

ORNAMENTAL TREE SELECTION & GUIDE

FOR HOME GARDENS & LANDSCAPES

From the UC Master Gardeners of Tulare & Kings Counties



TREE SELECTION - Careful and well planned tree selection helps ensure the future health of the tree

It is very important to select tree species that are suitable for the site and the intended purpose of the planting. Well-chosen trees can produce many benefits, such as increased property values and energy savings, while poorly-chosen trees can be costly.

First determine the real function of the tree. Is it for shade, wind protection, privacy, aesthetics, or architectural elements?

Decide between a deciduous or evergreen tree. Deciduous trees drop their leaves in winter, while evergreen species retain leaves throughout the year. The choice depends largely on the function of the tree.



Shape and Form

Evaluate the best location for planting. The site should have enough space for the tree height and width at maturity and for its roots. Trees too large for a site lead to increased maintenance costs in the future and usually ruin the desired effect.

Don't plant large trees under power lines or next to

walkways, patios and foundations, since their roots are wide spreading.



Colorful Flowers

Select species that are adapted to the local climate. Some trees require summer irrigation, while others do not. Avoid planting species that are adapted to dry summer conditions in highly irrigated sites (such as lawns).

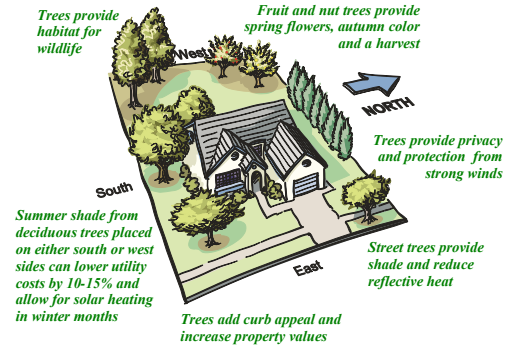
Trees can be selected for interesting leaf/flower color and shape, bark patterns and branching characteristics. When considering these features, avoid placing a tree where flower petals, fruit, and leaf or bark litter falls on walkways or in ponds or pools. Select trees that are tolerant of local insect and disease problems and avoid those that are commonly susceptible.



Leaf Shape or fall Color

Planting slow growing trees among fast growing trees adds longevity to a landscape. In general, slow growing trees live longer than fast growing ones, which are often weak wooded and subject to limb failure. Mixing these trees also creates an instant landscape effect.

A large deciduous shade tree on a west or south side of a house can provide shade and reduce utility costs by up to 15%. Trees placed to shade large areas of pavement reduce reflective heat, making



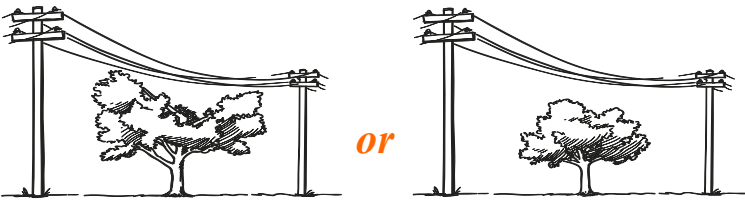
patios, walkways and streets cooler. Remember large trees have wide growing roots and should be placed at least 15' away from permanent structures and foundations.

Trees provide habitat for wildlife by giving shelter and providing food. Selecting a fruit or nut tree can provide spring flowers, autumn leaf color and a harvest for wildlife and humans.

When choosing a tree, research local recommendations and consult with local Cooperative Extension offices, nurseries, and ISA certified arborists. Mature trees in parks, botanical gardens, arboreta, and private plantings provide realistic vision of a tree species characteristics.

TREES AND UTILITIES - Selecting the right tree for the right place in the landscape is an important decision

Proper tree selection and placement around utilities can eliminate potential public safety hazards, reduce expenses by utilities and their ratepayers, and improve the appearance of landscapes. Planting a tree in an inappropriate location can mean future repeated tree pruning, tree interference with utility service or even tree removal. So, remember to look up and down before selecting a tree.

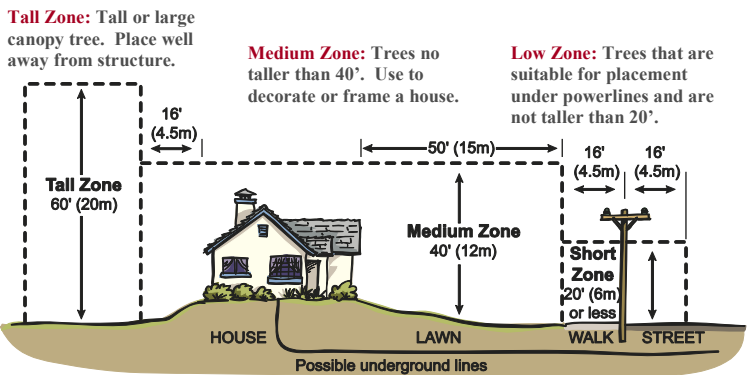


Utility service is delivered to our homes by overhead or underground distribution systems. Overhead lines can be electrical, telephone, cable or television. Underground lines include services such as water, sewer, and natural gas. These vital systems necessitate the proper selection of tree species and planting site.

Planting trees under utility lines can pose a hazard to humans by electrical shock and to personal property from fires. In California one of the leading causes of power outages is tree interference. These outages can affect public safety, cause business losses and residential inconvenience. In addition, millions of dollars are spent on removal or clearance of vegetation. Inappropriate trees planted under utility lines require annual pruning, which often leads to an unnatural shape, structural weakness, and greater stress which increases susceptibility to disease and insect invasion.

When planning for a tree, consider the mature tree height and the available space overhead and underground. To aid in identifying tree placement, divide

your landscape into three areas: the tall, medium, and short (or low) zones.



Underground utilities should be located prior to tree planting. Locate underground lines by requesting an Underground Service Alert (USA) by calling 811 two days before digging. This simple and free service ensures safety for the excavator, and homeowner and prevents damage to underground utilities. Although many roots and utility lines co-exist underground without incident, be aware that many tree roots extend over twice the diameter of the canopy. During digging root damage can occur, which may affect a tree's health.

Homeowners should not attempt to prune trees near power lines. Call a certified utility tree worker or your local utility company. High-voltage lines are not usually insulated, and direct contact will result in electric shock. Children should be warned never to climb trees near powerlines.

QUALITY NURSERY TREE SELECTION - High quality trees help ensure good performance in landscapes

When selecting a tree from a nursery, take into consideration its overall health. Inspect the roots, trunk characteristics, foliage and branching. Be sure it is free from injury and pests.

Root Structure:

Root characteristics have a great influence on the survival, vigor and health of a tree. Check the root system before purchasing the tree by lifting it from the container. The root system should fill the container and keep the root ball intact, but not be so developed and overgrown that there are numerous large roots circling the perimeter of the root ball. The small roots should be firm and white inside.



Poor

Clear away some of the surface soil. Roots should flare out evenly and should not circle around the trunk. Checking for other root deformations, like kinked roots, is difficult without washing away some soil.



Better

Remove the nursery stake. If the trunk falls over, leans substantially, or is loose at the soil line when pulled upwards, then there may be some irreparable root deformities and that tree should not be chosen.



Trunk characteristics:

Some species are intentionally grown as multi-trunk trees. Otherwise there should be one trunk that extends to the top as a single leader. Trees that have developed multiple leaders should be avoided.

The trunk should have a gradual top down taper and caliper appropriate for its height. Taper is the decrease of the trunk diameter (caliper) with increasing height. Trees with taper and appropriate caliper are better able to withstand wind and stand upright unsupported. Listed are suggested calipers at 6" above soil surface for three container sizes.

Container Size

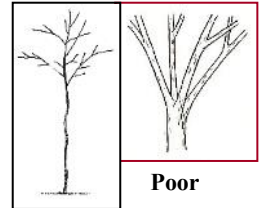
5 gal
15 gal
24 in. box

Trunk Diameter

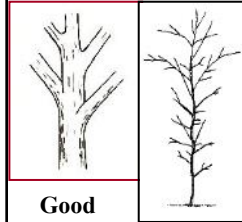
0.5 to 0.75 inch
0.75 to 1.5 inch
1.5 to 2.5 inch

Foliage and branching:

The tree should have healthy foliage with good leaf color, size and appearance. The canopy should be free of dead or broken branches. Branches should be spaced with even distribution both radially around and vertically along the entire trunk.



Poor



Good

Branch diameter should be no larger than 2/3 the diameter of the trunk. Small diameter branches on the lower trunk aid in trunk development and provide protection from sunburn. These temporary branches can be removed as the tree grows.

Freedom from injury, stress and pests:

Carefully inspect the tree including around the nursery stake. The trunk, branches and leaves should be free of wounds, lesions, bleeding, diseases, insects, and sunburn. The tree should appear free from water stress. The container soil should not be dry or excessively wet. Some signs of inconsistent soil moisture are root discoloration, shriveling, and foul odors.

When selecting a nursery tree, knowing what is normal for the species is of value. Keep in mind that a young tree will need pruning in its early years to develop into a strong, well formed mature tree.

TREE PLANTING - Proper tree planting helps ensure young tree survival

Fall is the best planting season of the year.

- The soil moisture and temperature are generally favorable.
- Plants will transpire less water due to shorter days and cooler temperatures.
- Roots have more time to develop before warm summer temperatures arrive.

Trees can be planted during other seasons, but are likely to require additional attention. For instance, trees planted in summer will need regular watering until they become established.

Prior to planting, evaluate the site. Identify soil conditions that may limit root development, such as surface compaction or hardpan (a sub-surface compact layer). If surface compaction exists, till the soil until it is loose. If hardpan exists, break through the layer using an auger or digging bar to allow water movement and rooting into soil.

Prepare the planting hole:

- Be aware of the location of underground utilities and pipes prior to digging.
- Hole should be at least twice the diameter of the root ball and as deep as the root ball. If soil is unfavorable for root growth, dig hole as wide as practical, such as 3-4 times the root ball diameter.
- Plant "high" in all but sandy soils, so top of root ball is 1-2 inches above grade.
- Roughen the sides of the hole with a shovel to aid intermingling of backfill soil with existing soil to provide easier root penetration.

Remove the tree from the nursery container and cut or shorten matted and circling roots at the periphery of the root ball.

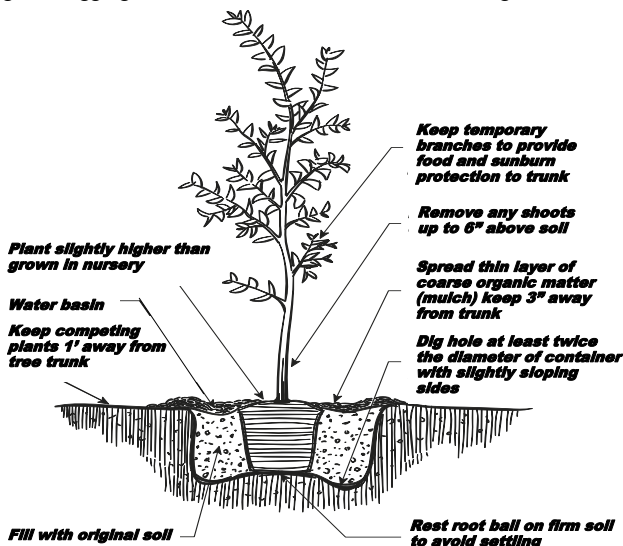
Place tree into the planting hole on firm soil to avoid settling. Face the crook of a grafted union away from the afternoon sun to reduce the potential of sunburn. Once tree is positioned, backfill with original soil. Adding a planter mix or other physical amendment is not necessary except in situations of extremely high sand or clay content, which are rare. Press the backfill soil firmly around the root ball, but do not compact. Do not put fill soil on top of the root ball.

Water thoroughly immediately, paying attention to wetting the container soil and the surrounding soil. Mulch the planted area with coarse organic matter (such as wood chips) to retain soil moisture and control weeds, but do not pile it against the trunk.

Fertilization is not recommended at planting unless a known mineral deficiency exists. Don't plant within a foot of the trunk because lawns and plants compete with young tree roots for water and nutrients and can reduce growth. Avoid damage to the trunk from string trimmers and mowers.

Only minor pruning to remove damaged branches and codominant stems (double leaders) is recommended at planting. Allow branches growing low on trunk to remain, but cut them back. These temporary branches will nourish the trunk and prevent sunburn.

Irrigation for several months following planting is critically important. Fill the basin at least once a week in spring and fall. In the summer, water more frequently, if needed. After 1-2 months, irrigation frequency can usually be reduced, but trees should



TREE STAKING - Stake Trees for protection, anchorage and support

Staking trees is undesirable, but sometimes necessary. Considerations for staking depend upon trunk strength, expected wind and site conditions, and vehicular or pedestrian traffic.

Not all trees require staking

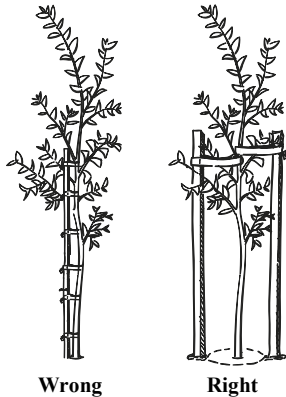
Many young trees can stand upright alone and grow straight, whereas others need support, anchorage, or protection until trunk taper and caliper and/or root systems develop to support the tree upright.

Improperly staked trees or those staked too long will take longer to stand upright when untied, become susceptible to rubbing and injury from stakes and ties, and grow less in trunk caliper. Proper staking costs a little more and takes a little more time, but is worth the end result. Most staking is done at planting, so have supplies handy.

Supportive staking of newly planted trees is recommended when the trunk is not strong enough to hold the top upright or to return upright after being deflected.

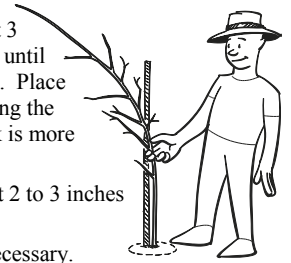
Anchor staking is needed when a trunk can hold the top upright, but the root ball is too small to support them both so the entire tree leans.

To determine if staking is necessary, remove the nursery stake. If the tree cannot stand upright on its own, then staking is needed.



To properly stake a tree, follow these steps:

- 1) Two stakes should be placed into the ground outside of the root ball on opposite sides of the tree so the prevailing wind can blow through the two stakes. Remove the nursery stake.
- 2) To determine the height of the support tie, support the trunk with two fingers starting at 3 feet above the soil and move fingers upward until the tree is supported enough to stand upright. Place ties 6 inches above this point. Avoid attaching the ties too high on a young tree where the trunk is more succulent and prone to breakage.
- 3) If using a wooden stake, cut off excess stake at 2 to 3 inches above the ties to avoid branch injury.
- 4) Protect trees from vandalism or vehicles, if necessary. To aid in this, wrap wire caging around the tree stakes.



As part of a regular maintenance routine, check the ties to avoid girdling or restricting of the trunk and for breakage. The stakes should be checked to insure they remain upright and do not damage the trunk or branches by rubbing.

Remove the stakes and ties when the tree is able to stand upright on its own, usually within one year.

Staking is not recommended for most conifers and other trees with branching close to the ground. These trees are usually shorter with sturdy trunks and root systems adequate to hold the tree upright.



TREE DISORDERS: PESTS & PROBLEMS - Insect, disease, weed & cultural problems



Redhumped caterpillars

Plant disorders that affect the health of a tree may be caused by **living organisms**, for example insects, diseases, weeds, and vertebrate pests; or they may be the result of **abiotic (nonliving)** factors, such as water stress, high temperatures, or nutrient deficiencies.

Pathogenic fungi produce toxins and enzymes that disrupt normal plant growth. Plant symptoms include darkened, necrotic or sunken lesions, yellow or brown spots, distorted foliage, masses of powdery spores, droopy leaves or shoots and profuse twig growth.



Anthrachnose

Accurate diagnosis is essential for proper pest management. Correct plant identification and careful examination of all plant symptoms, weather conditions, and maintenance practices are necessary for accurate diagnosis.

Insect pests are characterized by their mouthparts: sucking, piercing or chewing. Typical symptoms for chewing insects are holes in leaves or bark, while distorted growth or stippling of the leaves is typical of sucking pests.



Borers (adult and larva)

Many fungi can stay alive in a dormant state for months, so garden sanitation is important in disease prevention.



Powdery mildew

Integrated Pest Management (IPM) Information:

Most plants can tolerate some level of injury from insects and diseases. Treatment is needed only if a plant's health is affected or symptoms are aesthetically unfavorable. Consult the UC IPM website at <http://www.ipm.ucdavis.edu> for useful and practical information to help identify and manage pests in the landscape.



Scale

Many insects leave clues that can help in identification, such as honeydew, cast skins, or fecal pellets.



Spider mites and webbing

Bacteria infect host plants by entering through wounds or natural openings. Some symptoms are very similar to damaging fungal diseases but also include galls, vascular wilt and cankers. They spread by splashing water, insects or human activity



Armillaria (mushrooms)

Common tree diseases are caused by fungi, bacteria, and viruses. Disease severity may range from almost harmless to extremely detrimental for the life of a tree.



Aphids

Virus diseases may be vectored by insects such as aphids, whiteflies, or thrips and/or mechanically transmitted through contact with tools. Virus diseases cannot be controlled once they are in the plant.

Abiotic Disorders: Not all plant problems are caused by insects, plant pathogens or other living pests. Many problems are caused by abiotic or nonliving factors such as adverse environmental conditions or improper maintenance practices.

Abiotic disorders can be caused by too much or too little watering, nutrient deficiency or excess, intolerable soil pH, drastic temperature changes, excessive salt concentration in soils, poor soil texture or structure, air pollution or mechanical injury.

Most fungi are beneficial to the environment because they feed and decompose dead organic matter. Fungal fruiting structures (e.g., mushrooms, conks, and puffballs) can often be seen in landscapes.

Weeds and Vertebrate Pests: Mistletoe is an example of a parasitic weed that affects tree health. Gophers, squirrels, and meadow mice, can damage tree roots and trunks.

To avoid some tree disorders, select trees that are known to be resistant to insects or diseases. Avoid plant species not suited to the chosen location, soil conditions or climate zone.

DECIDUOUS Ornamental Trees for Home Gardens and Landscapes

Common name	Botanical name	Mature Size	Water needs	Growth rate	Flowers	Tree Shape	Potential Problems	Comments
Maple, Trident	<i>Acer buergerianum</i>	25' T 25' W	Low	Fast	Inconspicuous	Rounded, spreading	Branches are a little brittle	Native to China and Japan. Adapted to urban conditions. Boron tolerant. Red-orange fall color. Attractive, winged seed-pods. Tends to form branches low on trunk.
Maple, Paperbark	<i>Acer griseum</i>	25+ T 25' W	Moderate	Moderate	Inconspicuous	Upright spreading, rounded crown		Native to China. Delicate leaves, dark green above, silvery below. Long-lasting, brilliant red fall color. Reddish peeling bark provides winter interest. Attractive, winged seed pods.
Maple, Japanese	<i>Acer palmatum</i>	20' T 20' W	Moderate	Slow	Inconspicuous	Varies, upright to weeping	Summer leaf burn is common	Native to Japan and Korea. Most airy and delicate of all maples. Best planted on north or east exposures or in partial shade. Fall color varies. Resistant to oak root fungus. Many varieties available for red foliage and dissected leaves. Attractive, winged seed pods.
Maple, Red	<i>Acer rubrum</i> 'October Glory' 'Brandywine' 'Red Sunset'	40' T 30' W	Heavy	Fast	Inconspicuous, small red flowers	Oval	Urban pollution	Native to east coast USA, but listed cultivars are better adapted to hot summers. Showy bloom in Red twigs, branches, and buds. Deep red fall color.
Maple 'Autumn Fantasy'	<i>Acer rubrum</i> x <i>freemanii</i> 'Autumn Fantasy'	60' T 40' W	Heavy	Fast	Inconspicuous, small red flowers	Dense oval		Native to eastern North America. Very good fall color even in warm climates. Light green upper leaves, and silvery underneath.
California Buckeye	<i>Aesculus californicus</i>	20-30' T 30-40' W	Low	Slow to Moderate	6-8" plumes of white blossoms	Rounded	Summer dormancy; floral, leaf, and fruit litter	Native to California. Leaves palmately divided into 5 leaflets. Spectacular late spring bloom. Summer dormancy is typical in nature with complete leaf drop. Pear-shaped fruit continue to develop on tree, husks split to drop hard, shiny brown 3" diameter seeds. Water in summer to avoid dormancy and associated leaf drop.
Alder, Italian	<i>Alnus cordata</i>	40' T 25' W	Heavy	Fast	Tassel-like catkins, followed by 1" woody cones	Upright oval		Native to southern Italy. Heart-shaped 4" leaves move in wind. Plant in lawns where roots are cool.
Alder, White	<i>Alnus rhombifolia</i>	50-90' T 40' W	Heavy	Fast	Tassel-like catkins, followed by woody cones	Pyramidal		Native to California. Grows in riparian areas. Tolerant of heat and wind.
River Birch	<i>Betula nigra</i> 'Dura-Heat' 'Heritage'	40' T 30' W	Moderate to heavy	Fast	Inconspicuous	Broadly pyramidal	Average lifespan is 20 years.	Native to eastern North America. Prefers riparian habitat. Diamond-shaped leaves, glossy green above and silver below. Yellow fall color. The most troublefree birch. Resistant to bronze birch borer. Attractive feature is the peeling bark in tan to brown colors.
Catalpa	<i>Catalpa speciosa</i>	40-60' T 20-40' W	Moderate to heavy	Moderate	Clusters of 2" trumpet shaped white flowers with color marks	Rounded	Litter from leaves, flowers, and pods	Native to central US. Large heart-shaped leaves 6-12 inches long. Flowers in summer and the long seed pods drop in autumn. Tolerates temperature extremes and variety of soils.
Palo Verde, Blue	<i>Cercidium floridum</i>	15-35' T 20-30' W	Low to moderate	Fast	Yellow flower clusters, 2-4"	Upright rounded	Spiny branches	Native to deserts of California, Arizona, and Baja Mexico. Green bark, delicate branches, filtered shade. Bluish-green leaves. Flowers in spring. Tolerates heat and drought. Prune only to enhance form. Lesser known is Little-leaf Palo Verde (<i>Cercidium microphyllum</i>), smaller in size, slower growing, pale yellow flowers.
Palo Verde, 'Desert Museum'	<i>Cercidium</i> 'Desert Museum' a 3-way hybrid	20' T 20' W	Low to moderate	Fast	Large, 1" individual yellow flowers	Upright rounded		A hybrid that combines best traits of all three parents. Pale green bark, delicate branches, filtered shade. Light green stems and leaves. Flowers in spring. Tolerates heat and drought. Prune only to enhance form. This hybrid is thornless, produces few seed pods, and drops very little litter.
Redbud, Eastern	<i>Cercis canadensis</i> 'Forest Pansy' 'Lavender Twist'	25-30' T 25-30' W	Moderate	Moderate	Rosy pink, small and abundant	Rounded		Native to eastern US. Fastest growing redbud. Single or multi-trunk forms. Glossy, attractive heart-shaped leaves. Flowers on bare branches in very early spring. Yellow fall color. Tolerates more water than native Western redbud. 'Forest Pansy' (20' T, 25' W) has purple leaves and needs afternoon shade. 'Lavender Twist' (5-6' T, 6-8' W) has pinkish-purple flower with weeping contorted branches, needs afternoon shade.
Redbud, Eastern 'Oklahoma'	<i>Cercis canadensis</i> var. <i>texensis</i> 'Oklahoma'	15' T 15' W	Moderate	Moderate	Purple-red, small and abundant	Rounded		Native to Texas and Oklahoma. Single or multi-trunk forms. Thick, glossy heat resistant, heart-shaped leaves. Flowers on bare branches in very early spring. Yellow fall color.
Redbud, Mexican	<i>Cercis mexicana</i>	15' T 15' W	Moderate	Moderate	Pinkish purple, small and abundant	Rounded		Native to Mexico. Most widely distributed is a single trunk form. Leathery blue-green, heart-shaped leaves. Flowers on bare branches in very early spring. Yellow fall color. Very hardy (tolerates heat and frost).
Redbud, Western	<i>Cercis occidentalis</i>	10-18' T 10-18' W	Low	Moderate	Brilliant magenta, small and abundant	Rounded		Native to southwest US, prolific in CA foothills. Usually multi-trunked. Large heart-shaped leaves. Flowers on bare branches in very early spring. Yellow fall color. Seed pods persist on tree in winter. Resistant to oak root fungus. Very drought tolerant.

Desert Willow, Desert Catalpa	<i>Chilopsis linearis</i>	15-30' T 10-20' W	Low to moderate	Fast	White, pink, or purple trumpet shape	Rounded, spreading		Native to Southwest and Mexico. Wispy, open growth. Long, narrow 2-5" leaves. Fragrant flowers from spring to fall. Develops shaggy bark and twisting trunk. Drops leaves early. Persistent seedpods through winter. Several varieties available.
Fringe, Chinese	<i>Chionanthus retusus</i>	20' T 15-20' W	Moderate	Slow	Narrow, fringe like white flowers borne in lacey clusters	Upright rounded		Native to China. Female and male trees. Both bear flowers in late spring; only females bear fruit. Fringe type flowers last about 3 weeks in spring before dropping, but not real messy. Handsome gray-brown bark provides winter interest. Good patio tree.
Chitalpa	<i>Chitalpa tashkentensis</i> 'Pink Dawn' 'Morning Cloud'	20-30' T 20-30' W	Low to moderate	Fast	Clusters of pink, white or lavender, frilly trumpet shaped large flowers	Rounded, spreading	anthracnose? Powdery mildew? Constant blossom and leaf drop in summer	Hybrid of Catalpa and Chilopsis trees, provides a tough drought tolerant tree with attractive flower clusters and long bloom period from spring through fall. Leaves 4-5 inches long, 1 inch wide. Rapid growth sometimes causes bark to split and weep, but usually recovers. Avoid overwatering. 'Pink Dawn' pink flowers. 'Morning Cloud' white flowers.
Smoke Tree	<i>Cotinus coggygia</i>	15-20' T 15-20' W	Moderate	Moderate	Rosy beige "smoke puffs"	Broad urn shape		Native from southern Europe to central China. Round leaves; purple leaf varieties are available. Flowers in spring. Inflorescence resembles smoke puff and is long lasting. Needs fast drainage. Resistant to oak root fungus. Naturally multi-stemmed, bushy growth habit. Fall color.
Ginkgo, Maidenhair Tree	<i>Ginkgo biloba</i> 'Fairmount' 'Magyar' 'Saratoga'	40-50' T 25-35' W	Moderate	Very slow	Plant male trees	Pyramidal	Female trees with foul smelling fruit	Native to China. Select male trees; fruit from female trees are foul smelling. Fan-shaped leaves. Light green leaves of spring and summer turn gold in fall, eventually dropping all at once. 'Fairmount', 'Magyar' and 'Saratoga' are good varieties. 'Autumn Gold' is least desirable.
Honey Locust	<i>Gleditsia triacanthos inermis</i> 'Shademaster'	35-70' T 25-35'	Moderate to heavy	Fast	Inconspicuous	Upright oval, with arching branches	Thorny branches & trunks 1' long seed pods	Native to Central and Eastern North America. Bright yellow green, fern like leaves to 10" long, late to leaf out; yellow fall color. Trees provide filtered shade. "inermis" selections are thornless with few or no pods. 'Shademaster' has more desirable upright branch structure.
Chinese Flame Tree	<i>Koelreuteria bipinnata</i>	20-40' T 20-40' W	Moderate to heavy	Moderate	Yellow flower clusters	Upright spreading	Self-sown seedlings	Native to eastern Asia. Attractive lantern-like papery seed pods in shades of orange, red or salmon form quickly after flowers and persist into fall. More attractive seedpods than Goldenrain Tree. Deep, non-invasive roots. Adapted to many soils as long as drainage is good. Good tree to plant under.
Goldenrain Tree	<i>Koelreuteria paniculata</i> 'Fastigata' 'Rose Lantern' 'September'	20-35' T 25-40' W	Moderate to heavy	Moderate	Fragrant, bright yellow, showy flower clusters	Open, upright, rounded	Self-sown seedlings	Native to eastern Asia. Open branching gives light shade. Buff colored lantern-like papery seed pods can hang on tree into winter. Adapted to different soils. Takes wind, cold, heat and drought. Prune to shape. 'Fastigata' (25' T, 3' W) is columnar, 'Rose Lantern' has pinkish seed pods, 'September' blooms 1 month later others.
Golden Chain Tree	<i>Laburnum x watereri</i> 'Vossii'	15-30' T 10-20' W	Moderate to heavy	Moderate	Fragrant, bright yellow	Open, upright, vase shape	Basal suckers, large seedpods, all parts are toxic especially seedpods	Native to central and southern Europe. 'Vossii' is most widely grown and graceful variety with flower clusters 20" long. Does better with afternoon shade. Bright green leaves divided into three leaflets. Tendency to be a shrub, but usually pruned to single trunk.
Crape Myrtle	<i>Lagerstroemia indica</i>	up to 25' T up to 25' W	Moderate	Slow to Moderate	Showy flowers in summer	Rounded	Powdery mildew, aphids and honeydew	Native to China. Grow in full sun. Showy summer flowers in shades of white, pink, magenta, red and lavender. Fall color and attractive bark provide added interest. Grown as a single or multi-trunk. Many cultivars available.
Crape Myrtle hybrids	<i>Lagerstroemia hybrids</i> (<i>indica</i> x <i>fauveii</i>)	8-25' T 8-25' W	Moderate	Slow to Moderate	Showy flowers in summer	Rounded	Aphids and honeydew	Hybrids from Chinese and Japanese species. Cultivars selected for hardiness, mildew resistance, and improved fall color. Grow in full sun. Showy summer flowers in shades of white, pink, magenta, red and lavender. Fall color and attractive bark provide added interest. Grown as a single or multi-trunk.
American Sweet Gum	<i>Liquidambar styraciflua</i> 'Cherokee' 'Rotundiloba' 'Worpleston'	60' T 30' W	Moderate to heavy	Moderate	Inconspicuous	Pyramidal	Surface roots, spiny round seedpods, chlorosis	Native to eastern US. Maple like leaves provide magnificent fall color. Purchase for foliage color choice. Needs neutral or slightly acid soil conditions; chlorosis develops in alkaline soils. 'Rotundiloba' produces no seed pods and has rounded leaf edge.
Tulip Tree	<i>Liriodendron tulipifera</i>	70' T 40' W	Moderate to heavy	Moderate to Fast	Large, tulip-shaped, yellow green with orange center	Oval	Aphids and honeydew	Native to eastern US. Unusual leaf and flower shape. Takes years to bloom. Blooms concealed by leaves and are high in tree. Great yellow fall color. Performs best in neutral to slightly acid soil. Shallow fleshy roots inhibit underplanting. 'Arnold' or 'Fastigiatum' (50' T, 15' W) is columnar and blooms in just a few years.

DECIDUOUS Ornamental Trees for Home Gardens and Landscapes

Common name	Botanical name	Mature Size	Water needs	Growth rate	Flowers	Tree Shape	Potential Problems	Comments
Magnolia, Saucer	<i>Magnolia x soulangeana</i> 'Liliputian' 'Rustica Rubra'	up to 25' T 25' W	Moderate to heavy	Slow	White, pink, or purplish red, tulip shaped, fragrant flowers 3-6" wide	Upright, spreading, becoming round with age	Sensitive to alkalinity	Soulangeanas are commonly called the tulip tree because of flower shape. They tend to be smaller trees with multitrunks compared to <i>M. grandiflora</i> . Blooms late winter into spring. Good lawn trees. Many cultivars available. 'Liliputian' is smaller (18' T, 10-15' W). 'Rustica Rubra' (20' T, 20' W) grows faster and is more tree like; has rose red flowers and seed pods.
Magnolia hybrids	<i>Magnolia x spp.</i> 'Butterflies' 'Galaxy' 'Vulcan' 'Yellow Bird'	20-40' T 15-25' W	Moderate to heavy	Slow to Moderate	Large and showy, size and color differs	Pyramidal to oval	Sensitive to alkalinity	Slightly fragrant blooms in mid-spring before leaves emerge. Avoid planting in extremely hot locations, such as sites with hot, reflective surfaces. 'Butterflies' (20' T, 15' W) light yellow 4-5" flowers with red stems. 'Galaxy' (35' T, 20' W) grows fast, bright red purple blossoms up to 5" across. 'Vulcan' (25' T, 25' W) ruby red blossoms, 10-12" across. 'Yellow Bird' (40' T, 20' W) taller with deepest yellow 5" flowers.
Magnolia, Star	<i>Magnolia stellata</i>	10' T 20' W	Moderate to heavy	Slow	White, 3" across, many narrow petals	Rounded	Sensitive to alkalinity	Profuse bloom comes late winter to early spring, before leafout. Pale green leaves. Small shrubby tree; nice accent tree. Finely textured appearance from twigs and leaves.
Flowering Crabapple	<i>Malus spp.</i> 'Prairifire' 'Red Jade' 'Snow Drift' 'Strawberry Parfait'	20' T 20-25' W	Moderate to heavy	Moderate	Showy spring bloom with small white-pink blossoms	Gracefully spreading, rounded	Aphids, fireblight, some suckers, small fruit	Native to North America, Europe, Asia. 'Prairifire', 'Snowdrift' and 'Strawberry Parfait' cultivars are heat, pest, and disease resistant. 'Prairifire' has deep pinkish red flowers; young leaves are maroon before turning green; reddish bark. 'Red Jade' (15' T, 15' W) is graceful, weeping form with small, single white flowers; red fruit; moderate disease resistance. Dozens of crabapple cultivars are available.
Tupelo	<i>Nyssa sylvatica</i> 'forum'	35' T 20' W	Moderate to heavy	Slow to Moderate	Inconspicuous, male and female trees	Pyramidal when young, rounded with age	Female trees produce small fruits that drop	Native to eastern US. Relatively new tree for S.V. 'Forum' cultivar is selected for its form. Flies orange-red fall color.
Chinese Pistache	<i>Pistacia chinensis</i> 'Keith Davey'	30-40' T 30-40' W	Low	Slow to Moderate	Inconspicuous	Rounded	Female trees produce dried clusters of tiny seed balls	Native to China. Useful street, shade, or garden tree. Good fall color. Tolerates a wide range of soils and water conditions. Roots are not problematic near sidewalks or driveways. 'Keith Davey' is a popular male grafted cultivar producing no fruit and deep red fall color.
London Plane Tree	<i>Platanus x acerifolia</i> 'Bloodgood' 'Varwood' 'Columbia'	40-80' T 30-40' W	Moderate to heavy	Fast	Inconspicuous	Broadly pyramidal	Leaf litter; ball shaped seed pods hang on tree through winter	Native to eastern US. Sculptural branch pattern in winter. Creamy new bark weathers to gray. Tolerates most soil conditions and air quality. Deeply lobed leaves turn dusty brown in fall. 'Bloodgood' resistant to anthracnose and often used in malls, parks, shopping centers. 'Varwood' resistant to mildew and somewhat to anthracnose.
California Sycamore	<i>Platanus racemosa</i>	30-80' T 20-50' W	Moderate to heavy	Fast	Inconspicuous	Broadly pyramidal to rounded	Leaf litter; ball shaped seed pods hang on tree through winter; anthracnose	Native to California. Fast growing large tree with beautiful form. Attractive bark, deeply lobed large leaves. Grows natural along water ways. Brown leaves hang on tree until spring growth starts.
Plum, Purple-Leaf	<i>Prunus cerasifera</i> 'Krauter Vesuvius' 'Newport' 'Thundercloud' 'Purple Pony'	10-20' T 12-20' W	Moderate to heavy	Moderate to Fast	Pale pink, profuse bloom in spring	Rounded	Aphids, fruit	Native to southeast Europe, southwest Asia. Dark purple foliage holds color throughout season. Will fall if soil is waterlogged for prolonged periods. Old cultivars produce heavy crop of red 1½" inch fruit, e.g. 'Atropurpurea'. Newer, popular cultivars include: 'Krauter Vesuvius' has darkest foliage, produces little or no fruit. 'Newport' bears white to pale pink flowers, produces a little fruit. 'Purple Pony' (10-12T, 12' W) is smaller and fruitless.
Cherry, Flowering	<i>Prunus 'Okame'</i> (<i>P. incisa x P. campanulata</i>)	25' T 20' W	Moderate to heavy	Moderate	Pale pink, profuse bloom in spring	Upright oval	Aphids	Native to Asia. Dark green, fine textured foliage with yellow-orange to red fall color. Very early, long-lasting bloom. Avoid heavy, poorly draining soils. Will fall if soil is waterlogged for prolonged periods.
Pear, Callery (Flowering)	<i>Pyrus calleryana</i> 'Capital' 'Chanticleer' 'Jack' 'New Bradford' 'Silver Ball'	15-40' T 10-30' W	Moderate	Fast	White, profuse bloom in spring	Varies, depending on cultivar	Fireblight	Native to Asia. Very early spring bloom. Forms very small inedible fruit, not considered problematic. Fall color ranges yellow, red, to purple. 'Capital' upright branches form distinct columnar shape (40' T, 15' W), coppery fall color. 'Chanticleer' resistant to fireblight, narrowly pyramidal (40' T, 15' W), reddish purple fall color. 'Jack' compact, upright oval form (15' T, 10' W), yellow fall color. 'New Bradford' broadly oval to rounded shape (35' T, 30' W), yellow to orange red fall color, stronger branches than 'Bradford'. 'Silver Ball' rounded dwarf variety (12' T, 12' W), silvery foliage, yellow-orange fall color, very resistant to fireblight.
Pear, Evergreen	<i>Pyrus kawakamii</i>	15-30' T 15-30' W	Moderate	Fast	White, profuse bloom in spring	Rounded	Fireblight	Native to Taiwan. Very early spring bloom. Forms very small inedible fruit, not considered problematic. Glossy green leaves. Needs pruning when young, attractive tree when properly shaped. Can be espaliered. Rough, dark, textured bark provides great contrast with white bloom. Tolerates many soils. Very susceptible to fireblight. An evergreen tree only where winters are mild.

Oak, Crimson Spire	<i>Quercus hybrid</i> (<i>Q. alba</i> x <i>Q. robur</i>) 'Crimson Spire'	45' T 15' W	Moderate	Moderate	Inconspicuous	Columnar, narrow at top	Debris	Hybrid between the white and English oaks. Dark green to blue green foliage that turns rusty red in fall. Columnar shape is distinctive. Acorns about 3/4" long.
Oak, Hungarian or Italian	<i>Quercus trainetto</i> 'Forest Green' 'Trump'	50' T 30' W	Low to moderate	Fast	Inconspicuous	Upright oval	Debris	Native to southern Italy, Balkans, and Romania. Strong central leader provides symmetrical shape. Deep green, glossy, lobed leaves create attractive summer foliage. Yellowish fall color. Drought resistant and adaptable. 'Forest Green' and 'Trump' are suggested cultivars. 2-4 round acorns per cluster 1/2 to 3/4" long.
Oak, Valley	<i>Quercus lobata</i>	75' T 75' W	Low	Slow	Inconspicuous	Rounded, open	Debris	Native to California's Central Valley. Massive, majestic tree with age, requires great space for roots and canopy. Needs minimal watering once established and overwatering causes early tree failure. Choose understory plants carefully. Rain of debris throughout year from older trees can be a nuisance. Leaves are deeply cut with rounded lobes. Interesting, harmless galls form on leaves. Acorns are 1.5 - 2" in size. Immune to Sudden Oak Death.
Oak, Pin	<i>Quercus palustris</i>	50-80' T 30-40' W	Moderate to heavy	Moderate to Fast	Inconspicuous	Pyramidal becoming open rounded	Debris	Native to eastern US. Won't tolerate alkaline soils. Can be planted in lawns. Leaves are 3-6 inches long, deeply cut. Dead leaves hang on tree until new growth begins in spring. Rounded acorns to 3/4" in diameter.
Oak, Regal Prince	<i>Quercus robur</i> x <i>Q. bicolor</i> 'Long'	45' T 18' W	Moderate	Moderate	Inconspicuous	Columnar to narrow oval	Debris	Adaptable hybrid of English and swamp white oak. Glossy, bright green leaves with yellow fall color. Notable columnar form. Acorns about 1" long.
Oak, Red	<i>Quercus rubra</i>	50-75' T 50' W	Moderate	Fast	Inconspicuous	Spreading and rounded	Debris	Native to Eastern North America. Deep-rooted, high branching habit, open shade. Needs fertile soil and regular water, suitable for lawns. New leaves are red to yellow, dark green in summer, turning dark red to orange brown in fall. Acorns about 1" long.
Japanese Pagoda (Chinese Scholar)	<i>Sophora japonica</i> 'Regent'	50-70' T 50-70' W	Moderate	Moderate	Creamy clusters of flowers in summer followed by pods	Upright rounded	Flowers and pods can stain hardscape	Native to China and Korea. Smooth bark when young that eventually roughens and furrows deeply. Leaves are 6-10 inches long, composed of 7-17 leaflets. Pods are 2-3.5 inches long. 'Regent' is exceptionally vigorous and uniform. Good lawn tree.
Japanese Snowdrop (Snowball or Snowbell)	<i>Styrax japonica</i> 'Snow Charm' 'Snowcone'	30' T 30' W	Heavy	Slow	White bell-shaped flowers hang in clusters	Rounded, spreading		Native to eastern Asia. Slender trunk with strongly horizontal branches. Needs well drained, non-alkaline soil and afternoon shade. Scalloped margins on dark green 3" long oval leaves. Red or yellow fall color. Non-aggressive roots. 'Snow Charm' larger leaves, rounded form (20' T, 20' W). 'Snowcone' dense broad pyramid (25' T, 20' W).
Bald Cypress	<i>Taxodium distichum</i> 'Cascade Falls' 'Shawnee Brave'	50-70' T 20-30' W	Moderate	Moderate	No flowers, only cones	Pyramidal		Native to southeastern US. Feathery, yellow-green leaves. Small rounded cones. Interesting silhouette in winter. 'Cascade Falls' is fast growing weeping form (20' T, 20' W). 'Shawnee Brave' forms a narrow pyramid 15-25' W.
Little-Leaf Linden	<i>Tilia cordata</i> 'Chancellor' 'Corinthian' 'Greenspire' 'Harvest Gold' 'Summer Sprite'	30-50' T 15-30' W	Heavy	Moderate	Clusters of yellowish-white flowers	Pyramidal	Aphids	Native to Europe. Good lawn tree. Leaves have dark-green upper and silver undersides, serrated margins. Flowers develop into small nutlets that look like berries, rarely a nuisance. Yellow fall color. 'Chancellor' upright-tightly pyramidal (35' T, 20' W), 'Corinthian' columnar shape (45' T, 15' W), 'Greenspire' (40' T, 30' W), 'Harvest Gold' golden yellow in fall (40' T, 30' W), 'Summer Sprite' slow-growing dwarf form (20' T, 10' W).
Elm, Chinese (Chinese Evergreen Elm)	<i>Ulmus parvifolia</i> 'Athena Classic' 'Drake' 'True Green'	30-50' T 35-40' W	Moderate to heavy	Fast	Inconspicuous	Varies, depending on cultivar	Soft scale, honeydew, and sooty mold	Native to Asia. Pendulous branching can become dense, thin branches to avoid wind damage and minimize scale infestation. Mottled bark. Usually deciduous, rarely semi-evergreen in our area. 'Athena Classic' broadly rounded (35' T, 50' W), 'Drake' (35' T, 35' W) has smaller leaves and a weeping habit. 'True Green' (50' T, 65' W) has small, deep green leaves.
Chaste Tree	<i>Vitex agnus-castus</i>	15-25' T 15-25' W	Moderate	Fast	6-12" spikes of pink, white, or lavender flowers	Rounded, spreading	Volunteer seedlings	Native to Mediterranean and Central Asia. Blooms summer to fall and attracts butterflies and hummingbirds. Rounded, peppercorn-like seeds fall and occasionally sprout. Small, delicate looking tree, usually multi-trunk that thrives in summer heat. Looks best with annual pruning to shape. Palmate leaves are slightly aromatic, greyish green. Prefers well-drained soil. Resists oak root fungus.
Zelkova, Sawleaf	<i>Zelkova serrata</i> 'Green Vase' 'Halika' 'Musashino' 'Village Green' 'Wireless'	25-50' T 15-40' W	Moderate to heavy	Moderate to fast	Inconspicuous	Vase shaped to spreading, depends on cultivar		Native to eastern Asia, related to elm trees. Smooth, gray bark and narrowly oval, 2-3.5" long, saw-toothed leaves. Takes wide range of soils; drought and wind tolerant. Prune when young to develop good branch structure. 'Green Vase' (45' T, 30' W), vase-shape with upright arching branches, gracile, produces dappled shade, orange fall color. 'Halika' (45' T, 35' W), fastest growing, upright vase, gracile, yet dense canopy, yellow fall color. 'Musashino' (45' T, 15' W) narrow, upright vase, almost columnar, ideal for narrow spaces, yellow fall color. 'Village Green' (40' T, 40' W), rounded-vase, dense, dark green foliage, rusty red fall color. 'Wireless' (24' T, 36' W), broadly spreading vase, good under utility lines, red fall color.

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Acacia, Shoestring	<i>Acacia stenophylla</i>	30' T 20' W	Low	Fast	Creamy flower clusters, 1/2" round balls	Weeping		Native to tropical regions including southwestern US. Pale green, drooping leaves, unusually narrow to 16 inches long. Provides light filtered shade. New bark is maroon in color. Flowers in spring.
Arbutus, Marina	<i>Arbutus 'Marina'</i>	20-40' T 20-40' W	Low	Slow to Moderate	Clusters of urn shaped rosy pink flowers	Upright spreading, then drooping	Decorative fruit, aphids	Hybrid of uncertain parentage. Very similar to <i>A. unedo</i> , but easier to grow as a single trunk and has larger leaves. Spring and fall bloom.
Arbutus, Strawberry	<i>Arbutus unedo</i> 'Elfin King' 'Octoberfest' 'Compacta'	20-40' T 20-40' W	Low to moderate	Slow	Clusters of urn shaped white-pink flowers	Upright rounded	Decorative fruit, aphids	Native to southern Europe and Ireland. Branches and trunk have deep red-brown, peeling bark. Dark green leaves. Spring bloom. Attractive multi-trunk trees when full grown. Can be planted in lawns. Dwarf varieties include 'Elfin King' (5' T), 'Octoberfest' (8' T), and 'Compacta' (10' T).
Beefwood, She-Oak	<i>Casuarina stricta</i>	20-35' T 20-35' W	Low to moderate	Fast	Inconspicuous	Upright rounded	Cone-like fruit	Native to Australia. Dark green branches look like pine needles. Tolerates dry or wet soil, salinity, heat and wind. Little pruning needed.
Cedar, Incense	<i>Calocedrus decurrens</i>	75-90' T 10-15' W	Moderate	Slow to Moderate	Small brownish cones	Narrowly pyramidal		Native to mountain areas of Oregon, CA, western Nevada and northern Baja CA. Dark green foliage in flat sprays. Attractive brown bark. Pungent fragrance. Takes hot summer temperatures and tolerates poor soils. No pruning needed. Great tree for screening or windbreak.
Cedar, Blue Atlas	<i>Cedrus atlantica</i> 'Glauca' 'Pendula'	65' T 30' W	Moderate	Slow to Moderate	Inconspicuous	Broadly pyramidal	Pollen; sapsuckers	Native to North Africa. Cedars are conifers and bear needles in tufted clusters. Needles less than 1 inch long. Dramatic accent tree. Silvery-blue foliage. Avoid heavy clay soils and provide good drainage. 'Glauca Pendula' (20' T, 15' W) is a weeping form with blue needles.
Cedar, Deodar	<i>Cedrus deodara</i>	80' T 40' W	Moderate	Fast	Inconspicuous	Pyramidal		Native to Himalaya. Softer, lighter texture than other cedars. Lower branches sweep down to ground, upper branches lift upwards, top nods. Avoid heavy clay soils and provide good drainage. Avoid underplanting. Needs space. Various dwarf forms available.
Carob	<i>Ceratonia siliqua</i>	30-40' T 30-40' W	Low to moderate	Moderate	Small red flowers	Upright rounded	Large seed pods, surface roots	Native to eastern Mediterranean. Glossy dark green, dense foliage. Leaves have 4-10 round leaflets, each about 2" long. Flowers in spring. Flowers of male trees have noticeable odor, but short-lived. Female trees produce 1' long flat brown bean pods, hang on tree and eventually drop. Pods used for carob powder. Very drought tolerant. Resistant to oak root fungus.
Camphor	<i>Cinnamomum camphora</i>	60' T 60' W	Moderate	Moderate	Inconspicuous, but fragrant yellow	Upright rounded	Invasive Roots	Native to China and Japan. Blooms profusely in late spring. Pale green aromatic leaves. Massive tree, substantial structure. Needs space for roots and leaf litter.
Purple Hopsseed	<i>Dodonaea viscosa</i> 'purpurea'	10-15' T 10-15' W	Low to moderate	Moderate to Fast	Inconspicuous	Shrub-like		Native to southwest US and Hawaii. Fast growing shrub with many upright stems. Can be trained to tree form. Willow-like green leaves that turn purple and bronze in winter. Flowers in late spring. Papery seed pods are showy and long lasting.
Japanese Blueberry	<i>Elaeocarpus decipiens</i>	30-60' T 20-30' W	Moderate	Moderate	Tiny white flowers in 1-3' clusters, fragrant	Upright oval		Native to China and Japan. Interesting leaf color: new leaves are rust colored turning green with age, and then red in fall. Flowers in summer. Blue-black fruit resemble small olives, but not problematic. Likes well-drained soils. 'Little Emperor' (6-10' T and W).
Loquat, Bronze	<i>Eriobotrya deflexa</i>	15-25' T 10-20' W	Moderate	Fast	Creamy white garlands	Shrub-like	Fireblight	Native to China. Shrubby plant easily trained into a tree. Often espaliered. New leaves emerge bright copper and hold that color for a long time before turning green. Flowers in spring. No edible fruit.
Guava, Pineapple	<i>Feijoa sellowiana</i>	18-20' T 18-20' W	Moderate	Moderate	4 white petals contrasting with tufts of red stamens	Shrub-like	Fruit drop	Native to South America. Shrubby plant easily trained to a multi-trunk tree. Interesting bark. Leaves are glossy green above, silvery white beneath. Blooms in mid spring. Edible flowers produce fruit about 2-3 inches long.

Toyon, Christmas Berry (California Holly*)	<i>Heteromeles arbutifolia</i>	15-20' T 15-20' W	Low to moderate	Slow	Small white flowers in flatfish clusters	Shrub-like	Fireblight	Native to California and Baja California. Can be trained as a multi-trunked tree. Thick, leathery, glossy dark green leaves. Flowers in summer. Fall to winter bright red (rarely yellow) berries that are relished by birds. A good substitute for pyracantha.
Sweetshade	<i>Hymenosporum flavum</i>	12-40' T 9-20' W	Moderate	Slow to moderate	Yellow flowers with orange-blossom honey fragrance	Upright, slender, open habit	Training required to strengthen structure	Native to Australia. Narrow, glossy dark green leaves. Flowers in early summer. Plant in well-drained soil, away from strong winds.
Juniper, Canary Island	<i>Juniperus cedrus</i>	20-30' T 12-18' W	Low to moderate	Fast	No flowers, only berry-like small cones	Upright, irregular	Needs good drainage	Gray-green foliage. Long branches create softer form compared to columnar junipers. Deer resistant. Used for poolsides.
Juniper, Blue Point	<i>Juniperus chinensis</i> 'Blue Point'	12' T 8' W	Low to moderate	Moderate	No flowers, only berry-like small cones	Columnar	Needs good drainage	Native to China. Dense blue-green foliage makes good screen. Very little pruning needed. Deer resistant. Used for poolsides. 'Blue Arrow' (2' W)
Juniper, Spartan	<i>Juniperus chinensis</i> 'Spartan'	15' T 3-5' W	Low to moderate	Fast	No flowers, only berry-like small cones	Columnar	Needs good drainage	Native to China. Dense, dark green foliage. Compact and narrow. Very little pruning needed. Deer resistant. Used for poolsides. Variegated form available.
Juniper, Hollywood	<i>Juniperus chinensis</i> 'kaizuka' ('torulosa')	15' T 10' W	Low to moderate	Moderate	No flowers, only berry-like small cones	Irregular upright	Needs good drainage	Native to China. Rich green foliage. Irregular & upright with twisted appearance. Deer resistant. Used for poolsides. Variegated form available.
Juniper, 'Moonglow'	<i>Juniperus scopulorum</i> 'Moonglow'	9-20' T 4-8' W	Low to moderate	Moderate	No flowers, only berry-like small cones	Pyramidal	Needs good drainage	Native to western North America. Silver gray foliage reflects moonlight. Deer resistant. Used for poolsides.
Juniper, Tolleson's Blue Weeping	<i>Juniperus scopulorum</i> 'Tolleson'	20' T 5-7' W	Low to moderate	Moderate	No flowers, only berry-like small cones	Weeping	Needs good drainage	Native to eastern US. Drooping branchlets of blue-green makes a graceful, weeping tree. Deer resistant. Good accent tree.
Juniper	<i>Juniperus virginiana</i> 'Blue Arrow' 'Skyrocket' 'Taylor'	15-20' T 2-3' W	Low to moderate	Moderate	No flowers, only berry-like small cones	Columnar	Needs good drainage	Native to eastern US. Very narrow column. Hardy alternative to Italian Cypress. Deer resistant. Good for windbreak. Both 'Sky Rocket' (15-20' T, 2-3' W), sometimes listed as <i>J. scopulorum</i> , and 'Blue Arrow' (12-15' T, 2' W) have blue-grey foliage. 'Taylor' has blue-green foliage and reaches 30' tall.
Sweet Bay (Grecian Laurel)	<i>Laurus nobilis</i> 'Saratoga'	20-35' T 20-35' W	Moderate	Very slow	Small, yellowy white flowers in spring	Dense upright, broadens with age	Scale, small fruits (3/4") can be messy, suckers	Mediterranean native. Leathery, aromatic, dark green leaves (slightly gray underneath), used in cooking. Easily shaped, often hedged. Also used in topiary and containers for a formal look. 'Saratoga' is resistant to psyllid.
Magnolia, Southern	<i>Magnolia grandiflora</i> 'Little Gem'	80' T 60' W	Moderate to heavy	Slow	Large, white 8-10" across, very fragrant	Broadly pyramidal	Messy, sheds litter from spring to autumn; problematic surface roots	Native to tropical North and South America. Large, glossy leaves. Tolerates heat and damp soils. Chlorosis a problem in alkaline soils. Dense shade prevents lawn growth beneath. 'Little Gem' (25' T, 15' W) is more narrow, has smaller glossy green leaves with rusty undersides, and smaller flowers (5-6" across).
Olive	<i>Olea europaea</i> 'Little Olive' 'Majestic Beauty' 'Swan Hill'	25-35' T 25-35' W	Low to moderate	Slow to Moderate	Profuse, tiny white flowers	Rounded and spreading	Olive fruit; allergic reactions to pollen; basal suckers	Native to Mediterranean. Thrives in hot, dry areas. Soft gray, willowlike leaves, branches gnarl with age. Typically grown as a multi-trunk tree. Most varieties produce fruit and abundant pollen that flares allergic reactions; fruitless varieties available, some may still produce pollen. 'Bonita' (25' T, 25' W) less messy, tiny, immature fruit. 'Majestic Beauty' (25-30' T, 25' W) long narrow, gray green leaves give it an airy appearance. 'Swan Hill' (25' T, 25' W) deep green leaves, little or no pollen.
Pine, Canary Island	<i>Pinus canariensis</i>	60-80' T 35' W	Low	Fast	No flowers, only cones	Upright, yet open canopy when young, pyramidal and eventually broad crown	Pollen production increases with tree size, needle litter	Native to Canary Islands. Very tall, erect pine with tiered branching and long, graceful 9-12 in. drooping needles grouped in 3s. Cones 4-9" long. Attractive reddish-brown fissured bark.

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Pine, Pinyon (Nut)	<i>Pinus edulis</i>	10-20' T 8-16' W	Low	Slow	No flowers, only cones	Rounded and spreading	Pollen production increases with tree size	Native to California, New Mexico, Texas. Stiff, dark green needles in groups of 2, that are 3/4 - 1.5 inches long. Cones are 2 in. long and produce edible pine nuts. Dense small pine, suitable for containers.
Pine, Afghan (Mondell)	<i>Pinus eldarica</i>	30-80' T 15-25' W	Low	Fast	No flowers, only cones	Classic shape when young, top spreads with age	Pollen production increases with tree size	Native to southern Russia, Afghanistan, Pakistan. Bright green needles in groups of 3 that are 2-3 in. long. Cones are 3 in. long.
Pine, Italian Stone	<i>Pinus pinea</i>	40-80' T 50-60' W	Low	Fast	No flowers, only cones	Stout and bushy when young; tall, broad, and round headed at maturity	Pollen production increases with tree size; needle litter	Native to Southern Europe and Turkey. Stiff, bright green to gray needles 5-8 in. long in groups of 2. Cones are 4-6 in. long, glossy chestnut brown. Tolerates heat. Source of edible nuts.
Pine, Japanese Black	<i>Pinus thunbergii</i> 'Dwarf Thunderbird'	20-40' T 10-20' W	Low to moderate	Slow to moderate	No flowers, only cones	Pyramidal	Pollen production increases with tree size	Native to Japan. Needles are 3-4 1/2 in. long and arranged in 2s. Cones are 3 in. long. 'Dwarf Thunderhead' (6' T, 5' W in 10 years) has dark foliage.
Podocarpus, Fern Pine	<i>Podocarpus gracilior</i>	20-60' T 10-20' W	Heavy	Slow to moderate	Inconspicuous	Upright rounded	Occasional chlorosis	Native to eastern Africa. Among the cleanest most pest free trees for street, lawn, patio, garden or screen. Seedling trees have juvenile growth phase with longer leaves, airier branching. Glossy dark green leaves 2" long, 1/2" wide. With age, leaves have soft gray, bluish-green cast. Tolerates heat and many soil types.
Podocarpus, Yew Pine	<i>Podocarpus macropphyllus</i> P. m. <i>maki</i>	15-50' T 6-15' W	Heavy	Slow to moderate	Inconspicuous	Narrow to upright	Occasional chlorosis	Native to China and Japan. Generally narrow to upright; bright green leaves 4" long, 1/2" wide. Tolerates heat and many soil types. P. m. <i>maki</i> is slower and shorter (8-15' T, 2-4' W)
English Laurel	<i>Prunus laurocerasus</i>	15-30' T 15-30' W	Moderate to heavy	Fast	Fragrant creamy flower spikes in spring.	Rounded	Occasional scale	Native to southeastern Europe to Iran. Glossy, leathery oblong leaves that are 3-7 inches long. Inconspicuous, small black fruit.
Oak, Cork	<i>Quercus suber</i>	60' T 60' W	Low to moderate	Moderate	Inconspicuous	Rounded	Chlorosis in high alkaline sites, debris	Native to western Mediterranean, North Africa. Trunk and large limbs are covered with thick corky bark, adding interest. Toothed, oval, shiny leaves are dark green above, gray beneath. Tolerates most soils except highly alkaline, needs good drainage. Roots are not problematic. Egg shaped acorns (about 1" long).
Oak, Southern Live	<i>Quercus virginiana</i>	50' T 80' W	Moderate to heavy	Moderate to fast	Inconspicuous	Rounded	Surface roots, debris	Native to the southern US. Attractive evergreen oak in hot interior climates. Grows best in deep rich, moist soil. Tolerates landscape watering. Heavy-limbed crown, tree requires great space for roots and canopy. Smooth-edged leaves, dark green above, white beneath. Medium sized acorns (about 1" long) with sharp spine at tip. Harmless, unusual woolly oak galls form on leaves.
Oak, Interior Live	<i>Quercus wislizenii</i>	30-75' T 30-75' W	Low to moderate	Slow	Inconspicuous	Dense, rounded	Debris	Native to interior California and southern Oregon. Young trees are sparsely branched and angular, eventually forming dense, round canopy. Leaves are elliptical, glossy green, 1-4" long with smooth or spiny margins and pointed tip. Slender acorns about 1" long.
Italian Buckthorn	<i>Rhamnus alaternus</i> 'John Edwards'	15-18' T 6-10' W	Low to moderate	Fast	Inconspicuous	Rounded oval	Volunteer seedlings	Native to Mediterranean. Evergreen shrub easily trained into a single or multi-trunked tree. Oval, shiny bright leaves to 2 inches long, pea-size black berries. Tolerates heat, full sun or part shade, little to regular water. 'John Edwards' is long lived
Rhaphiolepis	<i>Rhaphiolepis</i> 'Majestic Beauty'	10-25' T 8-10' W	Low to moderate	Slow to moderate	Large pink clusters	Rounded		Native to China. Typically a shrub, but available as a trained single or multi-trunk tree. Blooms in spring. Produces dark blue 1/4" berries rarely a nuisance. Takes full sun to light shade, leaf burn in reflected heat. Adapted to many planting sites. Drought tolerant. Must be staked and pruned when young to develop main trunk and good branch structure, requires some annual shaping.
Sumac, African	<i>Rhus lancea</i>	20-30' T 20-35' W	Low to moderate	Slow	Inconspicuous	Open spreading		Native to South Africa. Thrives in heat and sun. Can be trained as single or multi-trunk tree. Leaves divided into 3 willowlike 4-5-inch long leaflets. Clusters of yellow pea-size fruit fall to ground; distinctive, rough, red-brown bark.

PROBLEMATIC Ornamental Trees - PROCEED with caution or DO NOT Plant

Common name	Botanical name	Comments
Acacia	<i>Acacia baileyana</i>	Does not tolerate valley heat. Pollen produces moderate allergic reaction.
Acacia, blackwood	<i>Acacia melanoxylo</i>	Aggressive roots, brittle branches prone to break, litter. Invasive.
Wattle, Silver	<i>Acacia dealbata</i>	Invasive.
Maple, Silver	<i>Acer saccharinum</i>	Does not tolerate valley heat. Aggressive roots, brittle branches prone to break. Chlorosis in alkaline soils. Aphids and scale insects.
Tree of Heaven	<i>Ailanthus altissima</i>	DO NOT PLANT. Highly Invasive. Creeping roots sprout new trees. Prolific self seeding. Single tree becomes a dense thicket over time.
Silk or Mimosa Tree	<i>Albizia julibrissin</i>	Lots of litter (leaves, spent blooms, and pods). Prolific self seeding.
Birch, White	<i>Betula pendula</i>	Short-lived. Doesn't tolerate valley heat. Susceptible to borers and aphids.
Chinese Hackberry	<i>Celtis sinensis</i>	Susceptible to Asian Woolly Hackberry Aphid (lots of honeydew)
Dogwood	<i>Cornus florida</i> <i>C. kousa</i> <i>C. nuttallii</i> <i>C. stolonifera</i>	Short lived in hot valley climates. Prefers acidic soil and water. Needs shade.
Draecena Palm	<i>Cordyline australis</i>	Invasive.
Olive, Russian	<i>Elageanus angustifolia</i>	Invasive, spreads easily by wildlife.
Eucalyptus	<i>Eucalyptus: red gum, blue gum, others?</i>	Leaf litter. Extremely flammable. Invasive. Prone to psyllid, borer, and beetle infestations.
Ash, Raywood	<i>Fraxinus angustifolia</i> <i>'Raywoodii'</i>	Aggressive surface roots. Prone to limb breakage. Possible disease dieback.
Ash, Modesto	<i>Fraxinus velutina coriacea</i> <i>'Modesto'</i>	Prone to Anthracnose disease, summer scorch, and mistletoe.
Ash, Shamel	<i>Fraxinus uhdei</i> <i>'Shamel'</i>	Aggressive surface roots, poor branch structure.
Jacaranda	<i>Jacaranda mimosifolia</i>	A tropical tree not suited for cold valley winters.
Privet, Glossy	<i>Ligustrum lucidum</i>	Foul flower odor, immense fruit crop stains surfaces, prolific reseeder.
Mayten	<i>Maytenus boaria</i>	Aggressive surface roots. Unwanted branches along trunk. Potentially invasive.
Mulberry, White	<i>Morus alba</i>	Female trees produce large berries that stain. Male trees produce large amounts of messy pollen. Aggressive surface roots and volunteer seedlings. Trees have branch structure that is usually mispruned causing multiple, weak branch attachments and unattractive trees.
Monterey Pine	<i>Pinus radiata</i>	Short-lived in hot valley climates with livespan of 10-15 years. Plagued by insects and diseases.
Poplar, White	<i>Populus alba</i>	Aggressive surface roots. Prone to root suckering. Attacked by several insect pests. Female trees bear masses of cottony seeds that are easily wind blown. Best suited to rural areas and borders of large properties.
Western Cottonwood	<i>Populus fremontii</i>	Aggressive surface roots. Prone to root suckering. Attacked by several insects. Female trees bear masses of cottony seeds that are easily wind blown. Best suited to rural areas and borders of large properties.
Poplar, Lombardy	<i>Populus nigra</i> <i>'Italica'</i>	Aggressive surface roots. Prone to root suckering. Attacked by several insect pests. Female trees bear masses of cottony seeds that are easily wind blown. Best suited to rural areas and borders of large properties.
Quaking Aspen	<i>Populus tremuloides</i>	Does not tolerate valley heat. Susceptible to borers. Aggressive surface roots. Prone to root suckering. Attacked by several insect pests. Female trees bear masses of cottony seeds that are easily wind blown. Best suited to rural areas and borders of large properties.
Pear, Aristocrat Flowering	<i>Pyrus calleryana</i> <i>'Aristocrat'</i>	Extremely susceptible to fireblight and mistletoe. Messiest of the ornamental pears with respect to fruit drop. Soft, mushy fruit is inedible and drops in fall.
Purple Robe Locust	<i>Robinia pseudoacacia</i> x <i>R. viscosa</i>	Profuse root suckers. Brittle branches. Long bean pods. Leaf drop in summer. Susceptible to bark split and crown rot.
Willow, Weeping	<i>Salix babylonica</i>	Huge tree that requires much water. Attracts aphids, mites, scale, and borers.
Tallow, Chinese	<i>Sapium sebiferum</i>	DO NOT PLANT. Invasive, prolific self seeder. Messy; drops floral parts, seeds, and small branches.
Pepper, California	<i>Schinus molle</i>	Greedy surface roots and needs room to spread. Avoid over irrigation. Heavy limbs often break in winds. Can freeze in severe winters. Seeds spread by birds. Potentially invasive in riparian areas.
Pepper, Brazilian	<i>Schinus terebinthifolius</i>	Not suited for valley climate, but occasionally seen. Prolific self seeder and potentially invasive in wildlands.
Redwood, Coastal	<i>Sequoia sempervirens</i>	Planting in the valley is risky. Trees typically perform well for 8-10 years, then may show summer stress. Prefer acid soils, cool temperatures and high humidity in summer (the opposite of valley climate). Extreme salt sensitivity causes brown leaves.
Saltcedar	<i>Tamarix chinensis</i>	DO NOT PLANT. Aggressive roots. Uses excessive water. Invasive in wildlands and efforts are underway to remove and eradicate it. Considered a fire hazard.

Citrus Trees	Citrus varieties
Navel Orange	'Washington' 'Fukumoto' 'Lane Late' 'Cara Cara'
Juice Orange	'Valencia' (Campbell) (Delta) (MidKnight)
Blood Orange	'Moro'
Mandarin	'Owari Satsuma' 'Pixie' 'Gold Nugget'
Tangerine	'Murcott' 'Clementine' 'Dancy'
Tangelo	'Minneola'
Grapefruit	'Marsh Seedless' 'Star Ruby' 'Oroblanco'
Lemon	'Improved Meyer' 'Lisbon'
Lime	'Bearss' 'Mexican'
Kumquat	'Fukushu' 'Nagami' 'Nordmann'

PALM TREES

Common name	Botanical name
FAN Palms (10-25' Tall)	
Guadalupe Palm	<i>Brahea edulis</i>
Mexican Blue Palm	<i>Brahea armata</i>
Mediterranean or European Fan Palm	<i>Chamerops humilis</i>
Windmill Palm	<i>Trachycarpus fortunei</i>
FAN Palms (40-70' Tall)	
Chinese Fan Palm, Fountain Palm	<i>Livistona chinensis</i>
California Fan Palm, California Cotton Palm	<i>Washingtonia filifera</i>
Mexican Fan Palm, Cotton Palm	<i>Washingtonia robusta</i>
FEATHER Palms (10-25' Tall)	
Pigmy Date Palm	<i>Phoenix roebelinii</i>
Pindo Palm	<i>Butia capitata</i>
Queen Palm	<i>Syagrus romanzoffiana</i>
FEATHER Palms (40-70' Tall)	
Canary Island Date Palm	<i>Phoenix canariensis</i>
Date Palm	<i>Phoenix dactylifera</i>



TRAIN YOUNG TREES FOR STRUCTURE AND FORM

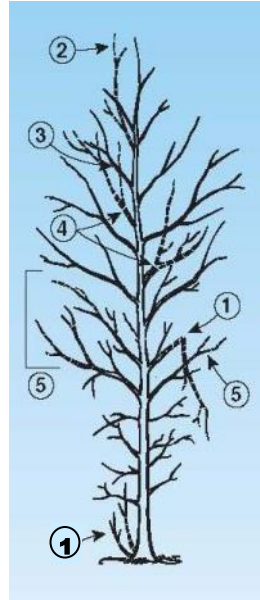
A properly trained tree is easier to maintain than an untrained tree

Properly trained trees are structurally stronger, easier to maintain, and generally live longer than untrained trees. Trees that have not been trained are difficult to prune and more likely to have structural defects that can be costly to fix. When trees are removed due to structural defects there is the loss of environmental benefits, invested time, and money.

How difficult is it to train a tree? It's easy to structurally prune young trees. It takes a relatively small amount of time and only some basic equipment like hand pruners, loppers, a pole pruner, handsaw, and ladder.

How to Train Young Trees

Trained trees have a strong central leader, vertical spacing between branches, radial distribution of branches around the trunk, and strong branch attachments. To achieve these traits, follow the 5 steps listed below. These steps apply to most deciduous and broad-leaved evergreen trees, regardless of species or use (for example, park, street, or residential) and should be followed in sequence. Generally, no more than 25% of a young tree's canopy should be removed in one year. Training is recommended during the dormant season.



2. **Select a central upright leader** (the central stem) of the tree. If more than one leader exists, then the strongest and most vertical stem should be selected. Remove or head back competing upright stems.
3. **Select the lowest permanent (scaffold) branch.** This branch is the lowest branch that will remain on the tree through its life and is determined by the use and location of the tree. For a street tree, the lowest permanent branch over the sidewalk might be 8 feet, while over the street it might be 14 feet. Lowest permanent branches for trees in parks or yards can be lower. (Remember that the center of a branch 4 feet from the ground when young will always be 4 feet from the ground).
4. **Select primary scaffold branches** and cut back or remove competing branches. The scaffold branches should be radially spaced around the trunk and vertically spaced 12 – 15 inches between branches. Select scaffolds with strong branch attachment with their diameter being no more than half the diameter of the trunk.
5. **Keep some temporary branches** below the lowest permanent branch. Remove the temporary branches that have a diameter greater than 1/2 of the trunk diameter. Prune back branches that are 1/4 to 1/2 of the trunk diameter, and leave those that are less than 1/4 of the trunk diameter.



Recommended 5 step process:

1. **Remove broken, diseased, dying or dead branches.** Remove any sprouts (suckers) that are growing from below the bud union or from the roots of the tree.

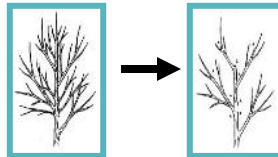
Each year apply these 5 steps to a young tree until good structure and form is achieved.

PRUNE MATURE LANDSCAPE TREES WITH THINNING CUTS, DON'T TOP THEM

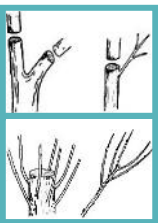
Prune Mature Trees Properly for Longevity, Safety, and Beauty

Proper tree pruning removes dying, diseased or injured wood, crossing or crowded branches, restructures tree shape, or reduces tree height. Proper thinning of the tree's canopy increases light and air circulation, and reduces wind resistance and some diseases. Pruning also influences growth and flower bud formation.

There are two types of pruning cuts: thinning and heading. A **thinning cut** removes a branch at its point of origin or to another branch. Trees pruned with thinning cuts are more open and retain a more natural shape.

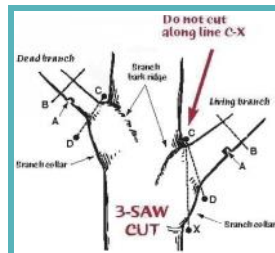


A **heading cut** tops off the central leader or main scaffold branches back to a stub or to a branch that is too small. Heading cuts (also called topping and stubbing) disfigure a tree's natural shape.



Heading cuts result in vigorous, upright shoots from latent buds just below the cut. These shoots are weakly attached to the trunk or branches.

Most proper tree pruning requires thinning cuts, NOT heading cuts.



1. Cut partway through the branch at A
2. Cut it off at B
3. Make the final cut along C-D

Pruning Tips:

- Make pruning cuts, just outside the branch collar.
- Prune regularly to avoid making large cuts that remove branches 3-inches or larger in diameter.
- Use a 3-saw cut on large limbs to avoid limb breakage and bark damage.
- Removing more than 25% foliage in a growing season triggers rapid regrowth.
- Prune after leaf fall and during winter or dormant months. Branch structure is easy to see at this time.
- Broken, dead, or pest infested branches can be removed any time of year.

TOPPING AND HEADING, NO!

1 year later
The topped tree is headed back and only a remnant of a lovely tree remains.

3 years later
Vigorous upright sprouts emerge. Sprouts are weakly attached and prone to breakage. They are abnormal, grow rapidly and cause the tree to lose its natural shape.

6 years later
The topped tree is as tall as the properly pruned tree yet far bushier and more prone to limb failure.

BEFORE PRUNING

THINNING AND CROWN REDUCTION YES!

1 year later
If pruned properly, corrective thinning and crown reduction cuts occur but beauty and form are retained.

3 years later
Growth of thinned branches is spread evenly throughout canopy, maintaining its natural shape.

6 years later
A properly pruned tree is safer with strongly attached branches, more beautiful in form, and its size is better controlled.

PLEASE DO NOT TOP TREES!!

Start right by planting trees appropriate for available space at tree's maturity. Prune a young tree for structure and form during the first 3-5 years.