

# FACT SHEETS \ \ TREES

## LEGEND



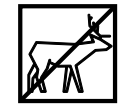
FULL SUN



PART SUN/SHADE



FULL SHADE



RESISTANCE TO DEER DAMAGE



NATIVE



NON-NATIVE



BLOOM SEASON

### Sources:

Missouri Botanical Garden  
 NC State Extension  
 USDA NRCS  
 Pleasant Run Nursery  
 Midwest Groundcovers

- Acer rubrum
- Acer buergerianum
- Acer campestre 'Queen Elizabeth'
- Amelanchier arborea
- Betula nigra
- Carpinus betulus 'Fastigiata'
- Cedrus deodara
- Celtis occidentalis
- Cercidiphyllum japonicum
- Cercis canadensis 'Pink Trim'
- Chionanthus virginicus
- Cladrastis kentukea
- Cornus Rutgan 'STELLAR PINK'
- Cornus mas
- Cryptomeria japonica
- Eucommia ulmoides
- Ginkgo biloba 'Princeton Sentry'
- Gleditsia triacanthos var. inermis
- Gymnocladus dioicus
- Halesia carolina
- Ilex opaca
- Ilex x 'Nellie R. Stevens'
- Ilex x 'Conaf'
- Juniperus virginiana
- Koelreuteria paniculata
- Liquidambar styraciflua 'Rotundiloba'
- Maackia amurensis
- Magnolia grandiflora
- Magnolia virginiana
- Magnolia x 'Elizabeth'
- Metasequoia glyptostroboides
- Nyssa sylvatica
- Ostrya virginiana
- Parrotia persica
- Picea abies
- Picea glauca
- Picea glauca var. dens
- Picea orientalis
- Platanus x acerifolia
- Prunus x incamp' Okame'
- Prunus padus
- Prunus virginiana 'Schubert'
- Prunus x yedoensis
- Quercus acutissima
- Quercus bicolor
- Quercus imbricaria
- Quercus lyrata
- Quercus muehlenbergii
- Quercus phellos
- Quercus shumardii
- Quercus texana
- Sambucus canadensis
- Sassafras albidum
- Stewartia pseudocamellia
- Styphnolobium japonicum
- Styrax japonicus
- Syringa reticulata
- Thuja 'Green Giant'
- Thuja occidentalis 'Techny'
- Tilia tomentosa
- Ulmus parvifolia
- Viburnum prunifolium
- Zelkova serrata 'Village Green'

# ACER RUBRUM

## RED MAPLE



Easily grown in average, medium to wet, well-drained soil in full sun to part shade. Tolerant of a wide range of soils, but prefers moist, slightly acid conditions. Very cold hardy.

*Acer rubrum*, commonly called red maple, is a medium-sized, deciduous tree that is native to Eastern North America from Quebec to Minnesota south to Florida and eastern Texas. It typically grows 40-60' tall with a rounded to oval crown. It grows faster than Norway and sugar maples, but slower than silver maple. In northern states, red maple usually occurs in wet bottomland, river flood plains and wet woods, but in Missouri it typically frequents drier, rocky upland areas. Emerging new growth leaves, leafstalks, twigs, flowers, fruit and fall color are red or tinged with red. Quality of red fall color on species plants is variable. Leaves (to 2-5" long) have 3 principal triangular lobes (sometimes 5 lobes with the two lower lobes being largely suppressed). Lobes have toothed margins and pointed tips. Leaves are medium to dark green above and gray green below. Flowers on a given tree are primarily male or female or monoecious and appear in late winter to early spring (March-April) before the leaves. Fruit is a two-winged samara.

Genus name is the Latin name for a maple tree.

Specific epithet of *rubrum* meaning red is everywhere in evidence: red flowers in dense clusters in late March to early April (before the leaves appear), red fruit (initially reddish, two-winged samara), reddish stems and twigs, red buds, and, in the fall, excellent orange-red foliage color.

Plant as a specimen tree for the lawn, street or park. It is of note that this tree has a shallow, flattened root system that may buckle nearby sidewalks or driveways if planted too close.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** red maple

**Type:** Tree

**Family:** Sapindaceae

**Native Range:** Eastern and central North America

**Zone:** 3 to 9

**Height:** 40.00 to 70.00 feet

**Spread:** 30.00 to 50.00 feet

**Bloom Time:** March to April

**Bloom Description:** Red, sometimes yellow

**Sun:** Full sun to part shade

**Water:** Medium to wet

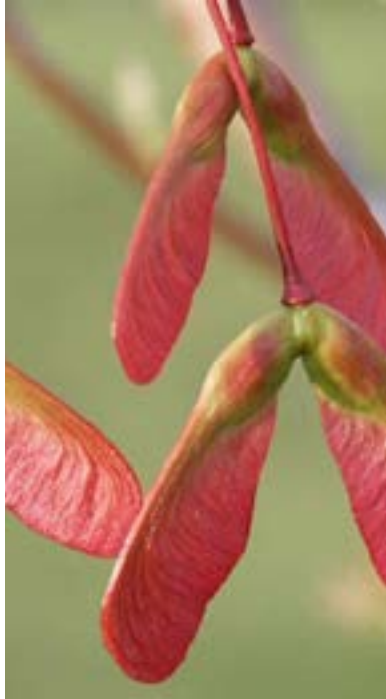
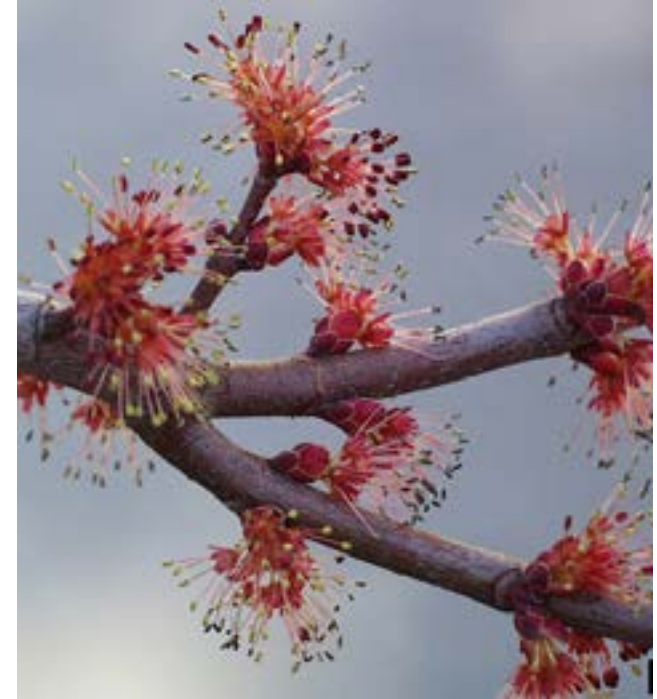
**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree, Rain Garden

**Flower:** Showy

**Leaf:** Good Fall

**Tolerate:** Wet Soil, Black Walnut, Air Pollution



# ACER BUERGERIANUM

## TRIDENT MAPLE



Easily grown in average, medium moisture, well-drained soils in full sun to part shade. Best in full sun. Tolerates some drought.

*Acer buergerianum* commonly called trident maple or three-toothed maple is native to China, Korea and Japan. It is a small, rounded, deciduous tree that typically grows rather slowly to 20-30'. Triangular, three-lobed leaves (to 3.5" long) are glossy green above and pale green beneath. Variable but usually attractive fall color features shades of dark red and orange. Non-showy, greenish-yellow flowers bloom in spring (April-May). Samaras (to 1" long) mature in fall. Exfoliating bark will develop on mature trunks.

Genus name is the Latin name for a maple tree.

Species name honors Heinrich Buerger, 19th century German botanist.

No serious insect or disease problems. Limbs may be damaged in winter by snow and/or ice.

Attractive small tree for streets, patios and around the home. Bonsai.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Trident Maple

**Type:** Tree

**Family:** Sapindaceae

**Native Range:** Eastern China, Japan

**Zone:** 5 to 9

**Height:** 20.00 to 30.00 feet

**Spread:** 20.00 to 30.00 feet

**Bloom Time:** April to May

**Bloom Description:** Greenish-Yellow

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree

**Flower:** Insignificant

**Leaf:** Good Fall

**Tolerate:** Air Pollution



# ACER CAMPESTRE 'QUEEN ELIZABETH'

## HEDGE MAPLE



Easily grown in average, medium moisture, well-drained soils in full sun to part shade. Best in full sun. Tolerates some drought. Adapts to a variety of soils including heavy clays. Generally tolerant of urban conditions.

Acer campestre is commonly called hedge maple. It is native to Europe and western Asia, frequently being found on plains, hills and along rivers. It is also sometimes commonly called field maple (campestre meaning from fields). This is a small, low-branched, dense, rounded, deciduous tree or large multi-stemmed shrub that typically grows in cultivation to 25-35' tall. As the common name suggests, it may be pruned to form a tall hedge. In England it is often included in hedgerows.

'Evelyn' , commonly sold in commerce under the trade name of QUEEN ELIZABETH, is considered to be a more vigorous form than the species and is primarily distinguished from the species by having (1) distinct uniform upright branching with branches angling from the trunk at a 45 degree angle, (2) larger leaves and (3) growth spurt in the first year. Dark green leaves (to 5" long and 4" across in the second year) are 3-5 lobed (typically 5 lobed). Leaves turn variable shades of yellow in fall. Non-showy, yellowish-green flowers in spring are followed by nearly horizontal, winged samaras (to 1 3/4" long). Leaf stalks contain a milky sap. U. S. Plant Patent PP4,392 was issued on March 6, 1979.

No serious insect or disease problems. Leaf spots, tar spot, verticillium wilt, canker and root rots may occur. Potential insect pests include aphids, scale, borers and caterpillars. Mites may appear.

This is an attractive tree or shrub for lawns or along streets. May be sheared to form a high hedge.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Hedge Maple  
**Type:** Tree  
**Family:** Sapindaceae  
**Native Range:** Europe, Western Asia  
**Zone:** 6 to 8  
**Height:** 25.00 to 35.00 feet  
**Spread:** 25.00 to 35.00 feet  
**Bloom Time:** April to May  
**Bloom Description:** Yellowish-Green

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Hedge, Shade Tree, Street Tree  
**Flower:** Insignificant  
**Tolerate:** Clay Soil, Air Pollution  
**Other:** Invasive



# AMELANCHIER ARBOREA

## SERVICEBERRY



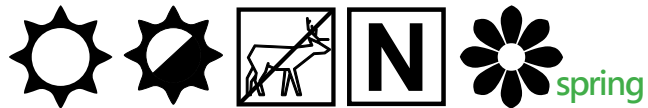
Easily grown in average, medium, well-drained soil in full sun to part shade. Tolerant of a somewhat wide range of soils. Root suckers are common, and if not removed, will result in a shrubby growth habit for the plant.

Amelanchier arborea, commonly called downy serviceberry, is a deciduous, early-flowering, large shrub or small tree which typically grows 15-25' tall in cultivation but can reach 40' in the wild. A Missouri native plant that occurs most often in open rocky woods, wooded slopes, and bluffs. Features 5-petaled, showy, slightly fragrant, white flowers in drooping clusters which appear before the leaves emerge in early spring. The finely-toothed, obovate leaves exhibit good fall color. Flowers give way to small, round green berries which turn red and finally mature to a dark purplish-black in early summer. Edible berries resemble blueberries in size and color and are often used in jams, jellies and pies. Amelanchiers are commonly called Juneberries.

Genus name comes from a French provincial name for Amelanchier ovalis a European plant in this genus.

Specific epithet means growing in a tree-like manner.

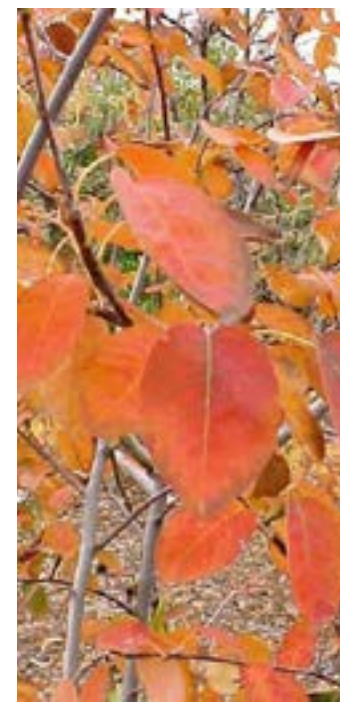
Best in shrub borders, or in woodland, naturalized or native plant gardens, especially with dark or shaded backdrops which tend to highlight the form, flowers and fall color of the plant. Also effective along stream banks and ponds.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** serviceberry  
**Type:** Tree  
**Family:** Rosaceae  
**Native Range:** Eastern North America  
**Zone:** 4 to 9  
**Height:** 15.00 to 25.00 feet  
**Spread:** 15.00 to 25.00 feet  
**Bloom Time:** March to April  
**Bloom Description:** White

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Flowering Tree  
**Flower:** Showy, Fragrant  
**Leaf:** Good Fall  
**Attracts:** Birds  
**Fruit:** Showy, Edible  
**Tolerate:** Clay Soil, Air Pollution



# BETULA NIGRA

## RIVER BIRCH



Easily grown average, medium to wet soils in full sun to part shade. River birch is perhaps the most culturally adaptable and heat tolerant of the birches. Prefers moist, acidic, fertile soils including semi-aquatic conditions, but also tolerates drier soils. Consider using soaker hoses and bark mulches to keep the root zones cool and moist. Adapts well to heavy clay soils of Missouri and will tolerate poor drainage. Avoid pruning in spring when the sap is running.

*Betula nigra*, commonly called river birch, is a vigorous, fast-growing, medium-sized, Missouri native deciduous tree which occurs on floodplains, swampy bottomlands and along streams throughout the State. In cultivation, it can be trained as either a single trunk or multi-trunked tree. As a single trunk tree, it develops a pyramidal habit when young, but matures to a more rounded shape typically growing 40-70' tall. Multi-trunked trees form a more irregular crown and are generally considered to be the superior growth habit for this species. Salmon-pink to reddish brown bark exfoliates to reveal lighter inner bark. Leathery, diamond-shaped, medium to dark green leaves (1.5-3.5" long) with doubly toothed margins turn yellow in fall. Monoecious flowers appear in drooping, brownish male catkins and smaller, upright, greenish female catkins.

Genus name is the Latin name for birch.

Specific epithet means black.

Specimen or small groupings for lawns, parks and commercial properties, and, in particular, for wet soils along ponds, streams or in low spots. Good choice for the St. Louis area and generally a good substitute for the paper birch in the hot and humid areas of USDA Zones 5-9.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** river birch  
**Type:** Tree  
**Family:** Betulaceae  
**Native Range:** Eastern United States  
**Zone:** 4 to 9  
**Height:** 40.00 to 70.00 feet  
**Spread:** 40.00 to 60.00 feet  
**Bloom Time:** April to May  
**Bloom Description:** Brown (male) green (female)

**Sun:** Full sun to part shade  
**Water:** Medium to wet  
**Maintenance:** Low  
**Suggested Use:** Shade Tree, Rain Garden  
**Flower:** Showy  
**Attracts:** Birds  
**Other:** Winter Interest  
**Tolerate:** Deer, Drought, Clay Soil, Wet Soil, Black Walnut, Air Pollution  
**Tolerate:** Clay Soil, Air Pollution



# CARPINUS BETULUS 'FASTIGIATA'

## COMMON HORNBEAM



Easily grown in medium moisture, well-drained soils in full sun to part shade. Needs little pruning when grown as a tree, but responds well to hard pruning if grown as a hedge. Best pruned during the period of late summer to mid-winter to avoid significant bleeding.

Needs little pruning when grown as a tree, but responds well to hard pruning if grown as a hedge.

Carpinus betulus commonly called European hornbeam is a medium-sized, deciduous tree that grows 40-60' (less frequently to 80' ) tall with a pyramidal to oval-rounded crown. Ovate, sharply-toothed, dark green leaves (to 5" long) are clean and attractive throughout the growing season with little susceptibility to foliar diseases. Foliage turns an undistinguished yellow to orange in fall. Monoecious flowering catkins form in early spring before the foliage emerges. Male catkins (to 1.5" long) are yellowish and female catkins (to 3" long) are greenish. Fruits are small nutlets in 3-lobed bracts that appear in drooping 5" long clusters in summer. Trunks have smooth gray bark and distinctive muscle-like fluting.

'Fastigiata' , sometimes called Upright European hornbeam, displays a narrow, fastigiate form in youth, but gradually acquires a tear drop or oval-vase shape with age, typically maturing to 40' tall and 30' wide. It is much more common in commerce than the species. Ovate, toothed, bright medium green leaves (to 4" long) are clean and attractive throughout the growing season with little susceptibility to foliar diseases. Foliage turns yellow-orange in fall. Trunks have smooth gray bark and distinctive muscle-like fluting.

No serious insect or disease problems.

Shade tree for lawns. Street tree. Prune as a hedge.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Common Hornbeam

**Type:** Tree

**Family:** Betulaceae

**Native Range:** Europe, Asia

**Zone:** 4 to 8

**Height:** 40.00 to 60.00 feet

**Spread:** 30.00 to 40.00 feet

**Bloom Time:** March

**Bloom Description:** Yellow (male) green (female)

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Hedge, Shade Tree, Street Tree

**Flower:** Showy

**Leaf:** Good Fall

**Fruit:** Showy

**Tolerate:** Air Pollution



# CEDRUS DEODARA

## DEODAR CEDAR

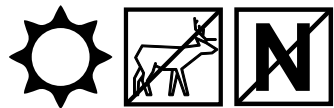


Best grown in deep, moist but well-drained, acidic loams in full sun. Drought tolerant once established. Intolerant of poorly drained wet soils. Best tolerance of the true cedars for hot and humid summers. Not reliably winter hardy in the St. Louis area where this tree probably should not be grown. If attempted, however, site young trees in locations protected from winter winds.

Cedrus deodara, know as Deodar cedar, is an evergreen conifers that is pyramidal when young, maturing to flat-topped trees with broad-spreading horizontal branching. Deodar cedar is perhaps the most pendulous of the true cedars, with drooping branchlets and branching that is gracefully drooping at the tips. Lower branches typically remain on the tree as it ages, often touching the ground. This is a medium-growing tree that typically matures to 40-50' tall in its first 25 years. In its native habitat, trees reportedly will grow much taller over time, sometimes reaching 150-200' tall. Dark grayish-green needles (to 1.25" long) appear in clusters. Upright cones (to 4" long). It is native to the Himalayas.

No serious insect or disease problems. Tip blight and root rot may occur. Winter hardiness is a concern in the St. Louis area where consideration should be given to planting a cultivar such as 'Shalimar' that has slightly better hardiness than the species.

Specimen tree for large lawns. Prune as a screen or hedge.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Deodar Cedar  
**Type:** Needled Evergreen  
**Family:** Pinaceae  
**Native Range:** Himalayas  
**Zone:** 7 to 8  
**Height:** 40.00 to 50.00 feet  
**Spread:** 30.00 to 40.00 feet  
**Bloom Time:** Non-Flowering  
**Bloom Description:** Non-Flowering

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Medium  
**Suggested Use:** Hedge, Specimen  
**Leaf:** Evergreen  
**Tolerate:** Drought, Moderately Salt Tolerant, Deer



# CELTIS OCCIDENTALIS

## HACKBERRY

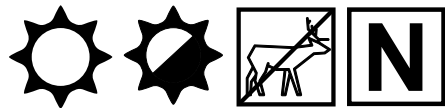
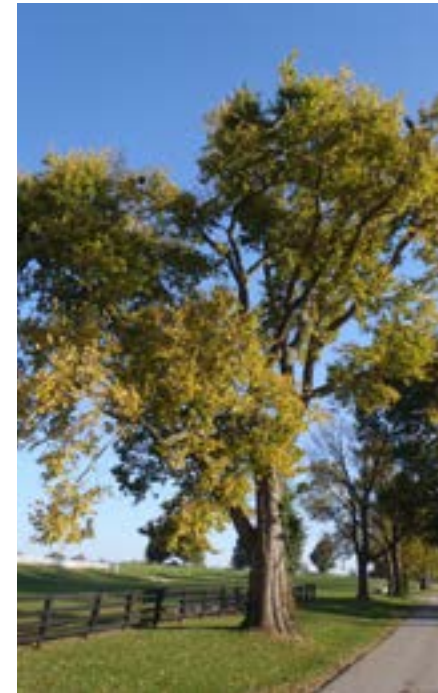
Best grown in moist, organically rich, well-drained soils in full sun. Tolerates part shade. Also tolerates wind, many urban pollutants and a wide range of soil conditions, including both wet, dry and poor soils.

*Celtis occidentalis*, commonly called common hackberry, is a medium to large sized deciduous tree that typically grows 40-60' (less frequently to 100' ) tall with upright-arching branching and a rounded spreading crown. Trunk diameter ranges from 1-3' (less frequently to 4' ). This tree is a U.S. native that is widely distributed throughout the east and midwest. It is common in Missouri where it typically occurs statewide in low woods along streams and in drier upland slopes (Steyemark). Mature gray bark develops corky ridges and warty texture. Insignificant, mostly monoecious, greenish flowers appear in spring (April–May), with male flowers in clusters and female flowers solitary. Female flowers give way to an often abundant fruit crop of round fleshy berry-like drupes maturing to deep purple. Each drupe has one round brown seed within. Fruits are attractive to a variety of wildlife. Birds consume the fruits and disperse the seeds. Fleshy parts of the fruit are edible and somewhat sweet. Ovate to oblong-ovate, rough-textured, glossy to dull green leaves (2-5" long) have mostly uneven leaf bases and are coarsely toothed from midleaf to acuminate (sharply pointed) tip. Undistinguished yellow fall color.

Genus name comes from the Greek name for another tree.

Specific epithet means Western.

This is a tough shade tree that grows in a wide range of soils. Cultivars resistant to witches broom are better selections than the species for landscape use. This tree may be used as a lawn tree or street tree. Seeds can pose clean up problems if trees are sited near sidewalks or patios, however.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** hackberry

**Type:** Tree

**Family:** Cannabaceae

**Native Range:** Central and northeastern North America

**Zone:** 2 to 9

**Height:** 40.00 to 60.00 feet

**Spread:** 40.00 to 60.00 feet

**Bloom Time:** April to May

**Bloom Description:** Green

**Sun:** Full sun to part shade

**Water:** Medium to wet

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree, Rain Garden

**Flower:** Insignificant

**Attracts:** Birds, Butterflies

**Fruit:** Edible

**Tolerate:** Drought, Clay Soil, Wet Soil, Air Pollution



# CERCIDIPHYLLUM JAPONICUM

## KATSURA TREE



Best grown in rich, moist, well-drained soils in full sun to part shade. Tolerates full sun, but has little tolerance for drought particularly when young. Best sited in a location protected from strong winds and hot afternoon sun. This is a dioecious tree (male and female flowers on separate trees).

*Cercidiphyllum japonicum*, commonly called katsura tree, is native to Japan and China. It is a deciduous, single or multi-trunked, understory tree with a dense, rounded habit that typically matures to 40-60' tall in cultivation, but can reach 100' or more in the wild. It is grown for its beautiful shape and its attractive foliage. Cordate, round-oval leaves (to 4" long) resemble those of a small redbud (*Cercis* is the redbud genus and *phyllon* is Greek for leaf). Leaves emerge reddish purple in spring, mature to medium green with a slight bluish tinge in summer and turn quality shades of gold, orange and red in fall. Although not aromatic, the fallen autumn leaves have been variously described as smelling of cinnamon, burnt sugar or ripe apples. Tiny flowers (red on male trees and green on female trees) appear in spring before the foliage but are not particularly showy. Pollinated flowers on female trees are followed by clusters of greenish pods (to 3/4" long).

Genus name comes from the Greek words *kerkis* meaning redbud or Judas tree and *phyllon* meaning a leaf for its appearance to redbud (*Cercis*.)

Specific epithet means of Japan.

Small specimen shade tree or street tree.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** katsura tree

**Type:** Tree

**Family:** Cercidiphyllaceae

**Native Range:** China, Japan

**Zone:** 4 to 8

**Height:** 40.00 to 60.00 feet

**Spread:** 25.00 to 60.00 feet

**Bloom Time:** March to April

**Bloom Description:** Green to reddish-green

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree

**Flower:** Insignificant

**Leaf:** Good Fall

**Tolerate:** Deer, Clay Soil



# CERCIS CANADENSIS 'PINK TRIM' NORTHERN HERALD

## EASTERN REDBUD



Easily grown in average, medium moisture, well-drained soils in full sun to part shade. Part shade is best in hot summer climates. Performs best in moderately fertile soils with regular and consistent moisture. Avoid wet or poorly drained soils. Since this tree does not transplant well, it should be planted when young and left undisturbed.

*Cercis canadensis*, commonly called eastern redbud, is a deciduous, often multi-trunked understory tree with a rounded crown that typically matures to 20-30' tall with a slightly larger spread. It is particularly noted for its stunning pea-like rose-purple flowers which bloom profusely on bare branches in early spring (March-April) before the foliage emerges. This tree is native to eastern and central North America from Connecticut to New York to southern Ontario and the Great Lakes south to Western Texas and Florida. It is found in open woodlands, thickets, woodland margins, limestone glades and along rocky streams and bluffs throughout Missouri (Steiermark). Flowers (to 1/2" wide) bloom in clusters of 4-10. Flowers are followed by flattened leguminous bean-like dry seedpods (to 2-4" long) that mature to brown in summer. Each pod has 6-12 seeds. Pods may remain on the tree into winter. Alternate, simple, cordate, broadly ovate to nearly orbicular, dull green to blue-green leaves (3-5" across) have a papery texture and are short pointed at the tip. Leaves turn pale yellow to greenish-yellow in fall. *Cercis canadensis* is the state tree of Oklahoma.

Genus name comes from the Greek word *kerkis* meaning weaver's shuttle in reference to the resemblance of each seed pod to a weaver's shuttle.

Specific epithet is in reference to Canada (southern Ontario) being part of the native range of this tree.

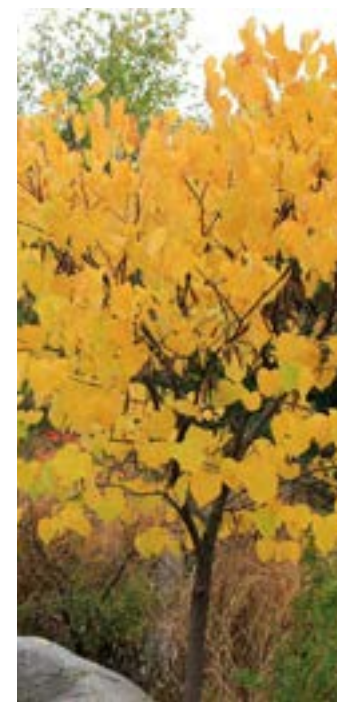
Specimen or small groups. Lawns, shrub borders, woodland margins, or along patios. Street tree or lawn tree. Attractive in naturalized settings.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** eastern redbud  
**Type:** Tree  
**Family:** Fabaceae  
**Zone:** 3 to 8  
**Height:** 15.00 to 20.00 feet  
**Spread:** 20.00 to 30.00 feet  
**Bloom Time:** April  
**Bloom Description:** Pink

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Street Tree, Flowering Tree  
**Flower:** Showy  
**Leaf:** Good Fall  
**Attracts:** Butterflies  
**Tolerate:** Clay Soil, Black Walnut



# CHIONANTHUS VIRGINICUS

## FRINGE TREE



Easily grown in average, medium, well-drained soil in full sun to part shade. Prefers moist, fertile soils. Seldom needs pruning. Tolerant of air pollution and adapts well to urban settings. Intolerant of prolonged dry conditions.

*Chionanthus virginicus*, commonly called fringetree, is a deciduous, Missouri native shrub or small tree with a spreading, rounded habit that typically grows 12-20' tall (to 35' in the wild, however) and most often occurs in rich, moist woods and hillsides, moist stream banks, limestone glade margins and rocky bluffs and ledges. Common name refers to the slightly fragrant, spring-blooming flowers which feature airy, terminal, drooping clusters (4-6" long) of fringe-like, creamy white petals. Dioecious (separate male and female plants), but also may have perfect flowers on each plant. Male flowers are showier than female flowers. Fertilized perfect or female flowers give way to clusters of olive-like fruits which ripen to a dark, bluish black in late summer and are a food source for birds and wildlife. Wide, spear-shaped leaves (to 8" long) turn yellow in autumn.

Genus name comes from the Greek words *chion* meaning snow and *anthos* meaning a flower for the snow white flowers of *C. virginicus*.

Specific epithet means of Virginia.

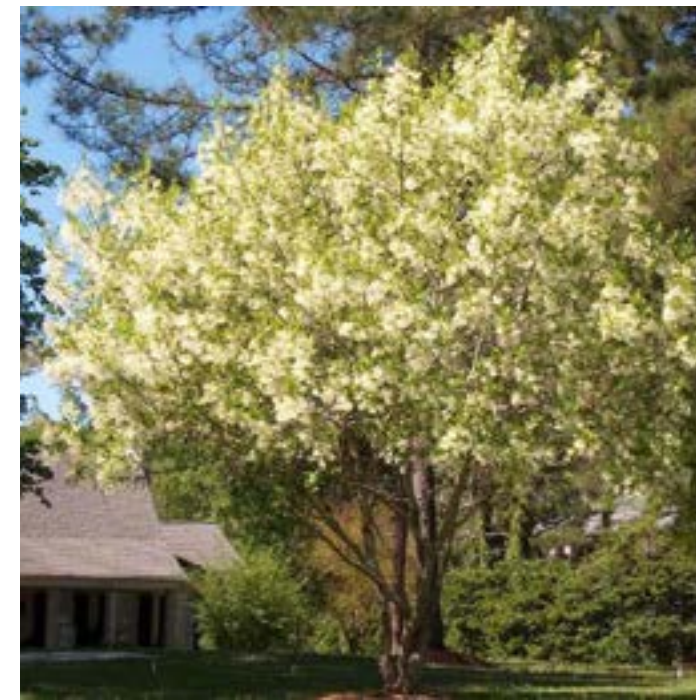
Grow in groups or as specimens in lawns or in shrub or woodland borders. Also may be used in native plant gardens or near streams or ponds. Can be spectacular in full bloom.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** fringe tree  
**Type:** Tree  
**Family:** Oleaceae  
**Native Range:** Eastern United States  
**Zone:** 3 to 9  
**Height:** 12.00 to 20.00 feet  
**Spread:** 12.00 to 20.00 feet  
**Bloom Time:** May to June  
**Bloom Description:** Creamy white

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Flowering Tree  
**Flower:** Showy, Fragrant  
**Leaf:** Good Fall  
**Attracts:** Birds  
**Fruit:** Showy  
**Tolerate:** Clay Soil, Black Walnut, Air Pollution



# CLADRASTIS KENTUKEA

## YELLOWWOOD



Easily grown in average, medium moisture, well-drained soils in full sun. Tolerates some dry soils once established. Best sited in a location protected from strong winds. Prune in summer because cuts made in late winter or spring tend to bleed.

*Cladrastis kentukea*, commonly called American yellowwood, is a medium-sized, deciduous tree of the legume family that typically grows 30-50' tall with upright branching and a broad, rounded crown. It is noted for its pinnately compound foliage, panicles of fragrant white spring flowers, autumn seed pods and yellow fall color. The species is native to the southeastern U.S. In Missouri, it typically occurs in several southwestern counties near the White River and its tributaries. Pinnately compound leaves (usually with 7-11 leaflets) open as yellowish green, turn bright green in summer and then turn yellow in fall. Intensely fragrant, wisteria-like, pink flowers in large, drooping, terminal panicles (10-15" long) will cover a mature tree in late spring. Profuse bloom may occur only once every 2 or 3 years however. New trees may not bloom for the first 8-10 years. Bloom is similar in appearance to that of black locust (*Robinia*). Flowers give way to flat seed pods (2.5-4" long) that mature in September-October. Species was formerly called *Cladrastus lutea*.

The wood of this tree contains a yellow dye that distinctively colors the heartwood and gives rise to the common name of yellowwood.

No serious insect or disease problems. Verticillium wilt may occur. Trees will bleed if pruned at the wrong time. Bark is susceptible to sun scald. Bloom may be damaged by late spring frosts. Yearly bloom may not occur. Branching is fragile and vulnerable to damage from winter snow/ice or high winds.

Excellent small tree for residential lawns, particularly on smaller properties. Also may be planted near patios and terraces. May be effectively grouped on larger properties. Roots go deep, so other plants may be easily grown underneath.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Yellowwood  
**Type:** Tree  
**Family:** Fabaceae  
**Native Range:** North America  
**Zone:** 4 to 8  
**Height:** 30.00 to 50.00 feet  
**Spread:** 40.00 to 55.00 feet  
**Bloom Time:** May  
**Bloom Description:** White

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Shade Tree,  
Flowering Tree  
**Flower:** Showy, Fragrant  
**Leaf:** Good Fall  
**Tolerate:** Drought, Salt



# CORNUS 'RUTGAN' STELLAR PINK

## STELLAR PINK DOGWOOD



Easily grown in average, medium moisture, well-drained soils in full sun to part shade. Prefers moist, organically rich, acidic soils in part shade. Benefits from a 2-4" mulch which will help keep roots cool and moist in summer.

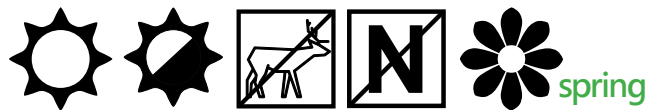
Cornus is a genus of about 45 species of mainly deciduous shrubs and small trees.

Genus name comes from the Latin word cornu meaning horn in probable reference to the strength and density of the wood. Cornus is also the Latin name for cornelian cherry.

STELLAR PINK is a hybrid dogwood (*Cornus florida* x *Cornus kousa*) that was developed by Elwin R. Orton, Jr. as part of the Stellar series of dogwoods released by Rutgers University. It is noted for its vigorous habit, large-bracted flowers, profuse bloom and resistance to anthracnose and dogwood borer. It is a small deciduous tree with a dense, upright habit. It has a uniform width from top to bottom, typically maturing to 15-20' tall and as wide. Flowers bloom in spring. The true dogwood flowers are actually tiny, yellowish green and insignificant, being compacted into button-like clusters. However, each flower cluster is surrounded by four showy, petal-like, pink bracts which open flat, giving the appearance of a single, large, 3-5" diameter, 4-petaled, pink flower. Floral bracts on this cultivar are rounded and overlapping. Oval to elliptic, dark green leaves (4-6" long) turn attractive shades of purple-red in fall. STELLAR PINK is sterile and does not produce fruit. This hybrid cultivar is sometimes sold in commerce under the name of *Cornus x rutgeriensis*. U.S. Plant Patent PP7,207 was issued on March 27, 1990.

STELLAR PINK is noted for having good resistance to anthracnose and dogwood borer.

Popular as a specimen or small grouping on residential property around homes, near patios or in lawns. Also effective in woodland gardens.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** stellar pink dogwood

**Type:** Tree

**Family:** Cornaceae

**Native Range:** (Hybrid) Eastern North America, Japan, Korea, China, Taiwan

**Zone:** 5 to 9

**Height:** 15.00 to 30.00 feet

**Spread:** 15.00 to 30.00 feet

**Bloom Time:** April to May

**Bloom Description:** Pink

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Flowering Tree

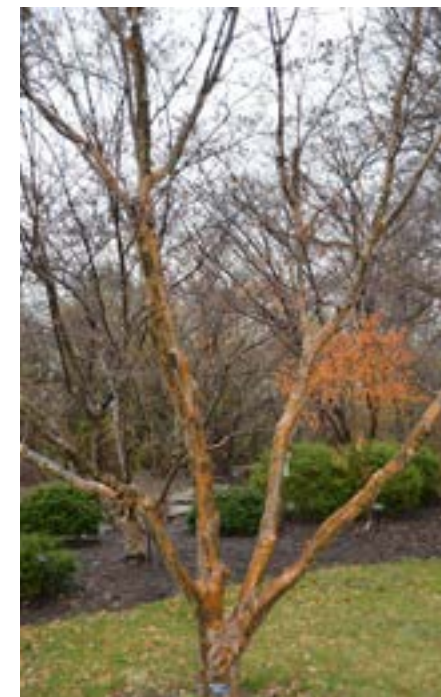
**Flower:** Showy

**Leaf:** Good Fall

**Attracts:** Butterflies

**Fruit:** Showy

**Tolerate:** Deer



# CORNUS MAS

## CORNELIAN CHERRY DOGWOOD



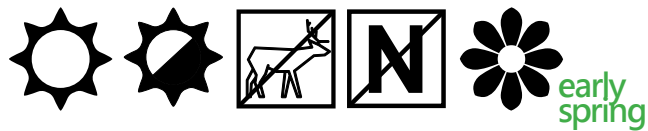
Easily grown in average, medium, well-drained soil in full sun to part shade. Prefers moist, organically rich soils. Promptly remove root suckers to control spread.

Cornus mas, commonly known as cornelian cherry, is a deciduous shrub or small tree that is native to central and southern Europe into western Asia. It typically grows over time to 15-25' tall with a spread to 12-20' wide. Scaly, exfoliating bark develops on mature trunks. Yellow flowers on short stalks bloom in early spring before the leaves emerge in dense, showy, rounded clusters (umbels to 3/4" wide). Each umbel is surrounded at the base by small, yellowish, petaloid bracts which are much less showy than the large decorative bracts found on some other species of dogwood such as Cornus florida (flowering dogwood) and Cornus kousa (kousa dogwood). Ovate to elliptic dark green leaves (to 4" long) typically develop insignificant fall color. Fruits are ellipsoid, fleshy, one-seeded berries (drupes to 5/8" long) which mature to cherry red in mid-summer. Fruits are edible, although sour tasting fresh off the plant. Fruits may be used for making syrups and preserves.

Common name refers to the cherry-like fruits which resemble in color the semi-precious gemstone carnelian (or cornelian).

Cornus mas is noted for having excellent resistance to dogwood anthracnose and dogwood borer. When properly grown, this dogwood usually has few insect or disease problems. Stressed trees may become vulnerable to borers. Leaf miner, gall midge and scale are less serious potential insect pests. Potential disease problems include dogwood anthracnose, leaf spot, crown canker, root rot, powdery mildew and leaf and twig blight.

Valued for its very early spring bloom. Best as a hedge, screen or foundation plant or as a specimen or grouping in the shrub border. May be naturalized in open woodland or naturalized areas. May also be trained as a small tree.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Cornelian Cherry Dogwood  
**Type:** Tree  
**Family:** Cornaceae  
**Native Range:** Western Asia, Europe  
**Zone:** 4 to 8  
**Height:** 15.00 to 25.00 feet  
**Spread:** 15.00 to 25.00 feet  
**Bloom Time:** March  
**Bloom Description:** Yellow

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Flowering Tree  
**Flower:** Showy  
**Attracts:** Birds  
**Fruit:** Showy, Edible  
**Tolerate:** Deer, Clay Soil



# CRYPTOMERIA JAPONICA

## JAPANESE CEDAR



Best grown in moist, rich, fertile, acidic, well-drained soils in full sun. Tolerates light shade. Soils should not be allowed to dry out. Site in a location protected from drying winter winds.

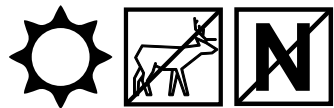
*Cryptomeria japonica*, commonly called Japanese cedar or sugi, is a slender, pyramidal, evergreen conifer with tiered horizontal branching, which is slightly pendulous at the tips. Japanese cedar is a monotypic genus unrelated to the true cedars (*Cedrus*). It is native to forested areas in Japan and China where it typically grows as a single trunk tree to 150' tall (infrequently taller) with an 8' trunk diameter. It is the national tree of Japan where it is often planted at temples and shrines. In cultivation in the U.S., it grows much smaller, more typically to 50-60' tall. Sharply-pointed, awl-shaped, fragrant, green to blue-green needles (to 3/4" long) are spirally arranged. Foliage is soft to the touch. Foliage may bronze in cold winters. Spherical fruiting cones (to 1" diameter) appear at the shoot ends. Reddish-brown bark exfoliates in strips.

This is a prized timber tree in its native habitat.

Compact and dwarf cultivars are commonly sold in commerce.

No serious insect or disease problems. Leaf blight and leaf spot.

Species trees as a large specimen tree. Screen. Dwarf cultivars make good rock garden plants.



**Sources:** Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Japanese Cedar  
**Type:** Needled Evergreen  
**Family:** Cupressaceae  
**Native Range:** Japan, Southern China  
**Zone:** 5 to 9  
**Height:** 50.00 to 60.00 feet  
**Spread:** 20.00 to 30.00 feet  
**Bloom Time:** Non Flowering  
**Bloom Description:** Non Flowering

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Specimen,  
Screening  
**Other:** Attractive Bark, Winter  
Interest  
**Tolerate:** Deer



# EUCOMMIA ULMOIDES

## HARDY RUBBER TREE

Easily grown in average, medium, well-drained soils in full sun to light shade. Best in full sun. Tolerates wide range of soil conditions except wet ones.

*Eucommia ulmoides*, commonly called hardy rubber tree, is typically grown as an ornamental shade tree because of its attractive glossy green foliage and its excellent resistance to insect and disease problems. It is native to China, but is possibly now extinct in the wild. It is a low-branching tree that typically grows 40-60' tall with broad ascending branches and a rounded spreading crown. Dioecious with insignificant apetalous greenish brown male flowers (in clusters) and female flowers (solitary) on separate trees. Flowers bloom in April. Female flowers give way to flattened ash-like winged seeds (wings to 1.5" long). Serrate, elliptic to ovate, pointed, elm-like, glossy dark green leaves (3-6" long) remain attractive throughout the growing season. No fall color. As the common name suggests, rubber can in fact be made from the tree sap, but the extraction process is complicated and too costly for commercial application. Tear a leaf, break a twig or peel off some bark and a stringy latex-like sap appears.

No serious insect or disease problems.

Shade tree for lawns or parks. Street tree.



**Sources:** Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Hardy Rubber Tree

**Type:** Tree

**Family:** Eucommiaceae

**Native Range:** Central China

**Zone:** 4 to 7

**Height:** 40.00 to 60.00 feet

**Spread:** 30.00 to 50.00 feet

**Bloom Time:** April

**Bloom Description:** Greenish-Brown

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree

**Flower:** Insignificant

**Tolerate:** Drought



# GINKGO BILOBA 'PRINCETON SENTRY'

## MAIDENHAIR TREE



Easily grown in average, medium moisture soil in full sun. Prefers moist, sandy, well-drained soils. Tolerant of a wide range of soil conditions, including both alkaline and acidic soils and compacted soils. Also tolerant of saline conditions, air pollution and heat. Adapts well to most urban environments.

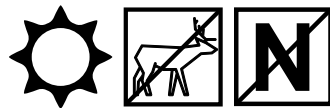
Ginkgo biloba is a large, deciduous tree that matures to 100' tall and is considered to be a living fossil. It is the only surviving member of a group of ancient plants believed to have inhabited the earth up to 150 million years ago. It features distinctive two-lobed, somewhat leathery, fan-shaped, rich green leaves with diverging (almost parallel) veins. Leaves turn bright yellow in fall. Ginkgo trees are commonly called maidenhair trees in reference to the resemblance of their fan-shaped leaves to maidenhair fern leaflets (pinnae). Ginkgos are dioecious (separate male and female trees). Nurseries typically sell only male trees (fruitless), because female trees produce seeds encased in fleshy, fruit-like coverings which, at maturity in autumn, are messy and emit a noxious, foul odor upon falling to the ground and splitting open.

Genus name is a misrendering of the Japanese gin meaning silver and kyo meaning apricot used in Japan in the 17th century.

Specific epithet means two-lobed in reference to the leaves.

'Princeton Sentry' is an all-male cultivar typically growing at maturity to 40-50' with an upright, narrowly conical habit. Leaves turn a uniform golden yellow in autumn (spectacular when backlit by early morning or late afternoon sun) and persist for several weeks. When the leaves do drop, they drop rapidly, forming a golden carpet around the tree.

Excellent selection for a variety of uses, including lawn tree, street tree or shade tree. Also effective in city parks or near commercial buildings.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** maidenhair tree

**Type:** Tree

**Family:** Ginkgoaceae

**Native Range:** China

**Zone:** 3 to 8

**Height:** 40.00 to 50.00 feet

**Spread:** 20.00 to 30.00 feet

**Bloom Time:** April

**Bloom Description:** Green

**Sun:** Full sun

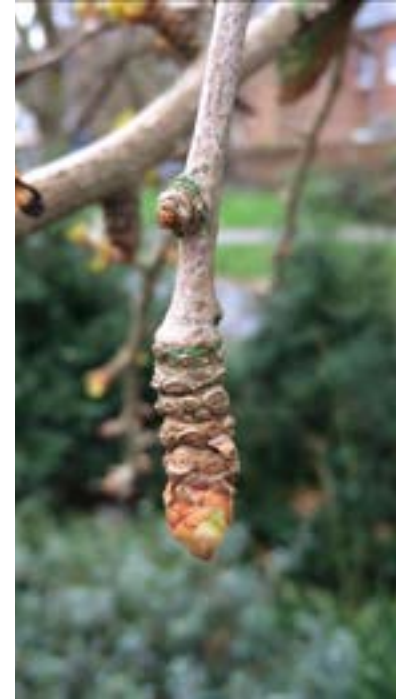
**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree

**Leaf:** Good Fall

**Tolerate:** Deer, Clay Soil, Air Pollution



# GLEDITSIA TRIACANTHOS VAR. INERMIS

## HONEY LOCUST



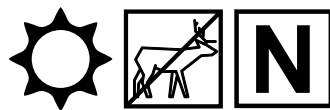
Best grown in organically rich, moist, well-drained soils in full sun. Tolerant of a wide range of soils. Also tolerant of wind, high summer heat, drought and saline conditions.

*Gleditsia triacanthos*, commonly called honey locust, is native from Pennsylvania to Iowa south to Georgia and Texas. It typically grows 60-80' (less frequently to 120' ) tall with a rounded spreading crown. Trunk and branches have stout thorns (to 3" long) that are solitary or three-branched. The 4-8" long leaves are bipinnately compound and made up of small (up to 1" long), elliptic to lanceolate leaflets. The leaves turn bright yellow in the fall. Inconspicuous, greenish yellow to greenish white flowers appear in racemes in late spring (May-June in St. Louis). Flowers are followed by long, twisted and flattened, dark purplish-brown seedpods (to 18" long) which mature in late summer and persist well into winter. Seedpods contain numerous flattened, round seeds surrounded by a sweet, sticky pulp. Species plants are generally not sold in commerce today because the thorns and seedpods are considered to be significant liabilities.

Forma *inermis* is a thornless variety that occurs naturally in the wild. It grows to the same height as the thorny species plants. Cultivars of *G. triacanthos* which are sold in commerce today are all cultivars of f. *inermis* (no thorns and in many cases no seedpods make them preferred landscape plants). Pinnate to bipinnate dark green leaves with ovate leaflets (1/2" to 1 1/2" long) cast a sun-dappled shade. Leaves turn an attractive yellow in fall.

Honey locust is susceptible to a large number of potential disease problems, including leaf spot, canker, witches' broom, powdery mildew and rust. Borers and webworms are common insect problems in some areas. Bagworms, plant bug, leafhopper and leaf miner may appear. Watch for spider mites.

A thornless and nearly seedless form that is recommended for lawns and streets.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Honey Locust  
**Type:** Tree  
**Family:** Fabaceae  
**Native Range:** Eastern United States  
**Zone:** 3 to 8  
**Height:** 35.00 to 45.00 feet  
**Spread:** 25.00 to 35.00 feet  
**Bloom Time:** May to June  
**Bloom Description:** Greenish White

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Medium  
**Suggested Use:** Shade Tree, Street Tree  
**Flower:** Showy  
**Leaf:** Good Fall  
**Tolerate:** Deer, Drought, Clay Soil, Black Walnut, Air Pollution



# GYMNOCLADUS DIOICA

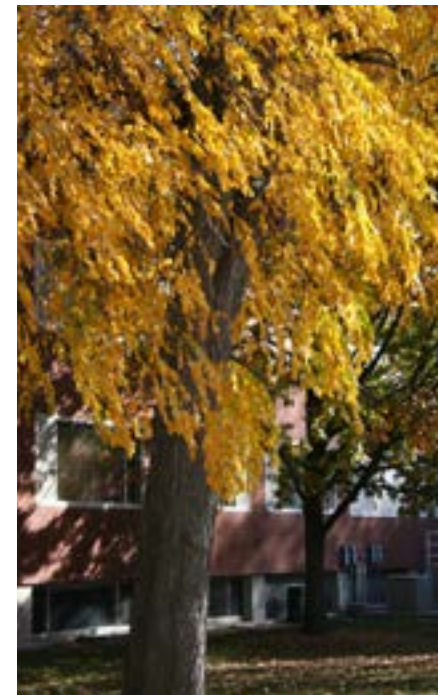
## KENTUCKY COFFEE TREE



Best grown in moist, organically rich, well-drained soils in full sun. Tolerates poorer soils and drought. Avoid heavy clays however. Also adapts well to urban conditions. Suckers to form colonies in the wild.

*Gymnocladus dioica*, commonly called Kentucky coffeetree or coffeetree, is a tall deciduous tree with rough, scaly gray-brown bark and large bipinnate compound leaves. It is native to the Midwest, primarily southern Michigan and Ohio southwest to Iowa, Kansas, Oklahoma and Arkansas. It grows 60-80' (less frequently to 100') tall with an irregular open oval to obovate crown. In Missouri, it typically occurs in low or rich woods, bluff bases and along streams (Steyermark). Large leaves to 3' long, divided into 3-7 pairs of pinnae, with individual leaflets (1-3" long). Leaflets are blue-green in summer, turning an undistinguished yellow in fall. Larger trees typically cast light shade. As the specific epithet suggests, the species is dioecious (separate male and female trees). Greenish white flowers appear in late spring (May-June). Male flowers in clusters to 4" long. Female flowers in panicles to 12" long. Female flowers are fragrant. Fertilized female flowers give way to flattened reddish brown pods (to 10" long) which ripen in October and persist well into winter. Native Americans and early American settlers, especially those in the Kentucky territory, roasted and ground the seeds to brew a coffee-like beverage (albeit no caffeine), hence the common name. Native Americans roasted the seeds for food. Seeds are very toxic prior to roasting, and should never be eaten fresh off the tree. Trees are late to leaf out in spring and are one of the first to drop leaves in the fall.

Genus name come from *gymnos* meaning naked and *klados* meaning branch as the tree is bare of leaves for many months. Specific epithet means dioecious, having separate male and female plants. Good landscape tree for large lawns and parks. Male trees are generally considered more desirable because of the lack of seedpods. However, mature female trees with hanging seedpods can be very attractive in outline against a winter sky.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Kentucky coffee tree

**Type:** Tree

**Family:** Fabaceae

**Native Range:** Central and eastern United States, Ontario and Quebec, Canada

**Zone:** 3 to 8

**Height:** 60.00 to 80.00 feet

**Spread:** 40.00 to 55.00 feet

**Bloom Time:** May to June

**Bloom Description:** Greenish-white

**Sun:** Full sun

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Rain Garden

**Flower:** Showy, Fragrant

**Fruit:** Showy

**Other:** Winter Interest

**Tolerate:** Drought, Air Pollution



# HALESIA CAROLINA

## CAROLINA SILVERBELL

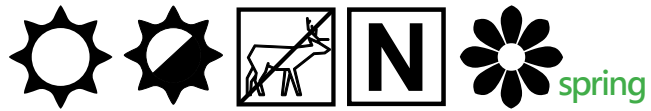
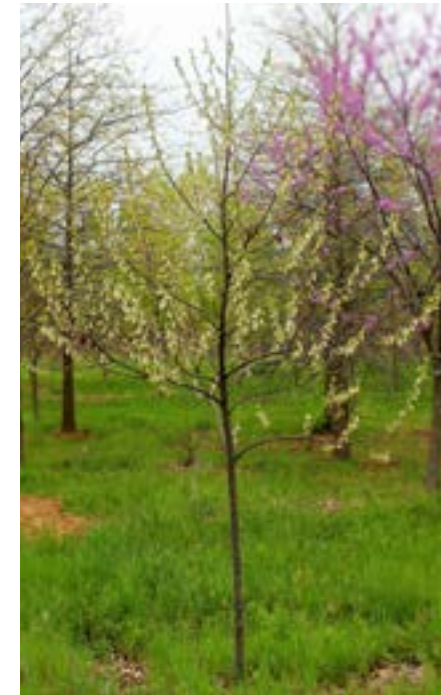


Easily grown in average, medium, well-drained soil in full sun to part shade. Prefers moist, acidic, organically rich soils in part shade. May be grown as a large, multi-stemmed shrub or trained as single trunk tree.

*Halesia carolina*, commonly called Carolina silverbell or silverbell tree, is a small, deciduous, understory tree native to the Piedmont and southern Appalachian Mountains of the southeastern United States. It is typically found growing on lower mountain slopes, bluffs, and stream banks in rich, mesic soil. In the wild Carolina silverbell typically does not exceed 35' in height (though specimens have been found in the 80-100' range), and is frequently shrubby in habit. Features drooping clusters (usually 2-5 flowers each) of bell-shaped, white flowers (1/2" ) which appear in April shortly before or simultaneous to the point when the leaves emerge. Four-winged, brownish, nut-like fruits appear in the fall and often persist well into the winter. Dull, finely toothed, dark yellowish-green, ovate-oblong leaves (2-5" long) turn a somewhat attractive yellow in fall, but may drop rather early. Synonymous with *Halesia tetraptera* (tetraptera meaning four-winged).

No serious insect or disease problems. Susceptible to chlorosis in high pH soils.

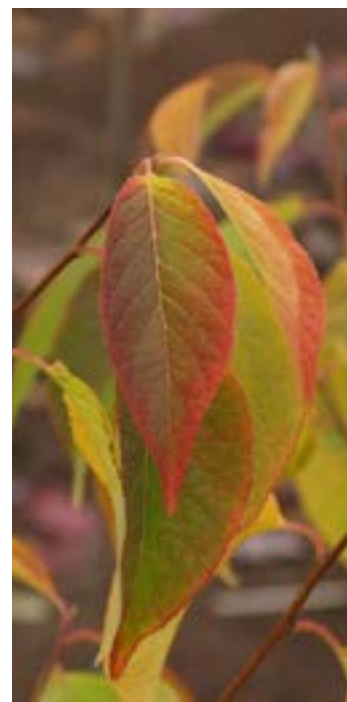
Attractive, small tree or large shrub for the shrub border or woodland garden. Interesting specimen for the lawn. Grows well with rhododendrons and azaleas.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Carolina Silverbell  
**Type:** Tree  
**Family:** Styracaceae  
**Native Range:** Southeastern United States  
**Zone:** 4 to 8  
**Height:** 30.00 to 40.00 feet  
**Spread:** 20.00 to 35.00 feet  
**Bloom Time:** April  
**Bloom Description:** White

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Flowering Tree  
**Flower:** Showy  
**Leaf:** Good Fall  
**Attracts:** Hummingbirds  
**Tolerate:** Deer, Black Walnut



# ILEX OPACA

## AMERICAN HOLLY

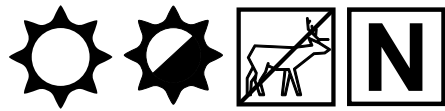


Easily grown in average, consistently moist, acidic, well-drained soils in full sun to part shade. Leaves typically yellow in alkaline soils. Tolerates a broad range of soil conditions, but will not tolerate flooding or soils saturated with moisture. Avoid poorly drained soils. Best growth in the wild usually occurs in rich bottomlands and swamp margins. Site in locations protected from cold winter winds. Part afternoon shade is best in hot summer climates. Plant foliage loses density in too much shade.

*Ilex opaca*, commonly called American holly, is an upright, pyramidal, evergreen tree that slowly matures to 15-30' in cultivation, but may reach 50' tall in the wild. It is native to the eastern and central U.S., most frequently found in moist woods, forest bottomlands and swamp peripheries plus some coastal dunes (e.g., Cape Cod down the Atlantic Coast) from Massachusetts to West Virginia to Ohio to southeastern Missouri south to Texas and Florida. This species is easily identified because it is the only native U.S. holly with spiny green leaves and bright red berries. This is the Christmas holly whose berry-laden boughs are typically collected at Christmas time each year for ornamentation ("decking the halls" as it were). Thick, leathery, deep green leaves (2-4" long) have spiny marginal teeth. Species is dioecious (male and female flowers are on separate trees). Greenish-white flowers bloom May-June (male flowers in 3-12 flowered clusters and female flowers solitary or in 2s or 3s). Bright red or orange fruits (drupes to 1/4- 1/2" diameter) ripen in fall on pollinated female trees, and persist on the tree through winter. Birds love the fruit.

Genus name comes from the Latin name *Quercus ilex* for holm oak in reference to the foliage similarities (holm oak and many of the shrubs in the genus *Ilex* have evergreen leaves).

Specific epithet means opaque or dull, in reference to the non-lustrous leaf surfaces of species plants (many of the cultivars have more lustrous foliage).



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** American holly  
**Type:** Broadleaf evergreen  
**Family:** Aquifoliaceae  
**Native Range:** Eastern and central United States  
**Zone:** 5 to 9  
**Height:** 15.00 to 30.00 feet  
**Spread:** 10.00 to 20.00 feet  
**Bloom Time:** May  
**Bloom Description:** Creamy white

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Flower:** Insignificant  
**Leaf:** Evergreen  
**Attracts:** Birds  
**Fruit:** Showy  
**Other:** Winter Interest, Thorns  
**Tolerate:** Deer, Clay Soil, Air Pollution

# ILEX 'NELLIE R. STEVENS'

## HOLLY



Grow in organically rich, slightly acidic, medium moisture, well-drained soils in full sun to part shade. Prune in winter if needed. Ilex 'Edward J. Stevens' and Ilex cornuta males reportedly will serve as good pollinators for this female plant. However, 'Nellie R. Stevens' can bear some fruit without fertilization from a male pollinator because it is parthenocarpic (from Greek parthenos meaning virgin and karpos meaning fruit). This plant has better heat tolerance than many of the hollies, and is a good selection for hot southern areas. It is not reliably winter hardy throughout the St. Louis area where it should be sited in a protected location.

Ilex is a genus of over 400 species of evergreen and deciduous trees, shrubs and climbers from tropical, subtropical and temperate regions. Many are grown for their attractive, evergreen foliage.

Genus name comes from the Latin name Quercus ilex for holm oak in reference to the foliage similarities (holm oak and many of the shrubs in the genus Ilex have evergreen leaves).

'Nellie R. Stevens' is a hybrid between I. aquifolium and I. cornuta. It typically grows as a large broadleaf evergreen shrub with dense, conical form to 15-25' tall and 8-12' wide. It also can be trained to grow as a small tree. Oblong, glossy, dark green leaves (to 4" long) have spiny margins (typically 2-3 spines per side). Small greenish-white flowers appear in spring (April), but are generally inconspicuous. Flowers give way to often abundant amounts of berry-like bright red fruits (to 1/3" diameter) which ripen in fall and persist into winter.

Borders, screens, hedges, foundations.

Specimen. Small tree.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** holly  
**Type:** Broadleaf evergreen  
**Family:** Aquifoliaceae  
**Native Range:** (Hybrid) Asia  
**Zone:** 6 to 9  
**Height:** 15.00 to 25.00 feet  
**Spread:** 8.00 to 12.00 feet  
**Bloom Time:** April  
**Bloom Description:** Greenish-white

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Hedge  
**Flower:** Insignificant  
**Leaf:** Evergreen  
**Fruit:** Showy  
**Other:** Winter Interest  
**Tolerate:** Deer, Air Pollution



# ILEX X 'CONAF'

## HOLLY



Grow in organically rich, slightly acidic, medium moisture, well-drained soils in full sun to part shade. Tolerant of a wide variety of soils ranging from moist to dry and from sand to clay. Also tolerant of heat and drought. Prefers evenly moist, organic loams. Site in locations protected from strong winter winds.

Ilex is a genus of over 400 species of evergreen and deciduous trees, shrubs and climbers from tropical, subtropical and temperate regions. Many are grown for their attractive, evergreen foliage.

'Conaf' , commonly known by its trade name of OAK LEAF, is part of the Red Holly Series of hybrid holly cultivars, all of which are seedling selections from Ilex 'Mary Nell' . OAK LEAF shows conical growth when young, but matures in upright pyramidal form to 15-20' tall with a 12-15' spread. It is particularly noted for its upright pyramidal form, oak-shaped leaves with unusual leaf serrations, and attractive orange-red fruits. New growth emerges bronze to burgundy red (characteristic of all Red Holly Series cultivars), but matures to emerald green. Alternate, evergreen, ovate to lanceolate leaves (to 3 1/2" long) have serrate margins with 3-5 pairs of prominent spines. OAK LEAF is a female cultivar (plants are dioecious). Small, creamy yellow/white, slightly fragrant flowers bloom in clusters from the leaf axils in spring (March to May). Flowers, if pollinated, give way to a profuse crop of berries (3/8" diameter) which mature to orange-red in fall (November). U.S. Plant Patent PP9,487 was issued on March 26, 1996.

Potential insect problems include holly leaf miner, spider mites, whitefly and scale. Potential disease problems include leaf spot, leaf rot, tar spot and powdery mildew. Plants are also susceptible to leaf drop, leaf scorch and chlorosis (yellowing of leaves in high pH soils).

Borders, screens, hedges, foundations.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** holly  
**Type:** Broadleaf evergreen  
**Family:** Aquifoliaceae  
**Native Range:** Southeastern United States  
**Zone:** 6 to 9  
**Height:** 15.00 to 20.00 feet  
**Spread:** 12.00 to 15.00 feet  
**Bloom Time:** March to May  
**Bloom Description:** White

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Medium  
**Suggested Use:** Hedge  
**Flower:** Insignificant  
**Leaf:** Evergreen  
**Attracts:** Birds  
**Other:** Winter Interest  
**Tolerate:** Deer



# JUNIPERUS VIRGINIANA

## RED CEDAR



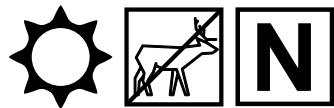
Easily grown in average, dry to moist, well-drained soils in full sun. Tolerates a wide range of soils and growing conditions, from swamps to dry rocky glades. Prefers moist soils but is intolerant of constantly wet soils. It has the best drought resistance of any conifer native to the eastern U.S.

*Juniperus virginiana*, commonly called Eastern red cedar, is native to Missouri where it typically occurs on limestone bluffs and glades, wood margins, fields, pastures and fence rows throughout the state except for the southeastern lowlands (Steyermark). It is a broadly conical, sometimes columnar, dense, evergreen conifer with horizontal branching that typically grows to 30-65' tall. Gray to reddish-brown bark exfoliates in thin shreddy strips on mature trees. Trunks are often fluted at the base. Heartwood is light brown and aromatic, and is commonly used for cedar chests. Dark blue green scale-like foliage. Foliage may turn brown-green in winter. Cultivars of this species often retain better foliage color in winter. This is a dioecious species (separate male and female trees). Female trees produce round, gray to blackish-green berry-like cones (1/4" diameter) that ripen in fall the first year. Berry-like cones are attractive to many birds.

Genus name comes from the Latin name for the juniper.

Specific epithet means of Virginia.

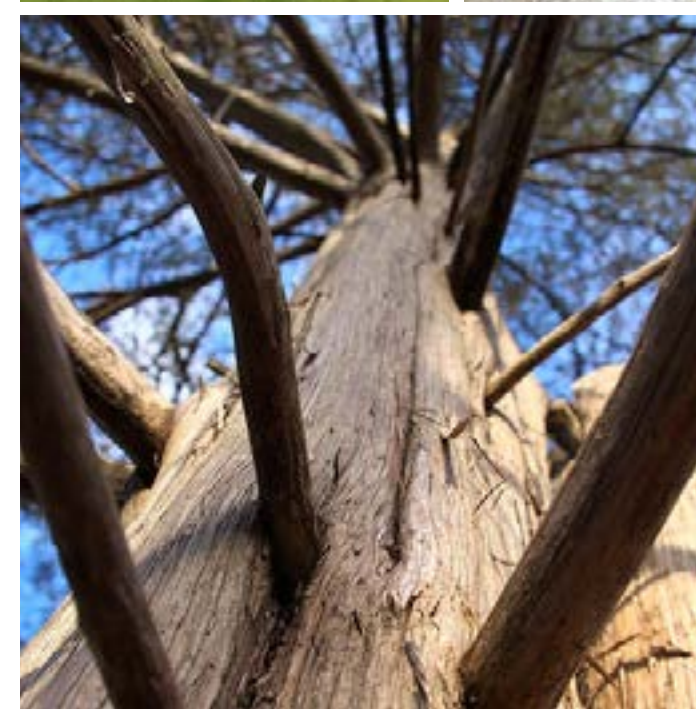
Landscape specimen. Large screens. Avoid planting near apple trees.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** red cedar  
**Type:** Needled evergreen  
**Family:** Cupressaceae  
**Native Range:** Eastern North America  
**Zone:** 2 to 9  
**Height:** 30.00 to 65.00 feet  
**Spread:** 8.00 to 25.00 feet  
**Bloom Time:** Non-flowering  
**Bloom Description:** Non-flowering

**Sun:** Full sun  
**Water:** Dry to medium  
**Maintenance:** Low  
**Leaf:** Evergreen  
**Other:** Winter Interest  
**Tolerate:** Deer, Drought, Erosion,  
Dry Soil, Shallow-Rocky Soil, Black  
Walnut, Air Pollution



# KOELREUTERIA PANICULATA

## GOLDEN RAIN TREE



Easily grown in average, dry to medium, well-drained soil in full sun. Adapts to a wide range of soils. Tolerates drought and many city air pollutants.

Koelreuteria paniculata, commonly called golden raintree, is a small, open-branching, irregularly-shaped, deciduous tree with a rounded crown which typically grows 30-40' tall and as wide. Features pinnate or bipinnate, feathery, compound leaves (to 18" long), each leaf having 7-17 irregularly lobed leaflets. Leaves emerge pinkish bronze to purplish in spring, mature to a bright green in summer and turn yellow (quality variable) in fall. Bright yellow flowers (1/2" wide) appear in early summer in long, terminal, panicles (12-15" ). Falling blossoms may or may not resemble "golden rain" , but the fallen blossoms often form an attractive golden carpet under the tree. Flowers give way to interesting, brown, papery seed capsules which somewhat resemble Chinese lanterns.

Genus name honors Joseph Gottlieb Koelreuter (1733-1806), professor of natural history at Karlsruhe, a pioneer experimental investigator of plant hybridization.

Specific epithet means in a panicle in reference to the floral inflorescence.

Small shade tree, street tree, lawns or terraces.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** golden rain tree  
**Type:** Tree  
**Family:** Sapindaceae  
**Native Range:** Northern China, Korea, Japan  
**Zone:** 5 to 9  
**Height:** 30.00 to 40.00 feet  
**Spread:** 30.00 to 40.00 feet  
**Bloom Time:** June to July  
**Bloom Description:** Yellow

**Sun:** Full sun  
**Water:** Dry to medium  
**Maintenance:** Low  
**Suggested Use:** Shade Tree, Street Tree, Flowering Tree  
**Flower:** Showy  
**Leaf:** Good Fall  
**Fruit:** Showy  
**Tolerate:** Drought, Deer, Clay Soil, Air Pollution



# LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'

## SWEET GUM



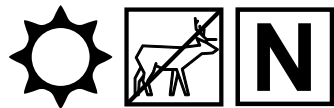
Easily grown in average, medium moisture, well-drained soils in full sun. Intolerant of shade. Prefers deep, moist, fertile soils, but seems to tolerate a wide variety of soils. Avoid alkaline soils. Trees are not reliably winter hardy in the northern areas of USDA Zone 5.

Liquidambar styraciflua, commonly called sweet gum, is a low-maintenance deciduous shade tree that is native from Connecticut to Florida and Missouri further south to Texas, Mexico and Central America. It typically occurs in moist low woods and along streams only in the far southeastern corner of the state (Steyermark). Each leaf has 5-7 pointed, star-shaped lobes. Leaves are fragrant when bruised. Fall color at its best is a brilliant mixture of yellows, oranges, purples and reds. Branchlets may have distinctive corky ridges. Non-showy, monoecious, yellow-green flowers appear in spherical clusters in April-May. Tree wood has been widely used for a number of applications including flooring, furniture and home interiors. The gum obtained from genus plants has been used in the past for a variety of purposes, including chewing gum, incense, perfumes, folk medicines and flavorings.

**Rotundiloba** is a narrowly pyramidal, deciduous tree which typically grows 60-75' tall (less frequently to 100' ). Deep green leaves have, as the cultivar name suggests, distinctively rounded lobes (5-7). Foliage turns yellow to burgundy in fall. Non-showy, apetalous, monoecious flowers appear in small clusters in spring. Tree does not set fruit (the infamous gum balls).

No serious insect or disease problems. Webworms, caterpillars, borers and scale may cause problems in some areas. Leaf spots, wood rot and bleeding necrosis may occur. Chlorosis may occur in alkaline soils.

Lawn or shade tree. Street tree if provided with sufficient room to grow.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Sweet Gum

**Type:** Tree

**Family:** Altingiaceae

**Native Range:** Eastern North America

**Zone:** 5 to 9

**Height:** 60.00 to 70.00 feet

**Spread:** 20.00 to 30.00 feet

**Bloom Time:** April to May

**Bloom Description:** Greenish

**Sun:** Full sun

**Water:** Medium

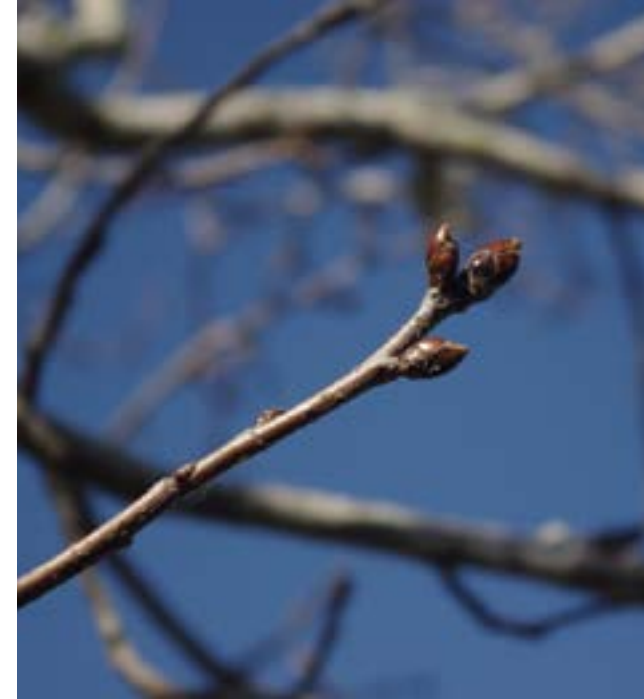
**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree

**Flower:** Insignificant

**Leaf:** Good Fall

**Tolerate:** Rabbit, Deer, Clay Soil



# MAACKIA AMURENSIS

## MAACKIA



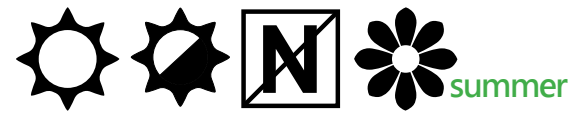
Best grown in average, medium moisture, well-drained soil in full sun to part shade. Prefers full sun. Adapts to a wide range of soil conditions.

Amur maackia is a small, deciduous tree with a broad, rounded habit. Typically grows in cultivation at a slow-to-moderate rate to a height of 20-30' (to 60' in the wild). Features erect, narrow, spike-like clusters (4-6" long) of fragrant, dull white, pea-like flowers which appear in late spring. Flowers are followed by flat seed pods (2-3" long). Compound, odd-pinnate, dark olive green leaves (7-13 leaflets each) are attractive in summer but produce no fall color. Coppery-bronze bark exfoliates on mature trees. Karlovich Maack, a 19th century Siberian explorer, discovered the tree growing in the region of the Amur River which serves as the border between Siberia and China. This member of the pea family is both closely related and similar in appearance to the slightly larger yellowwood (Cladrastis). Yellowwood has more attractive flowers and excellent fall color.

Genus name honors Richard Maack [Richard Karlovich Maak](1825-1886), Russian naturalist and explorer.

Specific epithet recognizes the Amur River valley where it was discovered.

Small shade tree or street tree.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** maackia

**Type:** Tree

**Family:** Fabaceae

**Native Range:** Russia, eastern Asia

Zone: 3 to 7

**Height:** 20.00 to 30.00 feet

**Spread:** 20.00 to 30.00 feet

**Bloom Time:** June

**Bloom Description:** Dull White

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree, Flowering Tree

**Flower:** Showy, Fragrant



# MAGNOLIA GRANDIFLORA

## SOUTHERN MAGNOLIA



At best, Magnolia grandiflora is considered to be winter hardy to USDA Zone 6b and is not reliably winter hardy in the St. Louis area. If grown in St. Louis, it should be sited in a protected location. Plants may become somewhat deciduous in hard winters. It is best grown in moist, organically rich, well-drained loams in full sun to part shade. Part shade may be best. It is generally intolerant of soil extremes (dry or wet). It is also intolerant of many urban pollutants. Trees will become quite large over time and should be planted in areas where they can expand.

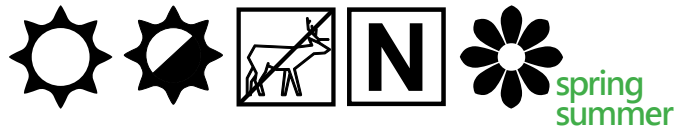
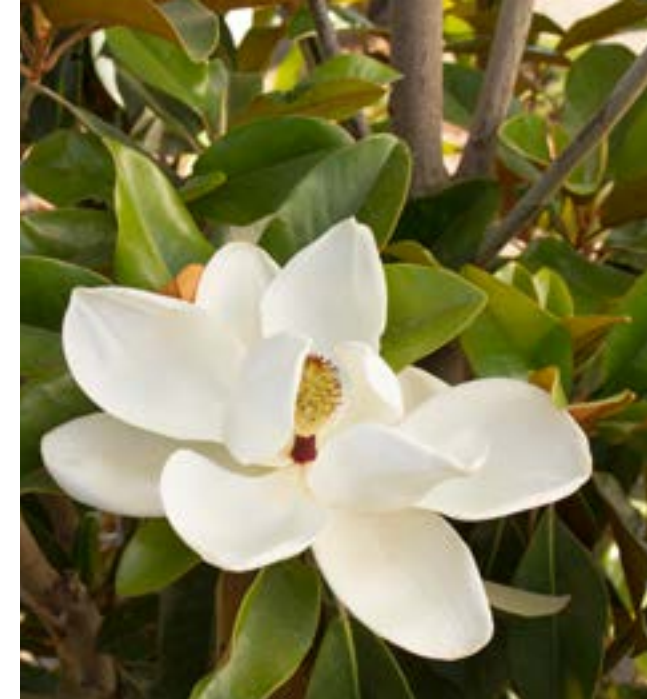
See M. grandiflora 'Bracken' s Brown Beauty' for a cultivar that is reliably winter hardy to USDA Zones 5b and is generally considered to be a much better selection for St. Louis landscapes than the straight species.

Magnolia grandiflora is a broadleaf evergreen tree that is noted for its attractive dark green leaves and its large, extremely fragrant flowers. It typically grows to 60-80' tall with a pyramidal to rounded crown. This is a magnificent tree of the South. It is native to moist wooded areas in the southeastern United States from North Carolina to Florida and Texas. Leathery evergreen ovate to elliptic leaves (to 10" long) are glossy dark green above and variable pale green to gray-brown beneath. Fragrant white flowers (to 8-12" diameter) usually have six petals. Flowers bloom in late spring, with sparse continued flowering throughout the summer. Flowers give way to spherical cone-like fruiting clusters (to 3-5" long) that mature in late summer to early fall, releasing individual rose-red coated seeds suspended on slender threads at maturity.

Genus name honors Pierre Magnol, French botanist (1638-1715).

Specific epithet is from Latin meaning large flowers.

Beautiful specimen flowering tree for lawns.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** southern magnolia  
**Type:** Tree  
**Family:** Magnoliaceae  
**Native Range:** Southeastern United States  
**Zone:** 7 to 9  
**Height:** 60.00 to 80.00 feet  
**Spread:** 30.00 to 50.00 feet  
**Bloom Time:** May to June  
**Bloom Description:** White

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Medium  
**Suggested Use:** Flowering Tree  
**Flower:** Showy, Fragrant  
**Leaf:** Evergreen  
**Fruit:** Showy  
**Other:** Winter Interest  
**Tolerate:** Air Pollution



# MAGNOLIA VIRGINIANA

## SWEET BAY MAGNOLIA



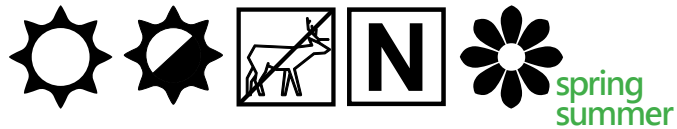
Easily grown in acidic, medium to wet soils in full sun to part shade. Prefers moist, rich, organic soils, but, unlike most other magnolias, tolerates wet, boggy soils. Also does quite well in the heavy clay soils of Missouri. Appreciates a protected location in USDA Zone 5 where it is not reliably winter hardy throughout.

*Magnolia virginiana*, commonly called sweet bay magnolia, is native to the southeastern United States north along the Atlantic coast to New York. In the northern part of its cultivated growing range, it typically grows as either a 15-20' tall tree with a spreading, rounded crown or as a shorter, suckering, open, multi-stemmed shrub. In the deep South, it is apt to be more tree-like, sometimes growing to 60' tall. Features cup-shaped, sweetly fragrant (lemony), 9-12 petaled, creamy white, waxy flowers (2-3" diameter) which appear in mid-spring and sometimes continue sporadically throughout the summer. Oblong-lanceolate shiny green foliage is silvery beneath. Foliage is evergreen to semi-evergreen in the South, but generally deciduous in the St. Louis area. Cone-like fruits with bright red seeds mature in fall and can be showy. See also *Magnolia virginiana* var. *australis* which primarily differs from the species by being somewhat taller, having more fragrant flowers and being more likely to be evergreen.

Genus name honors Pierre Magnol, French botanist (1638-1715).

Specific epithet means of Virginia.

Excellent specimen tree for lawns or tall multi-stemmed shrub for shrub borders. Use in foundation plantings, near patios or on the periphery of woodland areas. Often planted in parks. Will grow in wet soils such as those found in low spots or near ponds/streams.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** sweet bay magnolia

Type: Tree

**Family:** Magnoliaceae

**Native Range:** Eastern United States

Zone: 5 to 10

**Height:** 10.00 to 35.00 feet

**Spread:** 10.00 to 35.00 feet

**Bloom Time:** May to June

**Bloom Description:** White

**Sun:** Full sun to part shade

**Water:** Medium to wet

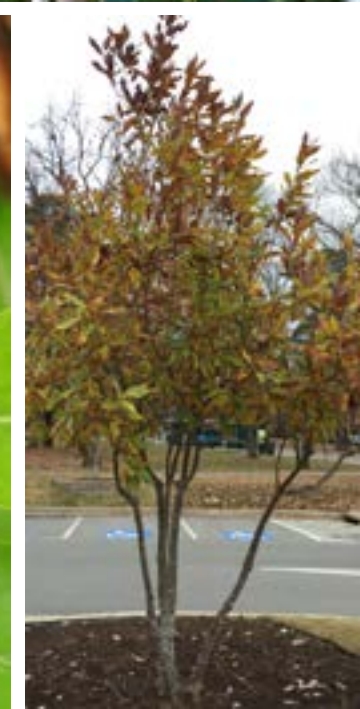
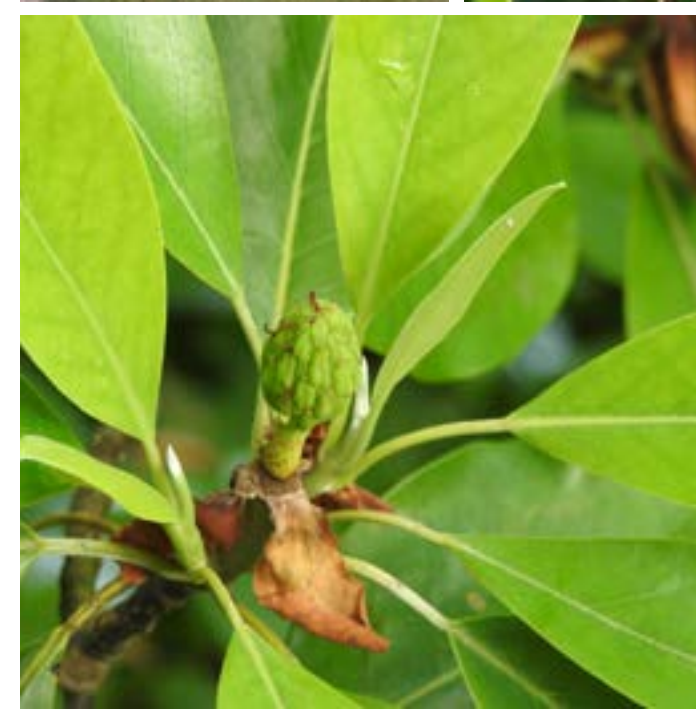
**Maintenance:** Low

**Suggested Use:** Flowering Tree, Rain Garden

Flower: Showy, Fragrant

**Fruit:** Showy

**Tolerate:** Deer, Clay Soil, Wet Soil, Air Pollution



# MAGNOLIA 'ELIZABETH'

## MAGNOLIA



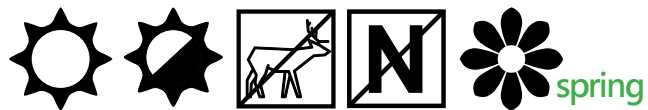
Best grown in organically rich, neutral to slightly acidic, medium moisture, well-drained soils in full sun to part shade. Appreciates a root-zone mulch to help retain soil moisture. Also appreciates a location protected from strong winds, but avoid warm southern exposures which may promote premature bud opening in spring. Fleshy root system is easily damaged during transplanting, so it is best to select a landscape location carefully and leave this magnolia undisturbed once planted. Prune as needed immediately after flowering. Usually requires little pruning other than removal of dead or damaged branches. Grafted plants of 'Elizabeth' may bloom as early as the 3rd year.

The genus Magnolia consists of about 100 species (plus numerous additional hybrids and cultivars) of deciduous or evergreen trees and shrubs. Most plants feature large simple leaves and showy, sometimes fragrant flowers (yellow, white, pink or purple) which bloom in early spring before or while the leaves are emerging or in late spring to summer when trees are fully leaved.

Genus name honors Pierre Magnol, French botanist (1638-1715).

'Elizabeth' is a deciduous pyramidal magnolia tree that grows over time to 20-35' tall and features fragrant yellow flowers in early spring. It is a cross between cucumber tree (*M. acuminata*) and Yulan magnolia (*M. denudata*). It was patented by the Brooklyn Botanic Garden in 1977. Yellow flowers (each to 3" across) have tinges of yellow green near the bases. Flowers bloom at the twig tips as the new leaves begin to unfurl (late March – early April in St. Louis). Flowers are usually sterile. Obovate, large green leaves (4-9" long) have entire margins. Cone-like red fruits infrequently appear. Plant Patent PP4,145 was issued November 8, 1977.

Excellent specimen for sunny areas in the landscape where spring flowers can be appreciated.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** magnolia

**Type:** Tree

**Family:** Magnoliaceae

**Native Range:** (Hybrid) Northeastern United States and China

**Zone:** 5 to 8

**Height:** 20.00 to 35.00 feet

**Spread:** 12.00 to 20.00 feet

**Bloom Time:** March to April

**Bloom Description:** Yellow

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Flowering Tree

Flower: Showy, Fragrant

**Tolerate:** Air Pollution



# METASEQUOIA GLYPTOSTROBOIDES

## DAWN REDWOOD



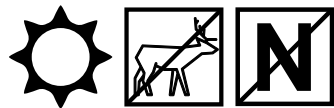
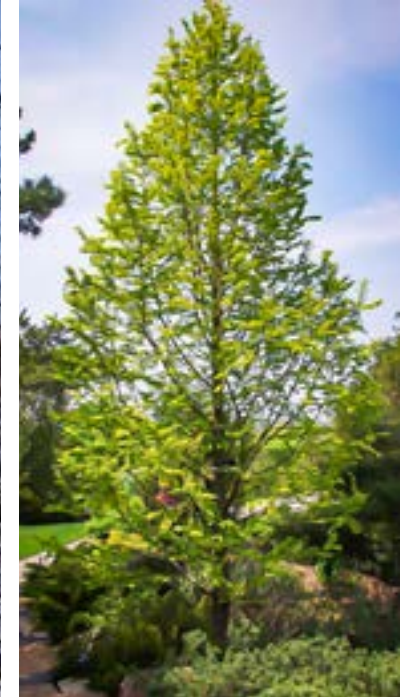
Best grown in moist, humusy, well-drained soils in full sun. Best foliage color is in full sun. Appreciates consistent moisture. Tolerates some wet soils.

Metasequoia glyptostroboides, commonly called dawn redwood, is a deciduous, coniferous tree that grows in a conical shape to 100' tall. It is related to and closely resembles bald cypress (Taxodium) and redwood (Sequoia). From fossil records, dawn redwood is known to have existed as many as 50,000,000 years ago. However, it was not until 1941 that it was first discovered growing in the wild near the town of Modaoqi, China by Chinese forester, T. Kan. Seeds collected from the original site were made available to the Missouri Botanical Garden in 1947. Seedlings grown therefrom were planted in front of the Lehmann Building at MBG in 1952 where they have now developed into large mature trees (70' + tall). As the tree matures, the trunk broadens at the base and develops attractive and sometimes elaborate fluting. Bark on mature trees is often deeply fissured. It features linear, feathery, fern-like foliage that is soft to the touch. Foliage emerges light green in spring, matures to deep green in summer and turns red-bronze in fall. Trees are monoecious, producing oval, light brown female cones (3/4" long) and pendant globose male cones (1/2" long). The twigs, needles and cone scales are in opposite pairs.

Genus name comes from the Greek words metra meaning with, after, sharing, or changed in nature and Sequoia to which it is related and to which fossil specimens were first referred.

No serious insect or disease problems.

This is a large tree that needs a large space. Excellent landscape specimen or street tree. May be an effective container plant when small.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Dawn Redwood  
**Type:** Tree  
**Family:** Cupressaceae  
**Native Range:** Central and Western China  
**Zone:** 4 to 8  
**Height:** 70.00 to 100.00 feet  
**Spread:** 15.00 to 25.00 feet  
**Bloom Time:** Non Flowering  
**Bloom Description:** Non Flowering

**Sun:** Full sun  
**Water:** Medium to Wet  
**Maintenance:** Low  
**Suggested Use:** Street Tree, Rain Garden  
**Tolerate:** Deer, Clay Soil, Wet Soil, Air Pollution

# NYSSA SYLVATICA

## BLACK GUM



Easily grown in average, medium to wet soils in full sun to part shade. Prefers moist, acidic soils. Tolerates poorly-drained soils and can grow in standing water. On the other end of the spectrum, tolerates some drought and adapts to some dryish soils, at least in the wild. Long taproot precludes moving established trees. Female trees need a male pollinator to set fruit.

*Nyssa sylvatica*, commonly called sour gum, is a slow-growing, deciduous, Missouri native tree which occurs in a wide range of soils south of the Missouri River in the southeastern quarter of the State. It is primarily a lowland tree found in low wet woods, bottomlands and pond peripheries, but also can be found on dry rocky wooded slopes and ravines. A stately tree with a straight trunk and rounded crown (more pyramidal when young) that typically grows 30-50' tall, but occasionally to 90'. Primarily dioecious (separate male and female trees), but each tree often has some perfect flowers. Small, greenish-white flowers appear in spring on long stalks (female flowers in sparse clusters and male flowers in dense heads). Although flowers are not showy, they are an excellent nectar source for bees. Flowers give way to oval, 1/2" long fruits which are technically edible but quite sour (hence the common name). Fruits mature to a dark blue and are attractive to birds and wildlife. Spectacular scarlet fall color. Obovate to elliptic, entire to slightly toothed leaves (to 5" long) are dark green above and paler below. Sometimes commonly called black tupelo. The closely related water tupelo (*Nyssa aquatica*) is a tree most often seen growing in standing water in swamps and bottomlands in the lower Mississippi valley and southeastern U.S. coastal areas, either in pure stands or in combination with bald cypress, water oaks and swamp cottonwoods.

Excellent ornamental shade tree for lawns or street tree. Also grows well in moist woodland gardens or naturalized areas or in low spots subject to periodic flooding or in boggy areas. Although slow-growing, it still needs to be sited in an area which affords plenty of room for future growth, particularly since it is so difficult to transplant.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** black gum  
**Type:** Tree  
**Family:** Nyssaceae  
**Native Range:** Eastern North America  
**Zone:** 3 to 9  
**Height:** 30.00 to 50.00 feet  
**Spread:** 20.00 to 30.00 feet  
**Bloom Time:** May to June  
 Bloom Description: Greenish white

**Sun:** Full sun to part shade  
**Water:** Medium to wet  
**Maintenance:** Low  
**Suggested Use:** Shade Tree, Street Tree, Rain Garden  
**Flower:** Insignificant  
**Leaf:** Good Fall  
**Attracts:** Birds  
**Tolerate:** Clay Soil, Wet Soil, Black Walnut



# OSTRYA VIRGINIANA

## EASTERN HOP HORNBEAM



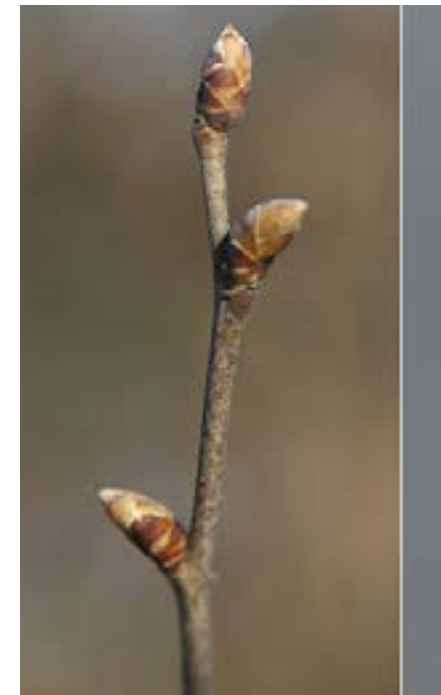
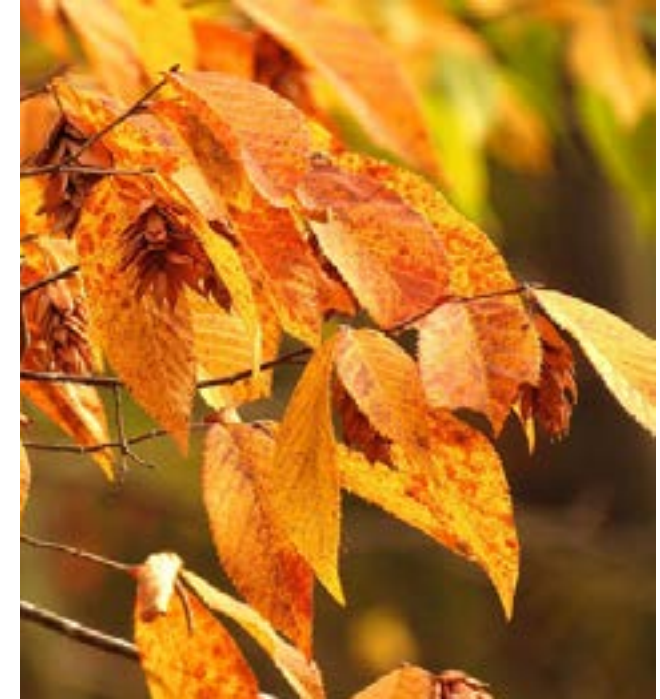
Easily grown in average, medium, well-drained soil in full sun to part shade.

*Ostrya virginiana*, commonly called American hop hornbeam, is a deciduous, Missouri native tree which usually occurs in dry soils on rocky slopes, upland woods and bluffs throughout the State. A small to medium-sized, understory tree with a generally rounded crown. Typically grows 25-40' tall with a slightly smaller spread. Features birch-like, oval to lance-shaped, sharply-serrated, dark yellowish-green leaves (to 5" long). Leaves turn an undistinguished yellow in autumn and often drop early. Flowers are monoecious (reddish-brown male flowers and greenish female flowers appear in separate catkins on the same tree). Flowers are not particularly showy, although the male catkins are more prominent and are present throughout winter. Female catkins are followed by drooping clusters of sac-like, seed-bearing pods which, as the common name suggests, somewhat resemble the fruit of hops. Also commonly called ironwood because of its extremely hard and dense wood.

Genus name comes from the Greek name ostrys used for this tree.

Specific epithet means of Virginia.

Lawn tree, street tree or woodland garden.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** eastern hop hornbeam  
**Type:** Tree  
**Family:** Betulaceae  
**Native Range:** Eastern North America, Mexico  
**Zone:** 3 to 9  
**Height:** 25.00 to 40.00 feet  
**Spread:** 20.00 to 30.00 feet  
**Bloom Time:** April  
**Bloom Description:** Red-brown (male); light green (female)

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Shade Tree, Street Tree  
**Flower:** Insignificant  
 Tolerate: Deer, Drought, Clay Soil



# PARROTIA PERSICA

## PERSIAN IRONWOOD



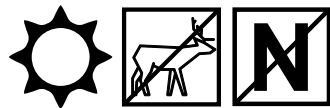
Best grown in average, slightly acidic, medium moisture, well-drained soils in full sun. Tolerates light shade and a wide range of soil conditions.

*Parrotia persica*, commonly called Persian ironwood, is a small, single trunk, deciduous tree eventually growing 20-40' tall (but typically 10' after 7-8 years) or a large, multi-stemmed shrub growing to 15' tall. Apetalous flowers with dense, red stamens surrounded by brownish bracts appear in late winter to early spring before the foliage. Flowers are attractive on close inspection, but are generally considered to be somewhat insignificant. Oval to oblong leaves (to 4" long) emerge reddish-purple in spring, mature to a lustrous, medium to dark green in summer and change to variable shades of yellow, orange and red in fall. Bark of mature trees exfoliates to show green, white or tan patches beneath and provides good winter interest.

Genus name honors F. W. Parrot (1792-1841), German naturalist and traveller who climbed Mount Arart in 1834.

Specific epithet means Persian.

Excellent small lawn tree or street tree. Can be incorporated into foundation plantings, particularly in shrub form.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Persian ironwood  
**Type:** Tree  
**Family:** Hamamelidaceae  
**Native Range:** Northern Iran, Caucasus  
**Zone:** 4 to 8  
**Height:** 20.00 to 40.00 feet  
**Spread:** 20.00 to 30.00 feet  
**Bloom Time:** March to April  
**Bloom Description:** Red

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Medium  
**Suggested Use:** Street Tree, Flowering Tree  
**Flower:** Insignificant  
**Leaf:** Good Fall  
**Other:** Winter Interest  
**Tolerate:** Clay Soil, Air Pollution



# PICEA ABIES

## NORWAY SPRUCE



Easily grown in average, acidic, evenly moist, well-drained soils in full sun. Performs well in rich sandy soils. Prefers cool summer climates, and often grows poorly south of USDA Zone 7. Established plants have some tolerance for dryish soils.

*Picea abies*, commonly called Norway spruce, is a large pyramidal evergreen conifer that is native to the mountains of northern and central Europe east to the Urals. In its native European habitat, it typically matures to 100-150' (occasionally to 200' ) tall. It has been widely planted in cool and temperate regions of North America where it typically matures to a much shorter 40-60' (less frequently to 100' ) tall. It is noted for its rapid growth. Primary branches are slightly upturned but secondary branches become pendulous as the tree matures. Branches are clad with spirally-arranged, four-sided, needle-like, deep green leaves which are attached at their bases to tiny pegs. Cylindrical seed bearing cones (to 9" long) are pendulous. In excess of 150 cultivars (mostly dwarf) have been named over the years. Cultivars can be very difficult to distinguish.

Genus name is reportedly derived from the Latin word *picea* meaning pitch in reference to the sticky resin typically found in spruce bark.

Specific epithet refers to its similarity to the genus *Abies* (fir).

Evergreen tree for large lawns, parks or woodland areas. Effective screen or windbreak in cold northern climates. Many dwarf cultivars of this species are available for foundation and rock garden plantings.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Norway spruce

**Type:** Needled evergreen

**Family:** Pinaceae

**Native Range:** Europe

Zone: 2 to 7

**Height:** 40.00 to 60.00 feet

**Spread:** 25.00 to 30.00 feet

**Bloom Time:** Non-flowering

**Bloom Description:** Non-flowering

**Sun:** Full sun

**Water:** Medium

**Maintenance:** Low

**Leaf:** Evergreen

**Attracts:** Birds

**Other:** Winter Interest

**Tolerate:** Deer, Air Pollution



# PICEA GLAUCA

## WHITE SPRUCE



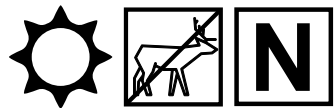
Best grown in moist, well-drained soils in full sun. Tolerates some light shade. Best performance is in cold winter climates with cool summers. Site in areas with good air circulation to help rid the dense foliage of moisture. Somewhat intolerant of urban stresses such as air pollutants and salt spray. Plants will struggle in the high heat and humidity of St. Louis summers, and should not be grown in the eastern U.S. south of USDA Zone 6.

*Picea glauca*, commonly called white spruce, is an extremely hardy evergreen conifer that is native to upland areas and lake/stream margins stretching from Alaska across the boreal forest of Canada to Newfoundland, dipping south to Montana, Minnesota, Wisconsin, Michigan and New York. This tree typically grows 60-80' tall (less frequently to 140' tall) with a cone-shaped crown. It diminishes in size to low, shrubby forms near tree line in northern Canada. Blue-green needles (to 3/4" ) on small woody pegs have sharp tips. Needles are pungently aromatic when crushed. Needles have a glaucous (white waxy coating) bloom, hence the specific epithet and common name. Branchlets do not droop. Cylindrical pale brown cones (to 2.5" long) have flexible scales.

Genus name is reportedly derived from the Latin word *pix* meaning pitch in reference to the sticky resin typically found in spruce bark.

Specific epithet both are in reference to the fact that mature needles of this tree become glaucous (acquire a waxy white bloom) with age.

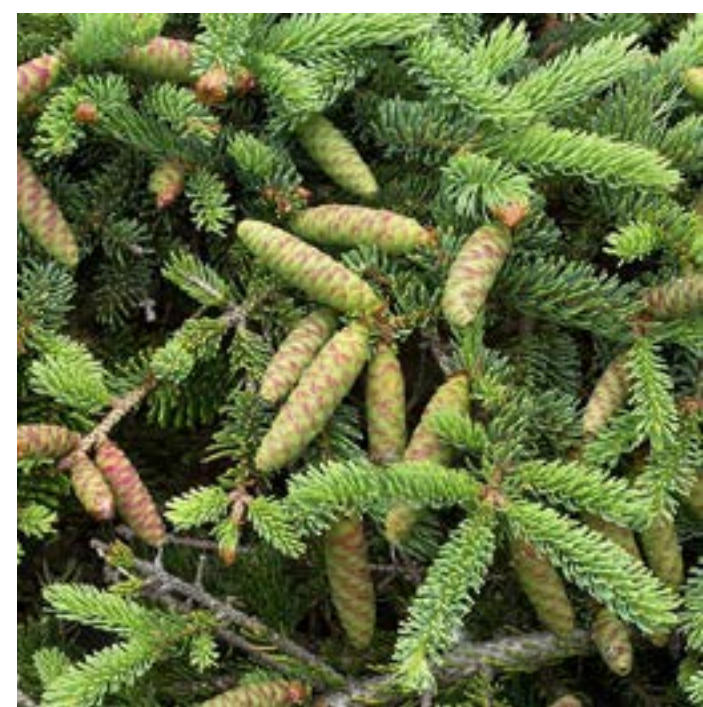
Specimen for landscape. Windbreak or screen.



**Sources:** Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** white spruce  
**Type:** Needled evergreen  
**Family:** Pinaceae  
**Native Range:** Canada, northern United States  
**Zone:** 2 to 6  
**Height:** 40.00 to 60.00 feet  
**Spread:** 10.00 to 20.00 feet  
**Bloom Time:** Non-flowering  
**Bloom Description:** Non-flowering

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Low  
**Leaf:** Evergreen  
**Other:** Winter Interest  
**Tolerate:** Deer



# PICEA GLAUCA VAR. DENS

## WHITE SPRUCE



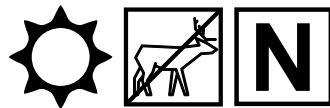
Best grown in moist, well-drained soils in full sun. Tolerates some light shade. Best performance is in cold winter climates with cool summers. Site in areas with good air circulation to help rid the dense foliage of moisture. Somewhat intolerant of urban stresses such as air pollutants and salt spray.

*Picea glauca*, commonly called white spruce, is an extremely hardy evergreen conifer that is native to upland areas and lake/stream margins stretching from Alaska across the boreal forest of Canada to Newfoundland, dipping south to Montana, Minnesota, Wisconsin, Michigan and New York. This tree typically grows 60-80' tall (less frequently to 140' tall) with a cone-shaped crown. Blue-green needles (to 3/4" ) on small woody pegs have sharp tips. Needles are pungently aromatic when crushed. Needles have a glaucous (white waxy coating) bloom, hence the specific epithet and common name. Branchlets do not droop.

'*Densata*, commonly called Black Hills spruce, is a variety of white spruce that is native to a geographically isolated area in and around the Black Hills of South Dakota. It was originally called *Picea glauca* var. *densata*, but many experts now designate it as *Picea glauca* 'Densata' because its differences from the species are judged insufficient to justify classification as a botanical variety. In its small native habitat, it is commonly found growing at around 6000' in elevation. It typically grows rather slowly in a dense, symmetrical cone to 20-25' tall, but over time may rise to 40-60' or more. It is distinguished from the species by having (1) smaller size with slower growth rate, (2) denser habit, (3) brighter green to blue-green needles and (4) slightly shorter cones. By reputation in the horticulture industry, Black Hills spruce is a superior ornamental tree to the species.

No serious insect or disease problems. Susceptible to needle and stem rust, canker, trunk and root rot. Yellow-headed spruce sawfly, spruce budworm and eastern spruce beetle are problems in some areas. Mites are common and repeated infestations can do serious injury to the plant. Intolerant of urban stresses (pollution, salt spray).

Specimen for landscape. Windbreak or screen.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** white spruce  
**Type:** Needled evergreen  
**Family:** Pinaceae  
**Native Range:** Canada, northern United States  
**Zone:** 3 to 6  
**Height:** 20.00 to 40.00 feet  
**Spread:** 10.00 to 15.00 feet  
**Bloom Time:** Non-flowering  
**Bloom Description:** Non-flowering

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Low  
**Leaf:** Evergreen  
**Other:** Winter Interest  
**Tolerate:** Deer



# PICEA ORIENTALIS 'SKYLANDS'

## ORIENTAL SPRUCE



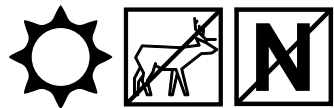
Easily grown in average, medium moisture, well-drained soils in full sun. Tolerates some light shade. Prefers rich, moist soils, but tolerates some poor soils including rocky ones. Although established plants have some drought tolerance, soils should be kept consistently moist and not allowed to dry out in the early years. Generally prefers cool climates and will usually struggle in the heat and humidity of the deep South. Site in locations protected from strong winter winds when growing in the northern parts of the growing range (USDA Zone 4).

The yellow foliage of 'Skylands' often appreciates some part afternoon shade in hot summer climates.

*Picea orientalis*, commonly called Oriental spruce, is a medium to large, densely-branched, narrow-pyramidal evergreen conifer that typically grows in cultivation to 50-70' tall. It is native to mountain areas from the Caucasus to Turkey. Flattened, glossy, dark green needles (to 1/2" long) are shorter than the needles of other species of spruce. Small pollen bearing (male) cones are red. Seed bearing (female) cones (to 4" long) are purple maturing to brown. Bark may exfoliate with age.

'Skylands' is slow-growing, upright, conical-pyramidal form that typically grows 8-10' tall over the first 10 years. Over time, it may eventually reach 35' tall with a spread of 10-12' wide. Exterior needles are bright yellow in full sun or yellow-green in part shade. Regardless of sun exposure, the yellow needle color typically tends to fade as the summer progresses. Interior needles are green. Foliage may burn in full sun locations in hot summer climates. Attractive red pollen cones in spring provide interesting and showy contrast with the yellow foliage. 'Skylands' was introduced into commerce by Skylands Botanical Garden in New Jersey in 1979. *Picea orientalis* 'Aurea Compacta' is synonymous with *Picea orientalis* 'Skylands'.

Attractive yellow leaved evergreen conifer for the landscape. Excellent accent/specimen.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** oriental spruce

**Type:** Needled evergreen

**Family:** Pinaceae

**Native Range:** Caucasus

**Zone:** 4 to 7

**Height:** 10.00 to 35.00 feet

**Spread:** 4.00 to 12.00 feet

**Bloom Time:** Non-flowering

**Bloom Description:** Non-flowering

**Sun:** Full sun

**Water:** Medium

**Maintenance:** Low

**Leaf:** Colorful, Evergreen

**Other:** Winter Interest



# PLATANUS × ACERIFOLIA

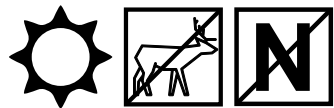
## LONDON PLANE TREE



Easily grown in average, medium to wet, well-drained soils in full sun. Tolerates light shade. Prefers rich, humusy, consistently moist soils. Generally tolerant of most urban pollutants.

*Platanus × acerifolia*, commonly called London planetree, is a hybrid cross between American sycamore (*P. occidentalis*) and Oriental planetree (*P. orientalis*). The original cross may have occurred as early as the 1640s, after which this tree became widely planted in London and other major European cities because of its perceived tolerance for urban pollution. City planting spread to America where this hybrid today is common in such distant locations as Brooklyn, New York and San Francisco, California. This hybrid can be very difficult to distinguish from its American parent. Distinguishing features include: (1) Leaves have deeper sinuses and (2) fruiting balls appear in pairs. Like its American parent, it typically grows as a single-trunk tree to 75-100' (less frequently to 120' ) tall with horizontal branching and a rounded habit. Trunk diameter typically ranges from 3-8' . The signature ornamental feature of this huge tree is its brown bark which exfoliates in irregular pieces to reveal creamy white inner bark. Mature trees typically display mottled white bark that facilitates identification from great distances. The large 3-5 lobed medium to dark green leaves (4-9" wide) have coarse marginal teeth. In fall, foliage typically turns an undistinguished yellow-brown. Small, non-showy, monoecious flowers appear in small rounded clusters in April. Male flowers are yellowish and female flowers are reddish. Female flowers give way to fuzzy, long-stalked, spherical fruiting balls (to 1 3/8" diameter) that ripen to brown in October and persist into early winter. Fruiting balls appear in pairs. Each fruiting ball consists of numerous, densely-packed, tiny seed-like fruits (achenes). Fruiting balls gradually disintegrate as fall progresses, dispersing their seeds, often in downy tufts, with the wind. Also listed as *Platanus hybrida* and *Platanus x hispanica*.

Genus name comes from the Greek word, platanos, for the oriental plane tree (*P. orientalis*).



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** London plane tree

**Type:** Tree

**Family:** Platanaceae

**Native Range:** (Hybrid) Southeastern United States, Southeastern Europe to Asia Minor

**Zone:** 4 to 8

**Height:** 75.00 to 100.00 feet

**Spread:** 60.00 to 75.00 feet

**Bloom Time:** April

**Bloom Description:** Yellow (male) and red (female)

**Sun:** Full sun

**Water:** Medium to wet

**Maintenance:** High

**Suggested Use:** Shade Tree, Rain Garden

**Flower:** Insignificant

**Fruit:** Showy

**Other:** Winter Interest

**Tolerate:** Deer, Clay Soil, Air Pollution



# PRUNUS 'OKAME'

## TAIWAN CHERRY



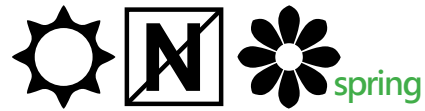
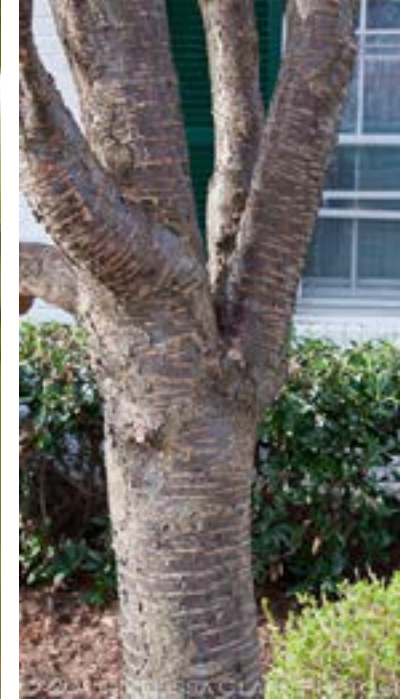
Easily grown in moist, moderately fertile, well-drained loams in full sun. Tolerates light shade, but best flowering is in full sun. Prune after flowering if necessary but generally requires little pruning.

Prunus is a genus of about 200 species of deciduous and evergreen trees and shrubs found in north temperate areas, the Andes of South American and in mountainous areas of Southeast Asia. Some are grown for their showy flowers, colorful foliage and/or attractive bark; and others for fruit, which includes cherry, plum, apricot, nectarine and peach.

Genus name from Latin means plum or cherry tree.

'Okame' was developed by Captain Collingwood Ingram of England using *Prunus incisa* as the female parent and *Prunus campanulata* as the male parent. His goal was to create a cherry that had the hot pink to carmine red flowers of *P. campanulata* but without its sensitivity to cold. 'Okame' is a small deciduous tree with an upright, rounded crown. It has 1 to 2.5 in. long, alternate, simple leaves that turn bronzy red to bright orange to red in fall in the colder zones of its range. Its polished reddish brown bark has prominent horizontal lenticels. Blooming earlier than other cherries, its mildly fragrant, 5-petaled, rosy pink flowers with red calyces and reddish flower stalks may be harmed by a late freeze. It grows 15 to 25 ft. tall and 15 to 20 ft. wide. 'Okame' is sometimes known as *P. incamp* 'Okame' (created by combining the species names of its parents).

Flowering tree for the landscape. Specimen or small groups. Good selection for streets, parks or other public areas.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Taiwan cherry

**Type:** Tree

**Family:** Rosaceae

**Native Range:** Southeast Asia

**Zone:** 6 to 8

**Height:** 15.00 to 25.00 feet

**Spread:** 15.00 to 20.00 feet

**Bloom Time:** March to April

**Bloom Description:** Pink

**Sun:** Full sun

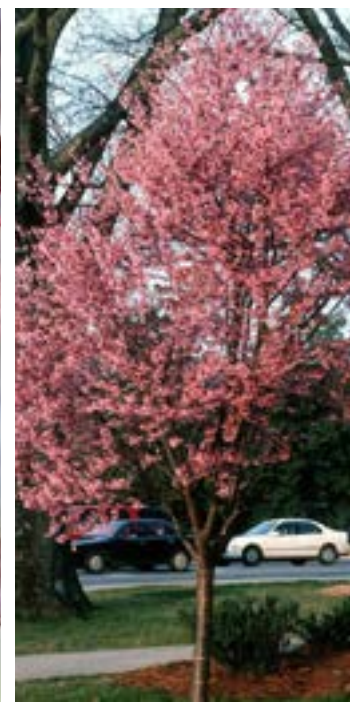
**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Flowering Tree

**Flower:** Showy, Fragrant

**Leaf:** Good Fall



# PRUNUS PADUS

## BIRD CHERRY

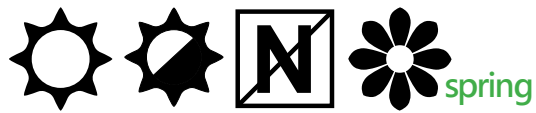
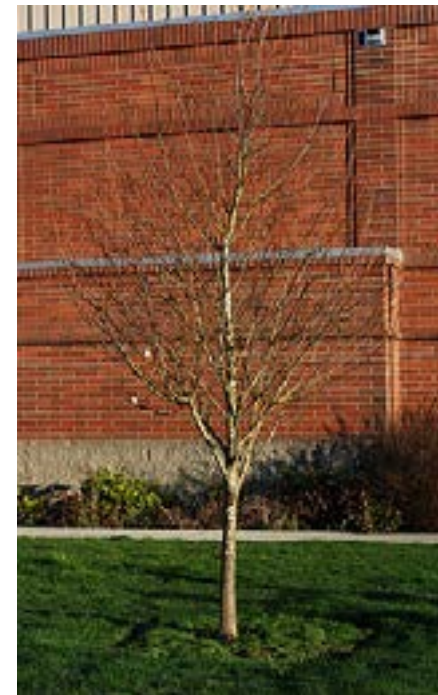


Easily grown in average, medium, well-drained soils in full sun to part shade. Adaptable to a wide range of soils.

*Prunus padus*, commonly called European birdcherry, is a deciduous ornamental cherry tree that typically grows 20-40' tall with a rounded crown. Fragrant white flowers in pendulous 3-6" long clusters (racemes) appear after the foliage emerges in spring. Flowers are followed by astringent, pea-sized, black cherries which ripen in mid-summer. As with the closely-related chokecherry (*Prunus virginiana*), the fruit is extremely bitter to humans but loved by birds. Serrate, dull dark green leaves (to 4" long) are elliptic to obovate. Foliage turns yellow in fall.

No serious insect or disease problems. Potential diseases include leaf spot, canker and black knot. Potential insects include aphids, scale, borers and to a lesser degree tent caterpillars.

Spring flowers are the best ornamental feature. Medium-sized tree for sunny landscape areas. Street tree.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Bird Cherry

**Type:** Tree

**Family:** Rosaceae

**Native Range:** Temperate Asia, Europe

**Zone:** 3 to 6

**Height:** 20.00 to 40.00 feet

**Spread:** 20.00 to 40.00 feet

**Bloom Time:** April to May

**Bloom Description:** White

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree, Flowering Tree

**Flower:** Showy, Fragrant

**Attracts:** Birds, Butterflies

**Fruit:** Showy

**Leaf:** Good Fall



# PRUNUS VIRGINIANA 'SCHUBERT'

## CHOKECHERRY



Grow in average, dry to medium, well-drained loams in full sun to part shade. Best flowering is in full sun. Plants will sucker to form colonies in the wild. Promptly remove suckers to prevent any unwanted spread.

*Prunus virginiana*, commonly called chokecherry, is primarily native from Newfoundland to Saskatchewan south to North Carolina, Tennessee, Missouri and Kansas. In Missouri, it most frequently occurs on wooded slopes, bluffs and ravines in areas north of the Missouri River (Steiermark). Chokecherry is a small deciduous tree typically growing to 20-30' tall with an irregular, oval-rounded crown. It also may be found in shorter heights as a large shrub. Fragrant, cup-shaped, 5-lobed, white flowers (each to 1/2" across) in elongated clusters to 3-6" long bloom in mid-spring. Flowers give way to clusters of globular, pea-sized berries that ripen to dark purple/black in August. Fruits are technically edible, but are astringent (hence the common name) and should not be eaten off the tree. Fruits can be harvested for processing into jams, jellies, pies and sauces. Fruits are very attractive to many birds and animals. Elliptic to obovate leaves (to 5" long) with sharply toothed margins are dark green above and gray-green beneath. Fall color is golden yellow to orange.

'Schubert', sometimes called purpleleaf chokecherry, is a deciduous, suckering tree or shrub with a pyramidal habit which grows 20-30' tall. It is best known for its purple foliage: elliptic to obovate leaves (to 5" long) emerge green in spring, gradually maturing to dark purple by early summer. White flowers in racemes in spring give way in summer to clusters of reddish fruit (1/3" diameter cherries) which mature in fall to a dark purple. Fruit is very astringent, hence the common name. Fruit may be used in sauces, jellies and preserves, however. Fruits are attractive to wildlife.

Susceptible to a large number of insect and disease pests. Potential diseases include black knot, leaf spot, die back, leaf curl, powdery mildew, root rot and fireblight. Potential insects include borers, aphids, scale, leafhoppers, caterpillars, tent caterpillars and Japanese beetles. Spider mites may also be troublesome. Wood is weak and branches may be broken by ice/snow in winter.

Shrub borders, open woodland gardens or native plant areas. May be naturalized in wild areas.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Chokecherry

**Type:** Tree

**Family:** Rosaceae

**Native Range:** North America

**Zone:** 2 to 7

**Height:** 20.00 to 30.00 feet

**Spread:** 15.00 to 20.00 feet

**Bloom Time:** April to May

**Bloom Description:** White

**Sun:** Full Sun to Part Shade

**Water:** Dry to Medium

**Maintenance:** Medium

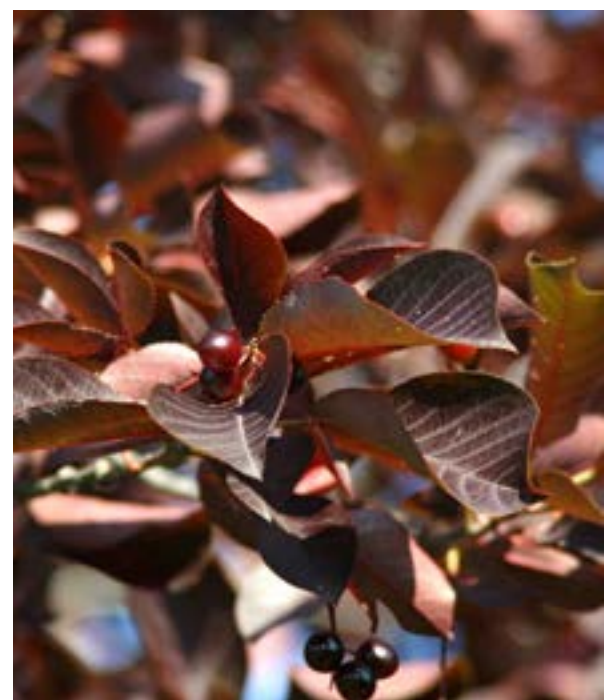
**Suggested Use:** Hedge, Flowering Tree

**Flower:** Showy

**Leaf:** Colorful

**Attracts:** Birds, Butterflies

**Fruit:** Showy, Edible



# PRUNUS X 'YEDOENSIS'

## YOSHINO CHERRY

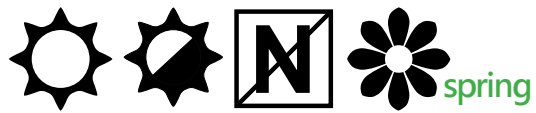


Grow in average, medium moisture, well-drained soils in full sun to part shade. Best in full sun. Tolerates heat and humidity, but not drought. Adaptable to a wide range of soils.

*Prunus × yedoensis*, commonly called Yoshino cherry, is a graceful ornamental flowering cherry tree that typically grows 30-40' tall with a spreading, broad-rounded, open crown. Fragrant white (sometimes tinged pink) flowers in 3 to 6-flowered clusters (racemes) appear before or simultaneous to the emergence of the foliage in a profuse and spectacular early spring bloom. Flowers are followed by small black cherries (1/2" diameter) which are bitter to humans but loved by birds. Serrate, dark green leaves (to 5" long) are elliptic to oval. Foliage turns yellow and with bronze tints in fall. This hybrid cherry comes from Japan and is one of the predominant cherry trees planted in Washington D.C.

Cherries are susceptible to a large number of insect and disease pests. Potential diseases include leaf spot, die back and leaf curl. Potential insects include aphids, scale, borers, caterpillars and Japanese beetles. Spider mites may also be troublesome.

Spring flowers are the best ornamental feature. Excellent small to medium-sized tree for lawns, along streets, adjacent to decks or patios. Effective as a specimen or in groups.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Yoshino Cherry

**Type:** Tree

**Family:** Rosaceae

**Native Range:** Japan

**Zone:** 5 to 8

**Height:** 30.00 to 40.00 feet

**Spread:** 30.00 to 40.00 feet

**Bloom Time:** March to April

**Bloom Description:** White to Pink

**Sun:** Full Sun to Part Shade

**Water:** Medium

**Maintenance:** High

**Suggested Use:** Shade Tree, Street Tree, Flowering Tree

**Flower:** Showy, Fragrant

**Leaf:** Good Fall

**Attracts:** Birds, Butterflies

**Fruit:** Showy



# QUERCUS ACUTISSIMA

## SAWTOOTH OAK



Best grown in rich, humusy, medium moisture, well-drained soils in full sun. Adapts to a wide range of soils. Tolerant of heat and humidity. First respectable crops of acorns may occur as early as 10 years. May not be reliably winter hardy throughout the St. Louis area (particularly young trees).

*Quercus acutissima*, commonly called sawtooth oak, is a medium sized deciduous oak that is included in a section called the "Cerris" group, which has traits that are somewhat intermediate between the red and white oak sections. It typically grows 40-60' tall with a broad-spreading, rounded crown. Gray to black bark develops corky ridging with age. It is native to China, Korea and Japan. Insignificant monoecious yellowish-green flowers in separate male and female catkins appear in spring as the leaves emerge. Fruits are oval acorns (to 1" long), with spiny, scaly cups that extend to approximately 2/3 the acorn length. Acorn crops can be quite abundant and are an important source of food for wildlife. Oblong to lance-shaped, chestnut-like, glossy dark green leaves (to 7" long) have bristle-tipped marginal teeth at the terminal point of each parallel vein. Fall color is variable, ranging from an attractive golden brown to undistinguished pale brown.

Chlorosis (yellowing of the leaves) is common in neutral to alkaline soils, and can severely damage the tree. Otherwise, sawtooth oak is considered to be a low-maintenance tree with good pest resistance. Oaks in general are susceptible to a large number of diseases, including oak wilt, chestnut blight, shoestring root rot, anthracnose, oak leaf blister, cankers, leaf spots and powdery mildew. Potential insect pests include scale, oak skeletonizer, leaf miner, galls, oak lace bugs, borers, caterpillars and nut weevils.

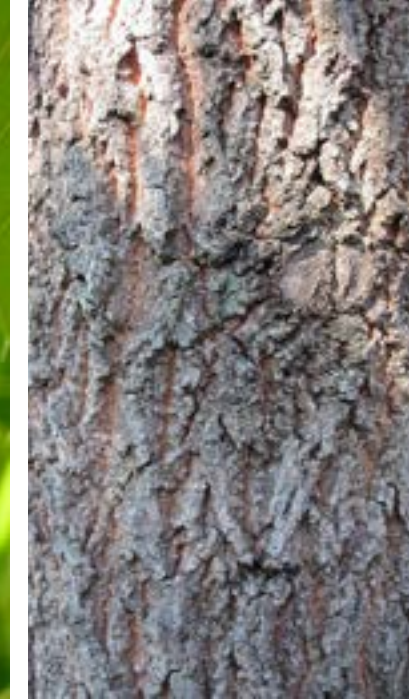
A medium shade tree for large lawns or parks.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Sawtooth Oak  
**Type:** Tree  
**Family:** Fagaceae  
**Native Range:** China, Korea, Japan, Himalayas  
**Zone:** 6 to 9  
**Height:** 40.00 to 60.00 feet  
**Spread:** 40.00 to 60.00 feet  
**Bloom Time:** March to April  
**Bloom Description:** Yellowish-green

**Sun:** Full sun  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Shade Tree  
**Flower:** Insignificant  
**Leaf:** Good Fall  
**Fruit:** Showy  
**Tolerate:** Drought  
**Other:** Invasive



# QUERCUS BICOLOR

## SWAMP WHITE OAK



Easily grown in average, medium to wet, acidic soil in full sun.

*Quercus bicolor*, commonly called swamp white oak, is a medium sized, deciduous tree with a broad, rounded crown and a short trunk which typically grows at a moderate rate to a height of 50-60' (sometimes larger). Leaves are dark, shiny green above and silvery white beneath, with 5-10 rounded lobes or blunt teeth along the margins. Fall color is yellow, but sometimes reddish purple. Insignificant flowers in separate male and female catkins in spring. Fruits are acorns which mature in early fall. Indigenous to north, central and eastern Missouri in moist to swampy locations in bottomlands and lowlands, such as along streams and lakes, valleys, floodplains and at the edge of swamps. Also has surprisingly good drought resistance.

Genus name comes from the classical Latin name for oak trees.

Specific epithet refers to the leaves being shiny green above and silvery white beneath.

Specimen, street tree, lawn tree. A good tree for wet ground and low spots.



**Sources:** Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** swamp white oak

**Type:** Tree

**Family:** Fagaceae

**Native Range:** Northeastern North America

**Zone:** 3 to 8

**Height:** 50.00 to 60.00 feet

**Spread:** 50.00 to 60.00 feet

**Bloom Time:** April

**Bloom Description:** Yellowish-green

**Sun:** Full sun

**Water:** Medium to wet

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree, Rain Garden

**Flower:** Insignificant

**Leaf:** Good Fall

**Attracts:** Birds

**Tolerate:** Wet Soil



# QUERCUS IMBRICARIA

## SHINGLE OAK



Best grown in rich, humusy, medium moisture, well-drained soils in full sun. Adapts to a wide range of soils including dry ones.

*Quercus imbricaria*, commonly called shingle oak, is a medium sized deciduous oak of the red oak group that typically grows in a conical form to 40-60' tall, with the crown broadening and rounding with age. Trunk diameter to 3'. Brownish gray bark develops shallow furrowing and ridging with age. Shingle oak is native primarily from Pennsylvania to Iowa and Arkansas. It is particularly common in the Ohio River Valley. In Missouri, it occurs in a variety of locations throughout the state, including upland dry woods, prairie margins, slopes, ravines, stream margins and bottomlands (Steyermark). Insignificant monoecious yellowish-green flowers in separate male and female catkins appear in spring as the leaves emerge. Fruits are rounded acorns (to 3/4" long), with scaly cups that extend to approximately 1/3 the acorn length. The acorns do not ripen until fall of the second year, as is the case with most oaks in the red oak group. Acorns are an important source of food for wildlife. Narrow, oblong, smooth-margined, glossy dark green leaves (3-6" long and 1-2" wide) are pale and pubescent beneath. Fall color is variable, sometimes producing attractive shades of yellow-brown to red-brown. Old leaves tend to persist on the tree throughout most of the winter.

Wood was once used by early settlers in the midwest for shingles, hence the common name.

Shingle oak is considered to be a low-maintenance tree with good pest resistance. Oaks in general are susceptible to a large number of diseases, including oak wilt, chestnut blight, shoestring root rot, anthracnose, oak leaf blister, cankers, leaf spots and powdery mildew. Potential insect pests include scale, oak skeletonizer, leaf miner, galls, oak lace bugs, borers, caterpillars and nut weevils.

A medium shade tree for large lawns or parks. Street tree. May be pruned for use as a screen or hedge.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Shingle Oak

**Type:** Tree

**Family:** Fagaceae

**Native Range:** Eastern and Central United States

**Zone:** 5 to 8

**Height:** 40.00 to 60.00 feet

**Spread:** 40.00 to 60.00 feet

**Bloom Time:** April

**Bloom Description:** Yellowish-green

**Sun:** Full sun

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree

**Flower:** Insignificant

**Leaf:** Good Fall

**Fruit:** Showy

**Attracts:** Birds and Mammals

**Tolerate:** Drought, Black Walnut



# QUERCUS LYRATA

## OVERCUP OAK



Winter hardy to USDA Zones 5-9 where it is best grown in acidic, moist to wet loams in full sun. Tolerates some part shade but not full shade. Tolerates wet poorly drained soils and occasional flooding.

*Quercus lyrata*, commonly called overcup oak, gets its common name from the distinctive bur-like acorn cup that typically encloses 2/3 to almost all of the nut. It is a medium sized deciduous oak (part of the white oak group) that typically grows to 40-60' tall with a straight trunk and broad rounded crown. This is a bottomland tree that is native to floodplain forests, lowlands, and along swamps and bayous in the southeastern U.S. It is particularly prevalent in coastal plain swamp forests from Texas to Florida north to New Jersey and up the Mississippi River valley to Missouri, southern Illinois and Indiana. Ornamentally insignificant flowers bloom in March or April (males in slender yellow catkins to 4-6" long and females in short few-flowered reddish spikes). Deep green leaves (6-10" long and to 4" wide) with fuzzy white undersides each have 5-9 deep rounded lobes. Leaves turn shades of yellow-brown (sometimes with orange and red) in fall. Female flowers give way to acorns (to 1" long) which mature in September to October. Overcup oaks usually do not begin bearing acorns until 25-30 years old. Slightly shaggy gray to grayish-brown bark on mature trees is reminiscent of white oak.

No serious insect or disease problems. Oaks in general are susceptible to a large number of diseases, including oak wilt, chestnut blight, shoestring root rot, anthracnose, oak leaf blister, cankers, leaf spots and powdery mildew. Potential insect pests include scale, oak skeletonizer, leaf miner, galls, oak lace bugs, borers, caterpillars and nut weevils.

Medium oak for low-lying areas.



**Sources:** Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Overcup Oak

**Type:** Tree

**Family:** Fagaceae

**Native Range:** Central and Southern United States

**Zone:** 5 to 9

**Height:** 40.00 to 60.00 feet

**Spread:** 40.00 to 60.00 feet

**Bloom Time:** March to April

**Bloom Description:** Yellow Catkins (male); Red Spikes (female)

**Sun:** Full sun

**Water:** Medium to Wet

**Maintenance:** Low

**Suggested Use:** Shade Tree

**Flower:** Insignificant

**Leaf:** Good Fall

**Fruit:** Showy

**Tolerate:** Erosion, Clay Soil, Wet Soil



# QUERCUS MUEHLENBERGII

## CHINKAPIN OAK



Easily grown in average, medium, well-drained soils in full sun. Although it primarily grows in dry, rocky soils in the wild, it seems to prefer moist fertile loams in cultivation. Relatively good drought tolerance. May take up to 30 years for this tree to bear a first crop of acorns.

*Quercus muehlenbergii*, commonly called Chinkapin (or Chinquapin) oak, is a medium sized deciduous oak of the white oak group that typically grows 40-60' (less frequently to 80' ) tall with an open globular crown. It is native to central and eastern North America where it is typically found on dry upland sites often in rocky, alkaline soils. Insignificant monoecious yellowish-green flowers in separate male and female catkins appear in spring as the leaves emerge. Fruits are small oval acorns (to 3/4" long), with scaly cups that extend to approximately 1/2 the acorn length. Acorns are valued food for a variety of wildlife. Narrow, oblong-lanceolate, shiny green leaves (4-7" long) have coarse marginal teeth. Leaves somewhat resemble the leaves of chestnut (*Castanea*) whose nut is sometimes called a chinquapin, hence the common name of this oak whose acorn is sweet and edible. Also sometimes commonly called yellow chestnut oak. Fall color is variable, but usually undistinguished shades of yellow and brown.

Oaks are susceptible to a large number of diseases, including oak wilt, chestnut blight, shoestring root rot, anthracnose, oak leaf blister, cankers, leaf spots and powdery mildew. Potential insect pests include scale, oak skeletonizer, leaf miner, galls, oak lace bugs, borers, caterpillars and nut weevils. Notwithstanding the aforementioned, chinkapin oak is generally considered to be a low-maintenance, long-lived tree.

A shade tree for large lawns or parks. Uncommonly cultivated.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Chinkapin Oak  
**Type:** Tree  
**Family:** Fagaceae  
**Native Range:** Eastern United States  
**Zone:** 5 to 7  
**Height:** 40.00 to 60.00 feet  
**Spread:** 50.00 to 70.00 feet  
**Bloom Time:** April  
**Bloom Description:** Yellowish-green

**Sun:** Full sun  
**Water:** Dry to Medium  
**Maintenance:** Low  
**Suggested Use:** Shade Tree  
**Flower:** Insignificant  
**Fruit:** Showy  
**Attracts:** Birds  
**Tolerate:** Drought



# QUERCUS PHELLOS

## WILLOW OAK



Easily grown in average, medium to wet, well-drained soils in full sun. Tolerates light shade. Prefers moist well-drained loams, but adapts to a wide range of soil conditions including clays with somewhat poor drainage. Generally tolerant of urban pollution. Trees or seeds for the St. Louis area should come from northern sources because there is some question as to the winter hardiness of this tree throughout USDA Zone 5.

Quercus phellos, commonly called willow oak, is a medium to large, deciduous oak tree of the red oak group that is noted for its oak shape, willow-like leaves and relatively fast growth rate. It is native to the Southeastern United States, typically being found in moist bottomland soils. In Missouri, it is usually found in wet or low woods bordering swamps, streams and canals in a few counties in the far southeastern portion of the state (Steyermark). Willow oak typically grows 40-75' tall with an oval to rounded crown, but may reach 100' in ideal conditions. Smooth-edged, bristle-tipped, narrow, green leaves (to 5" long and 1" wide) are willow-like. Leaves turn an undistinguished yellow-brown or dull gold in fall. Fruits are rounded acorn cups (to 1/2" long). Acorns can be an important source of food for wildlife. Insignificant monoecious yellowish-green flowers in separate male and female catkins appear in spring (April) as the leaves emerge. Dark, irregularly-furrowed trunks (gray to dark gray-brown) develop on mature trees.

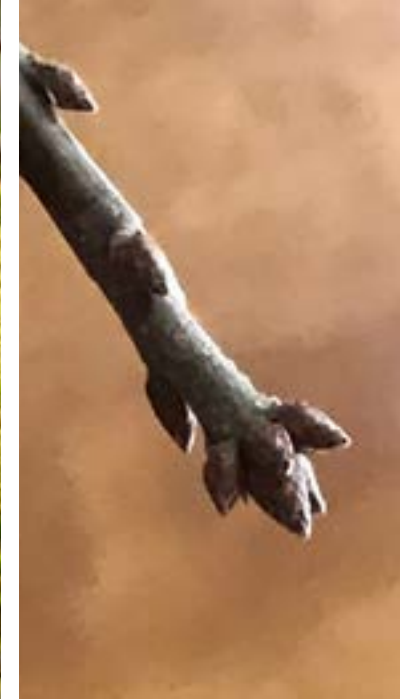
Genus name comes from the classical Latin name for oak trees.

Specific epithet means cork.

A medium to large shade tree for large lawns, along streets or in parks. Also effective along ponds or water gardens.

**Common Name:** willow oak  
**Type:** Tree  
**Family:** Fagaceae  
**Native Range:** Southeastern United States  
**Zone:** 5 to 9  
**Height:** 40.00 to 75.00 feet  
**Spread:** 25.00 to 50.00 feet  
**Bloom Time:** April  
**Bloom Description:** Yellow-green

**Sun:** Full sun  
**Water:** Medium to wet  
**Maintenance:** Low  
**Suggested Use:** Shade Tree, Street Tree, Rain Garden  
**Flower:** Insignificant  
**Tolerate:** Clay Soil, Wet Soil, Air Pollution



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

# QUERCUS SHUMARDII

## SHUMARD OAK



Easily grown in average, dry to medium moisture, acidic, well-drained soils in full sun. Tolerates a wide range of soil conditions including wet soils.

*Quercus shumardii*, commonly called Shumard oak, is a medium sized, deciduous tree of the red oak group. Pyramidal in youth but spreads to a broad open crown with age. Typically grows at a moderately fast rate to a height of 40-60' (to 100' in the wild). Shiny, dark green leaves (6-8" long) with deep, spiny lobes (usually 7-9 lobes). Fall color appears late, but is often a respectable brownish red. Insignificant flowers in separate male and female catkins appear in early spring as the leaves emerge. Fruits are acorns which are usually not produced until the tree has reached the age of 25 years. Indigenous to central and southern Missouri in moist locations in bottomlands and lowlands, including sites along streams and lakes, valleys, floodplains and at the edge of swamps. However, in the St. Louis area, it is most often found on dry, elevated sites. Similar in appearance and habit to scarlet oak (*Quercus coccinea*).

Generally a durable and long-lived tree, but is susceptible to a large number of potential diseases and insect pests, including anthracnose, canker, leaf spot, rust, blight, galls, caterpillars, borers, leaf miners, oak lace bug and oak mite. Chlorosis (yellowing of the leaves while the veins remain green) often occurs when soils are not properly acidic. Can be difficult to transplant and establish.

Shade tree, street tree, lawn tree. Does well in wide range of soils from dry locations to wet ground and low spots.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Shumard Oak

**Type:** Tree

**Family:** Fagaceae

**Native Range:** Southeastern United States

**Zone:** 5 to 9

**Height:** 40.00 to 60.00 feet

**Spread:** 30.00 to 40.00 feet

**Bloom Time:** April

**Bloom Description:** Greenish

**Sun:** Full sun

**Water:** Dry to Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree, Rain Garden

**Flower:** Insignificant

**Leaf:** Good Fall

**Tolerate:** Drought, Dry Soil, Air Pollution



# QUERCUS TEXANA

## TEXAS RED OAK



Best grown in rich, moist, acidic loams in full sun. Adapts to a wide variety of soil conditions including heavy clay soils.

*Quercus texana* is a deciduous oak that typically grows in wet, heavy, bottomland soils in floodplain forests in the Mississippi River valley from far western Kentucky, the southern tip of Illinois and the southeastern lowlands region of Missouri (the Bootheel) south to Louisiana and along the Gulf Coast from Alabama to Texas. It grows 50-80' tall with a wide-spreading, rounded crown. Insignificant yellowish-green flowers in separate male and female catkins appear in spring shortly after the leaves emerge. Fruits are oval acorns (to 1¼" long) with scaly cups. Dark green leaves (4-8" long) are deeply divided into 6-11 spiny, pointed lobes. Axillary tufts of tomentum on the lower surface vein angles are distinctive. General leaf shape is reminiscent of the closely related pin oaks and shumard oaks. Fall color comes late, but often includes quality shades of red. *Q. texana* as currently described is synonymous with and formerly known as *Q. nuttallii*, *Q. nuttallii* var. *cachensis*, *Q. rubra* var. *texana*, *Q. shumardii* var. *microcarpa* and *Q. shumardii* var. *texana*. Unfortunately, nomenclature and common names for this tree have become considerably confused over time.

Potential diseases include oak wilt, anthracnose and oak leaf blister. Potential insects include scale, oak skeletonizer, leaf miner and lace bug.

Large shade tree. Needs a large space in which to grow. A good selection for low areas with wet soils.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Texas Red Oak

**Type:** Tree

**Family:** Fagaceae

**Native Range:** Southern-Central United States

**Zone:** 6 to 9

**Height:** 50.00 to 80.00 feet

**Spread:** 40.00 to 65.00 feet

**Bloom Time:** April

**Bloom Description:** Yellowish-Green

**Sun:** Full sun

**Water:** Medium

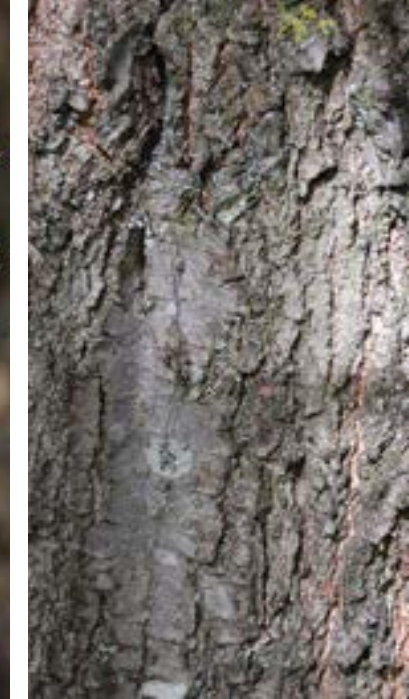
**Maintenance:** Low

**Suggested Use:** Shade Tree, Rain Garden

**Flower:** Insignificant

**Leaf:** Good Fall

**Tolerate:** Clay Soil, Wet Soil



# SAMBUCUS CANADENSIS

## ELDERBERRY



Grow in medium to wet, well-drained soils in full sun to part shade. Tolerates a wide range of soils, but prefers moist, humusy ones. Spreads by root suckers to form colonies. Prune suckers as they appear unless naturalizing. A large number of late winter pruning options include (a) pruning out dead or weakened stems, (b) shortening one year stems or (c) cutting back to the ground to rejuvenate. Some horticulturists recommend a hard spring pruning for maintaining best foliage and habit.

*Sambucus canadensis*, commonly called American elder, is native to eastern North America. It is a deciduous, somewhat sprawling, suckering shrub that typically grows to 5-12' tall. It typically occurs on streambanks, moist woodlands, thickets, fence rows and roadsides throughout the State of Missouri. Tiny lemon-scented white flowers appear in large flat-topped clusters (cymes to 10" across) in June. Flowers give way to clusters of black elderberry fruits (drupes) in late summer. Fruits of species plants are sometimes used to make jams, jellies, pie fillings and elderberry wine. Fruits are attractive to wildlife. American elder (*Sambucus canadensis*) and European elder (*Sambucus nigra*) are closely related plants. The Royal Horticultural Society currently lists American elder as *Sambucus nigra* var. *canadensis*.

No serious insect or disease problems. Some susceptibility to canker, powdery mildew, leaf spot, borers, spider mites and aphids. Branches are susceptible to damage from high winds or from heavy snow/ice in winter. Plants will spread by root suckers.

Group or mass in naturalized areas where suckering spread may be appreciated. Attractive flowers and interesting fruits. Landscape specimen, shrub borders, screens, backgrounds, stream/pond peripheries or low spots. Good sprawling hedge.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Elderberry  
**Type:** Tree/Shrub  
**Family:** Adoxaceae  
**Native Range:** Eastern North America  
**Zone:** 3 to 9  
**Height:** 5.00 to 12.00 feet  
**Spread:** 5.00 to 12.00 feet  
**Bloom Time:** June to July  
**Bloom Description:** White

**Sun:** Full sun to part shade  
**Water:** Medium to Wet  
**Maintenance:** High  
**Suggested Use:** Rain Garden  
**Flower:** Showy, Fragrant  
**Attracts:** Birds, Butterflies  
**Fruit:** Showy, Edible  
**Tolerate:** Erosion, Clay Soil, Wet Soil

# SASSAFRAS ALBIDUM

## SASSAFRAS



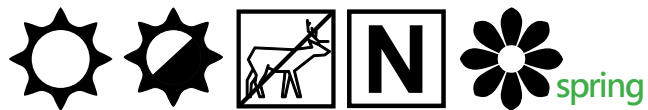
Easily grown in average, medium, well-drained soil in full sun to part shade. Prefers moist, acidic, loamy soils. Tolerates dry, sandy soils. Large taproot makes transplanting of established trees difficult. If root suckers are not removed, tree will spread and begin to take on the appearance of a large multi-stemmed shrub.

Sassafras albidum, commonly called sassafras, is a Missouri native, ornamental, small to medium-sized deciduous tree which occurs in wood margins, fence rows, fields, thickets and roadsides. Shrubby in youth, but matures to a dense, pyramidal tree up to 60' tall. Spreads by root suckers to form large colonies in the wild. All of the trees in a colony may rise from the same parent. Dioecious (separate male and female trees). Attractive, greenish-yellow flowers appear in clusters at the branch ends in spring. Flowers on female trees (if pollinated) give way to small pendant clusters of bluish-black berries (drupes) which are borne in scarlet cup-like receptacles on scarlet stalks (pedicils). Fruits mature in September. Variable, 4-7" long leaves in three shapes (ovate, mitten-shaped and three-lobed) are bright green above and glaucous (albidum meaning white) below. Excellent yellow, purple and red fall color. To Native Americans, sassafras oils were freely used in tonics as medical panaceas. Culinary uses have included: sassafras tea (bark), root beer flavoring (root oil) and a gumbo-thickening agent called filé (stem pith). More recently, sassafras oils have been determined to contain a carcinogenic substance (safrole) and many of the former uses for the oils are now banned by the U.S. Food and Drug Administration.

Genus name probably comes from an American Indian name used in Florida.

Specific epithet means white.

Excellent for naturalized plantings or screens where they are given lots of space to colonize. Also can be grown as lawn specimens.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** sassafras  
**Type:** Tree  
**Family:** Lauraceae  
**Native Range:** Eastern North America  
**Zone:** 4 to 9  
**Height:** 30.00 to 60.00 feet  
**Spread:** 25.00 to 40.00 feet  
**Bloom Time:** April to May  
**Bloom Description:** Greenish-yellow

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Medium  
**Suggested Use:** Flowering Tree  
**Flower:** Showy  
**Fruit:** Showy  
**Tolerate:** Deer, Drought, Clay Soil,  
Black Walnut

# STEWARTIA PSEUDOCAMELLIA

## JAPANESE STEWARTIA



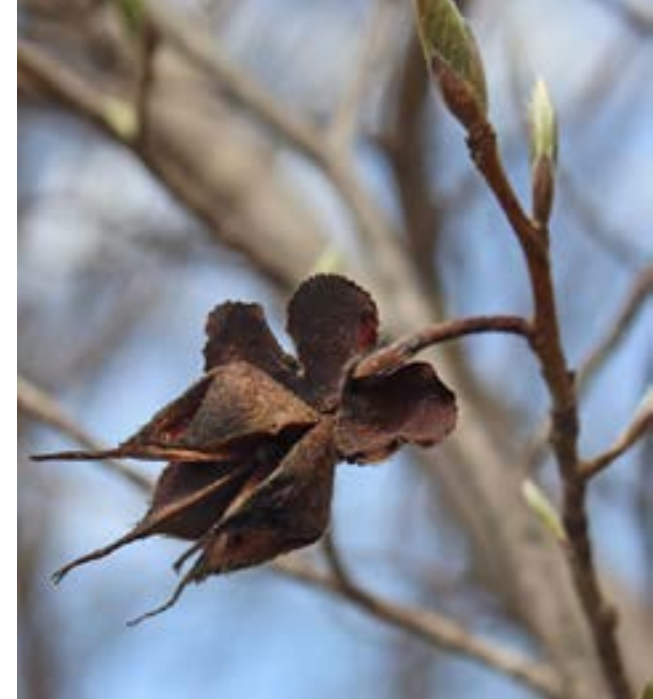
Best in moist, organically rich, well-drained soils in full sun to part shade.

Stewartia pseudocamellia, called Japanese stewartia, is a small, slow-growing, pyramidal, deciduous tree which typically matures over time to 20-40' tall. Often grown in cultivation as a multi-stemmed shrub to 12' tall. Cup-shaped, camellia-like white flowers (to 2.5" diameter) with showy orange-yellow anthers appear in early summer. Elliptic, dark green foliage (to 3" long) turns attractive shades of reddish-orange and burgundy in autumn. Exfoliating, reddish-brown bark provides good winter color and interest. Stewartia, camellia and franklinia are all members of the tea family and have similar flowers.

Genus name honors John Stuart, 16th century Scottish botanist and 3rd Earl of the Isle of Bute.

Species name means false camellia.

Borders, lawn specimens, woodland gardens.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Japanese stewartia

**Type:** Tree

**Family:** Theaceae

**Native Range:** Japan

**Zone:** 5 to 8

**Height:** 12.00 to 40.00 feet

**Spread:** 8.00 to 25.00 feet

**Bloom Time:** June to July

**Bloom Description:** White

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Low

**Flower:** Showy

**Leaf:** Good Fall

**Other:** Winter Interest



# STYPHNOLOBIUM JAPONICUM

## JAPANESE PAGODA TREE



Best grown in rich, medium moisture, well-drained sandy loams in full sun to part shade. Best in full sun. Tolerant of common city pollutants and conditions. Once established, it is also tolerant of heat and some drought. Newly planted saplings may not flower for as long as the first 10 years.

*Styphnolobium japonicum*, commonly called Japanese pagoda tree or Chinese scholar tree, is native to China and Korea, but not Japan. It is a medium to large deciduous tree that typically matures to 50-75' (less frequently to 100' ) tall with a broad rounded crown. It is generally cultivated for its attractive compound foliage and fragrant late summer flowers. Pinnate leaves (to 10" long), each with 7-17 oval, lustrous, dark green leaflets, remain attractive throughout the growing season. Leaves retain green color late into fall, resulting in no fall color or at best an undistinguished greenish yellow. Small, fragrant, pea-like, creamy white flowers (each 1/2" long) bloom in late summer in sweeping terminal panicles to 12" long and to 12" wide. Flowers fall to the ground around the tree after bloom covering the ground with a blanket of white. Flowers give way to slender, 1- to 6-seeded, knobby, bean-like pods (to 3-8" long) that mature to brown in fall and persist into winter. Although not native to Japan, the specific epithet and common name seem to recognize the early use of the tree in Japan around Buddhist temples.

Formerly known as *Sophora japonica*.

No serious insect or disease problems. Twig blight, verticillium wilt, canker, powdery mildew and rust may occur. Watch for leaf hoppers.

Lawn or street tree.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Japanese Pagoda Tree  
**Type:** Tree  
**Family:** Fabaceae  
**Native Range:** China, Korea  
**Zone:** 4 to 8  
**Height:** 50.00 to 75.00 feet  
**Spread:** 50.00 to 75.00 feet  
**Bloom Time:** July to August  
**Bloom Description:** Creamy White

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Shade Tree, Street Tree  
**Flower:** Showy  
**Fruit:** Showy  
**Tolerate:** Drought, Air Pollution  
**Other:** Invasive



# STYRAX JAPONICUS

## JAPANESE SNOWBELL



Best grown in organically rich, acidic, medium moisture, well-drained soils in full sun to part shade. Prune as needed in winter to shape.

*Styrax japonicus*, called Japanese snowbell, is a compact, deciduous flowering tree with horizontal branching and a rounded crown. It typically grows to 20-30' tall and as wide, but infrequently can reach up to 50' tall. It is noted for its pendulous clusters of bell-shaped, mildly fragrant, 5-petaled, waxy white flowers (each to 3/4" diameter) that bloom in May-June. Drooping flower clusters are easily visible because of the upward posture of the foliage. Flowers give way to greenish-brown, olive-shaped drupes that often persist into late autumn. Gray bark fissures on older branches to reveal orange inner bark which can be attractive in winter. Elliptic-ovate, glossy, medium to deep green leaves (to 3" long). Fall color is usually insignificant, however leaves may sometimes turn yellow to red. This tree is in the same family as and closely related to *Halesia* (silverbell).

No serious insect or disease problems.

Shrub borders. Open woodland gardens. Lawn specimen.



**Sources:** Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Japanese Snowbell

**Type:** Tree

**Family:** Styracaceae

**Native Range:** China, Japan, Korea

**Zone:** 5 to 9

**Height:** 20.00 to 30.00 feet

**Spread:** 20.00 to 30.00 feet

**Bloom Time:** May to June

**Bloom Description:** White

**Sun:** Full sun to part shade

**Water:** Medium

**Maintenance:** Medium

**Suggested Use:** Flowering Tree

**Flower:** Showy, Fragrant



# SYRINGA RETICULATA

## JAPANESE TREE LILAC



Easily grown in average, medium moisture, well-drained soil in full sun. Tolerates light shade, but best bloom occurs in full sun. Prefers organically rich, moist, slightly acidic soils with good drainage. Needs good air circulation. Tolerates urban conditions well. To the extent practicable, faded flower panicles should be removed prior to seed set. Prune as needed immediately after flowering. Best growth typically occurs in cool summer climates. Not recommended for planting south of USDA Zone 7.

*Syringa reticulata*, commonly called Chinese tree lilac, typically grows as a small tree or large shrub. In tree form, it grows to 30' tall and 20' wide with an oval-rounded crown. Its best ornamental feature is its showy, fragrant, creamy white flowers which bloom in upright panicles to 12" long in late spring to early summer (later than most other lilac species). Some gardeners dislike the privet-like smell of the flowers. Flowers give way to loose clusters of brown capsules that persist into winter. Reddish-brown peeling bark is attractive on younger branches, gradually turning gray with age. Sharply-tipped, lanceolate to ovate, dark green leaves (to 6" long). No fall color.

Genus name comes from the Greek word *syrix* meaning tube or pipe in reference to the pith-filled but easily-hollowed stems of some genus plants. Specific epithet means netted-veined in reference to the leaf veins.

*Syringa reticulata* subsp. *reticulata* is native to Japan and is sometimes commonly called Japanese tree lilac. *Syringa reticulata* subsp. *pekinensis* is native to China and is sometimes commonly called Chinese tree lilac or Peking lilac. *Syringa reticulata* subsp. *amurensis* is native to Korea and eastern Russia and is commonly called Amur tree lilac or Amur lilac.

Effective as a specimen in the landscape. Tree forms are effective along streets, in lawns, near decks/patios or in foundations. Shrub forms are effective in borders or small groups. May be used as a screen along property lines.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Japanese tree lilac

**Type:** Tree

**Family:** Oleaceae

**Native Range:** Northern China

**Zone:** 3 to 7

**Height:** 20.00 to 30.00 feet

**Spread:** 15.00 to 20.00 feet

**Bloom Time:** June

**Bloom Description:** Creamy white

**Sun:** Full sun

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Hedge, Street Tree, Flowering Tree

**Flower:** Showy, Fragrant

**Attracts:** Hummingbirds, Butterflies

**Tolerate:** Deer, Clay Soil



# THUJA 'GREEN GIANT'

## ARBORVITAE



Best grown in moist, fertile, well-drained soils in full sun to part shade. Tolerates somewhat wide range of soils and some dry conditions. Best in full sun, but generally appreciates some light afternoon shade in hot summer climates such as the St. Louis area. For screens, plant trees 5-6' apart. Plant trees further apart for other uses.

Thuja is a genus of 6 species of coniferous, evergreen trees from East Asia and North America. Sizes range from dwarf cultivars to large trees. They make excellent garden plants.

'Green Giant' is a fast-growing arborvitae hybrid cultivar (*T. plicata* x *T. standishii*) that is often promoted as a disease-free substitute for Leland cypress, particularly in the southeastern U.S. Trees may grow to 40-60' tall with a dense, narrow, pyramidal habit, but can be easily kept more compact by pruning for screens or hedges. In the proper environment, trees can add up to 3-4' of growth per year. Horizontal to slightly upright branching with sprays of scale-like dark green foliage. Foliage does not yellow in winter. Small, upright, light brown seed cones (to 1/2" long).

No serious insect or disease problems. Bagworm and rots may occur. Watch for scale.

Specimen for the lawn or foundation. Group in lawns or backgrounds. Young trees can be easily pruned as a hedge or screen.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Arborvitae  
**Type:** Needled Evergreen  
**Family:** Cupressaceae  
**Native Range:** Hybrid (Western North America & Southern Japan)  
**Zone:** 5 to 8  
**Height:** 40.00 to 60.00 feet  
**Spread:** 12.00 to 18.00 feet  
**Bloom Time:** Non-Flowering  
**Bloom Description:** Non-Flowering

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Hedge



# THUJA OCCIDENTALIS 'TECHNY'

## AMERICAN ARBORVITAE



Grow in average, medium moisture, well-drained soils in full sun to part shade. Somewhat wide range of soil tolerance, but prefers moist, neutral to alkaline, well-drained loams. Intolerant of dry conditions. Best in full sun, but generally appreciates some light afternoon shade in hot summer climates such as the St. Louis area. Avoid full shade where foliage density will substantially decrease. Avoid exposed, windy sites.

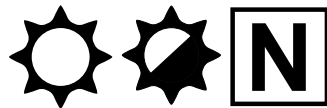
*Thuja occidentalis*, commonly known as American arborvitae, Eastern arborvitae, Eastern white cedar or Northern white cedar, is a dense, conical to narrow-pyramidal (sometimes maturing to broad-pyramidal), often single-trunked, evergreen tree that is native to eastern and central Canada south to northern Illinois, Ohio and New York with scattered populations further south in the Appalachians to North Carolina. Mature trees may reach 40-60' tall in the wild over time, but in cultivation typically grow much smaller to 20-30' tall. Scale-like, aromatic, yellow-green to green foliage appears in flattened sprays. Red-brown bark will exfoliate on mature branches and trunks.

The common name of arborvitae (tree of life) comes from early French settlers to North America who learned from Native Americans that the tree's foliage could be used to treat scurvy.

'Techny' is a compact, broad-based, upright, conical-pyramidal, dwarf cultivar that typically matures to 10-15' tall. It is noted for its rich dark green foliage that does not yellow in winter. Foliage is scale-like and appears in flat, fan-shaped clusters. This cultivar is synonymous with 'Mission'.

Leaf blight may cause some foliage to spot and drop. Watch for canker. Leaf miner may damage leaf tips. Bagworms, mealybug, scales and spider mites are occasional visitors. Foliage may show some winter burn (turns yellow-brown) in exposed sites. Susceptible to damage/stem breakage in winter from ice and snow accumulations.

Specimen, hedge or screen.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** American Arborvitae  
**Type:** Needled Evergreen  
**Family:** Cupressaceae  
**Native Range:** Eastern North America  
**Zone:** 2 to 8  
**Height:** 10.00 to 15.00 feet  
**Spread:** 6.00 to 10.00 feet  
**Bloom Time:** Non Flowering  
**Bloom Description:** Non Flowering

**Sun:** Full sun to part shade  
**Water:** Medium  
**Maintenance:** Low  
**Suggested Use:** Hedge  
**Leaf:** Evergreen  
**Other:** Winter Interest  
**Tolerate:** Clay Soil, Black Walnut,  
Air Pollution



# TILIA TOMENTOSA

## SILVER LINDEN



Easily grown in average, dry to medium, well-drained soils in full sun to part shade. Prefers moist, fertile, well-drained loams, but adapts to a wide range of soil conditions. Best drought resistance of any of the lindens. Good tolerance for urban conditions.

*Tilia tomentosa*, commonly called silver linden or European white linden, is native to Europe and Asia. It is noted for its attractive foliage, which is glossy green above and silvery-white below. The foliage flutters in the slightest breeze, showcasing the silver and green leaf colors. This is a medium to large deciduous tree, typically growing to 50-70' (less frequently to 100' ) tall with upright branching and a broad-columnar habit. Fragrant pale yellow flowers in drooping cymes appear in late spring to early summer (June-July). When a tree is in full bloom, bees often visit in such abundant numbers that humming can be heard many feet from the tree. Flowers are followed by small nutlets attached to narrow, bract-like, strap-shaped leafy wings (to 2.5" long). Nutlets ripen in late summer. Ovate, shiny, dark green leaves (to 4" long) with acuminate tips and serrate margins are densely covered beneath with silvery-white hairs. Fall color is an undistinguished pale green to pale yellow.

Genus name comes from the Latin name for the linden or lime tree, known in southern Sweden as linn and the origin of the name Linnaeus.

Specific epithet means covered with short, soft, woolly hairs in reference to the leaf undersides.

Lindens are usually called limes in Great Britain.

Shade, lawn tree or street tree.



**Sources:** Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** silver linden

**Type:** Tree

**Family:** Malvaceae

**Native Range:** Southeast Europe to Asia Minor

**Zone:** 4 to 7

**Height:** 50.00 to 70.00 feet

**Spread:** 30.00 to 50.00 feet

**Bloom Time:** June to July

**Bloom Description:** Pale yellow

**Sun:** Full sun to part shade

**Water:** Dry to medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree, Flowering Tree

**Flower:** Showy, Fragrant

**Leaf:** Colorful

**Attracts:** Butterflies

**Fruit:** Showy

**Tolerate:** Drought



# ULMUS PARVIFOLIA

## CHINESE ELM



Grow in average, medium moisture, well-drained soils in full sun. Tolerant of light shade. Prefers rich, moist loams. Adapts to a variety of different soils and tolerates both wet and dry sites. Generally tolerant of urban conditions.

*Ulmus parvifolia*, commonly called Chinese elm or lacebark elm, is a medium-sized deciduous tree that typically grows to 40-50' (less frequently to 70' ) tall with a rounded crown and long pendulous branching. It is native to China, Korea and Japan. It is noted for its excellent foliage, multi-colored bark, rapid growth and good resistance to Dutch elm disease. Insignificant, small, reddish-green flowers appear in late summer. Flowers give way to single-seeded wafer-like samaras (each tiny seed is surrounded by a flattened circular papery wing) that mature in fall. Elliptic to ovate, shiny dark green leaves (to 3" long) have small teeth. Leaves typically turn an undistinguished dull yellow in fall, but sometimes produce more interesting yellows or reddish-purples. One of the most ornamental features of this tree is its mottled bark. On mature trees, bark flakes to reveal patches of gray, cream, orange, brown and green.

Genus name comes from the Latin name.

Specific epithet means small leaf in reference to the small leaves of this species.

Chinese elm has good resistance to Dutch elm disease, a fatal fungal disease spread by airborne bark beetles. It also has good resistance to Japanese beetle and elm leaf beetle. Occasional disease problems include wilts, rots, cankers and leaf spots. Branches tend to break when stressed with snow, ice or wind. This species should not be confused with the much inferior Siberian elm, *Ulmus pumila*, which is often referred to as Chinese elm.

Shade or specimen tree for the landscape.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Chinese elm

**Type:** Tree

**Family:** Ulmaceae

**Native Range:** China, Korea, Japan

**Zone:** 4 to 9

**Height:** 40.00 to 50.00 feet

**Spread:** 25.00 to 40.00 feet

**Bloom Time:** August to September

**Bloom Description:** Reddish-green

**Sun:** Full sun

**Water:** Medium

**Maintenance:** Medium

**Suggested Use:** Shade Tree, Street Tree

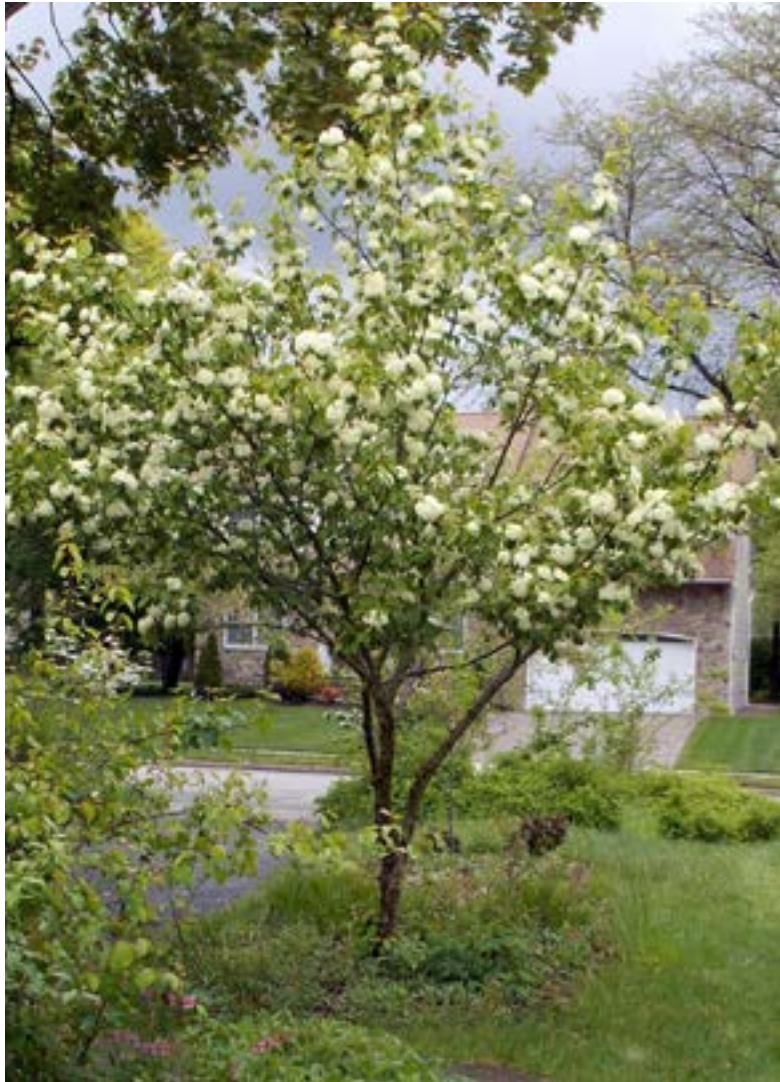
**Flower:** Insignificant

**Tolerate:** Drought, Clay Soil, Air Pollution



# VIBURNUM PRUNIFOLIUM

## BLACKHAW VIBURNUM



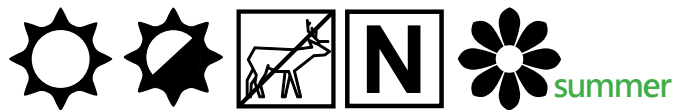
Easily grown in average, dry to medium, well-drained soil in full sun to part shade. Tolerates drought. Prune immediately after flowering since flower buds form in summer for the following year.

Viburnum prunifolium, commonly called black haw, is usually grown as a large, upright, multi-stemmed, deciduous shrub with an irregular crown, but it also may be grown as a small, single trunk tree. As a shrub, it typically grows 12-15' tall with a spread of 6-12', but as a tree may reach a height of 30'. A Missouri native plant which commonly occurs in moist woods, thickets and on streambanks throughout the State. Non-fragrant white flowers in flat-topped cymes (to 4.5" diameter) appear in spring. Flowers give way in autumn to blue-black, berry-like drupes which often persist into winter and are quite attractive to birds and wildlife. Ovate, finely toothed, glossy dark green leaves (to 4" long) turn attractive shades of red and purple in fall. Fruits are edible and may be eaten off the bush when ripe or used in jams and preserves.

Common name refers to the purported similarity of this plant to hawthorns (sometimes commonly called red haws), though hawthorns are in a different family.

No serious insect or disease problems.

Small specimen tree or large specimen shrub. Shrub borders. Tall hedge or screen. Incorporate into the background of a native planting.



Sources: Missouri Botanical Garden; USDA NRCS; NC State Extension

**Common Name:** Blackhaw Viburnum  
**Type:** Deciduous Shrub, Small Tree  
**Family:** Adoxaceae  
**Native Range:** Eastern and Central North America  
**Zone:** 3 to 9  
**Height:** 12.00 to 15.00 feet  
**Spread:** 6.00 to 12.00 feet  
**Bloom Time:** May to June  
**Bloom Description:** White

**Sun:** Full sun to part shade  
**Water:** Dry to Medium  
**Maintenance:** Low  
**Suggested Use:** Hedge  
**Flower:** Showy  
**Leaf:** Good Fall  
**Attracts:** Birds, Butterflies  
**Fruit:** Showy, Edible  
**Tolerate:** Drought, Clay Soil, Black Walnut, Air Pollution



# ZELKOVA SERRATA 'VILLAGE GREEN'

## JAPANESE ZELKOVA



Easily grown in average, medium wet, well-drained soils in full sun. Established trees tolerate some drought. Prefers rich, moist loams. Generally tolerant of urban conditions.

*Zelkova serrata*, commonly called Japanese zelkova, is a medium to large deciduous tree, typically growing to 50-80' tall with a spreading, generally upward-branching, vase-shaped crown. It is native to Japan, Taiwan and eastern China. It is noted for its graceful shape, clean foliage, attractive bark and resistance to Dutch elm disease. Zelkova has in fact been promoted in recent years as a substitute for American elm (*Ulmus americana*) because of its resistance to Dutch elm disease. Insignificant small green flowers appear in spring as the foliage emerges. Flowers give way to small, non-showy, ovate, wingless drupes that ripen in autumn. Oblong-elliptic medium green leaves (to 3" long) with coarse, ciliate marginal teeth and acuminate tips. Fall color is variable, ranging from undistinguished yellow to attractive shades of yellow-orange to red-brown. Smooth gray bark in youth exfoliates with age to reveal orange-brown inner bark. Zelkova is valued as a commercial timber tree in Japan.

Genus name may refer to the original Republic of Georgia name (*Zelkova carpinifolia* is native to the Caucasus).

Specific epithet and additional common name of sawleaf zelkova both refer to the serrated leaf margins.

'Village Green' is an open pollinated seedling that was introduced into commerce in the 1960s by Princeton Nurseries in Princeton, New Jersey. U.S. Plant Patent PP02,337 was issued January 7, 1964. Patent documents claim this cultivar is distinguished from species plants by its rapid growth, straight and smooth trunks, upright vase shape, dark green foliage with rusty red fall color and good resistance to leaf eating and bark beetles.

May be used as a lawn, shade or street tree.



Sources: Missouri Botanical Garden;  
USDA NRCS; NC State Extension

**Common Name:** Japanese zelkova

Type: Tree

**Family:** Ulmaceae

**Native Range:** Japan

**Zone:** 5 to 8

**Height:** 40.00 to 60.00 feet

**Spread:** 30.00 to 50.00 feet

**Bloom Time:** March to April

**Bloom Description:** Green

**Sun:** Full sun

**Water:** Medium

**Maintenance:** Low

**Suggested Use:** Shade Tree, Street Tree

**Flower:** Insignificant

**Tolerate:** Air Pollution

