



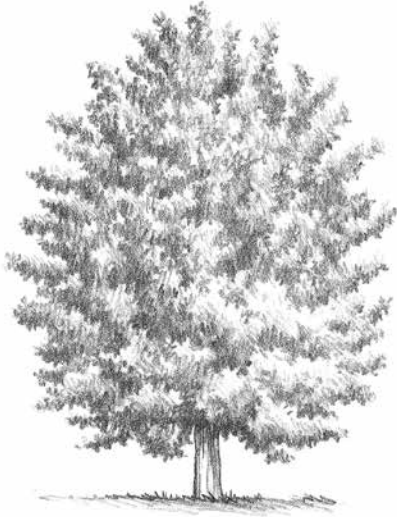
Small trees for small places

*100 tree species for use
adjacent to power lines*



Let's turn the answers on.

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MOUNTAINASH SPECIES

Sorbus sp.

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Selecting and planting trees

Trees beautify and improve our environment. The trees featured in this booklet were chosen to simplify the process of selecting trees to plant near power lines and enhance the landscape. There also are tips on planting trees for energy efficiency, and reminders for staying safe around electricity. For additional help with planting decisions, pruning questions and safety concerns, please call toll free at **1-888-221-7070** or visit pacificpower.net/trees.

Author:

Randall H. Miller
 Director of Vegetation Management
 Pacific Power

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Planting the right tree in the right place



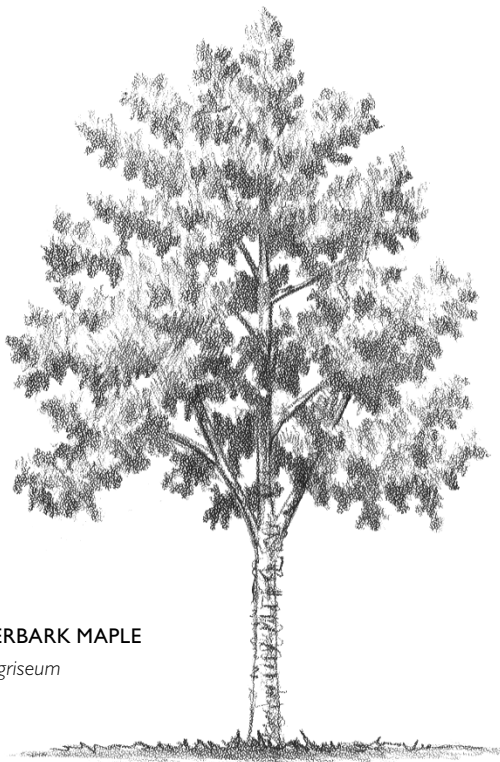
With care and good stewardship, trees provide both aesthetic and economic benefits. Trees are incredibly diverse and beautiful. All sizes. All colors. And, as a drive through any neighborhood reveals, trees are familiar and often dominant elements in landscaping plans.

Trees are engines that convert carbon dioxide into oxygen, thereby helping contribute to efforts that offset the production of carbon dioxide from coal-fired power plants, automobiles and other industrial processes. They control erosion and can dampen wind or sound. And, trees can play a significant role in controlling energy use if used as part of an energy conservation strategy.

Trees are of extreme interest to electric utilities for a number of reasons. For all the good they do, it's not all greenery and scenery. Trees whipped by winds or weighed down by snow will often cause power interruptions that disrupt business or home life, as well as compromise critical services such as hospitals and police. They are a common cause of electric service interruptions. Furthermore, improper or careless pruning or falling of trees is a leading cause of serious and fatal accidents involving contact with power lines.

But the good far outweighs the bad. That's why we've put together important information on how to make sure trees and power lines can peacefully coexist, without compromising safety or reliability.

First, there are different types of high-voltage lines, and utilities have to manage each differently based on their importance.

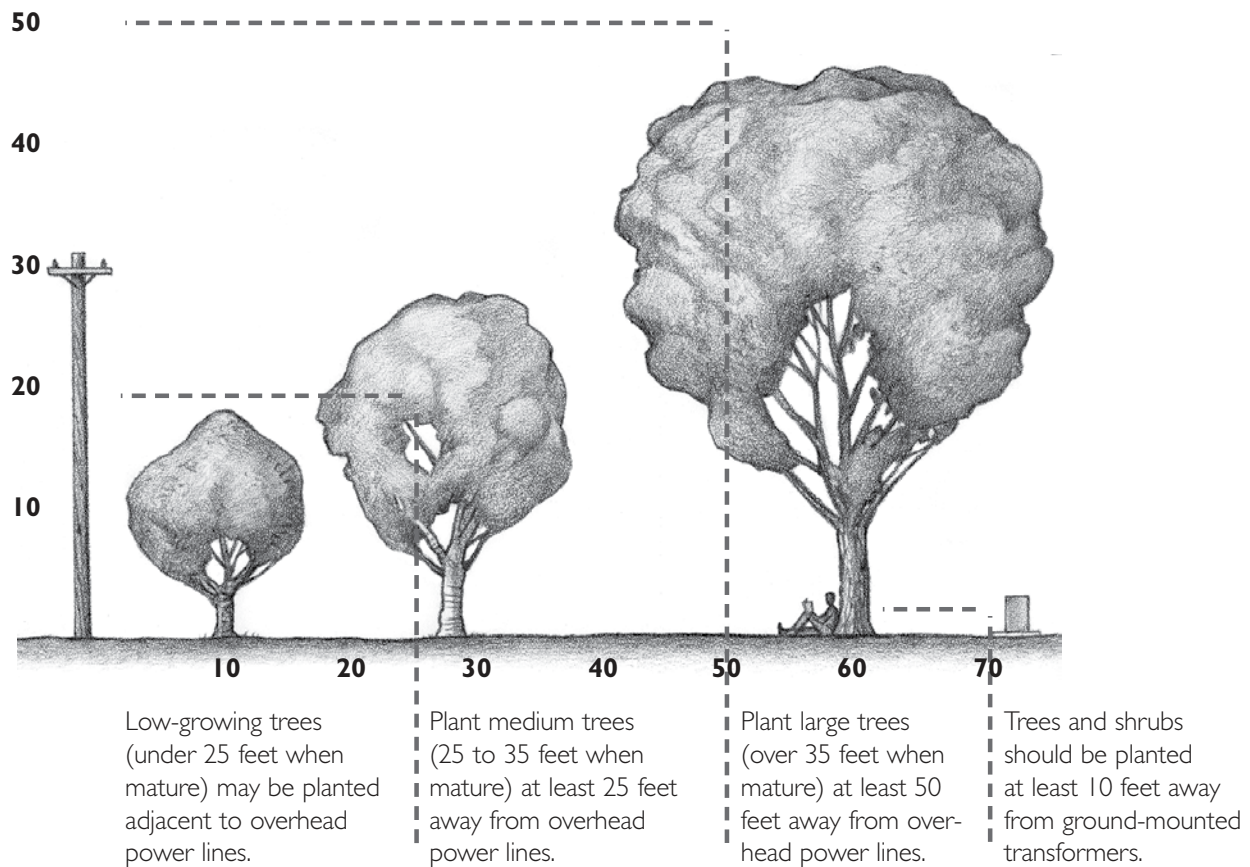


PAPERBARK MAPLE
Acer griseum

Planting near distribution lines

Distribution lines are those commonly running through neighborhoods. An outage to a distribution line could affect hundreds or even thousands of electric customers. That's why utilities and cities across the country are asking homeowners to plant adjacent to these power lines only those species of trees that will grow to 25 feet or less at maturity. Medium-statured trees (those 25 to 35 feet tall at maturity) should be planted no closer than 25 feet away from the center line, and tall-growing

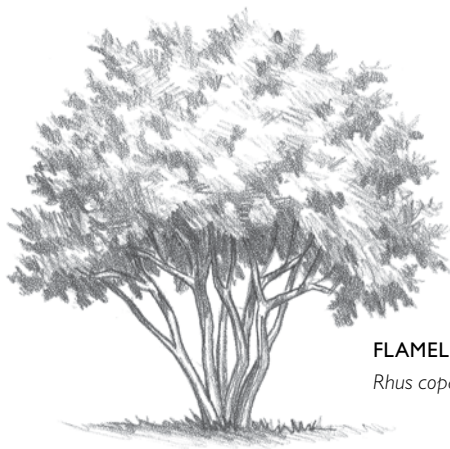
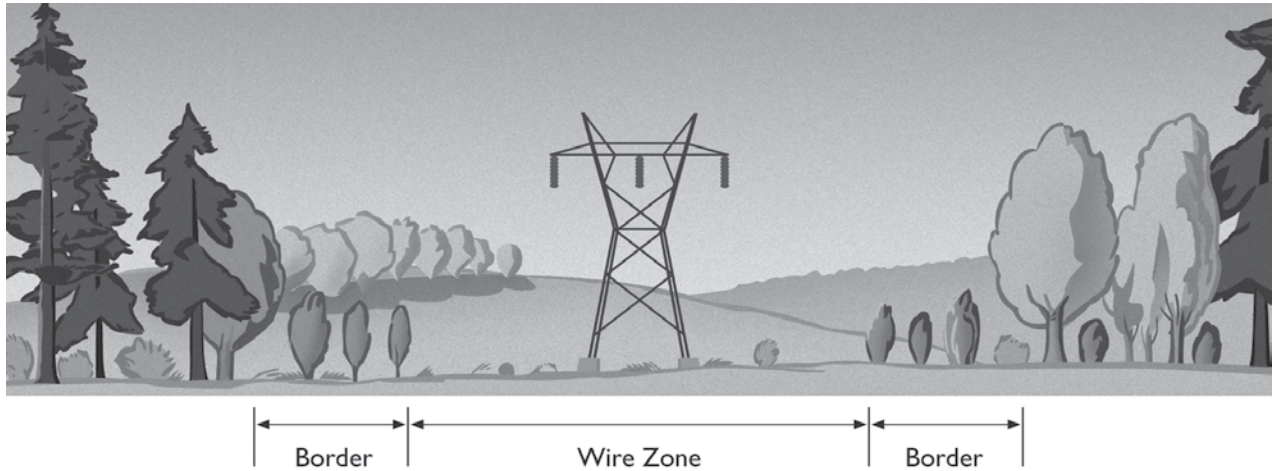
trees (those that will be taller than 35 feet at maturity) ought not to be planted any closer than 50 feet from the center distribution line. The middle wire on the power pole is considered the center line. The center line is the measuring point used to determine the distance for tree-height planting zones around power lines. The zones apply to an equal distance on both sides of the center line. See the figure below.



Planting near transmission lines

Transmission lines are high-voltage lines that carry far more energy than distribution lines, between 46,000 and 500,000 volts on our system. These lines are on the tallest, often multi-poled wooden or steel structures. They are the arteries of the electric grid, and outages on these lines could affect many thousands of customers. There have been extreme cases where trees contacting transmission lines have initiated blackouts that have left millions of people without electricity. Given the potentially dire consequences a conflict between trees and transmission lines could have on public safety and service reliability, trees typically must be removed from directly below transmission lines, at least where the lines are less than 50 feet off the ground. This area is called the “wire

zone.” Low-growing trees are allowed in a border zone that extends from ten feet to the sides of the wires (not the center line of the right of way) out to the right of way edge. Medium-type trees may be planted no closer than 30 feet to the side of wires, and tall-statured trees should be planted no closer than 50 feet from the closest wires. The figure below shows the areas around the power lines and towers that should be kept clear. Where the lines are 50 to 100 feet off the ground, low-growing trees may be planted throughout the right of way. Medium- and tall-growing trees may grow where the line is 100 feet in height or more. Any imminently hazardous trees in any zone will be removed for your safety and the integrity of the power system.



FLAMELEAF SUMAC
Rhus copallina

This booklet contains descriptions of 100 smaller-growing tree species that can be planted adjacent to distribution lines or in the border zone of transmission lines. It is a guide for people who live in Pacific Power’s service area. This diverse region includes deserts, temperate rain forests, mountain peaks, seacoast, alkaline to acid soil reactions, and minimum winter temperatures ranging from barely freezing to minus 40°F. While not all trees will survive in any given location, there will be any number that could work for a particular location in our service area.

This list is not exhaustive. However, it does give an idea of the depth of choices available. Local arborists and nurseries can provide other options, but if you plant your new tree around power lines, **it is important that whatever tree is chosen for use in proximity to power lines does not grow to more than 25 feet at maturity.**

Pruning trees in proximity to distribution lines

Pruning is an important part of providing as safe and reliable electrical service as possible. We take pride in having a professional tree maintenance program. In fact, we've been



recognized with the Tree Line USA award for several years in a row by the National Arbor Day Foundation for our vegetation management

and tree-pruning practices. We hire professional arborists to maintain a safe corridor around power lines. Many of our arborists are certified by the International Society of Arboriculture. They use scientifically proven pruning methods to maintain the health of the trees.

If trees require repeated pruning or continually conflict with power lines, often the best solution is tree removal. That's certainly true around transmission lines. Many times, it is also the case near distribution lines where pruning alone cannot achieve safe clearance or where repeated pruning is too expensive for our ratepayers.

Pruning clearances depend on tree species and growth patterns, and the voltage of nearby power lines. However, we typically provide at least 10 feet of clearance between trees and distribution lines.

See illustration below for some shapes you may expect from properly pruned trees.

While many people object to these forms, they are in the best long-term interest of tree health, public safety and service reliability. For more information on the right tree in the right place and proper pruning for trees in proximity to high-voltage lines, visit the National Arbor Day's Web site www.arborday.org or TreesAreGood.org.

For more information on our tree maintenance program please visit pacificpower.net/trees.

Common shapes of properly pruned trees



Choosing a tree – hardiness and other considerations

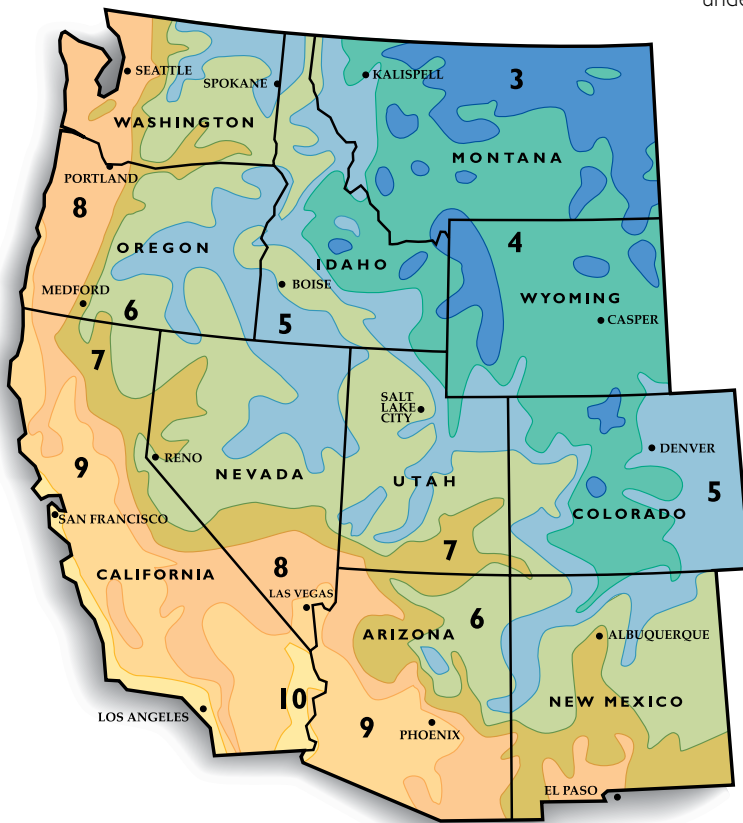
Minimum winter temperatures are often the limiting factor for survival of a tree species in a particular area. The United States Department of Agriculture has divided the country into “plant hardiness zones” based on average annual minimum temperatures (a map of the Western United States including these zones is shown below). These ratings are used as a first step in determining whether or not a tree is suitable for a particular site.

To determine a tree’s adaptation, check the plant hardiness map to find the zone where you live, and select species from categories that have a hardiness rating no higher than your zone. For example, many people live along the 1-5 corridor in Oregon, which is zone 8. These people might select a suitable

tree rated from zones two through eight. On the other hand, people in Rexburg, Idaho, which is zone 4, may only be able to choose a tree adapted to zones two through four.

Other factors

Certainly, many factors besides winter adaptation should be taken into account when choosing a tree. For example; moisture, soil, wind exposure, sunlight, snow cover and available growing space are types of considerations important for tree selection. That is why plant hardiness zones may only initially screen potential species, while more site specific factors should be used to continue the process. Lists of trees adapted to various site specific factors begin on page 6 and may be helpful for people selecting trees for problem areas under power lines.
























Range of annual minimum temperatures for each zone.

- 3** -40 – -30°F
- 4** -30 – -20
- 5** -20 – 10
- 6** 10 – 0
- 7** 0 – 10
- 8** 10 – 20
- 9** 20 – 30
- 10** 30 – 40

Source: USDA

100 tree species to use adjacent to power lines

Species listing number	Common name	Technical name	D (deciduous) or E (evergreen)	Mature height (feet)	Mature width (feet)	Hardiness zone	Flower color	Fall color	Tolerates alkaline soil	Tolerates harsh sites	Berry-like fruit	Screen	Amount of sun	Shape	Comments
1	Trident Maple	<i>Acer buergerianum</i>	D	25	25	4-8		orange					full		Native to China. Glossy green foliage, best in well-drained soil.
2	Hornbeam Maple	<i>Acer carpinifolium</i>	D	20	20	5							shade		Native to Japan. Rounded, vase-shaped form.
3	Vine Maple	<i>Acer cinciatum</i>	D	20	20	6				✓			shade		Native to the Pacific Northwest. Adapted to moist, understory sites.
4	Amur Maple	<i>Acer ginnala</i>	D	20	20	2-7	yellow red	orange red		✓			full to partial		Native to China. Glossy green foliage, small flowers. Best in well-drained soil.
5	Western Mountain Maple	<i>Acer glabrum</i>	D	25	15	3-9		orange red					shade		Native to western mountains where it is found on moist canyon sides.
6	Paperbark Maple	<i>Acer griseum</i>	D	25	20	4-8		red					full		Native to China. Beautiful, cinnamon-brown, curly bark.
7	Fullmoon Maple	<i>Acer japonicum</i>	D	25	20	5	dark red	yellow red		✓			full to partial		Native to Japan. Flowers display before leaf-out in spring.
8	Japanese Maple	<i>Acer palmatum</i>	D	20	20	5-8			✓				partial shade		Native to Japan. Purple and cut-leaved cultivars.
9	Striped Maple	<i>Acer pensylvanicum</i>	D	25	20	3							shade		Native to the Northeast. Understory tree.
10	Eastern Mountain Maple	<i>Acer spicatum</i>	D	25	30	2		yellow orange					shade		Native to the Northeast. Requires cool, moist sites.
11	Tartarian Maple	<i>Acer tartaricum</i>	D	20	20	3-8				✓			full to partial		Native to southeast Europe and western Asia.
12	Paperblow Maple	<i>Acer truncatum</i>	D	20	20	5-8		yellow red	✓	✓			full		Native to China. Leaves emerge burgundy, turn green in summer and yellow-red in fall.
13	Mountain Alder	<i>Alnus tenuifolia</i>	D	25	25	2-9							full		Native to western mountains. Suitable for naturalized stream bank settings.
14	Saskatoon Serviceberry	<i>Amelanchier alnifolia</i>	D	10	10	4	white				✓		full to partial		Native to the Great Plains. Sensitive to drought and neglect.
15	Shadblow Serviceberry	<i>Amelanchier canadensis</i>	D	15		3-8	white	yellow			✓		full to partial		Native to the eastern seaboard.
16	Allegheny Serviceberry	<i>Amelanchier laevis</i>	D	25	25	4	white	orange red			✓		full to partial		Native to the Northeast. High wildlife value.
17	Utah Serviceberry	<i>Amelanchier utahensis</i>	D	15	15	4	white	yellow			✓		full to partial		Native to the southern Rocky Mountains and Great Basin.
18	Western Water Birch	<i>Betula occidentalis</i>	D	25	20	4		yellow	✓	✓			full to partial		Native to Rocky Mountain streams and lakes. Cherry-like bark. Susceptible to leaf blight in humid areas.
19	Eastern Redbud	<i>Cercis canadensis</i>	D	25	25	4-9	purple pink		✓	✓			full to partial		Native to eastern Kansas, Oklahoma and Texas to the eastern slope of the Appalachians. Spectacular flower display before leaf-out.
20	Chinese Redbud	<i>Cercis chinensis</i>	D	20	20	6	purple pink		✓	✓			full to partial		Native to China. Similar to Eastern Redbud.
21	California Redbud	<i>Cercis occidentalis</i>	D	20	20	7-9	purple pink		✓	✓			full to partial		Native to the Sierras and northern coastal range in California. Flowers similar to other redbuds.



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








VASE



WEEPING



COLUMNAR

Species listing number	Common name	Technical name	D (deciduous) or E (evergreen)	Mature height (feet)	Mature width (feet)	Hardiness zone	Flower color	Fall color	Tolerates alkaline soil	Tolerates harsh sites	Berry-like fruit	Screen	Amount of sun	Shape	Comments
22	Curlleaf Mountain-Mahogany	<i>Cercocarpus ledifolius</i>	D	20	20	3	yellow		✓	✓			full		Native to the western U.S. Important wildlife tree.
23	Harlequin Glorybower	<i>Clerodendrum trichotomum</i>	D	20	20	7	white				✓		full		Native to China. Turquoise berry with magenta sepals.
24	Kousa Dogwood	<i>Cornus kousa</i>	D	25	25	5-8	white	red purple					full to partial		Native to Asia. Tolerates moist sites. Disease free.
25	Corneliancherry Dogwood	<i>Cornus mas</i>	D	20	20	4	yellow				✓		full to partial		Native to southern Europe and Asia. Flowers in late winter. Edible, cherry-like fruit in July.
26	American Filbert	<i>Corylus americana</i>	D	18	15	4	red (females)		✓				full to partial		Native to the East. Shrubby character.
27	Purple Giant Filbert	<i>Corylus maxima var. purpurea</i>	D	20	20	4	yellow		✓				full to partial		Native to southeastern Europe. Purple leaves in spring fade to green. Shrubby character.
28	Common Smoketree	<i>Cotinus coggygria</i>	D	15	15	4		yellow red	✓	✓			full		Native to Europe. Shrubby. Useful under transmission lines.
29	Cliffrose	<i>Cowania mexicana</i>	E	25	25	5	white		✓	✓		✓	full		Native to the Southwest. Good xeriscape species.
30	Cockspur Hawthorn	<i>Crataegus crusgalli</i>	D	25	35	4	white	dark red	✓	✓	✓	✓	full		Native to the East. Two-inch thorns may be a problem for small children.
31	English Hawthorn	<i>Crataegus laevigata</i>	D	20	20	4	white		✓	✓	✓		full		Native to Europe, western Asia and North Africa.
32	Lavelle Hawthorn	<i>Crataegus × lavalleyi</i>	D	25	25	5	white	bronze	✓	✓	✓		full		Hybrid origin. Fruit and flowers are about 3/4-inch in diameter.
33	Dotted Hawthorn	<i>Crataegus punctata</i>	D	20	20	4	white	scarlet		✓	✓		full		Native to the East. High wildlife value.
34	Georgia Plum	<i>Elliottia racemosa</i>	D	15	10	6-8	white						full to partial		Rare tree found in Georgia. Panicles of white flowers in late June.
35	Loquat	<i>Eriobotrya japonica</i>	E	25	25	8	white		✓	✓	✓		full		Native to China and Japan. Fragrant flowers. Edible, pear-shaped fruit in spring.
36	Eastern Wahoo	<i>Euonymus atropurpureus</i>	D	25	25	4	red	pink	✓	✓			shade		Native to the midwestern United States with a stiff upright form. Bright-red flowers and good fall leaf color. Fairly well adapted to harsh conditions.
37	Western Wahoo	<i>Euonymus occidentalis</i>	D	20	20	5	green yellow						shade		Native to the Cascades and western coastal mountains. Fuschia fruit.
38	Franklinia	<i>Franklinia alatamaha</i>	D	20	12	5-9	white w/ yellow center	orange red					full to partial		Native to Georgia. Requires rich, acidic, well-drained soil.
39	Singleleaf Ash	<i>Fraxinus anomala</i>	D	20	10	5			✓	✓			full		Native to southern Utah to central Arizona. Good xeriscape species.
40	Chinese Witchhazel	<i>Hamamelis mollis</i>	D	25	25	5	yellow	yellow					shade		Native to China. Yellow flowers in fall. Best adapted to moist, acidic, well-drained, organic soils.
41	Common Witchhazel	<i>Hamamelis virginiana</i>	D	25	25	3-8	yellow	yellow					shade		Native to the East. Understory tree, very shade tolerant. Not many species flower in the fall after leaf drop, so witchhazel can be useful in the landscape.
42	Longstalk Holly	<i>Ilex pendunculosa</i>	E	25	25	5			✓	✓	✓	✓	full		Native to Asia. Scarlet fruit.



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VASE



WEeping



COLUMNAR

Species listing number	Common name	Technical name	D (deciduous) or E (evergreen)	Mature height (feet)	Mature width (feet)	Hardiness zone	Flower color	Fall color	Tolerates alkaline soil	Tolerates harsh sites	Berry-like fruit	Screen	Amount of sun	Shape	Comments
43	Chinese Juniper (dwarf cultivars)	<i>Juniperus chinensis</i>	E	25	25	3			✓			✓	full		Native to China. Regular Chinese Juniper is too large for use under power lines. 'Hetzii,' and a few other cultivars are suitable, however.
44	One-Seed Juniper	<i>Juniperus monosperma</i>	E	20	20	4-9			✓	✓	✓	✓	full		Native to the Southwest. Good xeriscape species, particularly on dry, saline soils.
45	Utah Juniper	<i>Juniperus osteosperma</i>	E	25	20	3-9			✓	✓	✓	✓	full		Native to the Southwest. Good xeriscape species, particularly on dry, saline soils.
46	Eastern Juniper (dwarf cultivars)	<i>Juniperus virginiana</i>	E	25	25	2			✓	✓		✓	full		Native to the East. Regular species is too tall for use under power lines. Be sure to choose low-growing cultivars such as 'Emerald Sentinel,' 'Hillspire,' 'Glauca' and others.
47	Goldenchain Tree	<i>Laburnum × watereri</i>	D	15	10	5-7	yellow		✓	✓			full		Hybrid origin. Seeds are poisonous.
48	Crapemyrtle	<i>Lagerstroemia indica</i>	D	25	25	6	white, pink or purple	yellow red	✓				full to partial		Native to China and Korea. Classic flowering landscape tree.
49	Japanese Privet	<i>Ligustrum japonicum</i>	E	12	8	7-10	white		✓	✓		✓	full to partial		Native to Japan and Korea. Fragrant flowers, fast-growing broadleaved evergreen.
50	Glossy Privet	<i>Ligustrum lucidum</i>	E	20	15	6-10	white		✓	✓		✓	full to partial		Native to Japan and China. Adaptable.
51	Amur Maackia	<i>Maackia amurensis</i>	D	25	25	3-7	white		✓				full		Native to Manchuria. Peeling, shiny-brown bark. Best adapted to moist, well-drained soil.
52	Loebner Magnolia	<i>Magnolia × loebneri</i>	D	25	30	4	white			✓			full		Hybrid origin. Fragrant, 12-petaled white flowers in April. Some cultivars have pink flowers.
53	Lily Magnolia	<i>Magnolia quinquepeta</i>	D	10	10	5-8	white						full		Native to China. Nice, small tree.
54	Anise Magnolia	<i>Magnolia salicifolia</i>	D	25	15	4-8	white						full		Japanese. Flowers are 3- to 4-inches across.
55	Star Magnolia	<i>Magnolia stellata</i>	D	15	10	3-8	white						full		Japanese. Fragrant 12- to 19-petaled flowers. Best adapted to acidic, organic soil.
56	Wild Sweet Crabapple	<i>Malus coronaria</i>	D	25	30	4	white pink		✓		✓		full		Native to the East. One- to 1½-inch fruit.
57	Japanese Flowering Crabapple	<i>Malus floribunda</i>	D	20	20	4	pink red	yellow				✓	full		Native to Japan. One of the best flowering crabs: showing floral display and small fruit.
58	Tea Crabapple	<i>Malus hupehensis</i>	D	25	30	5	pink changing to white					✓	full		Native to China. Large, fragrant flowers. Wide-spreading form.
59	Sargent Crabapple	<i>Malus sargentii</i>	D	7	15	4	white pink					✓	full		Native to Japan. Masses of flowers, showy fruit. Good for use under transmission lines.
60	Zumi Crabapple	<i>Malus sieboldii var. zumi</i>	D	25	25	4	white	yellow				✓	full		Native to Japan and Korea. Yellow-to-red fruits. 'Calocarpa' has bright red ¼-inch fruit.
61	Flowering Crabapple	<i>Malus spp.</i>	D	25		3-9	white	yellow red	✓		✓		full		Many different species and cultivars. Very useful landscape trees.



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
















VASE



WEEPING



COLUMNAR

Species listing number	Common name	Technical name	D (deciduous) or E (evergreen)	Mature height (feet)	Mature width (feet)	Hardiness zone	Flower color	Fall color	Tolerates alkaline soil	Tolerates harsh sites	Berry-like fruit	Screen	Amount of sun	Shape	Comments
62	Dwarf Norway Spruce	<i>Picea abies</i>	E	17		2-8			✓			✓	full		Native to Europe. Be sure only to select dwarf cultivars.
63	Dwarf Blue Spruce	<i>Picea pungens</i>	E	25	12	2-7							full		Native to the Rockies. Utah's state tree. Be sure to select dwarf cultivars.
64	Bristlecone Pine	<i>Pinus aristata</i>	E	25	25	4-7				✓		✓	full		Native to high elevations in the Southwest. Slow growing.
65	Mugo Pine	<i>Pinus mugo</i>	E	15	30	2-7			✓	✓			full		Native to southern Europe.
66	Bitter Almond	<i>Prunus bacharia</i>	D	10	10	5	white to pink		✓	✓			full		Native to central Asia.
67	Cherry Plum	<i>Prunus cerasifera</i>	D	20	15	3-8	white			✓			full		Native to Asia and Caucasia.
68	Purpleleaf Sand Cherry	<i>Prunus × cistena</i>	D	10	7	2-8	pink			✓			full		Hybrid origin. As the name suggests, purple leaves.
69	Common Cherrylaurel	<i>Prunus laurocerasus</i>	D	25	30	6	white						full		Native to southwestern Europe and Asia minor. Often much shorter than 25 feet. Shiny green leaves.
70	Kwanzan Cherry	<i>Prunus serrulata</i>	D	25	20	5	pink	orange bronze					full		Native to Japan. Double flowers.
71	California Hoptree	<i>Ptelea crenulata</i>	D	15	15	5	white	yellow green					full to partial		Native to foothills in northern California.
72	Common Hoptree	<i>Ptelea trifoliata</i>	D	20	20	3-9	white	yellow green					full to partial		Native to the midwestern and southeastern United States. Widely adapted to soil conditions.
73	Gambel Oak	<i>Quercus gambelii</i>	D	25	15	3-9			✓	✓			full		Native to southern Rockies. Grows in thickets.
74	Blue Japanese Oak	<i>Quercus glauca</i>	D	25	12	8-9							full		Native to China and Japan. Glossy leaves.
75	Bear Oak	<i>Quercus ilicifolia</i>	D	20	20	5		burgundy					full		Native to mid-Atlantic states. Horizontal form.
76	Dwarf Chinkapin Oak	<i>Quercus prinoides</i>	D	20	20	5		red orange		✓			full		Native to the central Midwest. Crooked, horizontal form.
77	Waveleaf Oak	<i>Quercus undulata</i>	D	10	10	7			✓	✓			full to partial		Native to the western United States. Suitable for tough sites under transmission lines.
78	Catawba Rhododendron	<i>Rhododendron catawbiense</i>	E	15	15	6	white						partial		Native to the Alleghenies to Georgia. Beautiful rhododendron.
79	Pacific Rhododendron	<i>Rhododendron macrophyllum</i>	E	25	25	7	pink purple					✓	partial		Native to the Cascades and coastal ranges. Large flowers.
80	Rosebay Rhododendron	<i>Rhododendron maximum</i>	E	25	25	3	pink lavender					✓	partial		Native to the Appalachians. Lowland and riparian species.
81	Flameleaf Sumac	<i>Rhus copallina</i>	E	25	25	4		red	✓	✓			partial		Native to the East. Good sumac for ornamental planting.
82	New Mexico Locust	<i>Robinia neomexicana</i>	D	25	20	5-9	pink	yellow	✓	✓			partial		Native to hillsides in the Southwest.
83	Whitebeam Mountainash	<i>Sorbus americana</i>	D	25	20	2	white	yellow			✓		full to partial		Native to the eastern United States. Adapted to wetland borders. Showy, orange fruit.
84	Green Mountainash	<i>Sorbus scopulina</i>	D	15	10	3	white	yellow			✓		full to partial		Native to western mountains. Cool exposures. Showy, orange fruit.



OVAL



ROUND



















VASE



WEeping



COLUMNAR

Species listing number	Common name	Technical name	D (deciduous) or E (evergreen)	Mature height (feet)	Mature width (feet)	Hardiness zone	Flower color	Fall color	Tolerates alkaline soil	Tolerates harsh sites	Berry-like fruit	Screen	Amount of sun	Shape	Comments
85	Sitka Mountainash	<i>Sorbus sitchensis</i>	D	20	15	3	white	yellow			✓		full to partial		Native to cool areas in the coastal mountains from Alaska through British Columbia and spots in the Cascades and Sierras. Orange-red fruit.
86	Korean Stewartia	<i>Stewartia koreana</i>	D	25	15	5	white	salmon burgundy					partial		Native to Korea. Multi-season interest. Rich, acid soil.
87	Mountain Stewartia	<i>Stewartia ovata</i>	D	15	15	5-9	white	orange red					partial		Native to the Southeast. Multi-season interest, spring flowers, fall color and winter exfoliating bark.
88	Chinese Stewartia	<i>Stewartia sinensis</i>	D	25	20	5	white	red					partial		Native to China. Multi-season interest.
89	Japanese Snowbell	<i>Styrax japonicus</i>	D	25	25	5	white	yellow					full to partial		Native to Japan, Korea and China. Attractive tree with bell-shaped flowers.
90	Japanese Tree Lilac	<i>Syringa reticulata</i>	D	25	20	3-7	white		✓				partial		Native to China and Japan. Twelve-inch flowers in late spring and cherry-like bark in the winter.
91	Anglo-Japanese Yew	<i>Taxus × media</i>	E	20	20	4					♀ have red berries	✓	full to partial		Hybrid origin. Often much lower-growing than 20 feet.
92	Littleleaf Linden 'Summer Sprite' (dwarf)	<i>Tilia cordata</i>	D	16	10	4	pale yellow	yellow orange	✓				full to partial		Littleleaf Linden is a large tree, and the species is inappropriate for use under power lines. The exception is the cultivar 'Summer Sprite,' which is a dense, pyramidal dwarf.
93	Sargent Weeping Hemlock	<i>Tsuga canadensis</i> var. <i>sargentii</i>	E	10	20	3-7						✓	full to partial		Native to the northeastern United States and southeast Canada. Make sure not to plant regular weeping. Acid soil.
94	Camperdown Elm	<i>Ulmus glabra</i> var. <i>camperdown</i>	D	15	35	4		yellow					full		The species is Scott's Elm, and is native to Europe. It should not be used under power lines. 'Camperdown' is a low-growing cultivar that can be used.
95	Nannyberry Viburnum	<i>Viburnum lentago</i>	D	25	25	2-8	white	purple	✓	✓	✓		full to partial		Native to the Midwest and East. Fruit changes from yellow to red to blue-black.
96	Blackhaw Viburnum	<i>Viburnum prunifolium</i>	D	25	25	3	white	scarlet	✓	✓	✓		full		Native to the East. Three- to 4-inch diameter flower clusters.
97	Rusty Blackhaw Viburnum	<i>Viburnum rufifolium</i>	D	25	25	5-9	white	purple	✓	✓	✓		full		Native to the Southeast. Clusters of white flowers and good fall color.
98	Siebold Viburnum	<i>Viburnum sieboldii</i>	D	25	20	5	white		✓	✓	✓		full		Native to Japan. Fruit ripens red then to black.
99	Common Pricklyash	<i>Zanthoxylum americanum</i>	D	25	25	3					✓		full		Native to the northern midwestern United States. It is trouble free and adapted to a wide range of soil conditions. Red berries are attractive to wildlife.
100	Zelkova (dwarf)	<i>Zelkova serrata</i>	D	24	36	5-8		rusty red					full		The species is a large-statured tree often used as a substitute for American Elm. The cultivars 'Wireless' and 'City Sprite' are low growing and appropriate under power lines.



OVAL



ROUND



VASE



WEeping



COLUMNAR

How to plant a tree

1. Dig the planting hole

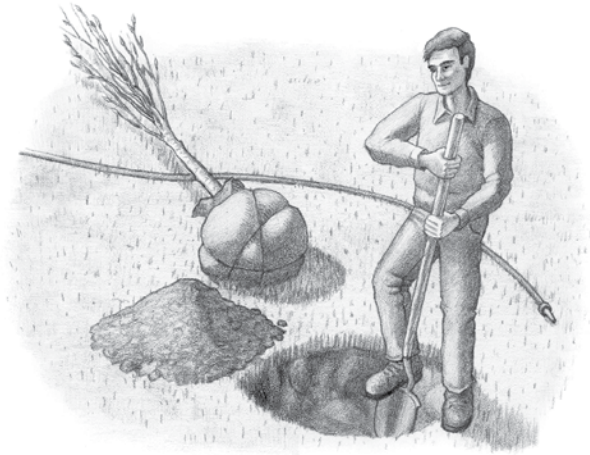
Before you start, call 811 to locate all underground utilities. Dig a planting hole at least twice the diameter of, and not deeper than, the root ball. The loose soil will encourage new root growth in order to establish the tree. The root ball needs to rest on firm ground so it will not settle.

2. Plant the tree

Lift the tree by the root ball (never by the trunk), remove its container, and place the tree into the planting hole. Make sure the top of the root ball is slightly above ground level. If the tree is balled and burlapped, remove any twine or wire, and remove or fold down the burlap. Make sure the tree is standing straight and backfill with the original soil. Mixing the soil with fertilizer or mulch is not recommended. As you fill the hole, gently firm the soil around the tree to hold it in place. Water the tree thoroughly to settle the soil and eliminate any air pockets.

3. Prune the tree only if necessary

Examine the tree for injury to branches. Prune broken branches back to other branches or to the trunk. While pruning, do not damage the branch collar (the swollen area where one branch meets another).

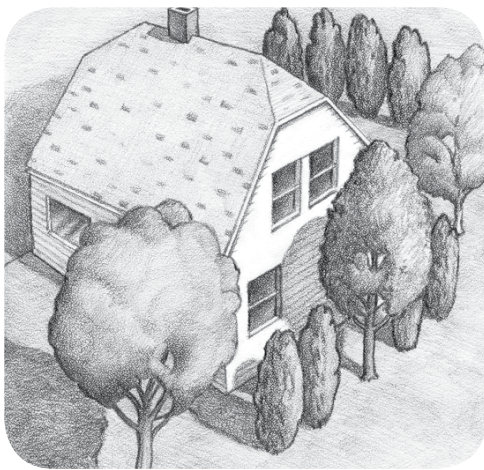


4. Stake the tree only if necessary

Staking is usually unnecessary for balled and burlapped and container-grown trees. If needed, stake the tree to keep it upright until established. Drive two stakes spaced an equal distance apart outside the planting area. Attach a broad soft strapping material loosely to the trunk and attach by wire or twine to the stakes. The stakes should not be left in place for more than one year.

5. Mulch and water

Place a layer of mulch around the tree about 2- to 4-inches deep. Keep the mulch away from the trunk. The tree should be watered at least once a week and more often in hot weather. Watering should taper off in mid-fall so the tree will stop growing and harden for winter.



Planting trees for energy efficiency

Trees can play a significant role in controlling energy use. Planting trees in certain places around your home can help keep you comfortable and keep your energy costs down. Here are some ways to plant trees and save:

- Plant deciduous trees facing southeast and southwest for summer shade and winter sun.
- Shrubs and small trees can be placed to shade air conditioners and heat pumps. However, be careful not to plant too close to the unit, blocking air flow. Keep units free of leaves and needles.
- Plant a combination of evergreen trees and shrubs on the side of your home that blocks cold winter winds.

Environmental benefits

Healthy trees convert carbon dioxide into oxygen, helping contribute to efforts to offset the production of carbon dioxide from electricity generation, cars and industrial processes. To help promote tree planting, preservation and urban forestry, we support various organizations including UtiliTree and Friends of Trees.

Tree maintenance

Trees are the most common cause of electric service interruptions when branches fall on lines during high winds and storms. They also can cause outages, start fires or create other hazardous conditions if they grow too close to power lines. Every year, Pacific Power locates, prunes and removes potential problem trees in our service area to provide safe and reliable electric service.

If you'd like a tree pruned or removed for landscaping purposes, you'll need to hire a private tree removal contractor to perform the work. If necessary, we can disconnect a service line for their workers' safety.

For more information on our tree maintenance program, please see page 4 or log on to pacificpower.net/trees.

Safety matters



Electricity can be deadly; it must be used with the utmost care and respect. Improper or careless tree pruning can cause serious or fatal accidents around power lines. We offer free safety presentations, videos

and brochures to remind customers of the dangers of electricity and to teach them how to be safe when trees and power lines coexist. For your safety, please remember these important tips:

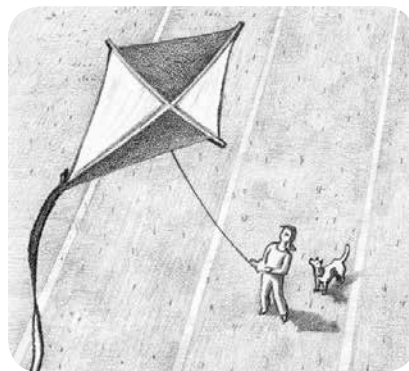
- Always check for power lines before pruning trees. If a branch is too close to a line, call us toll free at 1-888-221-7070 for help.

- Before digging holes for planting trees, installing sprinkler systems or setting fence posts, call 811 to reach your state's free underground utility locating service 48 hours in advance. Visit pacificpower.net/dig for details. Do not assume that utility lines are buried deeper than you are digging.
- Do not attempt to remove branches or trees that have fallen on lines. Contact us toll free at 1-877-508-5088 for help.
- Never touch or go near a fallen power line, and do not touch anything on which the wire is resting. If you see a downed line, tell others to stay away and immediately call 911, or call us toll free at 1-877-508-5088.
- Look up! Whenever you're working outdoors, be aware of the location of overhead power lines. Be careful not to lift ladders, pruning shears, irrigation pipes, pool skimmers or other tools around power lines.
- Overhead power lines are not insulated. For your safety, treat all lines you see as energized and dangerous – stay away from them.

Remind children to stay safe

- Don't climb or build forts in trees near power lines.
- Do not climb power poles, transmission towers or substation fences.
- Fly kites in open areas, far away from trees and power lines. If a kite does get caught in a power line, release the string.

To schedule a presentation, to order free safety materials or to see more information on electrical safety please visit pacificpower.net/safety.



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Common Cherrylaurel	<i>Prunus laurocerasus</i>	
Kwanzan Cherry	<i>Prunus serrulata</i>	
Purpleleaf Sand Cherry	<i>Prunus x cistena</i>	

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Zelkova

Zelkova	<i>Zelkova serrata</i>	10
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Resources for more information

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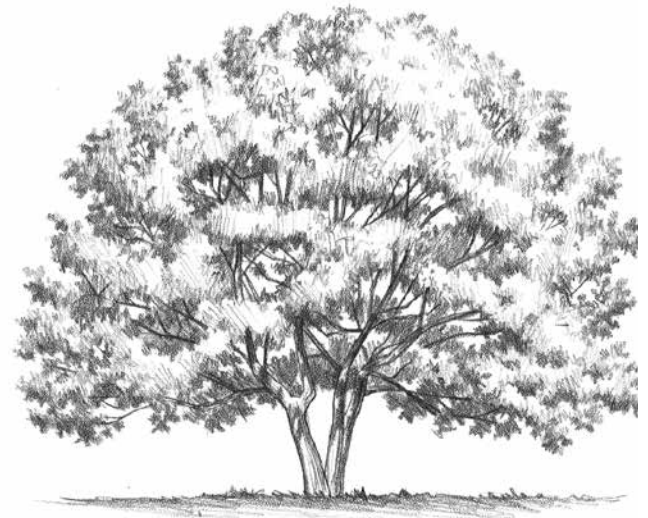
Online resources

Pacificpower.net/trees

National Arbor Day
www.arborday.org

International Society of Arboriculture
www.TreesAreGood.org

Friends of Trees
www.FriendsofTrees.org



GAMBEL OAK
Quercus gambelii



Let's turn the answers on.

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