TREE CITY USA®
BULLETIN
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10 Tree Myths to Think About

Psychologists are fond of using inkblot tests and two-in-one pictures to point out how different people can interpret the same thing different ways. In this issue, some common problems involving trees are looked at from slightly different perspectives — ways that give trees the breaks for a change.

Did you ever try to solve a puzzle and give up in frustration, then return later only to have the solution jump out at you? The difference was that you saw the problem in a new light. Sometimes to do this, it is first necessary to get rid of earlier notions, to give up -misguided beliefs, or dispel widely accepted myths.

The classic example of this is the flat earth concept that held sway for thousands of years. Finally, when the myth of falling off the edge was dispelled, the collective imagination of whole nations soared to new heights. New geographical theories, bold exploration, and new discoveries followed.

In the world of trees, there are many myths. These include the idea that root systems are a deep, mirror image of the tree's trunk and limbs. Another is that branches move upward as the tree gains height.

When the truth is known, we find that roots spread laterally and not too far beneath the surface, but often farther than the tree is high. And we discover that low limbs are always low limbs, so if they are not pruned when the tree is small, they will still be low limbs — and probably troublesome — when the tree is large. When myths are vanquished, we can more clearly see ways to protect the well-being of trees.

Community foresters and tree board members encounter many myths that affect the management of trees. These myths form a barrier to better community forestry. In this issue of the Bulletin, we look at 10 of the most common myths the late Cincinnati urban forestry consultant Steve Sandfort faced through the years and his suggestions for ways to look at the situations from new perspectives.

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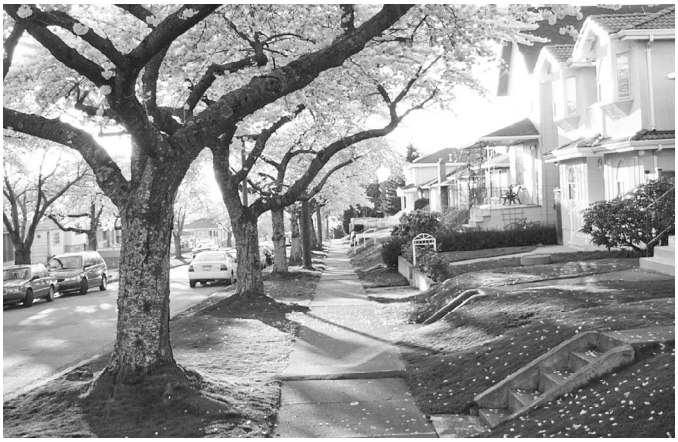
10 of the Most Common Myths

MYTH 1: IF IT'S BY MY HOUSE, IT'S MY TREE

There is often confusion about who owns streetside trees and who is responsible for their care. Although the answer varies in each community depending on how its ordinances are written, in most cases, trees on the street easement, or right-of-way, belong to the city. This is true regardless of who may have planted the tree. The care of these trees may be reserved as the sole responsibility of the city or assigned to the adjoining landowner as a way to hold down taxes. Again, this depends on how the ordinances are written.

Knowing who has responsibility for street trees in your community is important for determining:

- Which trees or planting spaces to inventory.
- Who should prune and care for the trees.
- Who is likely to be liable if lack of care causes an accident.
- How the malpractice of topping can legally be stopped.
- How removal of trees can be controlled.
- Who pays for tree work or removal.



Public rights-of-way vary in distance from the center line of streets. Visual clues to where this zone ends can often be seen where steps descend to street level, driveway aprons change from concrete to other pavements, hedges are planted, or lawn lights are installed. Trees within this zone usually belong to the municipality. Local ordinances should make it clear what can and cannot be done to these trees, what rules apply to planting, and who is responsible for tree care.

Legal information about trees in the public right-of-way is essential before planting a new tree, performing work on an existing tree, or removing a tree. It is also necessary to have this information before trying to plan or improve a community forestry program. You can get the answers you need by reviewing your community's tree ordinance or engieering records or asking municipal staff.

PAPER STREETS

Some rights-of-way have never had a street constructed on them and are sometimes called paper streets. They appear only on county real estate records and plots. They are strips of land that are often wooded and vary from 10 feet to 60 feet or more in width. The city owns this land between private parcels to keep specific lots from being legally landlocked or to build future streets. Sometimes this land contains underground utilities, a walkway, or public stairs. In the City of Cincinnati, Ohio, for example, of the approximately 1,000 miles of public right-of-way, only 920 miles contain paved streets. The city is responsible for the trees on those 80 miles of paper streets, just as it is for those along paved streets and avenues.

MYTH 2: TREES HIT, SMASH, AND DO OTHER MALICIOUS THINGS

There was once a college professor who liberally used red ink on his students' papers when they made such statements as "the school claims to produce good graduates" or "this graph tells you which fund has the most money."

"Schools can't claim anything," he would scribble, "and graphs can't talk. People do!"

So it is with trees. Certainly they have no intentions to fall on cars or people or do other bad things. In fact, they have no intentions at all; they simply grow. It is humans who place sidewalks beneath trees or park their cars under overhanging limbs, and it is humans who are responsible for keeping trees healthy and preventing or detecting hazards.

The late urban forestry consultant Steve Sandfort went even further. He made a case for the occasional limb that may protrude a little low over a street.

One day Steve was approached by a bus driver who wanted a large limb removed. The bus driver said, "That tree keeps hitting our buses." Only half in jest, the forester countered, "Do you mean that nasty old tree reached out and smacked your bus? No? Well, then would you please drive more carefully and stop running into our tree?"

Municipalities have a legal mandate to keep their streets safe, including preventing limbs and foliage from creating a nuisance to the road. This might include preventing the

People need to demonstrate care since trees do not have that ability. Bus and truck drivers can avoid limbs that cannot be pruned without endangering the tree. It is also the job of humans to remove dead limbs over streets and roads and to avoid parking under any that might exist (right).

obstruction of street lights and views of oncoming traffic or keeping limbs from dropping. It also includes maintaining a vertical clearance of approximately 8 feet over sidewalks and 14 feet over streets.

With most trees, obtaining these clearances is possible, but with others, it is not. Newly planted trees cannot be pruned to such heights. Only after several years of correct pruning of lower limbs will such clearances be possible. In another case, an old tree that was never properly pruned may have lower limbs that cannot now be pruned without destroying the tree or exposing it to decay-causing organisms through a large pruning wound. If the tree is not otherwise dangerous, a case can be made for leaving the limb if street width allows easy avoidance of the limb or cars are usually parked beneath it.

Similarly, roadside vegetation off the shoulder of highways should not automatically be cleared because, in engineering terms, it is within a spinout zone. Perhaps we need to learn to share our environment with trees and expect motorists to drive safely and avoid trees that are reasonably out of the way of traffic.

MYTH 3: TREE ROOTS BREAK SEWER LINES

The late consultant Steve Sandfort said, "If you have been a practicing city forester for at least a week, you will have taken several calls from irate homeowners who claim that tree roots have broken their sewers and are causing their basements to flood. Basically, the roots are accused of getting together and saying, 'Oh, boy! There's a good sewer line over there. Let's grow over, punch a hole in it, and get its nutrients and water.'"

There is no question that sewer problems can be traumatic and expensive for homeowners. And there is no doubt that when the plumber's snake does its work, handfuls of roots are often retrieved before the sewer starts flowing properly. But where did those roots come from? Why were they in the sewer? Did the tree really cause the sewer problem? How can the problem be minimized in the future?

Roots grow best through soil when following favorable conditions of moisture, texture, and oxygen. Under these conditions, most roots are found in the top 24 inches of soil, well away from sewer lines. A few, however, may grow deeply

enough to be near a properly buried sewer line. Even so, nothing happens until the sewer pipe breaks or its joints leak, oozing nutrients and water into the surrounding soil. Nearby roots then begin to thrive and grow rapidly. They can enter the defective pipe and eventually block the flow of its sewage.

As proof of this, consider the fact that tree roots are rarely associated with water line problems, even though trees need water. The reason is because water lines are commonly made of cast iron, screwed together, and designed not to break or leak. Sewer lines, on the other hand, are usually made of clay tiles that are glued together. Glue dries and sometimes separates, and clay is fragile and eventually cracks due to soil settlement or earth tremors. When these things happen, tree roots may enter the line.

Problems can be prevented by:

- Proper construction of new sewer lines, including tight joints and a firm soil base that won't settle unevenly.
- Repair or replacement of defective sewers. Repeated root blockage may indicate a collapsed or badly damaged pipe.
- Finding ways to improve sewer design and construction. Cities that annually spend millions on sewer clearance would do better to invest in long-term solutions to the problem.

MYTH 4: ROOTS SURFACE AND DAMAGE LAWNMOWERS

A common complaint from frustrated homeowners and groundskeepers is, "What in the world can I do about those tree roots that keep coming to the surface and destroying my lawnmower? I can't even grow grass there anymore!"

The truth is that under good conditions, tree roots grow through the soil, not on top of it. Admittedly, in nature, roots sometimes are forced near the surface by shallow rocks or by a high water table, such as in bogs. However, these are not the kind of sites where houses are usually built. In a community setting, roots normally grow well beneath the surface.

The trouble often begins with construction activity that disregards the conditions needed by trees. Commonly, the poor soil excavated from foundations and basements is placed in future lawn areas, compacted by construction traffic, then covered with a thin layer of topsoil. Roots then grow in this shallow depth of good soil. When foot traffic compacts this thin layer, or even if compaction occurs on deeper soil, erosion can follow. In addition, excessive raking of leaves, twigs, fruits, flowers, and other natural debris prevents the building of new soil that would otherwise cover shallow roots.

To prevent exposed roots and lawnmower conflicts:

- Break up compacted soil around new construction before adding top soil and planting trees.
- Reduce or eliminate raking, power vacuuming, and thatching.
- Cover exposed roots with a thin layer of good soil.
- Loosen the topsoil with an air spade or other air excavation device.
- Create gracefully designed mulch beds over the exposed root area.
- Develop a flower, shrub, or ground cover area that needs no mowing.

MYTH 5: A LITTLE TRENCH WON'T HURT

A tree's root system is its lifeline, and most people will agree that large trenches can hurt trees. What is often overlooked is that even the tiniest slit made to bury a sprinkler system or to install a telephone line severs roots and is just as hard on the tree as digging a huge trench next to it. When a root is cut, it is cut!

To prevent damaging trees with any kind of trench:

- Detour around the dripline of trees. There is nothing sacred about straight lines.
- Tunnel when roots cannot be avoided. Tunneling equipment is readily available to do the job.
- For specific guidelines, send $3.00 to the Arbor Day Foundation for the 32-page booklet, "Trenching and Tunneling Near Trees."

Raking and mowing makes a bad situation even worse.

Mulch and ground cover provide an attractive alternative to damaged roots and beat up lawnmowers.

MYTH 6: TREES AND UTILITIES ARE INCOMPATIBLE

The timeworn advice of marriage counselors is that compatibility is a two-way street. In the world of community forestry, people often ask if there is only one way for trees and utilities to coexist. Must tall, shady street trees always be replaced by low-growing species? Is severe pruning or topping of nearby trees really necessary to keep power flowing without interruption?

Perhaps it is time to suggest planting tall poles over shade trees instead of small trees under power lines. At the very least, it is fair to consider all the technologies and engineering alternatives that are available to allow trees and utilities to safely share the same space. Certainly, planting appropriate trees near utilities is a good policy, but here are some other methods that expand the possibilities of finding solutions that provide both large, healthy shade trees and dependable utility service.

Beautiful, shady streets are possible when all available methods are considered for providing utility service and the benefits of community trees.

If extra tall poles can be used to span overpasses, they also offer potential for use around tall trees.

Alley arms can sometimes be used to route power lines to the outside of tree crowns, reducing the need for severe pruning.

Placing utilities in allies or within backyard easements is one way to keep streets green and shady.

Bundle cables provide a method for reducing the space needed for overhead lines and therefore the amount of pruning necessary to pass lines through the top of a tree.

MYTH 7: TREE ROOTS CAUSE SIDEWALK DAMAGE

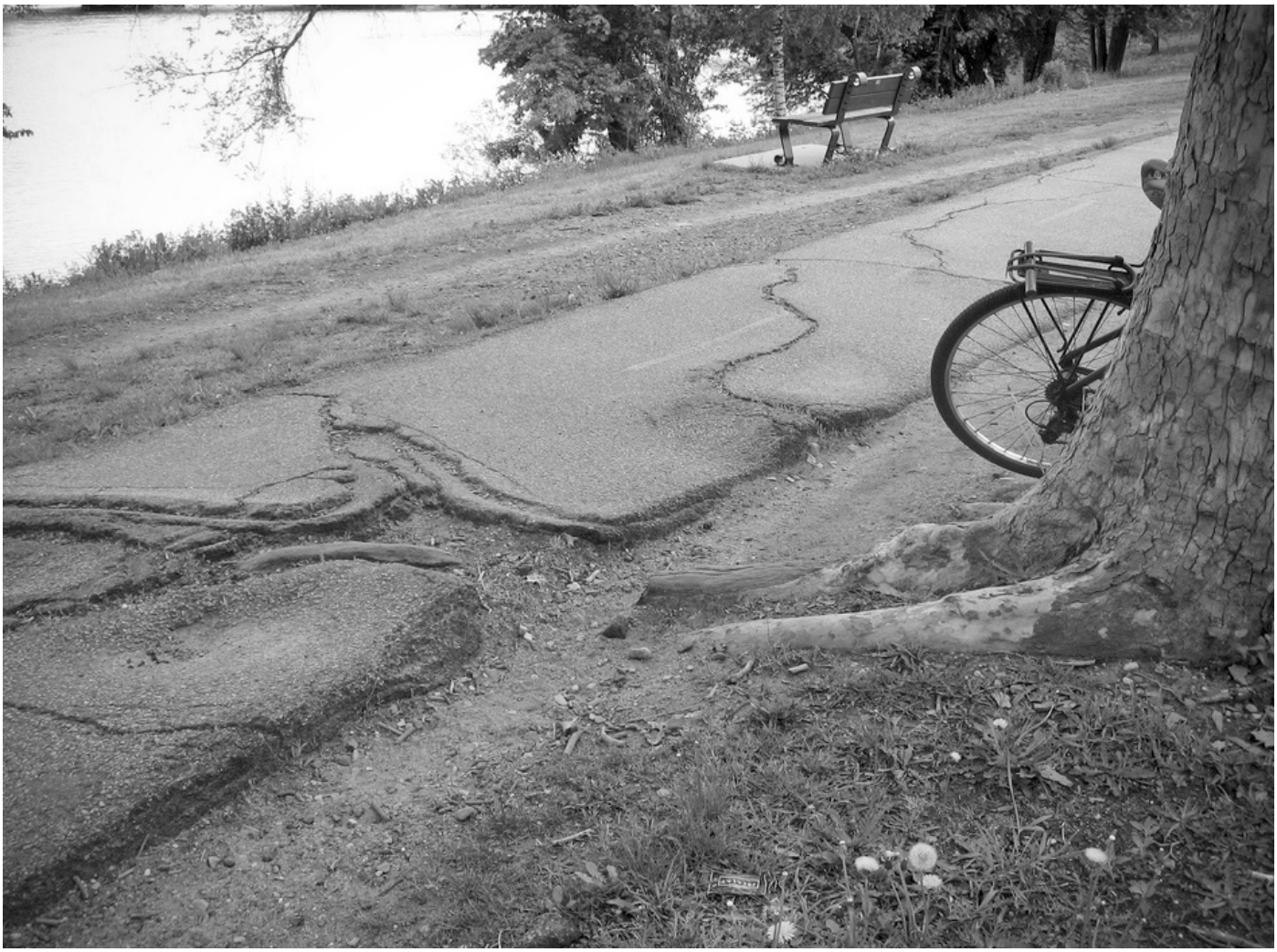
"Tree roots do not cause sidewalk problems," insisted the late urban forestry consultant Steve Sandfort, who saw plenty of damaged sidewalks. "Tree people are never called to inspect the thousands of defective walks where there are no trees, and you must ask what causes the problems on those treeless segments." He went on to argue that roots sometimes help lift or crack sidewalks, but in most cases, the real culprits are soil conditions and poor construction.

To prove his point, Steve used soil maps to compare sidewalk damage. In one part of town where soils are of a high swell and shrink nature, damage is greater than where the soil is strong and stable — even where no trees are present. These characteristics are always noted on soil survey maps available from the USDA Natural Resources Conservation Service.

Because of differences in soils, the same construction design should not be used throughout the city. But this is the common practice in communities nationwide. As a result, roots often take a bum rap simply because they follow the gaps created as substandard pavement heaves and settles.

In weak, movement-prone soils, extra precautions are necessary when building sidewalks, driveways, patios, and other improvements. This includes laying a 4- to 6-inch base of coarse gravel, slag, or crushed stone and paving with a thicker, possibly even reinforced concrete. It is definitely more expensive, but it is a matter of paying now or paying later and finding the best way to have safe sidewalks near trees in the meantime.

Trees also become the scapegoat for substandard construction on good, stable soil types. By examining "root-damaged" pavement as it is torn up for replacement, Sandfort sometimes found slabs only 2 inches thick instead of the common minimum of 5 inches. The thinner slab is much more prone to lifting or cracking as tree roots grow. This kind of construction invites trouble, like leaving the keys in your car and having it taken for a joy ride by passing teenagers.



Where sidewalks are properly designed using specifications appropriate to the soil type, they are more able to resist being moved by growing trees. Of course, matching trees, based on size at maturity, with available growing space is important, too.

Tree Replacement Formulas

MYTH 8: GRATES AND GUARDS ARE GREAT

All things have their place, including tree grates and guards, but in most cities, these devices probably cause more problems than they solve.

Tree guards, those vertical iron cages, are not only expensive but often counterproductive. Originally they were invented to keep horses from chewing off the bark of young street trees. Today, the horses are gone, but the guards remain, primarily in an attempt to deter vandalism. Instead, children, as well as vandals, use the guards as a climbing challenge that leads to broken limbs. In addition, wind beats the trunk and lower branches against the top of the guard, and cars bend the iron bars into the trunk. If the tree escapes all this and grows, it eventually fills the space inside the guard and makes removal far more difficult than installment. Frequently, the guard is never removed, ultimately killing the tree it was supposed to protect.

The problem with tree grates is similar. All too often they are neglected after being installed. They become raised from an accumulation of blowing dirt and litter, creating a tripping hazard, and the growing tree expands into the grate before crews get around to enlarging the center hole or removing the device. The grate then becomes a deadly collar.

In both cases, money spent on the protective devices could be better spent on more trees or trees of a larger, more vandal-resistant diameter at the time of planting. When grates and guards are used, a systematic inspection schedule and funded maintenance program are essential.

Tree grates and guards are expensive to purchase and install. They are even more expensive when neglected, leading to the premature death of the trees they were intended to protect.

MYTH 9: TREE STAKES ARE ESSENTIAL

This is no myth where winds are strong or when evergreens are planted. Larger bare-root stock, too, often requires stakes for the first growing season. But in other cases, stakes are not needed.

When the City of Cincinnati plants trees, specifications call for 1½- to 2-inch caliper and balled and burlapped stock. Planting contracts also require that if the tree leans after planting, the contractor must return and add stakes. Of the last 4,000 trees planted, it was necessary to enforce this requirement only 20 times.

Stakes are expensive, not only to purchase, but in terms of labor to install and remove. As with tree grates, the tendency is to ignore the stakes after installation, a condition that can lead to girdling of the tree as it grows. Improperly installed stakes also reduce the natural sway of the trunk necessary for good taper and strong wood, and retard root development. Again, the money would probably be better invested in more trees.

MYTH 10: WATER IS A TREE'S WONDER DRUG

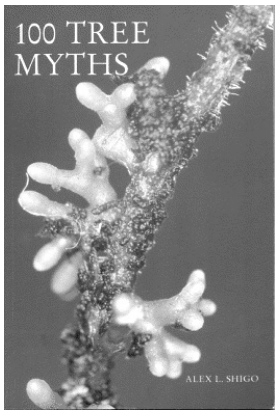
With good judgment, this is true. Water usually does more good than adding fertilizer. It also is important for preventing stress that predisposes a tree to disease, insect infestations, and early decline, and it is essential at the time of planting to remove air pockets and to give the tree a good start in its new home.

The problem, however, as many urban foresters will testify, is that sometimes more trees ultimately drown than die of drought. This is simply from overwatering, especially where there is an automatic sprinkler system nearby to water grass.

The key to watering is to match your schedule with the amount of local rainfall. In some areas, regular rainfall makes it unnecessary to water street trees. Watering should be done only during long dry spells, especially if windy or hot, and in dry climates. In these cases, water is the wonder drug. Unfortunately, due to labor and equipment costs, watering street trees is not always cost effective. But for individual trees on private property, watering is more economical than you may realize. A large, newly planted tree needs only about 10 gallons of water a week in dry weather.

Other Sources of Information

MORE MYTHS TO PONDER



Some are startling, some are controversial, but if you want more myths to think about, Dr. Alex L. Shigo's **"100 Tree Myths"** is for you. While Bulletin No. 30 focuses on management-related myths, Dr. Shigo's 80-page book looks at individual trees as living, growing organisms. "100 Tree Myths" will educate the novice and challenge the professional, but all will find it as entertaining as it is educational. So, do only leaves photosynthesize? Is fertilizer really tree food? Should limbs be removed to compensate for the loss of roots after transplanting or construction work near the tree? These questions and many more are explained in this unusual book. It is available for $16.00 from:

Shigo and Trees Associates LLC
PO Box 2466
Snohomish, WA 98291-2466
www.shigoandtrees.com

A palm tree in Idaho – myth or mirage? Actually, it is neither, but rather the ploy of a car dealer to use a plastic tree for calling attention to his wares!

EDUCATION IS THE KEY

Dispelling myths about trees and tree care can be one of the results of continuing education. To help make this possible, the Arbor Day Foundation provides opportunities for both professionals and interested citizens to participate in workshops and conferences.

To see the latest listing of upcoming events, please visit our website at **arborday.org** and go to the "Conferences and Workshops" section. You may also phone Member Services at 888-448-7337 to request information about upcoming educational opportunities.

For more information about tree myths, please visit **arborday.org/bulletins.**

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