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# Urban Forest NEWS

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## This Issue



## Mulching 101

*By Diane Beyer*

Before we get into how to and NOT TO mulch, let's remember WHY we mulch.
Mulching serves several purposes:

- Weed suppression.
- Slows moisture evaporation.
- Breaks down into soils, adding organics.
- Moderates soil temperatures.
- Eliminates mower damage.

With that information in mind, let's look at the do's and don'ts of mulching.

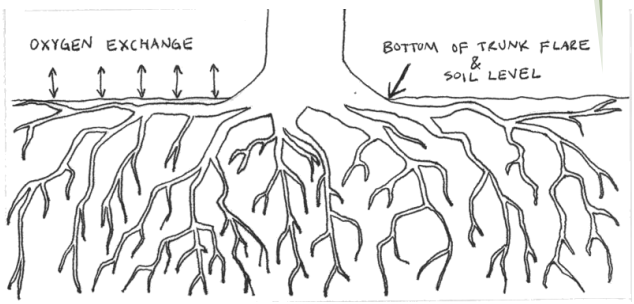
The common perception of "more is better" is no more appropriate with mulch than it is with fertilizer or insecticides.

**WHAAAATTTT, you say?!!!**

Yup, less mulch is often better! Let's take a look at why.

**Volcano mulching will cause trunk failure!**

Take a look at the drawing below. Trees need to be able to exchange oxygen through "root respiration" in order to create healthy root structures, and therefore, healthy trees. If we cover this area up with layers of mulch, the tree roots will not be able to "breathe" and complete this task.
Trees are amazingly adaptive, and as such, will grow new roots into the mulch so they can respire. This means there are now roots growing in mulch above ground level, which is a structural issue as well as a health issue for the tree.




Over mulching also places mulch next to the trunk tissue, above the tree's root flare. As it's designed to do, the mulch holds moisture next to the trunk tissue, which is not meant to be moist, and the trunk tissue will decay, eventually causing tree failure. Some tree species are more susceptible than others to trunk rot. Cherries have smooth bark and visible bark lenticels meant for air exchange and may succumb more quickly than some others.

Bark rot and root decline also result in reduced translocation of food from the leaves to the roots, resulting in leaf drop and dieback of the tree's crown.

## WHICH MULCH IS BEST?

- Pine bark nuggets. These come in several different sizes from mini to jumbo. These mulches are long lasting and enrich soil as they degrade. Standing or running water can cause these mulch nuggets to float and wash away, so be careful where you use them!
- Shredded hardwoods. These mulches are less likely to wash away but can compact over time and block rain and nutrients from getting to the soil and plant roots. When these mulches break down, they tend to raise soil pH.
- There are several products that should never be used as mulch: sawdust, wood shavings and un-aged wood chips. As these materials break down, they consume large amounts of nitrogen, depriving surrounding plants of this vital nutrient.

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## Mulching 101 *(cont. from pg 1)*

OK, OK, you get it! Too much mulch is not good! So, how do you ***properly*** mulch a tree?

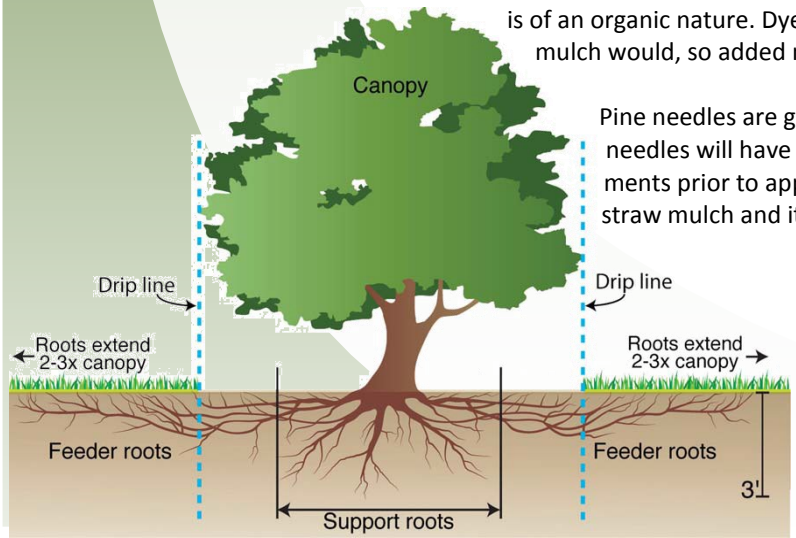
Start by identifying the root flare of your tree. If you have a young, newly planted tree and you don't see a flare at the bottom of the tree, chances are it is planted too deeply. This issue causes the same effects as mulching too deeply, and will eventually kill the tree. So, if this is the case, replant the tree so the root flare is at ground level.

Once you are assured your tree is planted correctly, apply mulch at no deeper than 3", but keep mulch away from the trunk of the tree—3-6" for mature trees. DO NOT MOUND MULCH. Keep it flat and apply to the dripline of the tree. If your tree is brand new and doesn't yet have an established dripline, place mulch at least 12" beyond the edge of the root ball all the way around.

Why apply mulch so far out away from the trunk, you may ask. Tree "feeder" roots will be within the first 6" of soil. We learned this at the beginning of this article. These feeder roots will need to compete for nutrients and water with any other plant materials in the same area, including grass. While mature trees may be able to overcome this competition, young trees may struggle. Consequently, it is important to remove grass as far out as 12-24" from the trunk of a new young tree, depending on its size.

As the diagram below shows, roots extend AT LEAST to the dripline, and often beyond, especially on mature trees, so protecting those feeder roots from competition and mechanical damage help to assure the healthiest tree possible.

A growing trend in the past few years has been to use colored mulches. Are they safe? The answer may not be what you think. While the dyes used to color most mulches are of organic origins—iron oxides or carbons—the actual mulch is often recycled scrap woods, which may include treated wood with toxins. These toxins can kill beneficial soil microbes, insects and earthworms that your tree and soil needs. So, read the label if you want colored mulch to make sure it is made directly from trees and that the dye is of an organic nature. Dyed mulches also do not tend to enrich the soil as an organic mulch would, so added nitrogen may need to be applied with these mulches.




Pine needles are great mulch material if you can get them. Be aware that pine needles will have a tendency to acidify the soil, so know your tree's pH requirements prior to applying pine needles. Water percolation is optimal through pine straw mulch and it won't wash away.

**DO NOT VOLCANO MULCH!**

Tree roots will grow into the mulch making the tree less drought resistant.
Oxygen supply to the roots is also reduced.
Harmful soil microbes will be encouraged.
Trunk rot can occur.

## Street trees need room

*by Erik Nelson*

Street trees and their planting areas (utility strips) function as part of the City's stormwater system. As a consequence, the integrity of the utility strips merits attention and protection to ensure the hydrologic benefits of an urban forest are realized.

Before the land is developed, nature finds its own way to handle stormwater. It creates floodplains and wetlands so that water is dissipated into the surrounding landscape and naturally channeled to streams and rivers. When homes, businesses, parking lots, and roads are constructed, the land's ability to absorb and effectively divert rainwater is often severely altered. As a consequence, we must adapt the reduced natural landscape to be able to handle this introduction of impervious surfaces. The amount of precipitation has not changed, so the challenge is to ensure the available remaining land is adapted to effectively absorb it.

A healthy urban forest reduces the amount of stormwater runoff and pollutant loading into the Rappahannock River in four basic ways:

- Trees draw moisture from the ground surface, thereby decreasing runoff.
- Leaves, branch surfaces, and trunk bark intercept rainfall, thereby reducing runoff volumes and delaying the onset of peak flows. This capacity appears minimal, but Urban Forest Research studies show that a medium size tree can intercept over 2,000 gallons of rainfall per year.
- Root growth and decomposition increases the capacity and rate of soil infiltration by rainfall and reduces overland flow.
- Tree canopies reduce soil erosion by diminishing the impact of rain on barren surfaces.

A critical component of the urban forest is its planting environment. Parks and other natural areas are often maintained as wooded land, and new commercial areas are required to have some landscaping. Neighborhood and downtown streets, however, need attention. **There are more than 100 miles of sidewalks in Fredericksburg and their related utility strips/planting areas cumulatively exceeds 70 acres of land**.

Unfortunately, too many utility strips/planting areas have been compromised, to the point that tree planting is difficult and unsustainable. In some areas, four-foot wide sidewalks on once tree-lined neighborhood streets have been widened to five feet, reducing the ability of attractive street trees to survive. Five foot sidewalks can be introduced and maintained in new development, where the associated utility strip/planting area can also be established at a sustainable five-foot width. In established neighborhoods, existing four-foot wide sidewalks need to be maintained at their historic four-foot width, so as not to hinder the growth and sustainability of healthy street trees.

Similarly, utility strips/planting areas should not be covered with impervious materials, such as bricks or concrete. Introducing surfaces that add to the overall volume of stormwater runoff is not the direction the City needs to go in order to sustain a healthy natural environment. Natural areas, even small ones, need to be kept intact. A certain flexibility, however, is needed to address areas of questionable integrity.

In the downtown area, there are streets with utility strips/planting areas that are entirely inadequate for any type of vegetation. Trees cannot be planted in excessively narrow strips of dirt, and grass struggles to take hold as well. Utility strips less than three feet wide should be classified as inadequate. In such places, the sidewalk surface (brick or concrete) can be allowed to extend to the curb, but with the requirement that standard sized tree wells (min. 5 x 6') be established. This step allows the introduction and maintenance of street trees in places that were previously inhospitable.

In places where the utility strips are wider than three feet, the sidewalk should not be extended to the curb. The natural area of those utility strips/planting areas should be allowed to continue to function as a part of the City's overall stormwater system. If possible, they should be enhanced, as feasible, with reduced sidewalk widths during the normal course of sidewalk maintenance.

Even with stated standards, there will always be unanticipated circumstances where such requirements may be difficult to implement. In those instances, an internal review committee should be established or an existing committee assigned review responsibilities. There are many policies stated in the City's Comprehensive Plan related to establishing and maintaining a healthy urban forest and for maintaining tree-lined neighborhood streets. When the adopted standards cannot be reasonably met, this committee would be able to approve a solution that addresses unusual circumstances consistent with those policies.

The intent is to ensure an attractive, healthful environment within the City of Fredericksburg. Trees help do that, but we need to make sure they can thrive and fulfill their many functions.

**City staff employ innovative methods to assure tree/hardscape compatibility**

## Arbor Day ceremony set

I wonder how many people are familiar with Arbor Day these days. Or are familiar with how it started. Its history should remind us NOT to take trees for granted.

This special observance started right here in the USA, by J. Sterling Morton in 1872 in the state of Nebraska. Morton and his wife moved to the newly established Nebraska territory from Michigan, and were surprised to find it devoid of trees. As homesteaders plowed more and more land, erosion became a bigger and bigger problem. Morton began a campaign to plant trees statewide to improve the environment to lessen erosion from human activity and to beautify the landscape to attract yet more settlers. The story goes that on that first Arbor Day in 1872, Nebraskans planted a million trees!

Today, all 50 states, and many countries, celebrate Arbor Day. US Arbor Day is April 22, Morton's birthday.

Here In Fredericksburg, we celebrate Arbor Day each year with a ceremony. This is a requirement of our Tree City designation, but even without that, I think the citizens of the City and surrounds would want to celebrate trees.

This year, the City will celebrate Arbor Day on April 10 at Kenmore Plantation. Watch the Public Works website for more information.


Fredericksburg Public Works
Urban Forestry Program
715 Princess Anne Street
PO Box 7447
Fredericksburg, VA 22404




## TREE PROFILE

### Yoshino Cherry

*(Prunus x yedoensis)*

*HT: 35-45 ft.*
*W: 35-45 ft.*
*LEAVES: Alternate, simple with serrated edges.*
*FLOWERS: Pinkish-white showy in spring.*
*ORIGIN: Japan.*

*With spring surely here soon, let's focus on one of the showiest blooming trees we plant in the City.*

*This little tree is not a native to Virginia, but is well behaved and tends to stay where it's planted. It is naturally short lived, usually 40-60 years, which works well for a street tree.*

*This is the tree that has made Washington a spring tourist destination. It's origins are in Japan.*

*Here are some reasons we have chosen this little gem to be on the list:*

- *Yoshinos can be planted in smaller spaces than many canopy trees, such as under power lines or in utility strips from 3 to 4 ft wide where larger trees would not have enough room.*
- *It grows quickly for the first 10-15 years, so provides "right now" interest.*
- *Young trees, to about age 30, grow upward in a vase fashion, good for sidewalks.*
- *May produce showy yellow fall foliage.*
- *It doesn't develop surface roots and won't invade water lines.*

*See if you can find these trees planted in utility strips in Fredericksburg.*

plant a tree today