should be removed.

Courageous qualified arborists will not recommend a good tree be removed unless they are satisfied that the failure potential is high and that a failure could hit someone.

Besides the point rating, mainly used to determine hazard, Davey added three additional components to the assessment methodology: 1) soil and foliar analysis, 2) use of tomography radar, and 3) root inspections.

1. Soil and foliar analysis are health issues (not structural) and they showed that there are no significant problems with nutrition.

2. People are trying really hard to look inside trees these days in order to assess structural issues better. The state of this art has to do with determining the amount of solid wood left on the outside of the cylinder (tree trunk). The centers of big old trees are rarely solid. Jumping over (for now) the recent questions about the reliability of tomography technology, the Davey report finds only six trees to be structurally questionable by tomography findings and only two that might be considered for removal due to not enough solid wood.

3. I have many questions about Davey's use of the air spade to inspect some areas of the root system. While the method described in the Davey report might yield partial information about the health and structure of a tree's roots, it seems it was not used to determine the condition of trunks and root crowns that have been buried by fill for many years.

Many of the trees on the Davey list for potential removal have had their trunks, bases, and root crowns (where the trunk flares out to meet the root system) buried by fill soil for years or decades. Uncovering this area is called a root collar excavation. A root collar excavation must be done for the health of many of these trees. An air spade is a useful tool for this job because it does not injure the tree.

If the trunk, base, or root crowns are seriously diseased (rotting/decaying), the tree will fail in the near future and should be removed.

If the covered base is not decaying, it should be left uncovered and a tree well constructed around it.

It appears that Davey checked for roots in the fill in many cases. Pecans rarely grow roots up into fill, for example, while live oaks eagerly do.

In addition, it is my experience that trees with buried root systems die slowly due to dwindling root systems, but they do not fail for this reason. Many trees, however, fail due to trunk, base, or root decay because they have been covered for a long time.

Davey reports that 50 percent of the trees on the potential removal list "exhibited possibility of root rot," without producing evidence.

To make a case for removing a big, old pecan at the entrance to the pool, the possibility of root rot is not enough. I want to see the disease.

SOME PRELIMINARY CONCLUSIONS

At least four trees on the potential removal list have serious health and structural issues--caused by soil level changes, soil compaction, limited soil rooting space, and mower injuries.

They need a great deal of help--tree health care, arboriculture. They need root-collar excavations, root and soil invigoration, skilled and thoughtful pruning, and proper irrigation. Some have specialized needs like cabling or bracing.

In some cases, whole areas may be lost to public access (the Sunken Gardens, for example) in order to save some fabulous old pecans.

Many tree health issues can be addressed without having to remove the tree.

However, at least four of the trees on the list have serious structural problems and need to be removed soon. Five other trees need addition testing to confirm what appears to me to be serious safety issues.

TREE BY TREE
VISUAL ASSESSMENT
WITH RECOMMENDATIONS

Only trees on the Davey Resource Group list of potential removals and trees on the City of Austin list of potential removals were evaluated and assessed. Descriptions are brief and consist primarily of recommendations.

THE DAVEY LIST (18 total)

Tree #2--American elm (south of Eliza springs, next to cottonwood))--*Ustalina deustum*, a serious base and root rot disease is now advanced. This tree should be removed.

Tree #7--Pecan (growing out of the ship in the playground)--This is the hardest one. I love this tree. If, as the Davey report says, there is "minimal structural roots," (which would mean they did a root-collar excavation and followed the buttress roots out and they found "minimal structural roots,") if they did that and found that, then I will have to agree with them to remove it. (This is the other tree the tomography questioned the solidness of trunk walls.) More testing is needed on the root crown and major structural roots. And I personally want to sound the whole trunk with my sounding hammer from a lift. The jury is still out on this one.

Tree #9--Pecan (near tracks in playground) This tree appears to have Dead Man's Fingers (a serious root rot diseases) at its base. Root collar excavation needed to explore base further. Must be considered for removal.

Tree #10--Pecan (beside picnic tables at pool entrance) Listed as "crown prune" on the Davey map, but for removal in their list. Remove planter. Root collar excavation. Construct raised tree bed to give it more good soil rooting volume to grow into. Structure prune. Tree Health Care.

Tree #11--Pecan (beside picnic tables at pool entrance) A tree with few strengths and many weaknesses. Has a weak structure that could break up easily. This is the kind of tree that should have been removed and replaced long ago. Two nice trees could be planted in its place. Not hazardous. Does not have to be removed.

Tree #18--Pecan (northwest corner of the bathhouse near parking lot) Risk rating not high enough for removal. No obvious structural flaws. Root invigoration. Monitor. Tree Health Care.

Tree #20--Pecan (northwest corner of the bathhouse) Mischaracterized by Davey on page 47. Maybe confused with tree #17. Does not have lean over sidewalk and building, but grows over. Root invigoration. Monitor. Tree Health Care.

Tree #30--Pecan (just east of theater near parking lot) Appears to me tree is not declining. Roots will regrow across trench unless there is decay. Big wound is new. Wood is solid. No obvious signs of decay. This wound can close. Root invigoration. Cable codominate trunk. Monitor. Tree Health Care.

Tree #32--Pecan (inside pool at southeast corner of bathhouse) Root collar excavation. Enlarge soil space. Root invigoration. Monitor. Tree Health Care.

Tree #34--Pecan (leans over pool) This tree is the Barton Springs Pool icon. It has little solid wood, but is braced to keep it from falling over. Build a new brace or add another to insure safety. End horizontal growth could be pruned back to uplift to lighten and reduce it. Tree Health Care.

Tree #36--Black walnut (east pool yard slope) Tree grows over sidewalk, but does not lean over it. Largest base cavity is closing. High potential for limb failure. Structure prune and cable. Tree Health Care.

Tree #48--Pecan (up slope from diving board) Soil hump behind leaning trunk means tree was pushed over in high winds and the roots behind the lean broke and popped up, but did not break the surface. Tree is being held up by nearby tree. Not unsafe. Should not be part of this controversy. Leave it for now.

Tree #50--Pecan (east pool yard near sidewalk) This fabulous tree, under which you could not pack more people on any hot summer afternoon, has serious and advanced base and root decay disease on the pool side. Disease not being walled off by the tree. This tree has crossed threshold and I'm said to say needs removing.

SUNKEN GARDEN TREES

Tree #53--American elm--This is a marginal tree due to large cut roots, two sidewalks over its critical root zone, major crown dieback, compacted soils, poor branching structure, old age. Keep all the major deadwood out of this tree and maybe it would be safe. This is a tree no one would want in their yard near their house. This tree should be removed.

Tree #54--Pecan--Remove the planter. Root collar excavation. Structure prune. No obvious structural flaws. I don't think the root is girdling. Root collar excavation will show yes or no. Keep garden fenced off if necessary to save this tree. Monitor. Tree Health Care.

Tree #55--Root collar excavation. Root invigoration. Prune dead wood and make repairs. Lean not severe. Monitor. Tree Health Care.

Tree #56--Pecan--Remove planter. Root collar excavation. Prune deadwood and make repairs. Structure prune. Root invigoration. Monitor. Tree Health Care.

Tree #57--Cottonwood--Base decay has weakened the roots on one side and the root system on the other side is but off by a high retaining wall. Tree could fail at base any time. If area is to be fenced off tree is not hazardous. If open to the public, then this tree should be removed.

CITY OF AUSTIN MAP--"BARTON SPRINGS TREE MAINTENANCE OVERVIEW"--28 (+ or -) TREES LOCATED WITH RED DOT--INDICATING REMOVE. (these trees appear to be in addition to the Davey 18)

I evaluated an additional 12. (Letters are for identification purposes only. ID numbers for these trees is unclear.) They are:

A--Storm-damaged mesquite (out past the theater before the street)--Top destroyed by storm. Large horizontal branches will break off the decaying trunk. Remove. Tree is not hazardous.

B--The giant Texas ash in the theater has its base deeply covered. A root collar excavation should be done to determine the soundness of the base and root collar. If the tree can be saved, more room needs to be given to its trunk. The old trunk wound is closing and the tree appears to be healthy and vigorous. There are few old, native ashes in the whole park. Much should be done to save this tree.

Tree #13--Pecan (main entrance to pool) Davey did not recommend this tree for removal and neither do I. Remove planter. Root invigoration. No obvious structural flaw in this tree. Tree Health Care.

Tree #14--Pecan (south of picnic tables near pool entrance) Davey did not recommend this tree for removal and neither do I. Enlarge the planter greatly. No obvious structural flaw in this tree. Tree Health Care.

Tree #15--Pecan (north of pool entrance) Increase planter volume Greatly. Not enough justification for removing this tree. Old cavities closing nicely except newest one. This is a good sign that tree has pretty good root system. Tree Health Care.

Tree #17--Pecan (in front of bathhouse near parking lot) Lean is natural. Grew out from under bigger tree, whose stump is found a few feet away. Lighten over building. Construct brace if necessary. Root invigoration. Tree Health Care.

Tree #40--Arizona ash (upper east pool yard slope) This tree is dying and should have been removed before now. As long as the deadwood is kept removed, two or three cables are installed, and it is monitored twice a year, the tree is not unsafe.

Tree #46--Cottonwood (east pool yard slope) Other than the one break up in the large scaffold branch, I can find no structural flaws in this tree. This tree does not appear to be high risk now. Thorough pruning. Monitor. Tree Health Care.

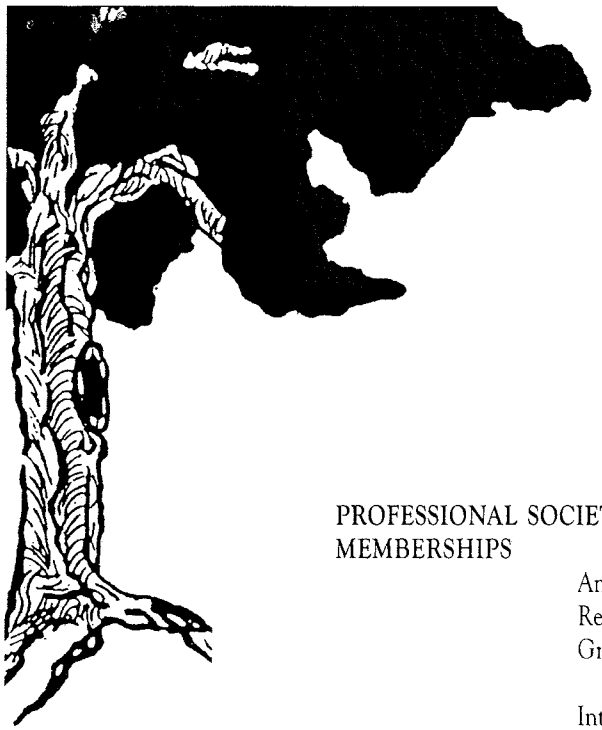
Tree #47--Cottonwood (east pool yard slope) This is a marginal tree due to mower-caused root decay and one leader having died back 15 feet. Prune dead top. Monitor. Install barrier around exposed roots to keep mowers from hitting them.

Tree #49--Pecan (east pool yard slope) Not recommended for removal by Davey. Prune deadwood and make repairs. Root invigoration. Tree Health Care.

Tree #51--Eastern Red Cedar (east pool yard near sidewalk) Not recommended for removal by Davey. Prune deadwood and make repairs. Tree is overgrown. Thin appropriately. This tree has a low failure potential. Tree Health Care.

C--American elm--located in the playground, north of pecan #7. Unsure of its number on the list and maps. This is a mature tree with 50 to 70 percent crown dieback. Tree is dying and pruning it back will not save it. Too late for root work. Appears to be on City of Austin removal list. It should be removed.

D--Black walnut (west of playground near train tunnel entrance) This tree does not appear to be on any one else's list. It has major crown dieback and is dying. This is a tree that should have been removed already. However, pruning out the major deadwood keeps the tree from being hazardous.



Don Gardner
Consulting Arborist

CURRICULUM VITAE

Arborist for Texas Governor's Mansion since 1986
Arborist for St. David's Hospital since 1985
Full-Time Consulting Arborist since 1998

PROFESSIONAL SOCIETY MEMBERSHIPS

American Society of Consulting Arborists
Registered Consulting Arborist #438
Graduate: ASCA Arboriculture Consulting Academy

International Society of Arboriculture, since 1985
ISA Certified Arborist TX 0228

TREE APPRAISAL Many years experience using the methods of the Council of Tree and Landscaping Appraisers. Hundreds of trees appraised for litigation, insurance, and IRS purposes.

EXPERT WITNESS State court appearances for the prosecution and for the defense. Forensic and pre-trial preparation.

EDUCATOR
Lecturer at Lady Bird Johnson Wildflower Center.
Regular guest on KLBJ-AM "Gardening Naturally".
On-going training programs for professional arborists.
Regular public tree care workshops.

OTHER MEMBERSHIPS

Native Plant Society of Texas
American Forestry Association
TreeFolks of Austin
Texas Forestry Association
Texas Urban Forestry Council

1980-1998	Owner/Senior Arborist, Austin Arborists a commercial tree care company with more than 800 residential and institutional clients in Central Texas.
1970-2002	Co-owner/manager of Goose Summer Tree Farm, a 350-acre wildlife preserve and active Tree Farm in San Jacinto County in deep East Texas.
	Co-owner and resident of Horseshoe Bend Ranch, a family owned and operated angora goat ranch in the hill country west of Austin.
1983	Founded the Texas Tree School, a short course for entry level arborists trainees sponsored by the City of Austin Parks & Recreation Department
1973	Began as a tree worker
1966	Bachelor of Science Degree Sam Houston State University Journalism Major Reporter: Huntsville Item, Houston Post and San Antonio Light
1963	Graduated Huntsville High School
1960	Eagle Scout

PERSONAL
Born August 11, 1945 at Huntsville, Texas
Married 30 years
Two grown daughters

Post Office Box 340268, Austin, Texas 78734 • Telephone (512) 263-2586 • Fax (512) 263-0251