

Photo 1. PHC structural pruning of maturing trees can save trees from premature, catastrophic failure. Removal of these codominant stems earlier in the life of this sugar maple would have saved this tree. Photos courtesy of the author.

BUSINESS OF PHC, PART 8

PHC Pruning That Saves Trees

BY CHRISTOPHER J. LULEY, PH.D.,
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Is structural pruning really plant health care? Given that it can save trees from being prematurely removed from the landscape, it clearly is PHC, and may be one of the more important PHC practices. In some cases, a single pruning cut can save a tree from catastrophic failure later in life (Photo 1). How many other PHC practices can make that claim? So, why is it such a hard sell to clients and, to some degree, arborists?

One of the primary reasons is that fast-growing, maturing trees that can no longer be pruned from the ground look like they don't need pruning to clients (Photo 2). They appear extremely healthy, often sporting full, dense, "balanced" crowns with dark-green foliage along with above-average shoot extension. However, this is exactly the time in their life cycle when structural pruning is needed to remove or avoid development of important structural defects. In fact, defects that develop in this stage of growth often cannot be corrected later (Photo 3).

The biggest growth and structural issues

that develop when trees are young or begin their rapid growth are:

- codominant stems or multiple stem attachments (Photo 4);
- competing laterals - or lateral branches that are too large and low on the trunk at their point of attachment (Photo 4);
- competing laterals - or lateral branches that begin to turn up on the outside of the crown and form

an unbalanced crown (Photo 5); and

- loss of apical control as competing branches begin to overtake the central leader (Photo 6).

These defects are frequently hidden from view by fast-growing, vigorous crowns. It also takes a skilled arborist to convey the importance of correcting them to clients and the pruning skills to know how to correct them. Arborists may know how to correct them, but may not want to deal with the short-term visual impact that may result from removal or correction of these defects. (Photo 7).

Reduce, head or remove

In a good number of instances, defects in maturing trees started in the nursery or soon after the tree was planted in the landscape. Nurseries are still selling trees with codominant stems or ones that lack a central leader, because consumers are attracted to short, bushy crowns that usually come with hidden defects. Once in the landscape, the lack of initial structural pruning, and open growth with no adjacent or competing

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Photo 2. Because fast-growing, maturing trees have vigorous crowns, it may appear to clients that no work is needed to correct life-shortening defects.





Photo 3. Defects such as these multiple stem attachments should have been corrected early in the life of the tree and are virtually impossible to correct at this stage of growth. This tree will be lost from the landscape because structural pruning was not provided earlier in its life.

trees, results in a loss of apical control (inhibition of a lateral branch growth by shoots above it). This contributes to the development of a host of undesirable growth patterns that ultimately become defects later in the life of the tree.



Photo 4. Codominant stems (red arrow) and competing laterals (yellow arrows) are common and important structural defects that should be addressed in PHC structural pruning.

Reduction cuts, and in some cases heading cuts on non-permanent branches, are the foundation of PHC structural pruning (Photo 8). Reduction cuts require skill to know how much stem removal is needed to suppress branch growth, so the branch being suppressed can be removed in a later pruning

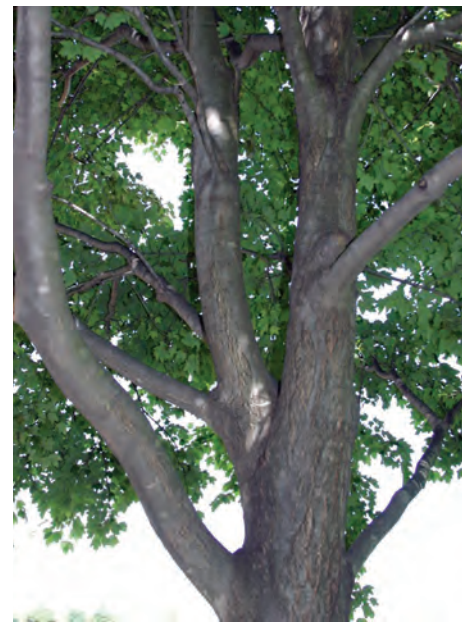


Photo 5. Maturing trees often lose apical control when lateral branches lower in the crown turn up and overtake the central leader. This should be addressed in PHC structural pruning to re-establish a central leader.

interval. Too little reduction will not suppress a branch adequately to achieve desired growth reduction. Too much



Photo 6. This is a red oak that is losing apical control, as competing laterals and a codominant stem formed long after it was planted. Reduction cuts are key to restoring a central leader.

Business of PHC Series at a Glance

This is the eighth article in a planned 12-part series called Business of PHC focusing on what a smaller company needs to know to launch a plant-health-care program and start offering PHC services. The various aspects of this lucrative profit center that we have covered or plan to cover include:

1. "PHC - It Could Be the Shot in the Arm Your Company Needs" [TCI, April 2021]
2. "Elements of a Plant-Health-Care Business Plan" [TCI, May 2021]
3. "How to Equip Your Business Without Breaking the Bank" [TCI, June 2021]
4. "Who Do You Need On Board to Get Started?" [TCI, July 2021]
5. "The Science: Host Species and the Things That Affect Them" [TCI, August 2021]
6. "Diagnostics Is a Critical Component of Plant Health Care" [TCI, September 2021]
7. "Soil Amendments: An Arborist's Prescription for Healthy Trees" [TCI, October 2021]
- 8. Structural Pruning: PHC Pruning That Saves Trees**
9. Licensing and Regulatory Requirements [Scheduled for December]
10. Marketing/Selling PHC Contracts [Scheduled for January 2022]
11. Scheduling/Fulfilling PHC Contracts [Scheduled for February 2022]
12. PHC Resources - TCIA PHC Technician, Soil-Testing Labs, Pest-Diagnostic Services, etc. [Scheduled for March 2022]



Photo 7. Maturing trees that undergo PHC structural pruning may concern clients, as “holes” and temporary gaps appear in the crown from pruning. These visual impacts are often most visible when the tree is dormant, and all but disappear once growth resumes.



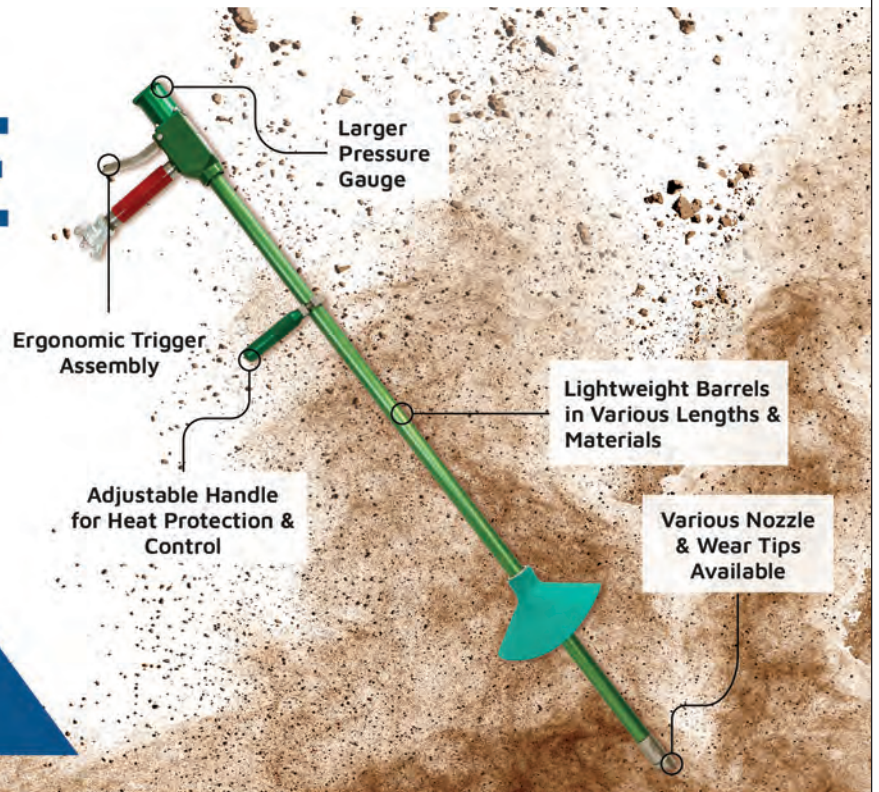
Photo 8. Reduction cuts are the foundation of PHC structural pruning. Wise use of reducing branches is needed to achieve branch-growth suppression without inducing excessive sprouting. How much to reduce a branch often depends on the tree species and when the tree will be pruned again.

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Photo 9. Heading cuts can be used in PHC pruning, because branches lower on the trunk are usually removed as the crown is raised.

reduction, and the client may not like the unbalanced crown or large “holes” that result in the crown. Heading cuts, the ugly

kin of reduction cuts, can be used on maturing trees if the branch will be removed at a later time (Photo 9). There is no reason not to use heading cuts, particularly on branches low in the crown that will be removed later as the tree matures. In fact, heading cuts may have a number of benefits that we outlined in a previous article (*TCI Magazine*, October 2019).

Removal cuts that completely eliminate a defect generally do not work well in maturing trees. This is because defects usually have grown too large to effectively be removed in one cut without serious health or visual impacts (Photo 10). In many cases, reduction cuts instead of removal cuts allow more pruning on the tree where it is needed, because they lessen the amount of live crown removed. Further, large cuts low on the trunk of a tree may open the tree to decay, which becomes an issue later in life when growth slows.

PHC considerations

One of the best times to sell PHC structural pruning is late winter, when other



Photo 10. Removal cuts on the main trunk are sometimes necessary in PHC pruning, but they have the potential to be an entry point for decay. If possible, head or reduce the stem to slow growth, and allow the branch-to-trunk-size ratio to get smaller before making the cut at a future date.



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PHC services are at a standstill. In dormant months after the New Year, structural defects are easy to see. Research has shown that fall or early winter is the least-desirable time to structurally prune.

One downside of pruning when trees are dormant is that structural pruning almost always creates temporary imbalances in crown symmetry that are easy to see after the tree is pruned. Clients may react, but once trees have foliated

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Photo 11. Most trees that have not been pruned when they were young cannot have all defects corrected in a single pruning event. This tree clearly will require multiple pruning cycles to correct all the defects that were present when the tree was young.

in the spring, these concerns almost all go away.

There are a number of other important considerations to PHC structural pruning. First, it almost always takes more than one pruning cycle to achieve the desired structural result (Photo 11). From a sales standpoint, this is a positive, but clients need to have their expectations set accordingly. Further, new structural defects frequently develop as fast-growing trees continue to grow, and a single pruning event cannot correct these defects.

Hand in hand with establishing client expectations is that arborists are well served by providing well-written specifications that may include explanations with photographs. In today's digital world, this could include images of client trees as definitive examples. Further, consistency within a company/sales personnel/work crews to deliver to specification and to client expectation is essential. Finally, photo documentation to track where and how much work has been done during each pruning cycle is helpful.

Understanding how each tree species is likely to respond to the pruning is



Photo 12. The earlier PHC structural pruning begins in the life of the tree, the better for the tree. The competing laterals on this maple can be easily addressed in a single pruning event.



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Photo 13. PHC structural pruning is often ignored by arborists, particularly when fast-growing trees have developed significant structural defects. Clients may not like the appearance of structurally pruned trees, particularly in winter.

very important. "Over" pruning some species results in excessive sprouting that can create more work in the future or can cause sunscald on select, thin-barked trees. "Under" pruning will not suppress growth adequately and is, therefore, a waste of time and money, as defects are not being suppressed and will continue to develop (Photo 12).

Skilled use of reduction cuts is almost always a large part of PHC pruning. Arborists need to be well versed in their use and in how each species responds to their use.

Summary

PHC structural pruning is an often-ignored service, because clients may not see the need and arborists are reluctant to sell the pruning. Yet, it is often desperately needed on maturing trees in the landscape, and can save or extend the useful life of many trees by eliminating life-ending failures (Photo 13).

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