Ogden City

Tree Selection Guide

Ogden UTAH Still Untamed™

Ogden City
Tree Selection Guide

Street Trees

SMALL TREES

MEDIUM TREES

LARGE TREES

Landscape Trees

INTRODUCTION

Ogden City has been a Tree City USA community for more than 30 years. To be a Tree USA city, a city or town must meet four guidelines.

Guidelines

1- Ogden City must have a Tree Board or Department dedicated for the care & maintenance of the city or town owned trees. It can be comprised of a professional Forester, arborist, city department, citizen-led tree board, city leaders or some combination of them who will perform the necessary tree work.

2- The City must have a Tree Care Ordinance. A tree board or forestry department –or both- and gives crafting and implementation of a plan of work or for documenting annual tree care activities. It should provide clear guidance for planting, maintaining and removing trees from streets, parks and other public spaces as well as activities that are required or prohibited.

3- The City must have a Community Forestry Program with an Annual Budget of at least $2 per capita toward the planting, care, and removal of city trees.

4- They must have an Arbor Day Observance and Proclamation.

Every year Ogden city has an Arbor Day tree planting, involving the Ogden City Forestry Department, other Ogden City Departments, and City Official, various Schools, volunteers and the Urban Forestry Advisory Committee. At least two dozen trees are planted in city parks or park strips, and demonstratins on the proper planting of trees and hands-on help is given.

This booklet is the work of the Ogden City Advisory Committee and the Ogden City Urban Forester. We are a diverse volunteer group from many different professions and backgrounds with a love for trees. We have been working on this booklet for many years involving many meetings, field trips for photographing trees, research, and much editing and rewriting.

Our purpose of the book is to educate the public on choosing the right tree for the right spot and the proper way to plant a tree for a long healthy life. All too often the wrong tree is planted and must be overly pruned or removed because it was too large for the spot.

We know the importance of trees to cool our cities, help clean the air and to beautify our yards, parks, and streets. Trees also provide habitat for birds and other wildlife.

We are proud to present this booklet to the citizens of Ogden.

Sincerely,

The Ogden City Urban Forestry Committee

SMALL

Canada Red Chokecherry

Prunus virginiana 'shubert' — Rosaceae

A small tree which flowers in May. Its small, edible fruits are attractive to birds. It has leaves that emerge in spring bright green and turn red as summer approaches.

Specimen Location: 2553 Polk Avenue (Parking Strip)
GPS Coordinates: TKE

Height: **20-25 ft** | Width: **15-20 ft** | Zone: **2-7** | Growth Rate: **Medium**

Leaf: Alternate; simple; oval, 2 to 4" long, two thirds as wide, serrated blade

Fruit: Not Showy

Flower: Showy, clusters, white, in May, 3-6" long

Advantages: Leaf color turns Green to Purple when changing; clusters of creamy white flowers are profuse. Well suited to our climate and soil. Contains edible fruit.

Disadvantages: Suckers easily and freely from the base. Fruit can be messy. Lifespan is short-lived: 20 years.

Bigtooth (Wasatch) Maple

Acer grandidentatum — Sapindaceae

SMALL

This native maple is closely related to the sugar maple; is well adapted to our climate; and graces our hillsides with bright orange to red fall color.

Specimen Location: South of Union Building, Weber State University Campus, Ogden

GPS Coordinates: N 410 11’ 30.9” W 1110 56’ 40.7”

Height: 20-**25** **ft** | Width: **10-15 ft** | Zone: **4-7** | Growth Rate: **Slow**

Leaf: Opposite, simple, 3 or 5 lobes, 2-5" long and wide

Fruit: Winged Samara

Flower: Not Showy

Advantages: Drought tolerant and cold hardy.

Disadvantages: Does not tolerate poorly drained soils.

SMALL

Japanese Tree Lilac

Syringa reticulata — Oleaceae

A small tree from northern Japan with stiff, spreading branches and a round crown that has an early summer bloom of off-white showy & fragrant flowers in panicles up to one foot long and up to 10 in. wide.

Specimen Location: Weber County Library Steps, 2464 Jefferson Avenue
GPS Coordinates: TKE

Height: **20-25 ft** | Width: **15-20 ft** | Zone: **3-7** | Growth Rate: **Moderate**

Leaf: Opposite; simple; oval, 2 to 5" long, smooth leaf blade

Fruit: Minor

Flower: Showy, clusters, ivory-white, in June, 6-12" long

Advantages: Resistant to pests; easy to transplant; scented June flowers.

Disadvantages: While pest problems are less severe than in other lilacs, some insect larva may be destructive.

Flowering Plum

Prunus cerasifera — Rosaceae

SMALL

An upright but small tree, sometimes shrubby, with beautiful pink, fragrant blossoms in early spring. This tree as purple leaves spring to fall.

Specimen Location: 5206 Pierce Avenue, Shadow Valley
GPS Coordinates: TKE

Height: 15-20 **ft** | Width: **15-20 ft** | Zone: **5-8** | Growth Rate: **Moderate**

Leaf: Alternate, simple, oval, purple, 1 1/to 2 1/2 inches long, half as wide

Fruit: Small but not messy

Flower: Showy, solitary, pink in May, 3/4 to 1" across

Advantages: Highly adaptable to urban conditions. Purple foliage creates accents on tree.

Disadvantages: Prone to many pests; short-lived to 20 years.

SMALL

Spring Snow Crabapple

Malus x 'Spring Snow' — Rosaceae

A small tree that is oval in shape with strikingly white blossoms in late April and lovely yellow leaves in the fall. No fruits develop.

Specimen Location: Skyline Drive, Shadow Valley Drive
GPS Coordinates: TKE

Height: 15-20 ft | **Width:** 10-15 ft | **Zone:** 3-8 | **Growth Rate:** Fast

Leaf: Alternate; simple; oval, 2 to 4" long, serrated blade

Fruit: Minor or sterile

Flower: Showy, clusters, snow-white, in April

Advantages: Tolerant of Urban environments. Great for places where fruit is objectionable.

Disadvantages: Some susceptibility to fire blight.

Prairiefire Crabapple

Malus x 'Prairiefire' — Rosaceae

SMALL

An upright but spreading small tree which is symmetrical with beautiful pink blossoms in spring. Contains showy, small fruits that are eaten by birds in the winter and reddish-brown bark. Leaves are open and reddish, changing to green in the summer, then orange in the fall. An outstanding four-season tree.

Specimen Location: Weber State University Campus, Gymnasium West
GPS Coordinates: N 410 11' 25.6" W 1110 56' 33.1"

Height: 15-20 ft | **Width:** 15 -20 ft | **Zone:** 3-8 | **Growth Rate:** Fast

Leaf: Alternate, simple, oval, serrated blades, 2-4" long

Fruit: Small and persistant

Flower: Showy, clusters, pink in April, double flowering

Advantages: Tolerant of urban environments.

Disadvantages: Some pest problems.

Flowering Pear

Pyrus calleryana — Rosaceae

Small tear-drop shaped in youth but spreading out with age. Has beautiful flowers in April. Small fruits are eaten by birds. Great fall color with leaves changing to orange, red, and purple, persisting into late fall.

Specimen Location: 1792 E. Shadow Valley Drive
GPS Coordinates: TKE

Height: 35-40 ft | **Width:** 10-25 ft | **Zone:** 5-8 | **Growth Rate:** Fast

Leaf: Alternate; simple; oval, 1 1/2 to 3" long, half as wide

Fruit: Small Berry like and persistant

Flower: Showy, clusters, white in April, 3" across

Advantages: Very adaptable, tolerant of dry and hot conditions, full sun. Fire blight resistant. Cultivars available.

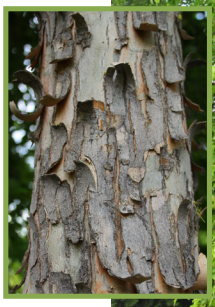
Disadvantages: Prone to fire-blight, susceptible to wind and heavy snow damage.

Trident Maple

Acer buergerianum — Sapindaceae

SMALL

This Maple native to Asia is slow growing; has interestingly two types of leaves: young triangular glossy leaves and mature 3 pointed leaves. This species features exfoliating bark. Leaves change to yellow, orange, and red in the fall.



Specimen Location: 339 Harrisville Road, The Rock Garden
GPS Coordinates: TKE

Height: 20-25 ft | **Width:** 20-25 ft | **Zone:** 5-9 | **Growth Rate:** Slow

Leaf: Opposite, simple, three lobes pointing forward, 1 1/2 to 3" across

Fruit: Winged Samara

Flower: Not showy

Advantages: Tolerant of drought and air pollution; interesting bark, leaf contrast, and few pest problems.

Disadvantages: Susceptible to heavy snow and ice damage.

Eastern Redbud

Cercis canadensis — Fabaceae

Small tree (or large shrub) with twisted trunk and spreading branches. Flowers are a very showy pink-magenta and emerge before the leaves. Fruit are dry, brown, pea-like pods. Tree also known as the Judas Tree.

Specimen Location: 1782 Wasatch Drive, & 3460 N. 450 E., Ogden

GPS Coordinates: TKE

Height: 15-20 ft | **Width: 20-25 ft** | **Zone: 4-9** | **Growth Rate: Medium**

Leaf: Alternate; simple; heart-shaped, bronze when emerging, 3 to 5" across

Fruit: Flattened pods, 2 to 3" long, numerous and persistent, change from green to dark brown in October

Flower: Showy, simple but profuse, magenta-pink in April

Advantages: Profusion of flowers, attractive foliage.

Disadvantages: Many pest problems; some people object to the persisent fruits.

Goldenrain Tree

Koelreuteria paniculata — Sapindaceae

Small to medium-sized tree, native to Asia, with a broad, dome shaped crown; lacy appearance due to the compound leaves; striking with large clusters of showy yellow flowers, followed by beautiful, ornamental 2 inch papery, lantern-like pods from each flower, yellow in the fall.

Specimen Location: Dee Events Center, Ogden & 3347N. 425 E., Ogden
GPS Coordinates: N 410 10.54' 4" W 1110 56' 41.3"

Height: 25-40 ft | **Width:** 25-40 ft | **Zone:** 5-9 | **Growth Rate:** Moderate

Leaf: Alternate, odd pinnately compound, 6 to 18" long, 7 to 15 leaflets

Fruit: Capsule, paper like, 1 1/2 t 2" long, 3 sided

Flower: Showy, cluster, yellow July, 12 to 15" long

Advantages: Tolerates drought, alkaline soils, heat, wind, and air pollution. Yellow flowers in July; lantern-like seed pods.

Disadvantages: Seeds can be weedy, seed pods persistent and become tattered

SMALL/MEDIUM

Japanese Zelkova "Green Vase"

Zelkova serrata "Green Vase" — Ulmaceae

Vase-shaped with rounded crown when young, this tree is native to Asia, with dark green leaves. Older trees expose inner bark, which is orange and is itself impressive. Yellow, orange, bronze, red, and purple fall colors. A replacement for an American Elm.

Specimen Location: 2549 Washington Blvd (Ogden Municipal Gardens west of fountain)
GPS Coordinates: TKE

Height: 35-45 ft | **Width:** 30-35 ft | **Zone:** 5-8 | **Growth Rate:** Medium

Leaf: Alternate; simple; oval, serrated blade, 1 to 5" long, 1 to 2" wide

Fruit: Minor

Flower: Not showy

Advantages: When established, is tolerant of drought, wind and air pollution; resistant to Dutch Elm Disease.

Disadvantages: Weak branch attachments.

European Hornbeam

Carpinus betulus — Betulaceae

A small sized tree, pyramidal or oval shaped. Foliage is dense and tolerant of shade.

Specimen Location: 12th St. & Monroe Blvd.,
GPS Coordinates: TKE

Height: 30-35 ft | **Width:** 20-25 ft | **Zone:** 4-7 | **Growth Rate:** Slow

Leaf: Alternate, siimple, oval, double serrated blades, 2 1/2 to 5" long, 1 to 2" wide

Fruit: Minor

Flower: Not showy

Advantages: Tolerant of urban conditions, shade tollerant, great for screening. Understory tree under big trees.

Disadvantages: Summer heat can cause leaf scorch and branch die-back.

SMALL/MEDIUM

Little Leaf Linden

Tilia cordata — Malvaceae

A medium sized tree, formal pyramidal or conical when young, to gum-drop shaped when mature. Dense and compact but upright branching. Yellow fall color.

Specimen Location: 2912 Grant Avenue
GPS Coordinates: TKE

Height: 40-50 ft | **Width: 30-35 ft** | **Zone: 3-7** | **Growth Rate: Medium**

Leaf: Alternate, simple, heart-shaped, serrated blade 1 1/2 to 3" across

Fruit: Minor

Flower: Showy, clusters, yellow in June, leaf-like bract

Advantages: Tolerant of difficult growing sites, urban & pollution tolerant and pH adaptable.

Disadvantages: Aphids and honey dew drip.

Ginko (Maidenhair Tree)

Ginkgo biloba - Ginkgoaceae

MEDIUM

The Ginkgo is the oldest existing tree species in the world with fossils dating back to the Jurassic era. Discovered in 1691 in China cultivated at Temple sites by Buddist monks, no natural populations have been found. Fruit on female trees, when rotting produce a foul smell. Many cultivars of male trees available without fruit. All leaves will drop off tree in one night after heavy frost.

Specimen Location: Weber County Library 2464 Jefferson Avenue

Height: **30-40 ft** | Width: **25-40 ft** | Zone: **3-8** | Growth Rate: **Slow**

Leaf: Alternate, simple,cluters of 3 to 5, fan shaped, 2-3" accross

Fruit: Because of smelly fruit, only male trees are sold at nurseries

Flower: Not Showy

Advantages: Grows in variety of soils; no pest problems; spectacular autumn gold-yellow foliage; some cultivars, ideal for small spaces.

Disadvantages: Take along time to become established

MEDIUM

Honey Locust

Gleditsia triacanthos var Inermis

Originally a thorny native of central North America that prefers moist soils in river valleys. Cultivated forms are generally thornless and lesser fruiting. Small foliage casts light dappled shade.

Specimen Location: Weber State University Campus, Ogden
GPS Coordinates: N 410 11' 30.8" W 1110 56' 41.7"

Height: 40-50 ft | **Width: 30-50 ft** | **Zone: 3-9** | **Growth Rate: Fast**

Leaf: Alternate, even pinnately compound, 6 to 8" long with 20 to 30 oval leaflets

Fruit: Legume (pod) matures in early autumn, non-poisonous, 7 to 8" long

Flower: Not showy

Advantages: Tolerant of urban conditions (compacted soils, road salt, alkaline soils, heat & drought.) Produces dappled shade.

Disadvantages: Susceptible to many pest problems, messy fruit and occasionally thorns.

Lacebark Elm

Ulmus parvifolia — Ulmaceae

MEDIUM

A graceful tree with a rounded crown with lustrous dark green leaves. Bark is beautiful and exfoliates to reveal a mixture of gray, green, orange, brown, and olive color. Trunk is fluted at the base. Should not be confused with the undesirable Siberian Elm.

Specimen Location: 195 Historic 25th Street
GPS Coordinates: TKE

Height: 40-50 ft | **Width: 30-40 ft** | **Zone: 4-9** | **Growth Rate: Medium**

Leaf: Alternate, simple, oval, serrated blades, 3/4 to 2 1/2" long, half as wide

Fruit: Minor

Flower: Not showy

Advantages: Drought resistant, tolerant of a variety of soil types, resistant to Dutch Elm Disease and air pollution.

Disadvantages: Rare disease problems.

MEDIUM

English Oak Columnar

Quercus robur "Fastigiata" — Fagaceae

A large columnar tree, similar to Lombardy Poplar but with significant quality, with dark or olive green summer leaves that tend to persist on the tree into winter without bright colors. Cultivars with red fall color and fall leaf drop available

Specimen Location: Hill North of Practice Field, WSU Campus
GPS Coordinates: N 410 11' 22.7" W 1110 56' 45.0".

Height: 40-50 ft | **Width:** 15-20 ft | **Zone:** 4-8 | **Growth Rate:** Fast

Leaf: Alternate, simple, oval, rounded lobes, 2 to 5" long, half as wide, ear lobe like leaf base

Fruit: Acorn

Flower: Not showy

Advantages: Fits well into tight spaces, great for screenings. Tolerant of urban conditions. Perfect replacement for Lombardy Poplar, long life span

Disadvantages: Develops powdery mildew fairly easily. Persistent winter leaves.

Hedge Maple

Acer campestre — Sapindaceae

MEDIUM

Rounded and dense in habit and commonly trimmed into a hedgerow in Europe. Medium tree with very round crown, densely branched with branches very low to the ground. Also, very popular amongst bonsai enthusiasts.

Specimen Location: Library Hill, Weber State University
GPS Coordinates: N 410 11’ 32.0” W 1110 56’ 33.2”

Height: 25-40 ft | **Width:** 25-45 ft | **Zone:** 5-8 | **Growth Rate:** Slow

Leaf: Opposite, simple, 3 to 5 lobes, 2 to 4" across

Fruit: Winged Samara

Flower: Not showy

Advantages: Excellent as a lawn tree. Can be pruned into a hedge. Tolerant of urban conditions. Fairly free of insect pests and disease.

Disadvantages: Low branches make mowing difficult and interferes with pedestrians. Dense shade can cause turf to struggle. Seeds can be weedy.

MEDIUM

Common Hackberry

Celtis occidentalis — Cannabaceae

Although the common hackberry lacks showy flowers and has no fall color, it is an outstanding shade tree and should be used for hard grow sites. Fruit either dries or is eaten by birds before it falls to the ground.

Specimen Location: Orchard Park 3250 Jefferson Ave., Ogden
GPS Coordinates: TKE

Height: 40-50 ft | **Width:** 40-50 ft | **Zone:** 2-9 | **Growth Rate:** Medium

Leaf: Alternate, simple, oval, serrated blade, 2 to 4" long, green bumps often found on underside of leaves, called nipple gall

H **Fruit:** Minor

U **Flower:** Not showy

☑ **Advantages:** Deep root system helps prevent soil erosion and makes this tree drought tolerant. Used for windbreaks. Withstands urban problems.

⊗ **Disadvantages:** Nipple gall is unattractive, but doesn't kill the tree.

Western Larch

Larix occidentalis — Pinaceae

MEDIUM

Native to the northern Rocky Mountains with brilliant yellow fall color, this deciduous tree is the largest of all the species of larches and boasts interest all year long and spectacular new spring needle growth. Found 2,000 to 5,000' in elevation. Temperate for Wasatch valley locations of most larches, which prefer colder climates.

Specimen Location: 1550 34th Street
GPS Coordinates: TKE

Height: 40-50 ft | **Width: 20-25 ft** | **Zone: 5-7** | **Growth Rate: Medium**

Deciduous, alternate, needle-like, in clusters 25-35, 1 to 1 1/2 long

Leaf: Cone, oblano,, 1 to 1 3/4" long persistant, conspicuous bracts

Flower: Showy, cone-like, yellow and red.

Advantages: Four-season interest, brilliant yellow fall color

Disadvantages: Not tolerant of shade, pollution, or drought.

MEDIUM

Turkish Filbert

Corylus colurna — Betulaceae

The Turkish Filbert (hazelnut) is a medium sized, drought tolerant tree that will also handle our high ph soils. Although it doesn't produce outstanding fall color, it holds its pyramidal shape throughout its life, making it a great street tree.

Specimen Location: 2465 Fillmore Ave.
GPS Coordinates: TKE

Height: 35-40 ft | **Width:** 15-30 ft | **Zone:** 4-7 | **Growth Rate:** Medium

Leaf: Alternate, simple, oval, double-serrated leaf blade, 2 1/2 to 6" long

Fruit: Edible nut 1/2 to 5/8" in diameter

Flower: Not showy

Advantages: Tolerates hot dry conditions with high ph soils. Durable leaf resists scorching. Edible fruit (Hazelnut) attracts wildlife.

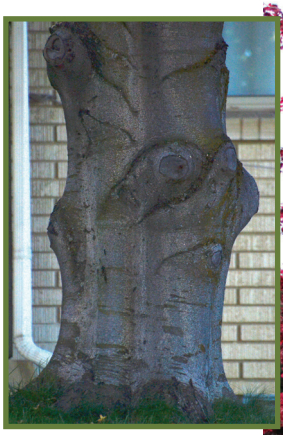
Disadvantages: Can suffer from transplant shock. Nut can cause nuisance when heavy fruiting occurs. Low branching habit.

Tricolor/Purple Beech (Roseo-Marginata)

Fagus sylvatica — Fagaceae

MEDIUM

A striking tree with variegated leaves that come in shades of green, pink, and white with smooth Gray elephant hide-like bark. Prefers moist well drained soil. Native to European central forests.



Specimen Location: 1040 So. Custer, Ogden (Stem) & Weber State University Lind Lecture Hall, **GPS Coordinates:** N 410 11' 42.6" W 1110 56' 25.4"

Height: 25-35 ft	Width: 25-35 ft	Zone: 4-7	Growth Rate: Slow

Leaf: Alternate, simple, oval, variegated with green, white, and pink, 2 to 4" long, half as wide

Fruit: Minor

Flower: Not showy

Advantages: Amazing year-round color. Great focal point in landscape, shade tolerant, understory tree under larger trees.

Disadvantages: Prone to scorched leaves from dry winds & hot sun, as well as aphids (honeydew), powdery mildew.

LARGE

Autumn Blaze Maple

Acer freemanii - Sapindaceae

Autumn Blaze Maple is noted for its pleasant rounded habit even when young. This tree combines favorable traits from the Red and Silver Maples., but structurally weak under wind and snow loads.

Specimen Location: Weber County Library - 2464 Jefferson Ave

Height: **60-70 ft** | Width: **40-50 ft** | Zone: **3-8** | Growth Rate: **Fast**

Leaf: Opposite, simple, 3 to 5 lopes, brilliant red fall color, 3-5" accross

Flower: Winged Samora

☑ **Advantages:** Early fall brilliant red color, leaves smaller than other cultivars, red spring buds.

⊗ **Disadvantages:** Weak wooded and highly subject to snow and wind damage, highy suseptable to iron chlorosis in heavy clay soils.

Dawn Redwood

Metasequoia glyptostroboides — Cupressaceae

A true Redwood and ancient fossil tree, once thought to be extinct. It was discovered in China in 1944. It was once the most abundant forest tree in North America. A deciduous tree that likes full sun and is easily transplanted.

LARGE

Specimen Location: 1150 W. 5600 S., 3206 Liberty Ave, 3377 Jackson Ave.
GPS Coordinates: N 410 11' 42.7" W 1110 56' 24.8

Height: 65-75 ft | **Width:** 25-30 ft | **Zone:** 4-8 | **Growth Rate:** Fast

Leaf: Deciduous, opposite, needle-like, branchlets up to 5" long, orange fall color

Fruit: Minor

Flower: Not showy

Advantages: Drought tolerant, symmetrical, and easily transplantable

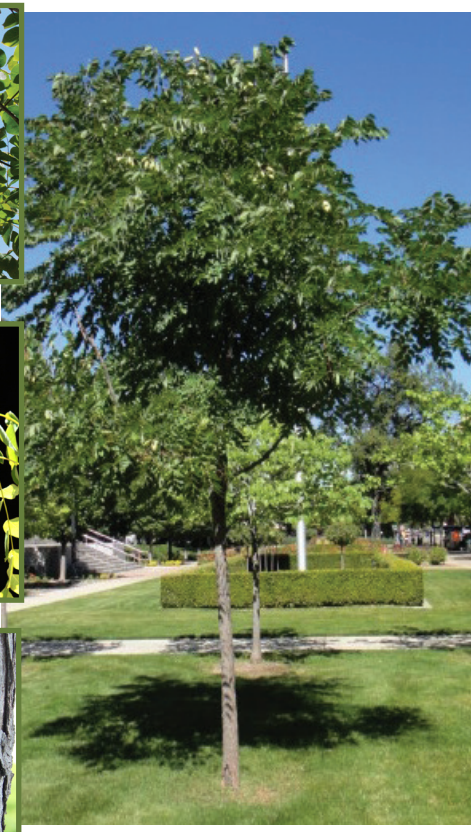
Disadvantages: Shed their needles in the fall, giving the perception it has died

Kentucky Coffee Tree

Gymnocladus dioicus — Fabaceae

LARGE

Pioneers roasted the seeds for coffee, giving its name. Because of the size of its leaves, its structure in the winter is sparse and open, making it a great winter interest. Maximum shade in the summer and allows for solar warming in the winter.



Specimen Location: 3120 N 575 E., North Ogden
GPS Coordinates: TKE

Height: 45-55 ft | **Width:** 25-35 ft | **Zone:** 3-8 | **Growth Rate:** Slow

Leaf: Alternate, bipinnately compound, 20 to 40 oval leaflets, 2-3 feet long, very large

Fruit: Pods, 4 to 6" long, 1 1/2 to 2" wide, persistant through winter

Flower: Not showy

Advantages: Tolerant of harsh urban conditions. Free of pests and disease.

Disadvantages: Pods can be messy in spring. Leaves come out late in the spring.

Swamp White Oak

Quercus bicolor — Fagaceae

A stately and uniform tree, being densely oval, upright, and symmetrical through middle age, then becoming more spreading with advanced maturity. Has a yellow-brown fall color.

LARGE

Specimen Location: Hill North of Practice Field, WSU Campus, Sullivan Detention Pond

GPS Coordinates: N 410 11' 22.6" W 1110 56' 44.9"

Height: 40-50 ft | **Width:** 40-50 ft | **Zone:** 3-9 | **Growth Rate:** Medium

Leaf: Alternate, simple, oblong, round lobes 5 to 7" long, half as wide

Fruit: Acorn

Flower: Not showy

Advantages: Tolerant of both wet and dry sites; easy to transplant

Disadvantages: Develops powdery mildew fairly easily though not fatal; can develop chlorosis in very alkaline soils

Bur Oak (Mossy Cup Oak)

Quercus macrocarpa — Fagaceae

LARGE

A member of the White Oak family, this is an outstanding ornamental tree, now grown from Texas to Alaska. It has the largest acorn of all the oaks. Can live to 400 years. Prefers full sun and has a fringe or burs on its acorn (hence the common name).

Specimen Location: 29th St. & Wall Ave.; Dee Memorial Park, 2424 Harrison Blvd., Ogden

GPS Coordinates: TKE

Height: 40-50 ft | **Width:** 40-50 ft | **Zone:** 3-8 | **Growth Rate:** Medium

Leaf: Alternate, simple, oblong, rounded lobes, 6 to 10" long, half as wide

Fruit: Acorn

Flower: Not showy

Advantages: Drought tolerant, fire resistant, adapts well to urban conditions

Disadvantages: Transplant shock can slow establishment. Large acorns can be messy.

American Linden

Tilia americana — Malvaceae

A deciduous, large-size tree that is upright and uniform with a strong central leader when young, matures to a broad irregular shape. Features a yellow fall color.

LARGE

Specimen Location: 4300 So. Parker Dr.; 2424 Harrison Blvd., Ogden
GPS Coordinates: TKE

Height: 50-70 ft | **Width: 35-50 ft** | **Zone: 2-8** | **Growth Rate: Medium**

Leaf: Alternate, simple, heart-shaped, serrated blade, 5 to 8" across

Fruit: Nutlet 1/3 to 1/2" long, oval shaped

Flower: Showy, clusters, yellow in June, leaf-like bract

Advantages: Tolerant of difficult growth sites and pH adaptable

Disadvantages: Fruit can be messy. Aphids and honey dew drip

Silver Linden

Tilia tomentosa — Malvaceae

LARGE

A beautiful, medium to large-sized shade tree, with light gray, smooth bark and leaves that are a dark, radiant green on top, strikingly silver beneath. Extremely fragrant clusters of yellow-white flowers in late spring.

Specimen Location: 360 Monroe Blvd (Northwest corner of Bonneville Park)

GPS Coordinates: TKE

Height: 35-45 ft | **Width:** 30-35 ft | **Zone:** 4-7 | **Growth Rate:** Medium

Leaf: Alternate, simple, heart-shaped, serrated blade, 2 to 5" across, silvery underside

Fruit: Minor

Flower: Showy, clusters, yellow in June, leaf-like bract

Advantages: Tolerant of difficult growing sites, urban & pollution tolerant and pH adaptable

Disadvantages: Aphids and honey dew drip.

Chinkapin Oak

Quercus muehlenbergii — Fagaceae

As this species matures it becomes a magnificent specimen so it is best not to crowd. New leaves start yellow-green, maturing to a dark lustrous green. Green-yellow to brown fall color.

LARGE

Specimen Location: 3206 Liberty, Ogden
GPS Coordinates: TKE

Height: 40-50 ft | **Width:** 40-50 ft | **Zone:** 5-7 | **Growth Rate:** Medium

Leaf: Alternate, simple, oblong, coarsely serrated blade with dull teeth, 7to 10" long, half as wide

Fruit: Acorn

Flower: Not showy

Advantages: Adapts to many different soil types but does best in well-drained soils, pest and disease resistant.

Disadvantages: Intolerant of shade

Northern Red Oak

Quercus rubra — Fagaceae

LARGE

A fast growing oak with bristle-tipped leaves that turn bright red in the fall. This is a good street tree that tolerates pollution and compacted soils. Very important forest tree in the USA.

Specimen Location: 5182 Pierce Avenue and 1018 Washington Blvd

GPS Coordinates: TKE

Height: 45-55 ft | **Width:** 40-50 ft | **Zone:** 4-8 | **Growth Rate:** Fast

Leaf: Alternate, simple, oval, 7 to 11 sharp lobes with bristles, 5 to 8" long, 4 to 5" wide

Fruit: Acorn

Flower: Not showy

Advantages: Tolerant of compacted soils, air pollution, and urban conditions

Disadvantages: Intolerant of shade; acorns can be messy

Tulip Tree

Liriodendron tulipifera - Magnoliaceae

In its native Eastern US habitats can be enormous in size (175 feet and 500 years old). Has very distinctive leaves and beautiful yellow-green, tulip-shaped flowers. The largest tree of the Magnolia family. Golden-yellow fall color.

LARGE

Specimen Location: 663 24th St. & Library Hill, Weber State University Campus, Ogden

GPS Coordinates: N 410 11' 29.4" W 1110 56' 33.9"

Height: 60-70 ft | **Width:** 25-30 ft | **Zone:** 4-9 | **Growth Rate:** Fast

Leaf: Alternate, simple, squarish with a pointed lobe on each side, 4 to 6" across

Fruit: Minor

Flower: Showy, solitary, tulip-shaped, yellow-green and orange in June, 2" across

Advantages: In fertile, moist soils can grow rapidly. Conical shape, unique leaves and beautiful flowers.

Disadvantages: Shade and drought intolerant, somewhat weak-wooded

LARGE

Catalpa

Catalpa speciosa — Bignoniaceae

In it's native south-eastern U.S. habitats it is a large sized tree that prefers open areas or only partial shade, with oval crown, comes into leaf late in spring Flowers later than most trees with large, upright clusters early summer. No fall color.

Specimen Location: 752 1100 N., Ogden

GPS Coordinates: TKE

Height: 50-60 ft | **Width:** 40-50 ft | **Zone:** 4-8 | **Growth Rate:** Medium

Leaf: Opposite, whorled in threes, simple, heart-shaped, 8 to 12" long, 5 to 8" wide

Fruit: Capsule, 8 to 20" long, 1/2" wide, bean-like

Flower: Showy, clusters, white in June, 4-8" long

Advantages: Drought tolerant, very tough street tree, showy leaves and flowers

Disadvantages: Somewhat weedy, persistent leaves and messy pods.

Sweetgum

Liquidambar styraciflua — Altingiaceae

A large-sized tree, growing to 120 feet and known to live for 400 years Has exceptionally brilliant foliage in fall. Fruits (called "gumballs") are distinctive spiky compound capsules producing up to 60 seeds each. Grows best on East Bench areas of the Wasatch Front, prone to die-back in lower valleys of cold and pollution.

Specimen Location: West side of Lind Lecture Hall, Weber State University, Ogden

GPS Coordinates: N 410 11' 41.6" W 1110 56' 25.3"

Height: 60-70 ft | **Width:** 35-40 ft | **Zone:** 5-9 | **Growth Rate:** Medium

Leaf: Alternate, simple, star-shaped 5 to 7 triangular lobes, 4 to 7" across

Fruit: Globose, spiky 1 to 1 1/2" in diameter, persisting into winter

Flower: Not showy

Advantages: Grows in a variety of soils providing good erosion control; good source of wildlife food; great specimen tree with spectacular autumn foliage.

Disadvantages: Fruit can be messy. Does not do well if roots are limited in their development, often yellowing in high pH soil. Pollution intolerant.

Japanese Maple

Acer palmatum — Sapindaceae

Tree or tall shrub, often with multiple trunks. Often an understory tree in the shade of taller trees. Many cultivars are available with many leaf colors, shapes, and fall colors. Many size options also available. Best grown in sheltered locations such as the east or north side of structures.

Specimen Location: 5157 Pierce Ave., 2828 Polk Ave.
GPS Coordinates: TKE

Height: 10-20 ft | **Width:** 10-20 ft | **Zone:** 5-6 | **Growth Rate:** Slow

Leaf: Opposite, simple, 5 to 9 deep lance-shaped lobes, serrated blades, 2 to 5" across

H **Fruit:** Minor

u **Flower:** Not showy

☑ **Advantages:** Does well in shade or dappled shade; assumes a layered look; can be grown as single or multi-stemmed small tree.

⊗ **Disadvantages:** May suffer leaf scorch or die back with excess wind, sun, or drought.

White Fir

Abies concolor — Pinaceae

A medium to large native evergreen tree that is not only popular in ornamental landscaping, but as a living Christmas tree. Produces a spire-like crown with a straight trunk. Some trees have reached 350 year of age. Great alternative to the Blue Spruce.

Specimen Location: Jaycee Park, 2465 Fillmore Ave.
GPS Coordinates: TKE

Height: 30-40 ft | **Width:** 15-20 ft | **Zone:** 3-7 | **Growth Rate:** Slow

Leaf: Needle-like, flat, 2 to 3" long, silvery blue-green, soft to the touch

Fruit: Cone, oblong, 2 to 4" long, green to purple, deciduous, upright

Flower: Not showy

Advantages: Tolerant of shade and variety of soils, and extreme temperatures. Provides nice color contrast with other conifers more windfall resistant than Blue spruce, soft needles.

Disadvantages: Does not tolerate poorly drained soils.

Horse Chestnut

Aesculus hippocastanum — Sapindaceae

A large tree, common throughout the world (symbol of Kiev, Ukraine), a native of Greece, a great tree for dense shade. Hybrid Aesculus x carea has red flowers common as Red Horsechestnut.

Specimen Location: Weber State University Campus East of Library, Ogden
GPS Coordinates: N 410 11' 31.9" W 1110 56' 34.0"

Height: 40-50 ft | **Width: 35-45 ft** | **Zone: 3-7** | **Growth Rate: Medium**

Leaf: Opposite, palmately-compound with 7 oblong leaflets, 5 to 10" long, half as wide

Fruit: Round spiny capsule 2 to 2 1/4" in diameter, containing a nut

Flower: Showy, clusters, white with red in May, 5 to 12" long

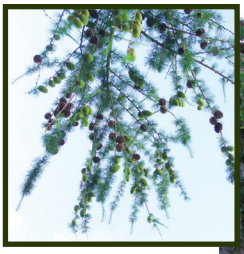
Advantages: Good for shade and decoration (flowers)

Disadvantages: Drought and heat intolerant, leaf sorch during hot summers. Fruits can be messy.

Larch

Larix decidua — Pinaceae

A coniferous tree that is deciduous like the Bald Cypress and Dawn Redwood, Larch is among the dominant trees in the boreal forests of the Northern taiga and many landscape suitable species are found in isolated temperate mountain regions. The needles turn a bright yellow in autumn. Emerging spring growth is spectacular.



Specimen Location: 805 2nd Street, Ogden, Baker and 34th Street

GPS Coordinates: TKE

Height: 40-50 ft | **Width: 20-25 ft** | **Zone: 4-6** | **Growth Rate: Moderate**

Leaf: Deciduous, alternate, needle-like, in clusters of 30 to 40, 3/4 to 1 1/4" long

Fruit: Cone, woody, 1 to 1 1/2" long, persistent

Flower: Showy, cone-like, red and yellow

Advantages: Showy yellow deciduous needles in fall, showy cones, interesting texture.

Disadvantages: Can be mistaken for dead during the winter months. Not drought tolerant.. Will languish on hot dry sites.

Norway Maple

Acer platanoides — Sapindaceae

A medium-large-sized tree with a dense, symmetrical, oval crown. Yellow fall color. Cultivars with maroon leaf color available. Hybrid Acer truncattum x plantanoides is more disease resistant, heat and drought tolerant, and has red fall color.

Specimen Location: 5211 Shawnee, Shadow Valley; 3206 Liberty Ave.
GPS Coordinates: TKE

Height: 40-50 ft | **Width:** 30-40 ft | **Zone:** 3-7 | **Growth Rate:** Slow

Leaf: Opposite, simple, 5 sharp lobes, coarsely serrated, 4 to 7" across, torn leaf emits white sap

Fruit: Winged Samara

Flower: Not showy

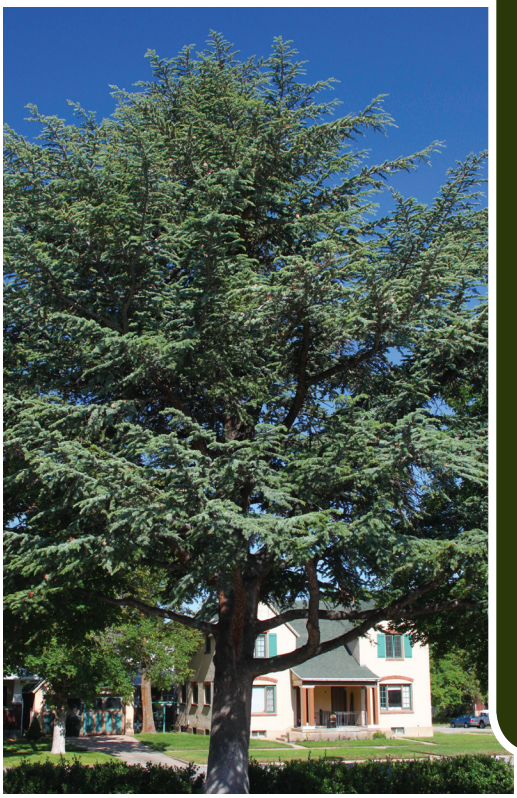
Advantages: Provides dense shade. Urban tolerant, few insect and disease problems.

Disadvantages: Girdling and surface root problems; seeds are weedy. Highly suseptible to verticillium wilt

Cedar of Lebanon

Cedrus libani subsp. libani — Pinaceae

This species is mentioned often in the Old Testament of the Bible. For example, the First Temple of Solomon was built of it. Today it is used extensively as an ornamental and can be found on the Lebanese flag. Subspecies stenocoma, very cold hardy and has columnar habit.



Specimen Location: 26th Aand Jackson Ave.
GPS Coordinates: TKE

Height: 50-60 ft | **Width:** 40-50 ft | **Zone:** (5) 6-7 | **Growth Rate:** Medium

Leaf: Alternate, needle-like, in clusters of 30 to 40, 3/4 to 1 1/2" long, dark or bright green

H **Fruit:** Cone, oblong, 3 to 5" long, resinous-green becoming woody, deciduous

u **Flower:** Not showy

☑ **Advantages:** Tree is very graceful and adds beauty to landscapes, especially with its picturesque trunks.

⊗ **Disadvantages:** Needs plenty of room to develop fully; not tolerant of pollution or shade; somewhat difficult to transplant.

Blue Atlas Cedar

Cedrus libani subsp. atlantica — Pinaceae

One of the true cedars, named for its native range in the Atlas Mountains of Algeria and Morocco. Stately and majestic in form it is common in cultivation as an ornamental evergreen tree (especially the bluest forms).

Specimen Location: 2679 Pierce Ave., 3296 Liberty Ave,
GPS Coordinates: TKE

Height: 50-60 ft | **Width:** 40-50 ft | **Zone:** 6-9 | **Growth Rate:** Medium

Leaf: Alternate, needle-like, in clusters of 30 to 40, 3/4 to 1 1/2" long, bluish or silver-green

Fruit: Cone, oblong, 2 to 3" long, resinous green becoming woody, deciduous

Flower: Not showy

Advantages: Tolerant of hot and dry conditions, bright blue needles, and tolerant of wide range of soil types.

Disadvantages: Intolerant of poorly drained soils. Needles can burn in subzero temperatures.

Deodar Cedar (Himalayan Cedar)

Cedrus deodara — Pinaceae

One of the most graceful of trees with green to bluish-green foliage and pendulous branches. In its native Himalayan habitat, they can reach 200' in height. Very cold hardy cultivars available having more blue-green foliage. Gold cultivars offered also.

Specimen Location: 1051 9th Street., Ogden
GPS Coordinates: TKE

Height: 40-50 ft | **Width:** 20-25 ft | **Zone:** 6-8 | **Growth Rate:** Medium

Leaf: Alternate, needle-like, in clusters of 15 to 20, 1 to 2" long, dark green

H **Fruit:** Cone, oblong, 3 to 4" long, 3" wide, often in pairs, bluish becoming woody, deciduous

u **Flower:** Not showy

☑ **Advantages:** Tree is graceful and adds beauty to landscapes, great focal point

⊗ **Disadvantages:** Pollution intollerant. Top die back in very cold winters.

Bald Cypress

Taxodium distichum — Cupressaceae

Native to the Everglades, this tree is adaptable to all 48 states of North America. Urban tree of the year '2007'. Lime green dappled shade. Deciduous and looses needles during winter, like Dawn Redwood and Larch.

Specimen Location: Riverdale Park; Lind Lecture Hall, Weber State University, Ogden

GPS Coordinates: N 410 11' 42.9" W 1110 56' 24.9"

Height: 50-60 ft	Width: 20-30 ft	Zone: 4-9	Growth Rate: Medium

Leaf: Deciduous, alternate, needle-like branchlets up to 5" long, similar to Dawn Redwood, russet-orange fall color

Fruit: Cone, round, 1" in diameter, green changing to brown, deciduous.

Flower: Not showy

Advantages: Interesting ornamental especially used in wet places, erosion control. Tropical lime-green foliage.

Disadvantages: Many people think the tree is dead and cut them down before they leaf out in the spring overwatering in alkaline soils can lead to iron chlorosis. Phosphate fertilizers should be avoided.

Giant Sequoia

Sequioadendron giganteum — Pinaceae

World's largest in terms of volume, grows surprisingly well along the Wasatch Front bench areas, but needs plenty of space. There are may great specimens in Ogden 70 to 80' tall.

Specimen Location: 2460 Taylor Ave., 1453 Marilyn Dr., 2726 Harrison Blvd.
GPS Coordinates: TKE

Height: 60-100 ft	Width: 30-50 ft	Zone: 6-8	Growth Rate: Medium

Leaf: Scale-like, flat, triangular 1/8 to 1/4" long, spiraly arranged on stem, blue-green

Fruit: Cone, oblong, 1 1/2 to 3" long, green becoming woody, can persist for 20 years

Flower: Not showy

Advantages: Beautiful, very strong pyramidal structure. Grows very well on bench locations. Bluish cultivars very cold hardy.

Disadvantages: Susceptible to winter burn, except blue cultivars. Not for small spaces.

Utah Forest Facts

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Planting Landscape Trees

Margaret Shao, Salt Lake County Extension Agent, and
Michael Kuhns, Extension Forester, Utah State University

This fact sheet covers the basics of landscape tree planting including tree types, details of planting procedures, and post-planting care. Problems associated with buried root collars are discussed.

Introduction

Trees and shrubs are valuable additions to most property, providing beauty, wind protection, shade, wildlife habitat, visual screening, and other benefits. Unfortunately, many landscape trees are not properly planted or cared-for. Here we describe up-to-date, research-proven techniques for planting landscape trees and for post-planting care. We assume you know what species and cultivar you want to plant.

Visit our website extension.usu.edu/forestry for more information on selecting the right tree for your site.

Season to Plant

Trees are best planted when they are still dormant with tight, unopened buds in the early to mid-spring after the soil has thawed. Cool temperatures and good soil moisture in the spring help trees get established. Fall planting also works well for many species, though watering is critical if the fall is dry.

Summer planting of B&B and container plants can be successful, though hot temperatures, dry conditions, and non-dormant trees makes good care especially important and survival less sure. Bare root trees should only be planted in spring while still dormant.

Tree Types

Landscape trees and shrubs can be obtained in four basic types: balled and burlapped, container/potted, bare-root, and tree-spaded. Each type has advantages and disadvantages and none is ideal for all situations. With all four types be sure that you have an adequate root system – a good rule-of-thumb is that the root system, root ball, or container diameter or spread should be 10 inches to 12 inches for every inch of stem caliper (diameter at ground-line just above any basal swell). Therefore, a 3 inch caliper tree should have a 30 inch to 36 inch wide root ball as a minimum. Root ball depth is not as critical as width but should be larger for larger trees.

Balled and Burlapped –

Balled and burlapped (B&B) plants are dug from the nursery with a ball of soil around their roots. The root ball is tightly wrapped with burlap held in place with twine, nails, and possibly a wire basket. Both fine and coarse roots are contained in the root ball so transplant shock is reduced. Rough handling, though, breaks roots, so handle these trees with care. B&B plants are much more expensive than bare-root trees and are much heavier, but generally survive better. Tilling the soil just outside the root ball 8 to 12 inches deep and several feet wide right after planting is one way to ensure good root growth.

B&B tree before burlap removal

Container/Potted –

Trees are sometimes grown and sold in pots for convenience and to avoid root loss during transplanting. Containers are made in a variety of materials (plastic, compressed peat, etc.) and sizes. Container-grown trees are normally more expensive and heavier than bare-root but less than B&B. Pots can cause roots to circle which may cause girdling roots later in a tree's life. Such roots should be cut or straightened at planting time, but this can be very difficult. Container trees should be well rooted without being root-bound. Sometimes bare-root trees are placed in a pot but are not wellrooted when you buy them; these trees generally are less expensive than established trees.

Root-bound potted tree after pot removal

Bare-root –

Bare-root plants are dug from a nursery with no soil around the roots. Though bare-root seedlings may have fairly complete root systems, larger plants usually only have a few coarse, woody roots. These plants have the advantages of being inexpensive and light weight. However, extra care must be taken to keep their exposed roots moist. They also may be difficult to find and generally are only available in the spring before bud burst. Bare-root deciduous trees should have a caliper smaller than 2 inches and bare-root evergreens should be very small (less than 2 feet tall). Bare-root trees should be dormant and therefore early spring planting is best.

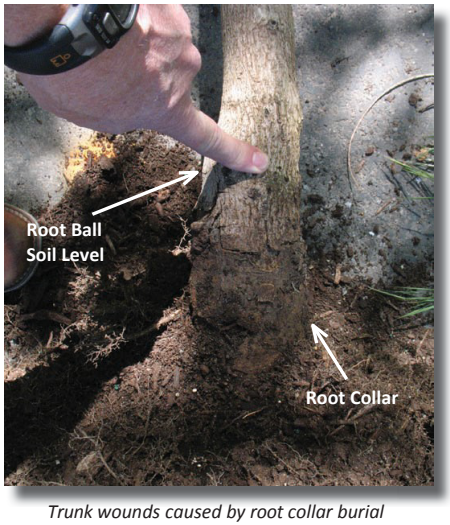
Tree-spaded –

A tree spade, a large machine that cuts roots and soil so the root ball can be wrapped, is often used to dig B&B trees in the nursery. Some landscapers also move trees to the site and transplant them into a previously dug hole with a tree spade. These trees can be treated similarly to B&B trees, but be sure that the gap between the root ball and the hole is closed so roots can grow out. Tilling around the root ball, as mentioned previously, is a good way to ensure good contact between the root ball and soil.

Root Collar Depth -

The root collar is the point on a tree's trunk where the root system starts, just above where the flare roots go out horizontally from the trunk (shown by the index finger in the picture below). The original nursery soil depth should have been at or just above the root collar. However, most potted and B&B trees in nurseries, because of current production methods, have root collars buried deeper in the soil. Therefore, if you plant the tree with the top of its root ball or potting soil level with your landscape soil surface, the root collar will end up too deep. This can cause the buried trunk to decay and makes the formation of girdling roots more likely as the tree grows. The remedy is to find the root collar and remove excess soil that has been placed on top of the root ball, then plant at the root collar depth. Much of the root system is lost with very deep root collars (collars buried more than 1/3 the depth of the root ball), so consider returning such trees to the nursery.

B&B tree after exposing buried root collar



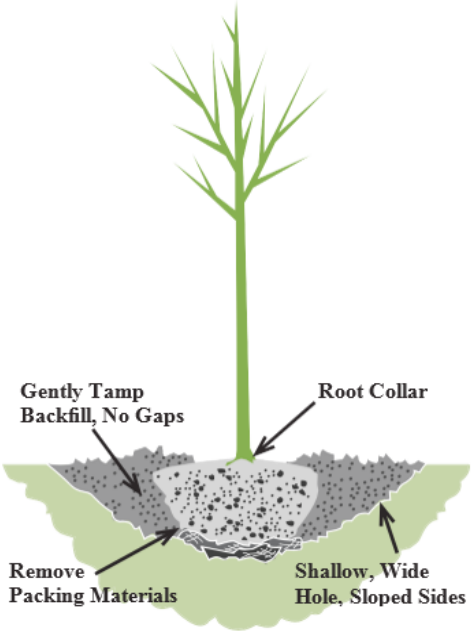
Trunk wounds caused by root collar burial

Planting the Tree -

Digging the Hole – Dig your planting hole much wider than the root ball with sloping sides, since most of the tree roots grow horizontally and stay fairly shallow. A hole at least 2-3 times the root ball width is best. The hole should be just deep enough so the bottom of the root ball will be placed on undisturbed soil and the root collar will be at or above the level of the surrounding soil. Do not loosen the soil in the bottom of the hole since this lets the heavy root ball settle and sink, causing the tree to end up too deep. If the sides of the hole become glazed and smooth during digging growing root tips may not penetrate. Roughen the glazed surfaces and open up the soil's pores and cracks by picking at the soil with the tip of the spade.

Placing the Tree – Place the tree in the bottom of the hole on undisturbed soil with its stem vertical. Handle the tree by its root ball or container to avoid trunk damage. Never drop the tree or you will loosen the root ball and break roots. Make sure that the root collar is at or above the surrounding soil grade. Bare-root trees should be placed with

their root collar positioned as mentioned above with their root system spread out in the flat-bottomed hole or over a shallow mound in the bottom of the hole. Do not bend or kink roots to make them fit. If roots are too long for the hole dig it wider or, as a last resort, cut off some root length with sharp pruners. Also cleanly cut any crushed, torn, or otherwise damaged roots.



Removing Packing Materials – Twine surrounding the trunk or root collar should be removed, as well as other packing materials like wire baskets, burlap, and pots. Roots must quickly grow from the root ball into the surrounding soil for the tree to do well, and burlap and pots get in the way of this growth. Treated burlap can even constrict roots later in life as they grow in diameter. If the root ball is broken and loose remove packing materials carefully to keep the root ball together. Backfilling as you remove packing materials helps keep the root ball intact. Any burlap or potting material that must be left on should be slit in several places to allow roots to grow through. It is less important but still good to remove packing materials left underneath the root ball. Cleanly cut any circling or damaged roots that are exposed at this point to promote good root growth.

Backfilling – Fill the hole with the original soil – this is the soil the tree must ultimately grow its roots into in order to survive. Large rocks can be removed, and up to 25% by volume of composted organic matter can be mixed in with the backfill soil if it has a very high clay content and is difficult to work, However, in such cases till the soil just outside the root ball 8 to 12 inches deep and several feet wide after planting to ensure good root growth. Otherwise use no other soil additions or amendments.

Break up large clods as you backfill and pack the soil occasionally to remove air pockets. Pack the soil with your hand or lightly with your foot to avoid over-compaction. Keep the tree vertical and its root collar at the right level as you backfill. Add and pack the soil until it is even with the surrounding soil level and the root collar. If you are purposely planting the tree shallow, mound the soil up to the root collar (bare-root) or to cover the sides of the root ball. No roots should be exposed when backfilling is complete and no soil should be put on top of existing root balls. Water well immediately after backfilling to help settle the soil and remove air pockets. Place additional soil where settling occurs but no packing should be done after the soil is wet.

Planting with Poor Drainage/ Compaction - Poor drainage should be improved if possible by grading or installing drain tiles (perforated pipes) to carry water away. On flat sites or where drainage or compaction problems are less severe, trees can be planted shallow, with one-third or more of the root ball above grade and backfill soil mounded to cover the root system. Trees can even be placed on top of the existing, problem soil with their roots surrounded by a mound or berm. Such trees may do well but also may have a fairly small root system and will need more care and attention than trees on better sites.

Follow-up Maintenance -

Watering – Up to 95% of a tree's roots are cut off during transplanting, greatly decreasing its ability to take up water. Water, therefore, is a tree's greatest need at planting time and for a year or two after transplanting until a good root system is established. Thoroughly water newly planted trees, applying the water with a hose or bucket to the entire planting area and letting it soak in well. Fill any holes that open due to soil settling but do not pack wet soil.

Water thoroughly at planting time

Watering needs after planting depend on weather, drainage, soil type, planting season, and tree species. Though water should be applied to the original planting area and root ball, it should also be applied to the soil surrounding the original hole so roots can grow out. Apply water often enough so the soil near the tree at least a foot below the surface is moist and will form a ball when squeezed. If it crumbles it is too dry. Water will be needed every two to four days as the tree is getting established in its first summer.

It is possible to over-water trees, especially in poorly drained soils. Do not water so often or so deeply that root systems become waterlogged. Older, estab- lished trees can withstand some soil drying around their root systems, but all landscape trees should be watered regularly during periods of severe drought.

Fertilizing and Soil Amendments - No fertilizers of any kind should be used at planting time since they have not been shown to increase root growth and may cause the crown to outgrow the roots. No hormones, extracts, vitamins or other such formulas have been shown to stimulate root growth or help tree establishment. Mycorrhizae (fungi that grow on plant roots and help growth and nutrition) are commercially available, but trees generally come from the nursery with the fungi already on their roots, so additions to the soil are not needed. Fertilizing should only be done after the tree has recovered from transplanting, and then only if needed. This recovery can take two or three years; longer with larger trees.

Mulching – A bed of wood chips or other coarse organic mulch around a tree greatly increases root and tree health. Maintain a mulch bed around all newly planted and existing trees that extends several feet from the trunk; the farther the turf is away from the trunk the better. Mulch should be 3 to 4 inches deep and should be renewed as it breaks down. Keep the mulch a couple of inches away from the trunk to avoid root or trunk decay and rodent burrowing and damage. Rocks or gravel may be used for esthetics, but do not have some of the good properties of organic mulches. Air tight plastic sheeting should not be used around plants. Porous weed barrier fabrics provide some weed control but can be difficult to install and maintain and are not much more effective than an adequate organic mulch layer. Mulch can be placed right on top of existing turf. Either spray the turf first with glyphosate herbicide, or pull or spray the grass that makes it through the mulch, being careful to avoid spraying the tree's trunk.

Staking – Properly planted trees seldom need staking, so stake only where severe wind or vandals are problems. Use canvas strapping or similar soft, flexible material around the tree to prevent trunk damage. Attach these materials loosely to allow stem move- ment. Remove staking materials after one or two years. In heavily used areas a couple of tall stakes can help physically protect the tree from people even if the stakes are not attached to the tree. Wood chip or bark mulch simulates natural forest floor conditions

Wood Chip or bark mulch simulates natural forest floor conditions

Trunk Protection – Thin bark on lower trunks of young trees sometimes is damaged by "sunscald". This damage appears as small cracks or wounds on the bark, especially on the southwest side of the tree. Though the underlying cause is uncertain, sunscald appears to be caused by bark being warmed by the winter sun and then being damaged by freezing when the sun sets. Wrapping the lower trunk can help shade and protect that thin bark. Wrap in the fall with flexible, light-colored tree wrap material made out of paper or perforated plastic. Remove the wrapping material in spring and reapply the next fall if needed. Tree wrap that is left on through the summer can harbor insects and encourage diseases.

Light colored paper tree wrap

Pruning – Little pruning should be done at planting time. The tree is very stressed when it is first trans- planted, and pruning causes it to lose stored food and forces it to seal or heal pruning wounds. Dead, diseased, damaged, or rubbing branches can be removed at this time. Once the tree is established you can prune to ensure good form as it matures. See our tree pruning fact sheet at extension.usu.edu/forestry.

Weed Control – A wide mulch bed several inches deep will do a lot to control weeds. Otherwise hand pull or use directed sprays of herbicides as needed to control weeds. Herbicides or weed killers that are taken up by roots should not be used since they may harm the tree. Keep all weed killers off of tree leaves, young bark, and sprouts coming from the tree base or the roots.

For More Information -

Visit the USU Extension Forestry website at extension.usu.edu/forestry for additional information on tree planting, selection, and care. Also visit the Utah Community Forest Council website at www.utahurbanforest.org for information on arboriculture and how to hire an arborist. If your town or city needs urban/community forestry assistance contact the Division of Forestry, Fire & State Lands at 801-538-5555. When you need tree work done it is best to hire an ISA (International Society of Arboriculture) Certified Arborist (look under Tree Services in your telephone directory).

Acknowledgments

We thank the Utah Community Forest Council and Utah Division of Forestry, Fire & State Lands for their financial and other support.

Finding Root Flare Before Planting

Regardless of the root package (potted, bagged or balled & burlapped) you must remove all roots that are above the root flare with pruners or a saw. Once the flare if found the tree should be planted with the root flare at soil level. Here, a tangle of surface roots surrounding a trunk is a dead give away that the flare is hidden below. Note the small girdling root along the right side of the trunk, if not removed, it will kill the tree before its 20-30th birthday!! That's not counting the ones you can't see!

Starting at the outside of the root ball with a pair of pruners, all roots were removed that were growing around the trunk. Notice that the cut and removed roots were not even attached to the trunk! Their origin is from the bottom of the pot. They grew upwards, filling the pot with roots. The soil mixes used to produce trees and shrubs in plastic pots is often light weight and filled with pore spaces that provide ideal growing space for roots looking for water and air. This environment allows the tree's roots to grow and fill the entire pot of soil media.

The finger is pointing to the root flare that must be at soil level when planting. If this tree was planted at the same level as the top of the rootball in the pot, the tree would have been planted 4-5 inches too deep. Not a fast death, but a sure one! Most trees planted too deeply will succumb to disease and insect attacks, thus contributing to the death of the tree before its 30th birthday!

Most tree tags and many resources still instruct one to plant the tree at the same depth it was grown in the nursery. Research has shown this to be a deadly practice. All of the roots that are seen growing around this trunk that lie above the root flare (indicated by the end of the tape measure) are potential trunk stranglers! Tree branches can "grow together" as seen by crossing branches in older trees. Here similar cells, both from branches when pressed tightly simply fuse together. Roots can also "grow together", because they are comprised of identical cells – root cells. The problem with root girdling is that roots grow next to stem cells (the trunk). As both the trunk and girdling root grow in circumference, the root strangles the trunk from receiving water from roots below. The root will not graft to the trunk, nor the trunk to the root. They can't, they are made of different cells. Each grows strangling the other until food and water supplies are cut off. This process slowly weakens a tree, which signals disease and insects to move in. The human body is no different. When you weaken the body, weaken the immune system and sickness moves in! Now choose, what killed the tree: being weakened by a girdling root or being killed by an opportunistic insect/ disease? Certainly the insect or disease gets all the attention, but the underlying reason was being planted too deep.

In this 5 gallon pot, an Autumn Blaze Maple had half of the root system removed when searching for the root flare! It is interesting to note that there are more white root tips in the bottom half, than in the removed top half. The white root tips indicate more viable roots, which means faster root growth and establishment. Customers are often squeamish to cut off so many roots. Apply "tough love" and just remember that it is better for the tree in the long run. One more procedure yet to do, is to tease out the outer roots and "fluff the rootball". Pulling the outer roots from their circular position or even cutting circular roots will encourage them to grow outward.

Another example of how far you may have to dig and cut downward to find the root flare before planting. On the plus side, you don't have to dig as deep of planting hole! Before finding the root flare, the planting hole needed to be dug to 16 inches deep. After locating the root flare, you only have to dig 11 inches deep. After planting, you should be able to see the trunk start to widen out (indicating the start of the root flare) before disappearing into the soil. The tree should not look like a telephone pole.

This is a dead tree standing. Over 50% of the canopy is dead. The remaining branches are covered with small pea green colored leaves that are starting to drop. The homeowner gave the age at about 30 years. This is a classic "telephone pole" trunk. The sides of the trunk dive straight into the ground without showing any widening of the trunk at the soil level. She wanted to save the tree and asked me to spray, fertilize or inject anything to save the tree. Instead I dug down to show her that the problem was girdling roots and to prepare for a new planting. The "telephone pole" look, age about 30 years, branches dying throughout the canopy all point to a tree that was planted too deep 30 years ago!

The culprit is revealed, and is probably just a tip of the iceberg. See how the trunk is pinched inward where the root crosses the trunk. An extra 20 minutes or less at planting time finding the root flare would have saved this tree!

See how the trunk widens out at the soil level. These prominent root flares make for a happy long lived tree! A side note: The hosta are planted away from the tree thus allowing light and air to get to the lower trunk, but that's another story!

Right Tree, Right Place, Reliable Service

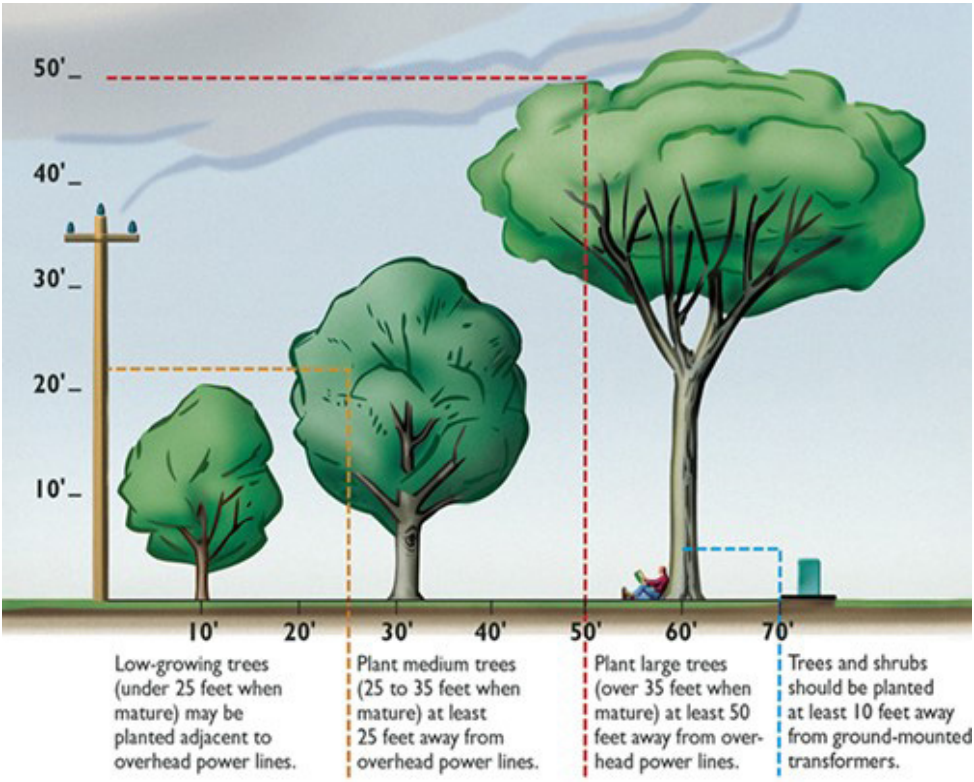
Beautiful and essential, trees make our neighborhoods more livable, our homes more energy efficient and our lives more vibrant and healthy.

Trees can also interfere with power lines, causing outages or creating other hazards. Planting the right tree in the right place can help to ensure that we all enjoy the many benefits trees provide while also ensuring electric safety and service reliability.

Tips for planting trees near residential distribution lines:

To reduce the need for future pruning, be sure you choose an appropriate tree for the space (especially around power lines). Some things to keep in mind as you're planting:

- Low-growing trees (under 25 feet when mature) may be planted adjacent to overhead power lines.
- Plant tall-growing trees (over 25 feet when mature) at least 25 feet away from overhead power lines.
- Trees that grow taller than 35 feet when mature should be planted 50 feet away from overhead lines.
- Plant trees and shrubs at least 10 feet away from ground-mounted transformers.
- Call 811 at least 48 hours before you plant to have your underground utilities located.

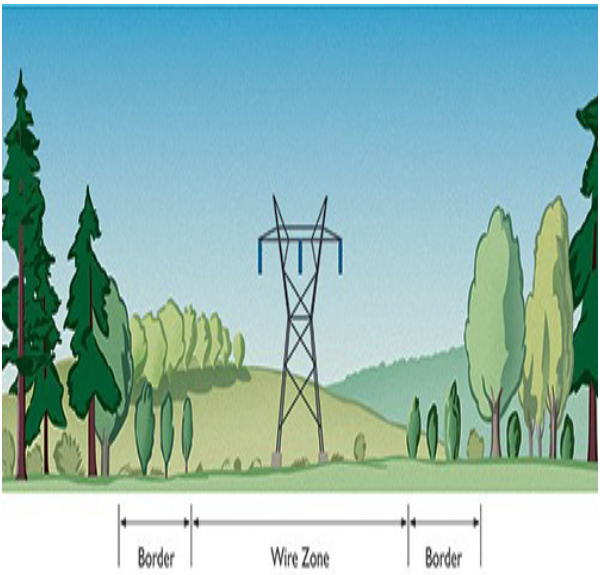


Trees typically must be removed around high-voltage transmission lines to protect the safety and reliability of electric service. Trees that grow too close to high-voltage power lines create hazardous conditions that can cause forest and brush fires, endanger homes, interrupt electric service and contribute to a catastrophic failure of the power grid. The wire zone of a transmission right-of-way typically extends 10 ft. beyond the outermost conductor and should be kept free of woody vegetation at all times. Utility-friendly trees are acceptable in the border zone as long they do not get tall enough to violate the utilities' established clearance specifications. Should that happen the utility will pursue removing them.

Tips for planting trees near high-voltage transmission lines

To reduce the chance of potential tree line conflicts and ensure your trees are not removed by the utility, please choose an appropriate tree for the space. The figure below shows the areas around the transmission power lines and towers that should be kept clear of vegetation. Some additional things to keep in mind as you are planting:

- Do not plant vegetation in the "Wire Zone" that will grow taller than 5 ft. at maturity
- Given the dire consequences a conflict between trees and transmission lines could have on public safety and service reliability, trees typically must be removed below the transmission wires where the lines are less than 50 feet off the ground
- Low-growing trees (under 25 feet when mature) are allowed in the "Border-Zone" which extends 10 feet outside the wires (not the center line) to the edge of the right-of-way
- Tall-growing trees should be planted no closer than 50 feet from the closest wires
- Call 811 at least 48 hours before you plant to have your underground utilities located



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Glossary of Terms

Alkaline:	Above 7 on the PH scale (Base).
Alterate:	Single leaves arranged one at a time along the stem, appearing to be alternating.
Blade:	The edge of a leaf that can be either smooth, lobed or serrated.
Bract:	A reduced leaf, usually associated with a flower.
Cluster:	A group of flowers attached to one stalk or a group of leaves attached to one ?
Cultivar:	Abreviation for 'Cultivated Variety' Some trees may have only one, or could have many.
Deciduous:	A tree shedding its leaves annually; A cone shedding its scales while attached to the tree.
Fireblight:	Bacterial disease that leaves the appearance that branches and leaves have been burned with fire. Very deadly to trees.
Hardiness:	Refers to the minimum temperature a plant can tolerate.
Iron Chlorosis:	Iron deficiency.
Lobes:	Leaf blade having deeply indented margins.
Nipple Gall:	Insect damage that leaves warty bumps on a leaf.
Opposite:	(Leaves) Pairs of leaves arranged opposite of each other along the stem.
Palmnately Compound:	Three or more leaves radiating out at one point.
Persistant:	A leaf or fruit that remain on the tree through winter, usually dropping in spring.
pH:	A measure of acidity or alkalinity in soil ranging from 1 acidic to 14 alkali and 7 being neutral.

Glossary Continued

Pinnately Compound:	Compound leaves having leaflets attached along the rachis laterally. Leaves may be pinnately compounded as many as two or three times and have even or odd numbers of leaves.
Resinous:	Cone partially covered with pine resin.
Serrate:	Toothed.
Simple:	(Leaves) with one blade attached to the stalk (Petiole).
Solitary:	One single flower per stalk.

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