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Problem-free Trees for Virginia Landscapes

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Many of the tree species commonly planted in Virginia landscapes suffer from disease problems. Although some diseases can be cured, most must be controlled on a preventative basis. The best option for new plantings is to choose species that have a low risk of developing disease.

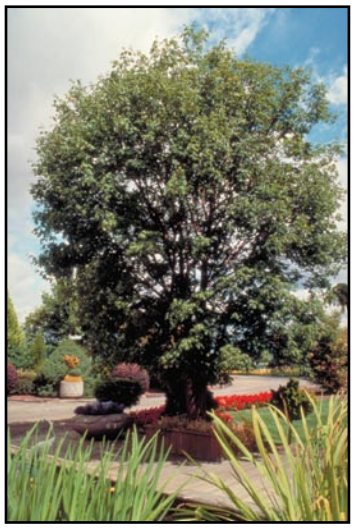
Listed below, in alphabetical order, are some choices of problem-free trees for Virginia landscapes. These species are recommended both for their desirable horticultural characteristics, as well as their reduced susceptibility to diseases and insect pests. Although some of the trees listed may suffer sporadic damage from Japanese beetles or defoliating caterpillars, the trees generally recover from damage by these pests. No tree species is completely immune from disease or insect feeding, and the trees listed in this fact sheet are no exception. Minor problems are noted for individual species. Many of the species listed are available in a variety of cultivars. Check for cultivars that vary in flower or leaf color, growth habit, or cold hardiness.

A short list of tree species that tend to have chronic problems and should, with some exceptions, be avoided is also included in this fact sheet. Although the species listed as "problem trees" tend to have chronic problems in the landscape, disease- and insect-resistant cultivars of some of these species may be available. Consult your local nursery personnel or Extension agent for recommendations on the latest cultivars.

Plants marked with an asterisk (*) are native to Virginia and recommended by the Virginia Native Plant Society.

Problem-free Trees

***Acer griseum* (paperbark maple)** is a slow-growing, small (<25 ft) tree that is suited to small lot sizes. It has beautiful, exfoliating bark and is adaptable to a variety of soils. Although many species of maple are susceptible to the lethal disease, Verticillium wilt, or other diseases, paperbark maple is relatively trouble-free.



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***Chionanthus virginicus** (fringetree)** is a large shrub or a small tree. This native species is beautiful in flower (May). It prefers deep, moist, fertile, acid soils, but tolerates both dry and moist soils. Female trees bear blue berries in the fall.

***Cladrastis kentukea* (American yellowwood)** is a medium-size, vase-shaped tree. It has attractive, smooth bark and a showy display of white, pendulous flowers in May. This species, native to the central and southern states, tolerates dry and alkaline soils. American yellowwood does require pruning in youth to develop a good branch structure since it has a tendency to produce numerous branches that have a poor angle of attachment. (photo courtesy of R. E. Lyons)

***Cornus kousa* (kousa dogwood)** is a small-size tree native to China and Japan. Although it is no replacement for the native flowering dogwood, *Cornus florida*, kousa dogwood has resistance to Discula anthracnose, the fungal disease that has killed many native dogwoods on the East Coast. Some cultivars of *C. kousa* are susceptible to the leaf spot phase of Discula anthracnose, but *C. kousa* does not develop the branch cankers that ultimately kill the native dogwood. It is important to be aware that if you have *Cornus florida* in your landscape, infected kousa dogwood could potentially serve as a source of inoculum of the anthracnose fungus for these trees. (In fact, it is likely that the Discula anthracnose fungus came into the United States on imported kousa plant material.) Kousa dogwood is also susceptible to powdery mildew, another disease of native dogwood. However, some cultivars of kousa dogwood have resistance to both of these diseases. Dogwood borers are not usually a problem on kousa dogwood unless the tree has been wounded (e.g., by a lawnmower). *C. kousa* blooms after *C. florida* and there are many cultivars in the trade.

Fagus grandifolia* **(American beech)** grows to a large size and should be given adequate space. It should not be planted in overly wet or compacted soils. It is shallow-rooted, so it may be difficult to get grass to grow around the base of the tree, but it is generally disease-free. Beech bark disease, a widespread problem in forest beech trees, is currently not a problem in landscape beech trees in Virginia. A mature American beech is truly majestic due to its form, smooth gray bark, and handsome foliage. (no photograph)

Fagus sylvatica **(European beech)** can be grown in a wider range of soil types than the American beech; however, it is sensitive to extreme heat and should not be grown in the eastern part of the state. Like the American beech, it is truly majestic when mature. Many cultivars are available, including 'Asplenifolia' (middle photo) and 'Pendula' (right photo). The species is pictured on the left.

Ginkgo biloba **(ginkgo)** is a species that has managed to survive since the age of the dinosaurs, so it is no surprise that it is very disease- and insect-resistant. It has also shown good resistance to air pollution damage. Some people object to the messy, smelly, fleshy seeds of the female tree, so it is best to plant male trees. Be sure to purchase a clone or a cultivar rather than a seedling tree to ensure that you are purchasing a male tree. The ginkgo grows to a large size and has beautiful, bright yellow fall foliage color.

***Koelreutaria paniculata* (goldenraintree)** is a medium-size tree that tolerates a wide range of soil types and can naturalize and spread. Its beautiful, showy panicles of yellow flowers appear in July. Following flowering, trees are loaded with seed pods that look like Chinese lanterns. No significant diseases occur on this species in Virginia.

***Liquidambar styraciflua** (sweetgum)** is susceptible to a fungal disease called "bleeding canker," but is otherwise disease-free. The fungus that causes bleeding canker is more of a problem on stressed trees, such as those grown on dry sites. Sweetgum requires deep, moist, slightly acid soil with plenty of root space. The main problem with most cultivars is the fruit, which is quite messy. The cultivar 'Rotundiloba' (middle photo) is an excellent choice because it sets no fruit. However, as the name suggests, the lobes of this cultivar are rounded and may be objectionable to those who prefer the pointed lobes of the star-shaped leaves. The fall foliage of this species, often a mixture of yellow, orange, red, and purple, is spectacular.

***Liriodendron tulipifera** (tulip poplar)** is relatively disease-free as long as it is grown in adequate space in moist, well-drained soil. Verticillium wilt can occasionally be a problem, and aphids and scales, followed by sooty mold, are common. One of the nice things about tulip poplar is that it is not a preferred host of the gypsy moth. Tulip poplar grows to a large size and should be given adequate space. It does not thrive under dry soil conditions.

Magnolia species: The various species of magnolias tend to be disease-free, although the **southern magnolia (*Magnolia grandiflora**)** is prone to winter leaf scorch and some magnolias are susceptible to scale insects. The southern magnolia grows to a large size and produces large, showy, cream-white flowers in June. It tolerates high soil moisture; however, it needs protection from winter winds in order to avoid leaf scorch. Several cold-hardy cultivars, such as 'Edith Bogue' and 'Bracken's Brown Beauty,' are available. Watering deeply in the fall before the ground freezes or applying an anti-desiccant can help prevent winter injury.

M. stellata **(star magnolia, see photo)** is small in size and blooms very early (late February - early March). Many different cultivars, varying slightly in flower color (the norm is white) are available. Magnolia soft scale can, however, be a serious problem on this species. Sooty mold grows on the honeydew produced by the scales and can cause blackening of the foliage, but the sooty mold does not infect the plant.

Magnolia x soulangiana **(saucer magnolia)** is another small magnolia commonly grown in Virginia. Cultivars vary widely in flower size, color, form, growth habit, and cold hardiness. Late spring frost damage to flower buds can be a problem.

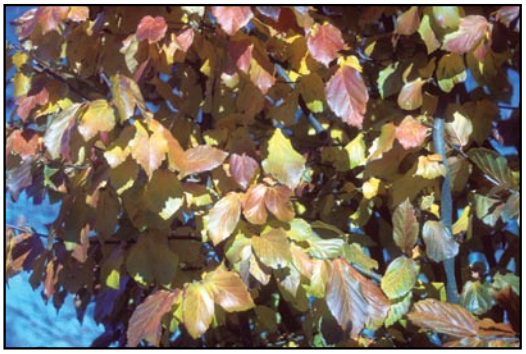
M. virginiana* **(sweetbay magnolia)** tolerates shade and grows well in wet locations. Its blossoms appear from May to June and have a fragrant lemon scent.

Metasequoia glyptostroboides **(dawn redwood)** is a deciduous conifer that performs best in deep, moist, well-drained, slightly acid soils, but can also grow in extremely wet soils. With age, trunks of this species will develop a rather stunning, fluted appearance. Dawn redwood is susceptible to fall frost damage and should be planted on a hill rather than in a low area if possible. This is a fast growing species in moist sites. Disease problems are rare. Dawn redwood may be difficult to find in nurseries, however.

Nyssa sylvatica* **(black gum)** is a large, native tree with beautiful, red fall foliage color. It will grow in a variety of soil types, and, at least until recently, has had few serious diseases or insect problems. A fungal disease, black gum anthracnose, has recently been observed in forest black gums growing at high elevations in shade near dogwoods with Discula anthracnose. It is not currently known whether the disease would be a potential problem in landscape trees grown in full sun.

Oxydendrum arboreum* **(sourwood)** is usually a small tree in home landscapes. It has showy, white flowers and nice, red, fall foliage color. It needs acid soil. Leaf spot fungi can be a problem, but symptoms are generally minor compared to the beauty of the tree.

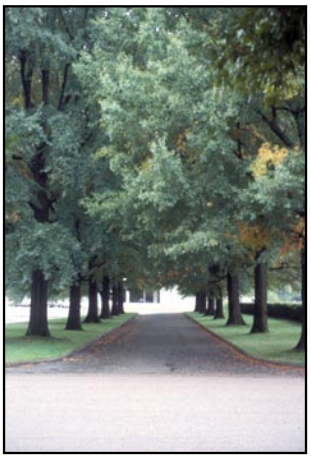
Parrotia persica **(Persian parrotia)** usually has a wide growth habit. It prefers well-drained, slightly acid soils and full sun, but will do well in light shade. It has attractive, mottled bark. Parrotia is disease-free and withstands drought, heat, wind, and cold temperatures. The fall foliage color varies from yellow to orange to purple.



Pinus bungeana **(lacebark pine)** is usually a multi-trunk tree. With age, the bark takes on a patchy, camouflage-like appearance, which is quite beautiful. The multi-trunk characteristic can be a liability in wet snow or ice storms that can cause trunks to split apart. The dwarf cultivar 'Nana' is pictured here.

***Platanus x acerifolia* (London planetree)** is a good urban tree because it withstands poor soils and pollution. Several cultivars of this hybrid, including 'Bloodgood,' 'Columbia,' and 'Liberty,' show good resistance to anthracnose, the most common disease of the related American sycamore (*Platanus occidentalis*). The London planetree is susceptible to damage by lacebugs, although it is less damaged than sycamore by this pest. A disease called bacterial scorch, for which there is no control, can also be a problem.

Quercus phellos* **(willow oak)** is reported resistant to bacterial scorch, which afflicts many other species of oak. Iron chlorosis can be a problem in soils of high pH; however, willow oak will tolerate wet soils. Trees grown on poor soils or in stressful urban sites are prone to the unsightly gouty oak gall and horned oak gall, both of which are caused by insects. Other oaks that have a few problems, but can be considered for landscapes with adequate space, include **white oak (*Quercus alba****)**, **scarlet oak (*Quercus coccinea****)**, and **southern red oak (*Quercus falcata****)**. White oak is susceptible to anthracnose, which causes brown blotches on leaves, but is not a serious threat to the long-term health of the tree. Although the red oak group as a whole is susceptible to oak wilt, this disease is not common in Virginia.

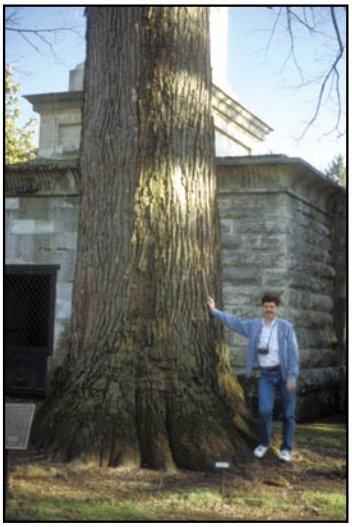


Styphnolobium japonicum* (Japanese pagoda tree)** is a medium-sized tree with an upright, spreading habit. It produces showy, white flowers at a relatively late time of year (August). Green seed pods, about six inches long, resemble a string of pearls. This species is relatively drought-tolerant but has not performed well in the heat of Zone 7b or higher. This plant was until recently known as ***Sophora japonica.

***Styrax japonicus* (Japanese snowbell)** is a dainty, low-branched, small tree that is amazingly trouble-free. It produces numerous, pendulous, fragrant white flowers in May.

***Taxodium distichum** (baldcypress)** is a native, deciduous conifer that grows to a large, pyramidal tree. It grows well in wet or dry soils, but it should be grown in acid soil to avoid chlorosis. Bald cypress is a fast-growing species in moist soils. When growing in water or near a stream bank, this species will send up "knees" or woody peaks from the root system; the function of these is a matter of speculation. The knees are an interesting addition to a natural area.

***Tilia americana** (American linden)** produces wonderfully fragrant flowers in mid to late June. Although several diseases are reported on this species, diseased lindens are rarely submitted to the Plant Disease Clinic, and most landscape specimens appear very healthy, even on the Virginia Tech campus where trees tend to suffer a lot of abuse. American linden will grow on drier, heavy soils, and even on rocky soil, but it grows to a large size and needs adequate space.



***Ulmus parvifolia* (lacebark elm)**, in contrast to the **American elm (*U. americana*)**, has resistance to Dutch elm disease. It also has resistance to elm leaf beetle and Japanese beetle, both of which can cause significant damage to other elm species. The species varies considerably in growth habit, with the habit of some of the cultivars resembling the American elm's desirable vase-shape. *U. parvifolia* develops an interesting exfoliating bark, which reveals a lighter bark underneath the darker, outer bark. Breakage from wind, ice, and snow can be a problem when the tree is young.

***Zelkova serrata* (Japanese zelkova)** is related to the elms but is resistant to Dutch elm disease, elm leaf beetle, and Japanese beetle. It has a vase-shaped habit, somewhat similar to the American elm. It is wind- and drought-tolerant and performs well in urban landscapes. If left unpruned, however, the branches tend to grow into each other ("V-branching"). The variegated cultivar 'Goshiki' is pictured on the right.

Problem Trees

The following trees represent species frequently received in the Plant Disease Clinic for disease diagnosis. These species are fraught with problems in the landscape and are not recommended if one of the generally problem-free trees listed above suits your purpose just as well.

***Betula* spp. (white bark birches)** are prone to bronze birch borers, which eventually kill the tree.

***Cornus florida* (flowering dogwood)** is still being killed in many areas by Discula anthracnose, a fungal disease that causes leaf blight and canker and for which control is very difficult. Many cultivars of flowering dogwood have also developed severe powdery mildew in the past few years. Some cultivars have resistance to either powdery mildew or Discula anthracnose, but no currently available cultivar of *C. florida* has resistance to both diseases. Dogwood borer can also be a problem, and the species does not tolerate wet soils or areas with poor drainage.

***Fraxinus* spp. (ashes)** are susceptible to borers.

***Malus* spp. (crabapples)** can be completely denuded of leaves by midsummer as a result of the fungal disease, scab, or leaves may become white with powdery mildew, another fungal disease. Crabapple is also susceptible to fire blight. However, cultivars with resistance to these diseases are available. Disease-resistant crabapples make excellent small-tree landscape specimens and are very tolerant of poor growing conditions. If you choose to buy a crabapple, make sure it has resistance to scab, powdery mildew, *and* fire blight.

***Populus* spp.** and ***Salix* spp.** (**poplars** and **willows**, respectively) are prone to trunk cankers and galls that may result in extensive dieback.

***Prunus* spp. (flowering cherries)** often develop trunk cankers that cause a gradual death of the tree. **Flowering plums** (*Prunus* spp.) suffer from black knot, an unsightly fungal disease that can cause serious dieback.

***Pyrus calleryana* 'Bradford' (Bradford pear)** has been widely planted in American landscapes due to its prolific spring flowers, colorful fall foliage, resistance to fire blight, and urban-tolerance; however, it is very susceptible to limb breakage. Several new cultivars with improved limb strength are available, but since the arrival of new cultivars, *Pyrus calleryana* cultivars have set fruit and a few states have put this species on invasive plant lists. The species is also very sensitive to deep planting. Trees that have been planted too deeply eventually develop a dieback that looks similar to fire blight.

Of the conifers, ***Thuja occidentalis* (arborvitae)** tends to look very straggly with age; **x *Cupressocyparis leylandii* (Leyland cypress)** suffers from winter burn or Seiridium canker, an incurable disease of the trunk; and ***Tsuga canadensis* (hemlocks)** are prone to hemlock woolly adelgid, an unsightly and damaging insect. ***Pinus strobus* (white pine)**, although beautiful in the right setting, does poorly in overly wet or dry soils or in soils with little topsoil (e.g., many landscapes in Virginia). It does not tolerate soil compaction or other adverse soil conditions, and it may develop procerum root disease, a fungal disease that results in death of the tree.

***Ulmus americana* (American elm)** is very likely to die as a result of Dutch elm disease (DED). Choose resistant hybrids or cultivars, or choose another species of elm (see *Ulmus parvifolia* on page 9). DED-resistant cultivars of American elm are available. These include 'Valley Forge', 'New Harmony', and 'Princeton'.

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