

Small Trees for Planting Near Power Lines

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Tree experts and utility companies suggest that people plant trees with a mature height of 25 feet or less near power lines, with taller trees kept farther away. Though taller trees are sometimes acceptable near power lines, they usually need drastic pruning to keep lines clear, which can be expensive and unsightly. See Figure 1 for guidelines on mature tree height and spacing away from overhead power lines.

There are a wide variety of small tree species and cultivars that can be planted near power lines and other places where a small tree may be needed. For example, paperbark maples only grow about 20 feet tall, are very attractive, and will not interfere with most power lines.

Some tree species naturally grow 25 feet tall or less, while others have certain cultivars (cultivated varieties) that grow shorter. For example, blue spruce is a species that normally has a mature height of 60 feet or more, while the cultivar 'Bakeri' matures around 20 feet tall.

There are many dwarf conifer cultivars that grow less than 25 feet and have the same form and color of the taller species. Some trees have weeping forms that are shorter than the species. For example, the fruitless white mulberry has a mature height of 35 feet or more while the 'Chaparral' weeping mulberry cultivar matures at only 15 feet tall. The double pink weeping cherry is a popular tree that only gets 12 to 15 feet tall.



Paperbark Maple

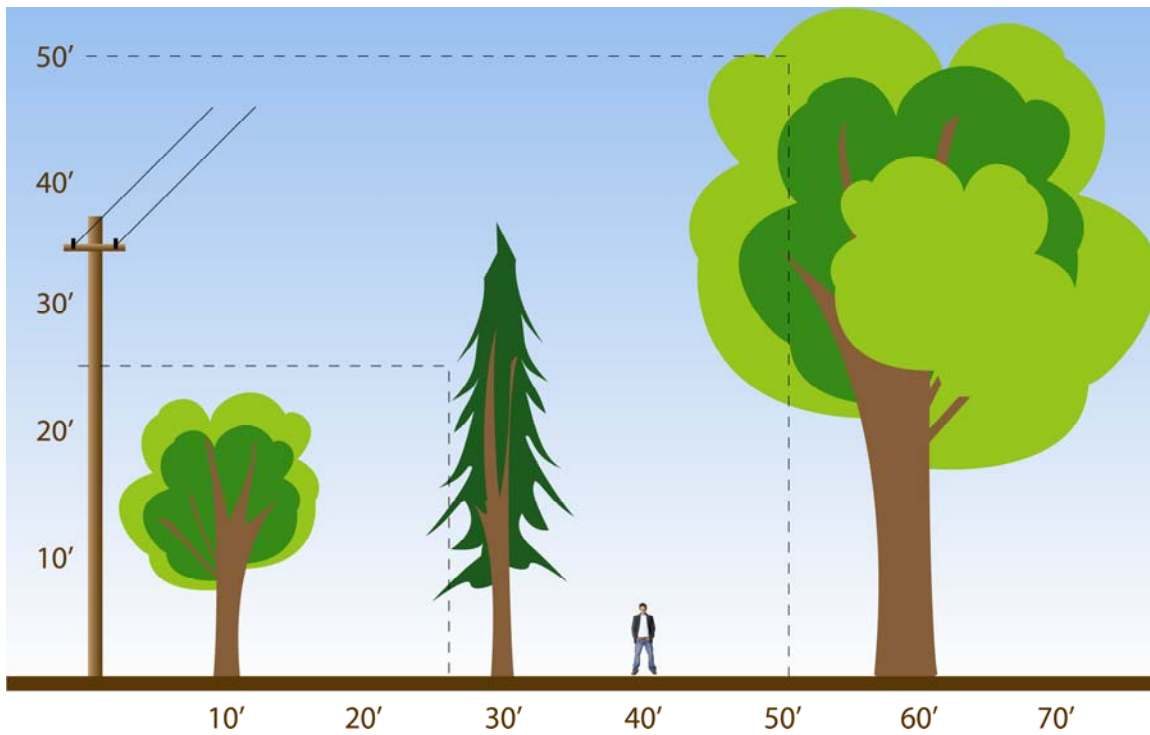
Cold and heat tolerance are also very important when selecting a tree. USDA plant hardiness zones have been developed based on the average annual minimum temperatures but can give some indication of heat tolerance as well. Go to http://extension.usu.edu/forestry/HomeTown/Select_HardinessZones.htm for a hardiness zone table for Utah and surrounding states and <http://usna.usda.gov/Hardzone/hzm-sw1.html> for a map.



Double Pink Weeping Cherry

'Bakeri' Cultivar of Blue Spruce

Figure 1. Suggested tree spacing near power lines based on tree height



Low-growing trees (*under 25 feet when mature*) may be planted adjacent to overhead power lines.

Plant medium trees (*25 to 35 feet when mature*) at least 25 feet away from overhead power lines.

Plant large trees (*over 35 feet when mature*) at least 50 feet away from overhead power lines.

Hardiness zones in Utah range from Zone 3 in Rich and Summit Counties to Zones 5 and 6 along the Wasatch Front to Zone 8 in the St. George area. The lower the zone number, the more cold tolerant the plant is. Select tree species that have a hardiness zone rating no higher than the zone where the tree is to be planted. Remember to consider other important selection criteria including sun/shade exposure, soil conditions, pest resistance, and water requirements.

Some local arboretums with displays of small trees include:

Kaysville City Ponds Park
1200 South 50 West, Kaysville

Utah Botanical Center
920 South 50 West, Kaysville

Ogden Botanical Gardens
1750 Monroe Boulevard, Ogden

near a power line, they will usually do it free-of-charge. They may offer to remove a problem tree near a power line and to pay part of the replacement cost for a small-maturing tree. If underground utilities might be involved, like when digging for tree planting, call Blue Stakes at 811 or 800-662-4111 or at www.bluestakes.org.

Table 1 lists many tree species and cultivars that are adapted to Utah that have a mature height of 25 feet or less. Some of these plants may also be found as a large, multi-stemmed shrub form. A few species are included that may grow slightly taller. Minor pruning may be necessary in some cases to keep some of these trees short enough. Trees that have a mature height of 25 to 35 feet should be planted 25 feet horizontally from power lines. New tree cultivars are constantly being introduced by the nursery industry, so check with your local nursery for other small tree species.

Visit the USU Tree Browser at www.treebrowser.org for detailed information and photos of many of these trees.

DO NOT PRUNE trees that are anywhere near overhead utility lines. If utility lines are present, even if you think they are not power lines, call your power company and they will tell you if it is OK to prune and how they can help. If pruning is needed

Table 1: Small Trees for Planting Near Power Lines

CONIFERS (mostly evergreen)

Latin Name	Common Name	Height (in feet)	Width (in feet)	Zone
<i>Abies koreana</i> 'Horstmann's Silberlocke'	Silberlocke Fir	15	6	4-7
<i>Eriobotrya japonica</i>	Loquat	15-30	15-30	8-10
<i>Juniperus chinensis</i> 'Spartan'	Spartan Juniper	15	6	4-9
<i>Juniperus osteosperma</i>	Utah Juniper	10-30	10-30	4-7
<i>Juniperus scopulorum</i>	Rocky Mountain Juniper	15	5-7	3-7
<i>Juniperus scopulorum</i> 'Moonglow'	Moonglow Juniper	15	8	3-7
<i>Juniperus scopulorum</i> 'Wichita Blue'	Wichita Blue Juniper	15	6	3-7
<i>Juniperus virginiana</i> 'Blue Arrow'	Blue Arrow Juniper	15	6	3-9
<i>Juniperus virginiana</i> 'Skyrocket'	Skyrocket Juniper	15-20	3-4	4-9
<i>Picea abies</i>	Norway Spruce – dwarf cultivars	3-17	5-10	2-7
<i>Picea abies</i> 'Cupressina'	Cupressina Spruce	30	10	4-7

Latin Name	Common Name	Height (in feet)	Width (in feet)	Zone
<i>Picea abies</i> 'Hillside'	Hillside Upright Spruce	15	7	3-7
<i>Picea abies</i> 'Pendula'	Weeping Norway Spruce	18	6-10	3-7
<i>Picea glauca</i> 'Pendula'	Weeping White Spruce	20	10	2-6
<i>Picea mariana fastigiata</i> 'Wellspire'	Wellspire Spruce	20	6	3-6
<i>Picea omorika</i> 'Pendula'	Weeping Serbian Spruce	18	5	4-7
<i>Picea orientalis</i> 'Green Knight'	Green Knight Oriental Spruce	18	6	4-7
<i>Picea orientalis</i> 'Deer Run'	Deer Run Oriental Spruce	25	10	4-7
<i>Picea pungens</i>	Blue Spruce – dwarf cultivars	25	12	2-7
<i>Picea pungens</i> 'Baby Blue Eyes'	Baby Blue Eyes Spruce	15	8	3-7
<i>Picea pungens</i> 'Bakeri'	Bakeri Spruce	20	10	3-7
<i>Picea pungens</i> 'Fat Albert'	Fat Albert Spruce	18	12	3-7
<i>Picea pungens glauca fastigiata</i> 'Blue Totem'	Blue Totem Spruce	10	3	3-7
<i>Pinus aristata</i>	Bristlecone Pine	8-20	10-15	2-7
<i>Pinus edulis</i>	Pinyon Pine	10-20	10-20	4-8
<i>Pinus heldreichii</i> 'Leucodermis'	Bosnian Pine	20	10	2-6
<i>Pinus nigra</i> 'Arnold's Sentinel'	Arnold's Sentinel Columnar Black Pine	25	7	4-7
<i>Pinus nigra</i> 'Compacta'	Compact Austrian Pine	15	8	4-7
<i>Pinus nigra</i> 'Oregon Green'	Oregon Green Pine	20	15	3-7
<i>Pinus sylvestris</i> 'Glauca Nana'	Dwarf Blue Scotch Pine	5-8	5-8	3-8

BROADLEAVES (mostly deciduous)

Latin Name	Common Name	Height (in feet)	Width (in feet)	Zone
<i>Acer buergeranum</i>	Trident Maple	20-25	20-25	4-9
<i>Acer campestre</i>	Hedge Maple	20-30	30	4-8
<i>Acer ginnala</i>	Amur or Ginnala Maple	15-20	15-20	2-8
<i>Acer glabrum</i>	Rocky Mountain Maple	6-30	3-15	2-8
<i>Acer grandidentatum</i>	Bigtooth Maple	20-30	20-30	4-7
<i>Acer griseum</i>	Paperbark Maple	20-30	12-25	4-8
<i>Acer negundo</i> 'Flamingo'	Flamingo Boxelder	20	15	4-9
<i>Acer negundo</i> 'Kelly's Gold'	Kelly's Gold Boxelder	30	30	4-9
<i>Acer negundo</i> 'Variegatum'	Variegated Boxelder	20-25	20	5-7
<i>Acer palmatum</i>	Japanese Maple – many cultivars	20	20	5-8
<i>Acer platanoides</i> 'Crimson Sentry'	Crimson Sentry Maple	25	15	4-8
<i>Acer platanoides</i> 'Globosum'	Globe Norway Maple	15	18	3-8
<i>Acer tataricum</i>	Tatarian Maple	20-25	20-25	3-8
<i>Acer truncatum</i>	Purpleblow Maple	25	25	4-8

Latin Name	Common Name	Height (in feet)	Width (in feet)	Zone
<i>Albizia julibrissin</i>	Mimosa or Silk tree	20-25	25	6-9
<i>Amelanchier alnifolia</i>	Saskatoon Serviceberry	15-25	10-20	2-7
<i>Amelanchier x grandiflora</i> 'Autumn Brilliance'	Autumn Brilliance Serviceberry	20	15	4-9
<i>Amelanchier x grandiflora</i> 'Cole's Select'	Cole's Select Serviceberry	20	15	4-9
<i>Amelanchier x grandiflora</i> 'Princess Diana'	Princess Diana Serviceberry	20	15	3-9
<i>Amelanchier laevis</i>	Snowcloud Serviceberry	25	15	4-8
<i>Amelanchier utahensis</i>	Utah Serviceberry	10-15	8-15	4-8
<i>Betula occidentalis</i>	Western Water Birch	12-25	12-20	3-7
<i>Catalpa bignonioides</i> 'Nana'	Umbrella Catalpa	20	20	5-9
<i>Cedrus atlantica</i> 'Glauca Pendula'	Weeping Blue Atlas Cedar	20	10	6-9
<i>Celtis reticulata</i>	Netleaf Hackberry	25-30	25-30	5-9
<i>Cercis canadensis</i>	Eastern Redbud	20	20	3-9
<i>Cercis canadensis</i> 'Forest Pansy'	Forest Pansy Redbud	20	20	5-6
<i>Cercis chinensis</i> 'Avondale'	Avondale Redbud	10	10	5-6
<i>Cercis occidentalis</i>	California Redbud	8-10	8-10	7-9
<i>Cercocarpus ledifolius</i>	Curleaf Mountain- Mahogany	15-20	8-12	3-8
<i>Chionanthus retusus</i>	Chinese Fringetree	20	15	3-9
<i>Chionanthus virginicus</i>	Fringetree	15-30	15-30	3-9
<i>Cornus alternifolia</i>	Pagoda Dogwood	20-30	20-30	3-7
<i>Cornus kousa</i>	Wolf Eyes Kousa Dogwood and other cultivars	15	12	5-8
<i>Corylus avellana</i> 'Contorta'	Contorted Filbert	8	8	4-8
<i>Cotinus coggygia</i>	Common Smoketree	12-15	12-15	4-9
<i>Crataegus crusgalli</i>	Cockspur Hawthorn	20-30	20-35	3-8
<i>Crataegus laevigata</i>	English Hawthorn	18-25	15-20	4-8
<i>Crataegus laevigata</i> 'Crimson Cloud'	Crimson Cloud Hawthorn	18-25	15-20	4-8
<i>Crataegus laevigata</i> 'Paul's Scarlet'	Paul's Scarlet Hawthorn	18-25	15-20	4-8
<i>Crataegus x lavalleyi</i>	Lavalle Hawthorn	25	15-20	4-8
<i>Crataegus x mordenensis</i> 'Toba'	Toba Snowbird Hawthorn	25	30	3-6
<i>Crataegus phaenopyrum</i>	Washington Hawthorn	25	20	3-8
<i>Crataegus viridis</i>	Green Hawthorn	25-30	25-30	4-8
<i>Cydonia oblongata</i>	Quince	10-15	10-15	5-8
<i>Fagus sylvatica</i> 'Purple Fountain'	Purple Fountain Beech	20	5	4-7
<i>Fagus sylvatica</i> 'Purpurea Pendula'	Purple Weeping Beech	10	10	4-7
<i>Fagus sylvatica</i> 'Red Obelisk'	Red Obelisk Beech	20	6	4-7
<i>Fagus sylvatica</i> 'Roseomarginata'	Tricolor Beech	30	20	4-7

Latin Name	Common Name	Height (in feet)	Width (in feet)	Zone
<i>Fraxinus anomala</i>	Singleleaf Ash	20	10	6-9
<i>Fraxinus pennsylvanica</i> 'Johnson'	Leprechaun Ash	18	16	3-9
<i>Hamamelis x intermedia</i> 'Arnold Promise'	Arnold Promise Witch-Hazel	20	20	5-8
<i>Hamamelis x intermedia</i> 'Diane'	Diane Witch-Hazel	20	10	5-8
<i>Hibiscus syriacus</i>	Rose-of-Sharon – tree form	10	8	5-8
<i>Koelreuteria paniculata</i>	Goldenraintree	20-35	25-40	5-9
<i>Laburnum x watereri</i>	Goldenchain Tree	15	10	5-7
<i>Lagerstroemia indica</i>	Crapemyrtle	15	8-10	6-9
<i>Maackia amurensis</i>	Amur Maackia	20-30	20-30	3-7
<i>Magnolia x loebneri</i>	Loebner Magnolia	12-15	12-15	3-8
<i>Magnolia x soulangiana</i>	Saucer Magnolia – low-growing cultivars	15-25	20	4-9
<i>Magnolia stellata</i>	Star Magnolia	15	10	4-9
<i>Malus</i> spp.	Flowering Crabapple – many cultivars	15-25	8-25	3-9
<i>Malus coronaria</i>	Wild Sweet Crabapple	25	30-35	3-9
<i>Malus floribunda</i>	Japanese Flowering Crabapple	12-20	18-20	4-9
<i>Malus hupehensis</i>	Tea Crabapple	15-25	20-25	5-9
<i>Malus sieboldii</i> 'Zumi'	Zumi/Siebold Crabapple	10-15	15	4-9
<i>Morus alba</i> 'Chaparral'	Chaparral Weeping Mulberry	15	15	3-9
<i>Parrotia persica</i>	Persian Parrotia or Ironwood	30	20	3-8
<i>Physocarpus opulifolius</i> 'Diablo'	Diablo Ninebark – tree form	8-10	8-10	2-7
<i>Prunus cerasifera</i>	Cherry Plum	20	15	3-8
<i>Prunus cerasifera</i> 'Mt. St. Helens'	Mt. St. Helens Plum	20	20	3-8
<i>Prunus cerasifera</i> 'Newport'	Newport Plum	15-20	20	3-8
<i>Prunus cerasifera</i> 'Thundercloud'	Thundercloud Plum	20	15	4-8
<i>Prunus x cistena</i> 'Schmidtcs'	Big Cis Flowering Plum	14	12	3-7
<i>Prunus padus</i> 'Merlot'	Merlot Mayday Tree	25	15	3-6
<i>Prunus serrulata</i> 'Amanogawa'	Amanogawa Cherry	20	6	5-9
<i>Prunus serrulata</i> 'Kwanzan'	Kwanzan Cherry	25	20	5-9
<i>Prunus serrulata</i> 'Royal Burgundy'	Royal Burgundy Cherry	20	15	5-9
<i>Prunus serrulata</i> 'Shirotae'	Mt. Fuji Cherry	15	20	5-9
<i>Prunus serrulata</i> 'Snow Goose'	Snow Goose Cherry	20	20	5-9
<i>Prunus</i> x 'Snofozam'	Snow Fountain Weeping Cherry	12	10	5-8
<i>Prunus subhirtella</i> 'Pendula'	Double Pink Weeping Cherry	12-15	12-15	5-9

Latin Name	Common Name	Height (in feet)	Width (in feet)	Zone
<i>Prunus virginiana</i> 'Canada Red'	Canada Red Chokecherry	25	20	2-9
<i>Prunus x yedoensis</i> 'Akebono'	Akebono Cherry	25	20	5-8
<i>Quercus gambelii</i>	Gambel Oak	15-30	12-15	4-8
<i>Rhamnus frangula</i> 'Columnaris'	Tall Hedge Buckthorn	10-12	3-6	3-7
<i>Rhus copallina</i>	Flameleaf Sumac	20	20	5-9
<i>Rhus glabra</i>	Smooth Sumac	12	10	3-9
<i>Rhus typhina</i>	Staghorn Sumac	10	10	3-8
<i>Robinia pseudoacacia</i> 'Lace Lady'	Twisted Baby Locust	10	15	4-9
<i>Salix caprea</i> 'French Pink'	French Pink Pussy Willow	15	12	4-8
<i>Salix caprea</i> 'Pendula'	Weeping Pussy Willow	10	5	4-8
<i>Salix x 'Scarcuzam'</i>	Scarlet Curls Willow	25	20	5-9
<i>Sorbus alnifolia</i>	Korean Mountain Ash	20-30	15-20	3-7
<i>Styrax japonicus</i> 'JFS-D'	Snow Charm Japanese Snowbell	20	20	5-8
<i>Syringa pekinensis</i>	Summer Charm Lilac	20-30	15	3-7
<i>Syringa reticulata</i> 'Ivory Silk'	Ivory Silk Japanese Tree Lilac	20	15	4-7
<i>Ulmus glabra</i> 'Camperdownii'	Camperdown Weeping Elm	10-20	10-20	4-6
<i>Wisteria sinensis</i>	Tree Form Wisteria	10	8	5-8
<i>Zelkova serrata</i> 'Schmidtlow'	Wireless Zelkova	25	35	5-8

References

- Dirr, M. 1998. *Manual of woody landscape plants* (5th Edition). Champaign, IL: Stipes Publishing Co.
- Kuhns, M. *Trees & power lines*. USU Extension, EL-270.
- Kuhns, M. & Rupp, L. 2000. *Selecting and planting landscape trees*. USU Extension, NR-460.
- Miller, R.H. 2006. *Small trees for small places*. Rocky Mountain Power.
- Schmidt, J.F. & Son. 2000. *Reference Guide for 2000*. Boring, Oregon.
- Sunset Western Garden Book*. 2001. Menlo Park, CA: Sunset Publishing Co.
- Valley Nursery Catalog*. 2007. Ogden, Utah.

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