

Mountains of Mulch and Excess Soil Are Killing Trees

By Robert McBride, Service Forester, PA DCNR Bureau of Forestry

A strange phenomenon has emerged in the past ten years: homeowners, groundskeepers, and even nurserymen are adding enormous amounts of mulch to trees and shrubs of all sizes and ages!

Generally, mulch is a good thing. But consider how Nature does it. A walk in a woodland can be an eye-opener. The organic debris we see (i.e., leaves, twigs, and seeds) is strewn loosely across the forest floor. It is usually one to two inches deep – and never piled up against tree trunks. You'll notice you can see the base of each plant. Look for the "root flare," the distinct point near ground level where the tree-stem transitions into roots. That is exactly what we should see in our landscape trees.

Why should we see a tree's root flare? Why is deep mulch not a good thing? Why should mulch never be piled up against the stem? There are two primary reasons. First, the excess mulch will overdo its job, keeping the tree's trunk dark and moist. This softens and weakens the bark, encouraging rot plus insect and disease attack. The first sign may be bark cracking or peeling at the base of the tree.

Secondly, roots need to breathe. A plant and its root system are usually shaped like a wine glass on a dinner plate. The wine glass represents the tree and trunk we see above ground. The plate depicts the tree's root system. (You may have noticed this appearance when you've encountered a tree blown down by a wind storm.) About 80% of

the tree's tiny feeder roots lie only ten to twenty inches below the ground surface, within four to eight feet of the tree trunk. Besides taking in moisture and minerals, roots also exchange gases – they breathe (respire) – drawing in oxygen to do their work. Things like standing water, fill soil, or mulch more than two inches thick make it nearly impossible for our plants to breathe. They are suffocating!

Signs of plant root stress include smaller, fewer, or yellow leaves, dead or dying limbs, and extra little branches (watersprouts and epicormics) developing on the stem or at the base of the tree.

The solution to suffocation is to remove the excess soil or mulch, or drain the water away. Fortunately most trees are long-lived and forgiving. Dig down beside the tree trunk to locate the root flare. Remove any soil above this level – out to the tree's drip line. (You'll likely notice tiny white feeder roots have migrated up into the excess soil or mulch to find air.) Place a two-inch layer of mulch over this cleared area, keeping it two inches away from the trunk. Sunlight should reach the base of the tree; and air should be able to flow past it. Remove any loose or peeling bark; treat the exposed wood with a latex paint (this is a cosmetic effort to deter insects and disease from attacking. Never use alcohol or oil-based materials. They simply burn the tissue attempting to heal the wood.). Next growing season your tree will likely thank you by putting out a fuller, greener batch of healthy new leaves.

PSU Renewable Natural Resources Extension Has New Websites

The Renewable Natural Resources Extension's portal page gives access to all of Cooperative Extension's Natural Resources programs, including: Water, Youth, Wildlife, Urban and Community Forestry, Private Forests, and Wood Products.

<http://sfr.psu.edu/extension-outreach>

The Private Forests website will house all things related to private forestland stewardship, including *Forest Leaves* and other quarterly newsletters, webinars, publications, a calendar of events, woodland owners associations information, the forest stewardship program, and other tools and resources for private forest landowners.

<http://extension.psu.edu/private-forests>

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