



FAIRFAX COUNTY

TREE BASICS



This booklet contains basic information about the benefits of trees; how to select, plant, and maintain trees, and additional information from the Fairfax County Tree Commission.

FAIRFAX COUNTY TREE COMMISSION

The Fairfax County Tree Commission is a body consisting of 15 members. Five are selected from the following offices and agencies: Fairfax County Environmental Quality Advisory Council, the Northern Virginia Soil and Water Conservation District, the Fairfax County Park Authority, the Virginia Cooperative Extension, and the Virginia Department of Forestry. Nine members are appointed by the Fairfax County Board of Supervisors, one from each district and one at large member is appointed by the Board of Supervisors chairman, to provide advice to the Board of Supervisors on actions it may take for maintaining, improving and increasing the urban forest canopy throughout Fairfax County.

On behalf of the Board of Supervisors, the Tree Commission provides outreach to private and public organizations and county residents. Everyone who lives in Fairfax County is in the urban forest. When residents and business owners plant and maintain trees, they are helping to improve the urban forest for everyone.



THE BENEFITS OF TREES

The benefits that trees and forests provide are well documented. A home or building lot with trees is often seen as more valuable than a lot without trees. A commute along a wooded parkway is less stressful than a commute along a treeless commercial strip. People in hospitals heal more quickly when they can see trees from their windows.

Planting trees that are native to Northern Virginia provides food and shelter for local birds, pollinators and animals that depend on native plants to survive. Native trees are also particularly well suited to the soil and environmental conditions and tend to require less care once established.



Trees and forests benefit everyone in numerous ways:

- filter pollutants from the air
- decrease stormwater runoff
- stabilize soil and reduce erosion
- provide wood products
- moderate temperature changes
- provide stress reduction and wellness
- provide shade
- provide habitat and food for wildlife
- provide a buffer from street noise and glare
- reduce heating and cooling costs
- provide jobs



For more information about the benefits of trees, see **Green Cities: Good Health** at <https://depts.washington.edu/hhwb/>. To find the monetary value of the trees on private property, see www.itreetools.org.

HOW A TREE WORKS

A tree is an efficient natural machine, developed over thousands of years, and consists of several key parts (e.g., leaves, trunk and roots) that perform specialized functions.

The Leaves

- Absorb carbon dioxide from the air
- Filter pollutants from the air
- Release oxygen into the air
- Manufacture food for the tree
- Provide food and cover for wildlife
- Provide shade

The Trunk

- Vertical support for the crown
- Conduit for food and nutrients to move up and down the tree

The Roots

- Absorb air and moisture from the surrounding soil
- Absorb and release nutrients from and into the soil
- Anchor the tree



LEAVES

In addition to producing food for the tree through the process of photosynthesis, leaves absorb carbon dioxide and filter other pollutants while returning oxygen to the atmosphere. They also return water to the air through evapotranspiration.

TRUNK

The trunk provides above-ground support and a means to transport food and nutrients throughout the leaves and root system.

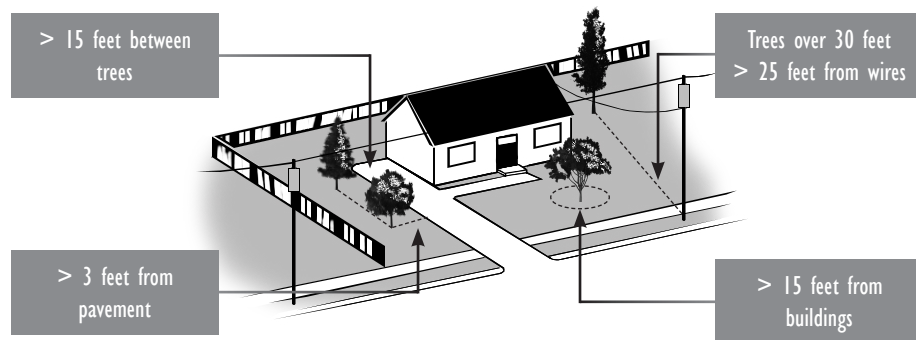
ROOTS

As tree roots fan out into the surrounding soil to anchor the above-ground parts of the tree, they absorb water and nutrients and perform a variety of environmental services including water filtration and erosion control.



HOW TO SELECT A TREE

Selecting a tree to buy and plant can be a tough decision. What looks good now may become an obstacle in 10 years. Choose the right tree for the right place. Pay attention to the eventual height and width of the tree, light, moisture and soil requirements of the tree. Select a tree that is appropriate for the conditions in which it will be planted.



Before going to the nursery, consider:

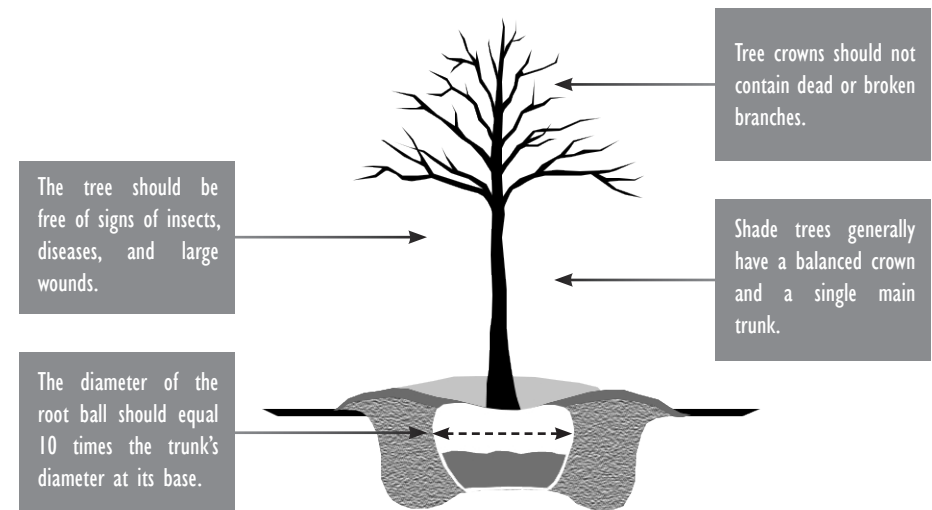
- Is there space available for the tree to grow to its eventual height and width? Be aware of proximity to surrounding buildings, overhead or underground wires and conduits, and the proximity of neighbors, driveways and sidewalks. Always call 811 before digging.
- Is the climate condition right for the specific tree requirements? Sunny (minimum of six hours of direct sun a day)? Part shade (between two and six hours of direct sun)? Exposed to winter winds? Against a dark wall?
- Is the soil condition appropriate for the specific tree? Wet? Well-drained? Eroded? Dry?
- Is the tree the right one for the desired effect? Shade? Screening? Beauty? Wildlife and bird attraction?
- Avoid planting evergreens where they block winter sun. Instead, plant deciduous trees for summer shade and winter solar radiation.
- Avoid planting trees with leaf or fruit "litter" near pools, decks and paving. Place them where they shade and self-mulch.
- Branches can create hazards or block views. Locate trees away from street corners and vehicle and pedestrian traffic.

Consult the Species Selection Guide in the back of this booklet to identify some trees suited to the purpose, environment, and soil conditions of the county. Also refer to Plant Nova Natives for information about trees and shrubs that are native to Northern Virginia and accustomed to growing in these soil and weather conditions www.plantnovanatives.org.

A new tree will arrive in one of several forms: bare root, balled and covered in burlap (burlaped or B&B), container-grown, or in a container.

Container trees and balled and burlaped trees may be planted at any time the ground is not frozen, except in very hot weather. Fall is considered the preferred tree planting time. At the nursery, look for these traits:

- Live branch length that is one-quarter of the tree's height
- Adequate root ball size; the diameter of the root ball should be at least 10 times the width of the tree trunk at its base
- Live buds
- Free of fruiting bodies (mushrooms) on the trunk or root ball
- Tree crown should not contain more than 10 percent dead or broken branches
- Shade trees generally have a balanced crown and a single main trunk
- Free of insects, diseases and large wounds



Once a choice is made, carefully transport the tree to its new spot in a covered vehicle or with the crown wrapped against the wind with a shade cloth or other breathable material. Keep the tree out of direct sunlight, and the roots moist until it is placed in the ground.

Bare root trees have the advantage of being less expensive and easier to transport. They will experience less transplant shock and will eventually catch up in size to a B&B or container tree. Roots must be kept moist and cool. Do not let bare root trees dry out. Plant bare root trees in the late fall, winter or early spring when they are dormant.

HOW TO PLANT A TREE

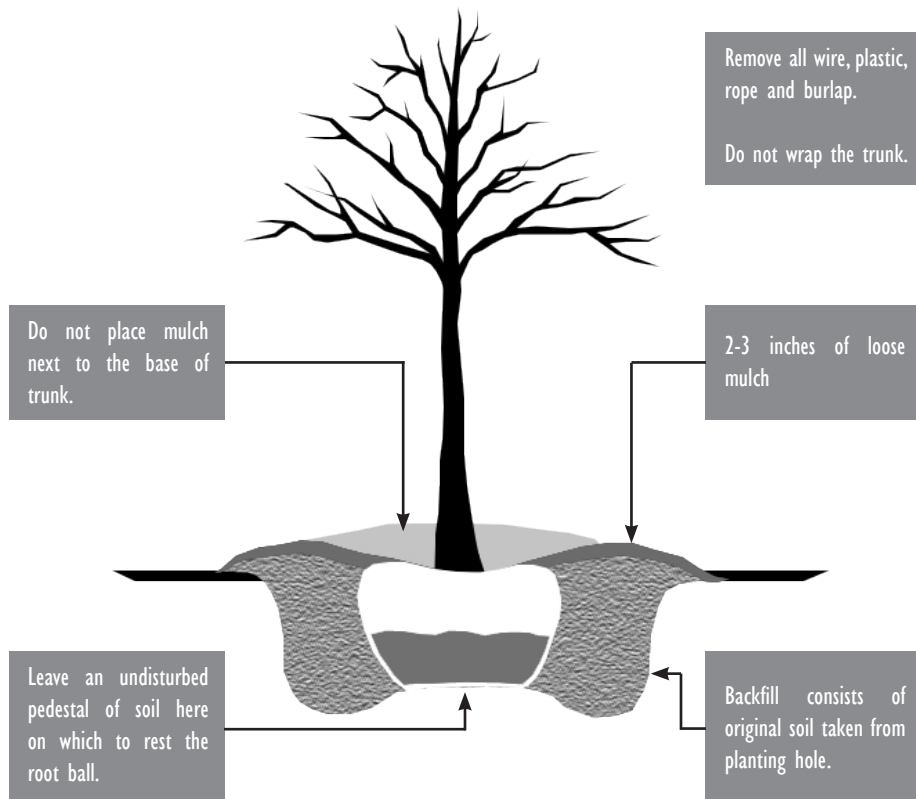
Always call Virginia 811 (Miss Utility) before digging.



Plant the tree as soon as possible, otherwise, it may dry out. If the tree cannot be planted immediately, place it in a shady or sheltered spot. Cover the roots of bare-rooted plants with moist soil, sand or peat moss. Keep the soil of balled and burlaped or container plants moist until planting.

Plant in well-drained soil. To test for soil drainage, dig the hole and fill it with water. If the water does not drain in 24 hours, plant elsewhere.

The success of every newly planted tree depends upon the right tree in the right place. Use only the soil found in the hole and do not add peat moss, sand or organic materials. These added materials encourage the roots to remain in the original hole and not grow into the surrounding soil. Use stakes only if the tree has a large crown, is on a windy site, or where it might be pushed over. Remove any stakes and guy-wires within six months of planting.



Seven Steps for Successful Container or Ball and Burlaped Tree Planting

1. Always handle the tree by its root ball or pot. Do not pick it by its top or trunk. Gently remove the tree from the container when ready to plant. Remove all tags, wires or ropes from the stems or trunk as these can restrict the flow of water and nutrients as the tree grows.
2. Dig a hole at least three times wider than the root ball and slightly shallower than the height of the root ball. Do not dig too deep. Leave an undisturbed pedestal of soil in the hole on which to rest the root ball.
3. Before placing the tree in the hole, look at the root ball and be sure to unwind any circling roots; these could strangle the tree. Tree roots should fan out as they grow, not encircle the tree.
4. Prune all broken and dead branches. Do not prune the terminal leader (the vertical stem at the top of the trunk) or the top buds. Suckers growing at the base of the tree should be pruned.
5. Set the root ball one to two inches higher than the surrounding soil. Once settling has occurred, the plant will remain above the original soil level.
6. Pack enough soil around the base to hold the tree in place. Continue to backfill the planting hole with the soil that was removed when the hole was excavated. Press down on the soil to eliminate air pockets. Don't add soil to the top of the root ball.
7. Place two to three inches of loose mulch over a three-foot radius around the tree, keeping the mulch at least three inches away from the trunk. Water thoroughly.

HOW TO PLANT A TREE CONT.

Seven Steps for Successful Bare Root Tree Planting

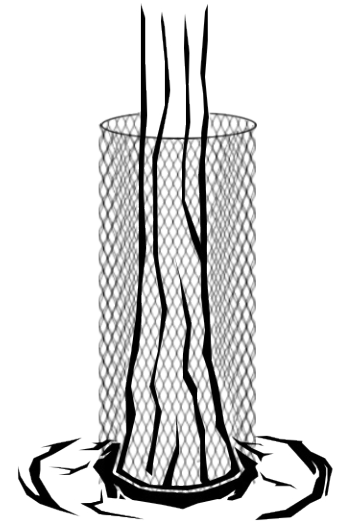
1. Keep the roots moist until ready to plant.
2. Unpack the tree, remove all packing materials, carefully untangle the roots and soak the roots in water three to six hours. Do not allow the roots to dry out.
3. Dig a planting hole that is wide and deep enough to accommodate the tree's current root system with some extra room to grow. To aid root growth, remove any grass within a three-foot circular area and turn over the soil within this area.
4. Place the root system in the bottom of the hole, then slightly lift the seedling to its desired planting depth. The "root collar" is the transition between the tree-stem and the root-stem. The root collar should be slightly below the ground surface.
5. Hold the seedling upright while partially refilling the hole, firming the soil around the lower roots. Do not add soil amendments such as peat moss or bark.
6. Gently, but firmly, pack the soil around the roots to close any remaining holes and air pockets.
7. Place two to three inches of loose mulch over a three-foot radius around the tree, keeping the mulch at least three inches away from the trunk. Water thoroughly.

Follow-up Tree Care after Planting:

For the first year, the tree should be watered but not overwatered. Give trees a thorough, deep, slow soak and then let the soil dry out before the next watering, about 7 to 10 days. This encourages the roots to grow down in search of water.

Protection from Deer:

Deer may damage trees by browsing or rubbing their antlers on the trunk, which strips the bark. Deer also browse the buds and small twigs of trees up to about four feet. This can kill a seedling. Protection for seedlings and smaller trees can consist of a wire cage about two feet in diameter and four feet tall. Taller trees that are beyond the reach of browsing deer still need protection from deer rubbing the trunk. The tube should be big enough around to allow one to four inches of space between it and the trunk.



For further information, go to the Virginia Cooperative Extension website <https://ext.vt.edu/lawn-garden.html> and search Tree and Shrub Planting Guidelines, and the Urban Forest Management Division website www.fairfaxcounty.gov/publicworks/urban-forestry-faq.

TREE CARE

Trees are complex living, breathing organisms. Everything done around a tree affects its health. Here are suggestions to give trees the best chance for survival.

Water Trees During Times of Drought

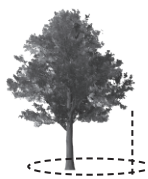
The first three years are most critical, but pay attention to watering needs throughout the life of the tree. Proper mulching or allowing leaves and small woody debris to accumulate over the root zone can help conserve moisture in the soil. Once established, native plants generally require less care.



First 3 Years After Planting

Check every other day in fast-draining soils, weekly in slow-draining soils

Water within the dripline



All Other Years

Check weekly

Water within the dripline, or for large trees, at the base and at the dripline

Protect Tree Roots

Do not allow soil compaction over roots. Do not mow over tree roots or use string trimmers near the trunk.

Monitor Damage

Watch for insect and disease damage and consult with a certified arborist or Extension Master Gardener if there is a concern.

Remove English Ivy and other Vines from Trees

Learn how to remove invasive vines from trees without damaging the bark.

<https://armn.org/choking-hazard>

Fertilize

Fertilize on an as needed basis determined by soil testing. Test kits are available at Fairfax County public libraries, Cooperative Extension offices and farmers' markets.

Professional Checkups

Hire a certified arborist for periodic checkups.

www.goodtreecare.com

Mulching

Keep mulch at least three inches away from the trunk of trees. Remember the 3-3-3 rule for mulching. Create a ring of mulch around the tree, three inches deep in a three-foot radius from the trunk, making sure to leave a three-inch space around the trunk. Don't pile mulch against the trunk. The mulch should look like a doughnut, not a volcano.

Less than 4 inches deep,
never touching the trunk



Pruning

Incorrect pruning is worse than no pruning at all.

Don't fall for tree trimming scams. Be aware of "woodchucks" who come into neighborhoods, unsolicited. They offer to prune or take down a tree at low cost. Generally, they target the elderly, overcharge for the work, and damage the trees. As with any other contractor, ask to see a business license, proof of insurance and references. See list of certified arborists at www.goodtreecare.com.

Any cut on a tree is a wound. Select the right branches, use the right tools and technique, and prune at the correct time. Weak, diseased or dead branches should be removed for the health of the tree and to eliminate the safety hazard they may pose to people and property.

When done correctly, and at the right time of year (certain tree species have specific requirements), pruning can reduce the height of a tree, shape it and remove dead or crossing branches. Hire a certified arborist for expert pruning or if branches are too high.

Pruning Tips:

- Prune living branches in the winter or very early spring, before the leaves bud (Note, however, that some tree species should be pruned after blooming. Make sure the timing is correct for specific tree species)
- Dead, dying and broken branches may be pruned at any time
- Use sharp, clean tools
- Never use tree paint, tar or other wound dressing

Please Don't Top Trees

"Topping" trees is a very harmful pruning practice. By removing a large portion of the tree's upper branches and leaves, new problems may be created. Topped trees are more likely to suffer from stress and become vulnerable to sun damage, insects, disease and storms.



Signs of a Hazardous Tree

The following may indicate that a serious problem exists. However, before assuming the tree needs to be taken down, consult a certified arborist for an accurate assessment.

- Mushrooms near the base of the tree
- Excessive leaf loss or dead leaves in the crown (the upper portion) of the tree
- Areas of rotten wood or cavities
- Nearby trees have died or have significant damage
- Noticeable change in the leaning of the tree
- Damage to the ground surrounding the tree from construction, erosion or storms

Checking Tree Safety

Healthy trees can fall down. A tree may be green and lush, but that does not guarantee that it is structurally safe.

Inspect trees anytime, but especially after storms. Examine the crown, branches, trunk, and area around the roots for these common dangers:

- Broken, dead or hanging branches
- Cracks, fungi, and cavities
- Weak trunk or branch unions
- Encircling root compressing the trunk (a flat-sided trunk at the ground level is a good indicator)
- Recent lean, especially if the soil or grass has lifted on one side

If a tree cannot be saved and does not pose a danger to people or property, consider leaving part of the tree standing rather than taking all of it down (referred to as a snag). Dead and dying trees offer critical habitats to birds, insects, mammals and other forms of wildlife. Keeping dead or dying trees in the landscape is very beneficial to wildlife, as long as the trees don't compromise safety.

COMMON MYTHS ABOUT TREES

MYTH #1

Once a tree is planted, it thrives.

- Urban trees and forests are located in harsh environments. In winter, the snowplow scrapes by, depositing snow and a salty slush on top of tree roots. In spring, branches are climbed on. Summer's heat is intensified by the pavement that surrounds trees, and water is scarce. Trees need care and maintenance to help them stay healthy and overcome stressful situations.

MYTH #2

Buy the largest nursery tree you can afford.

- It is much wiser to purchase a small specimen tree, as it will grow faster and be healthier in the long run, and will catch up to larger nursery specimens quickly. Larger pots tend to have excessive circling roots.

MYTH #3

If the top of the tree is green, the tree is healthy.

- Green leaves alone are not a sign of good health. The crown of a tree may not show signs of trouble for several years after damage to the tree occurs. Avoid damage to the trunk and activities that compact soil or change the grade within the root zone. Arrange for trees to have a periodic checkup with a certified arborist.

MYTH #4

Piling dirt or mulch over a tree's root system is alright as long as the roots aren't cut.

- While mulching around trees can help with competing weeds, retaining moisture, and protecting the trunk from damage, too much mulch can reduce oxygen supply and suffocate the roots, allow insects and disease to enter, and encourage rot. A layer of two to three inches of mulch, pulled away from the trunk, will benefit the tree without adding to potential problems. Avoid "mulch volcanoes" which can harm the lower trunk and roots of trees.

MYTH #5

Climbing trees with spiked boots is alright.

- This is harmful to the tree. Any opening in the bark is a wound, and wounds are avenues for insects and disease. Similarly, avoid hammering nails into trees.

MYTH #6

If a plant is under stress, it should be fed.

- If a plant is under stress, fertilizer will not solve the problem. Usually it is an environmental problem such as dry soils, overwatering, compacted soils, root damage, etc. Soils generally have adequate nutrients. Diagnose the problem correctly to find the solution.

MYTH #7

Topping trees keeps them more symmetrical, safer and healthier.

- Topping trees is extremely damaging. While it may remove some potential hazards, it also creates weak, flimsy branches. Additionally, topping removes leaves which the tree needs to absorb light and nutrients. The proper alternative to topping is professional trimming and pruning which removes dead, diseased or unbalanced branches.

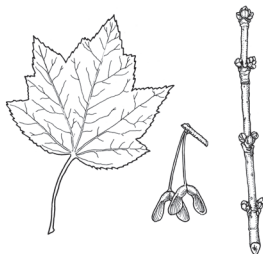
SPECIES SELECTION GUIDE

Adding appropriate shade, street and flowering trees to a landscape, and taking proper care of existing trees, will contribute greatly to landscape improvement. The added benefits of selecting native species are that they have co-evolved with local wildlife, birds and insects and are more likely to grow well in local soil and temperature conditions. Once established, they need minimal care. For more suggestions, and places to purchase native trees, refer to www.plantnovanatives.org.

Trees may be large (50 feet and greater), medium (35 to 50 feet), or small (35 feet and under). Be aware of the ultimate size of a tree before deciding where to plant it.

Trees for Sunny Locations

- Red Maple (*Acer rubrum*) large
- Willow Oak (*Quercus phellos*) large
- White Oak (*Quercus alba*) large
- American Beech (*Fagus grandifolia*) large
- American Plum (*Prunus americana*) small
- Eastern Arborvitae (*Thuja occidentalis*) small



Trees for Part Shade Locations

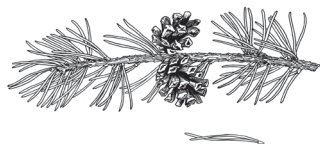
- American Holly (*Ilex opaca*) medium
- Flowering Dogwood (*Cornus florida*) small
- Eastern Redbud (*Cercis canadensis*) small
- Common Paw Paw (*Asimina triloba*) small
- Black Gum (*Nyssa sylvatica*) large

Trees for Wildlife Habitat

- White, Swamp, Chestnut, Black, Red and Scarlet oak (*Quercus*...) large
- American Holly (*Ilex opaca*) medium
- Common Hackberry (*Celtis occidentalis*) medium
- Serviceberry (*Amelanchier arborea* or *canadensis*) small
- Eastern Redcedar (*Juniperus virginiana*) medium
- American Persimmon (*Diospyros virginiana*) large

Trees for Dry Soils

- Northern Red Oak (*Quercus rubra*) large
- Shagbark Hickory (*Carya ovata*) large
- Tulip Tree (*Liriodendron tulipifera*) large
- Virginia Pine (*Pinus virginiana*) medium
- White Oak (*Quercus alba*) large
- American Persimmon (*Diospyros virginiana*) large



Trees for Moist Soils

- American Hornbeam (*Carpinus caroliniana*) medium
- Bald Cypress (*Taxodium distichum*) large
- Common Hackberry (*Celtis occidentalis*) medium
- Eastern Redbud (*Cercis canadensis*) small
- Loblolly Pine (*Pinus taeda*) large
- River Birch (*Betula nigra*) large
- Swamp White Oak (*Quercus bicolor*) large
- Sweetbay Magnolia (*Magnolia virginiana*) medium



Trees for Screening/Evergreen

- Eastern Arborvitae (*Thuja occidentalis*) small
- American Holly (*Ilex opaca*) medium
- Eastern Redcedar (*Juniperus virginiana*) medium
- Loblolly Pine (*Pinus taeda*) large
- Virginia Pine (*Pinus virginiana*) medium

Flowering Trees

- Serviceberry (*Amelanchier canadensis*) small
- Eastern Redbud (*Cercis canadensis*) small
- Flowering Dogwood (*Cornus florida*) small
- Sweetbay Magnolia (*Magnolia virginiana*) small
- American Plum (*Prunus americana*) small



Trees that cause problems

- Tree of Heaven (*Ailanthus*) - heavy seeding and sprouting; very invasive
- Black Locust (*Robinia pseudoacacia*) - many disease problems; invasive tendency
- Bradford Pear (*Pyrus calleryana*) - brittle branches; disease problems
- Ginkgo (*Ginkgo biloba*) - female tree produces messy, malodorous fruit
- Norway Maple (*Acer platanoides*) - very invasive
- Silver Maple (*Acer saccharinum*) - aggressive root systems can impact underground pipes, weak wood

**Note: this is not a complete list of tree species*



The following agencies and organizations provide information on trees and the urban forest:

The Fairfax County Tree Commission

www.fairfaxcounty.gov/publicworks/tree-commission

Department of Public Works and Environmental Services

Urban Forest Management Division | 703-324-1770, TTY 711

12055 Government Center Parkway, Suite 518, Fairfax, VA 22035-5503

treemail@fairfaxcounty.gov and pestmail@fairfaxcounty.gov

www.fairfaxcounty.gov/publicworks/urban-forest-management-fairfax-county

www.fairfaxcounty.gov/publicworks/urban-forestry-faq

Virginia Department of Forestry | 703-324-1489

12055 Government Center Parkway, Suite 904, Fairfax, VA 22035

www.dof.virginia.gov

Virginia Cooperative Extension Master Gardener Help Desk

703-324-8556 | mgfairfax@vt.edu

Free tree care publications from the Virginia Cooperative Extension

<https://ext.vt.edu/lawn-garden.html>

Plant Nova Natives

www.plantnovanatives.org



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**To request this information in an alternate format,
call the Urban Forest Management Division | 703-324-1770, TTY 711
www.fairfaxcounty.gov/publicworks/trees**