

Scarred for Life

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It makes sense that dying trees have terminal bud scars. Sounds like an awful condition – my condolences. But the healthy trees have them, too (terminal scars, not condolences). It's a good thing, since terminal bud scars provide an excellent way to leaf through a tree's health records going back 5 to 10 years.

After a woody plant has its full complement of leaves, and they have hardened off, that tree or shrub makes both vegetative and flower buds for the following year. Inside each vegetative bud is an inchoate shoot tip, while the reproductive parts are in the flower buds (incidentally, trees have a secret stash of vegetative buds in case of spring frost damage, but no spare flower buds). At the tip of each twig, a woody plant makes a terminal bud, most often larger, which is the future leader of its respective leaf-dom. When a terminal bud starts to grow in springtime, it leaves behind a ridge of bark around the twig.

You can look down the twig toward its parent stem and usually find at least five terminal bud scars, sometimes fewer, sometimes more. Reading glasses or a hand lens will help, because older scars are less distinct. The space between each scar is called a node, and it represents the growth from a particular year. It acts as a ruler for arborists and foresters, and it can for you as well.

Certainly this varies by species, but one would expect to see 10 to 15 centimetres of new growth each year for a twig getting ample sunlight. Yet if you visit a university campus or walk down a city street, you'll discover trees with 5 or 10 millimetres between terminal bud scars. It might be fair to consider those trees terminal cases.

This information will help you make better decisions about managing your landscape trees, sugar bush, or woodlot. If you notice a consistent lack of good growth, you'll treat that tree or stand differently. Perhaps a soil test is in order to see if essential nutrients are missing. If you plan to prune a tree with scant growth between scars, prune lightly, no more than five to ten percent of leaf-bearing material. If you're wondering how foresters collect twig samples from the upper canopy, some use a nifty tool called a shotgun. Whatever it takes to keep your work interesting.

Another handy metric when evaluating young trees is something called a trunk flare. Examine the base of any tree. If there is an obvious flare, that's as it should be. But if the trunk resembles a fence post at the soil surface, the flare is buried, and that tree's roots are gasping for air, hardly able to function. Occasionally a young tree will survive long enough to grow new (adventitious) roots up where they can get oxygen, but it generally won't thrive the way it could have.

Deep-planted trees also will be more likely to develop girdling roots, a condition which is exactly what it sounds like. These are roots which began growing in a circular pattern because the burlap was too difficult to penetrate in the first year or two. As the expanding trunk reaches this ring of death, the python-like girdling root(s) chokes the trunk. This typically happens when the trees are 25-35 years old. Sidebar: always strip off the burlap once the tree is situated in the hole.

One can see the handiwork of girdling roots along roadways between mid-August and mid-September. Trees planted under contract by the Ministry of Transportation or local highway

departments are often just plopped into the planting hole, burlap and all. Trees in the 25-35-year age class begin to turn colour before surrounding trees of the same type. Once you're tuned in to this phenomenon, you will see it everywhere you go in late summer and early autumn.

The reason strangled or sick trees are early leaf-shedders has to do with their balance sheets. If a tree is being strangled by girdling roots, its sugar factory is less efficient than in other trees of its ilk. Root-girdled trees reach the break-even point earlier than robust trees, and hence they colour first.

Now you have a few more means for evaluating tree health. I hope they can help you keep a few trees from becoming terminal before their time.

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