Planting near power lines

A guide for what to plant near power lines and transformer boxes.

BC Hydro
Power smart

BCH19-341

Living with trees

We deliver electricity to the homes and work places of more than four million British Columbians and every year our customers are inconvenienced by power outages caused by trees.

This guide is designed to assist you in selecting trees and shrubs for your home and yard, that won't interfere with power lines.

Step 1: Know your power lines

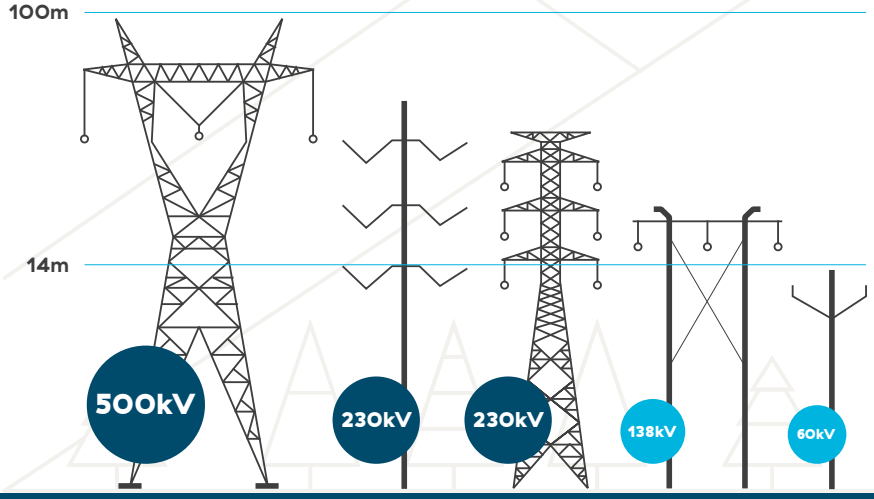
To get power to homes and businesses, we rely on two main types of power lines: transmission and distribution. It is important you understand the difference between the lines around your home, so that you know the maximum allowable height of the tree and the minimum distance you can plant from the pole.

Types of power lines

We rely on a system of transmission towers and power lines to carry the electricity produced at our generating stations to the homes and businesses in B.C.

Transmission lines

Transmission lines are the big, high voltage power lines that bring electricity from where it's made at our generating stations to substations near communities across B.C.

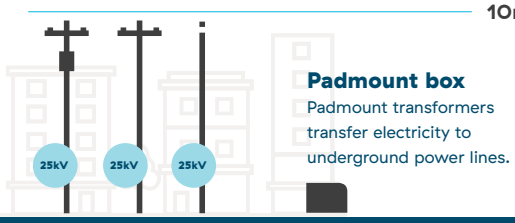


What's a kV?

kV stands for kilovolt, which is a unit of potential energy. One kV is equal to 1,000 volts.

Distribution lines

Distribution lines are the smaller, lower voltage lines that carry electricity from the substation to your home or business.

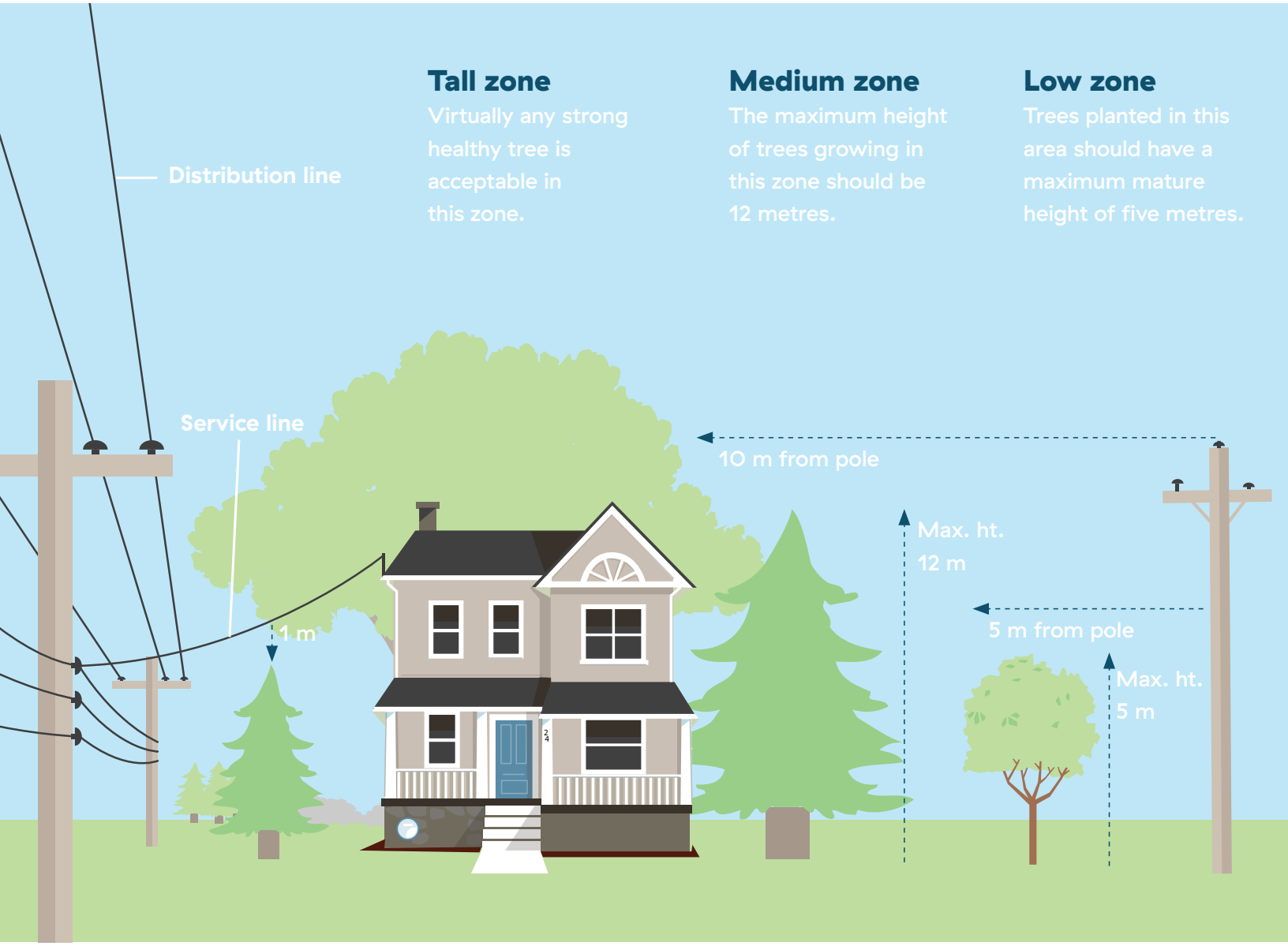


Padmount box

Padmount transformers transfer electricity to underground power lines.

Step 2: Know the three zones for distribution lines (Pictured below)

Its your responsibility to maintain the trees and vegetation around the service wire (the line that carries power from the pole to the home). The mature height of trees and vegetation in this area should be 1 metre below the service wire.



Step 3: Know the two zones for transmission lines

LOW ZONE:

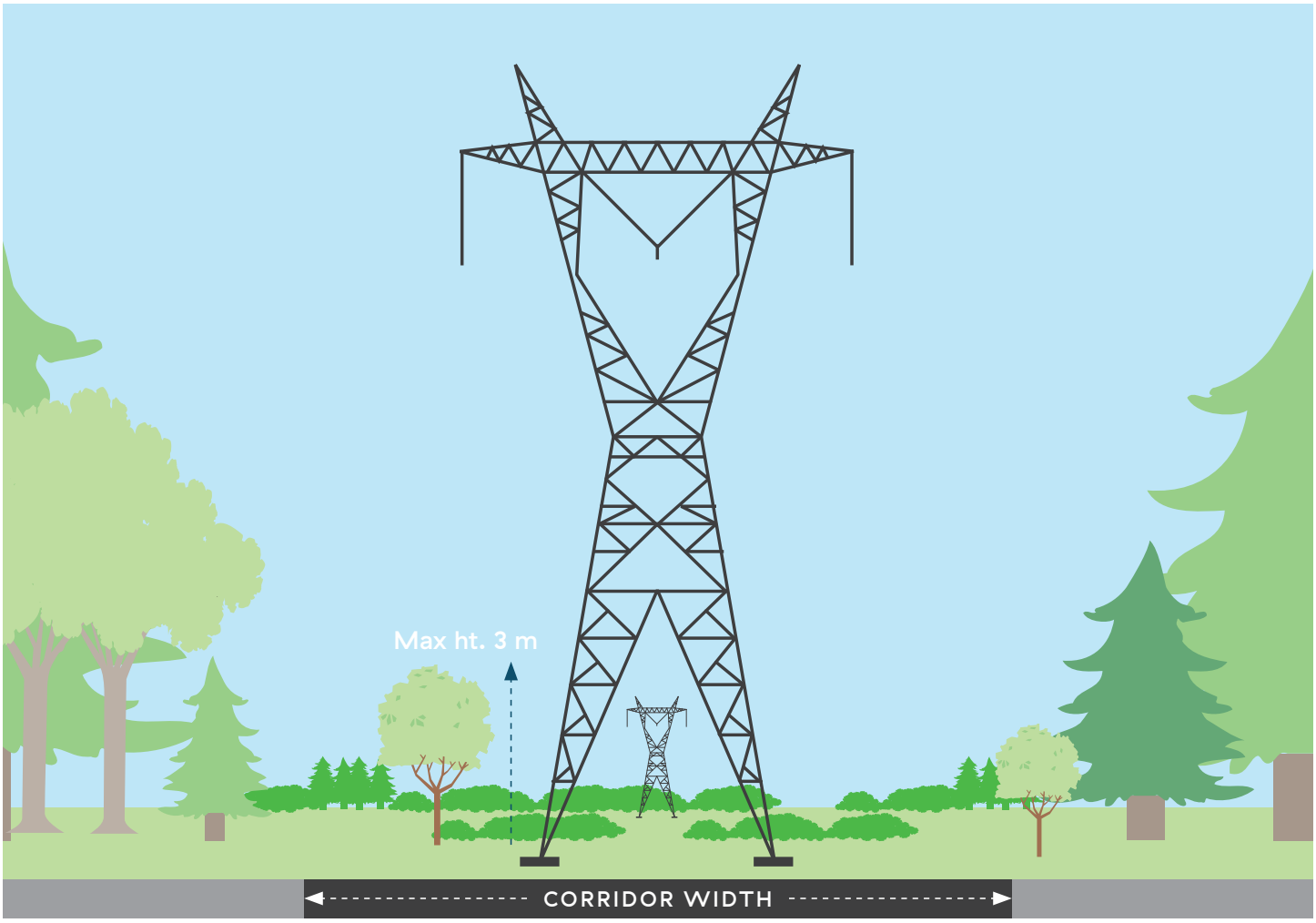
The width of the right–of–way for transmission lines, which varies depending on the voltage of the transmission line. The maximum height at maturity of vegetation growing in this zone should be 3 metres.

TALL ZONE:

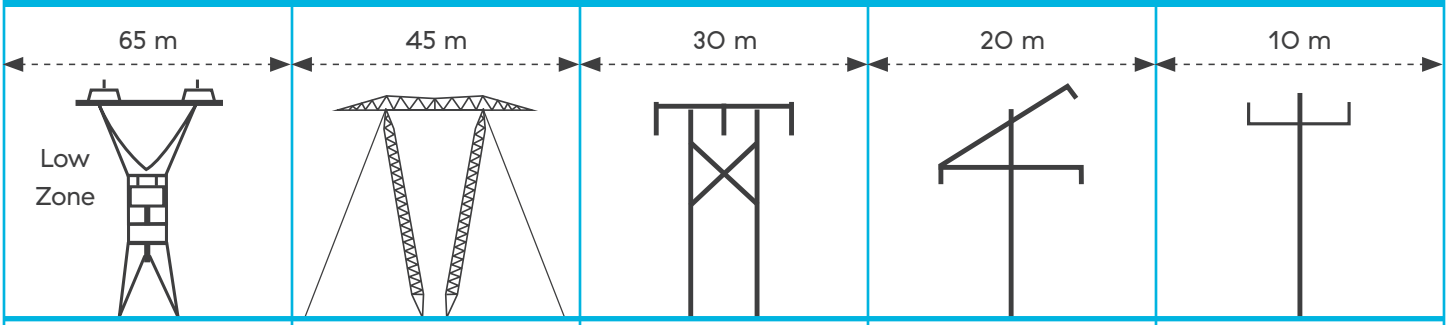
Virtually any strong, healthy tree is acceptable in the area outside of the right–of–way.

Note:

If you wish to plant vegetation that is taller than the allowable height at maturity, a property referral is required. Please contact the BC Hydro Properties Help desk at **properties.helpdesk@bchydro.com** or **1 800 667 1517**



Typical transmission corridor widths



500 kV line	287 kV line	230 kV line	138 kV line	69 kV line

The Low Zone is the width of the transmission right-of-way, which is also known as the transmission corridor. The maximum height of vegetation in this zone should be 3 metres (without a property referral) due to the higher voltages of transmission lines.

Step 4: Locate your geographic region

Locate your geographic region in the mild, moderate, cold or extreme winter areas.

MILD WINTER AREAS

Bella Coola, Fraser Valley, Kitimat, Lower Mainland, Powell River, Prince Rupert, Sandspit, Sechelt, Squamish, Vancouver Island.

MODERATE WINTER AREAS

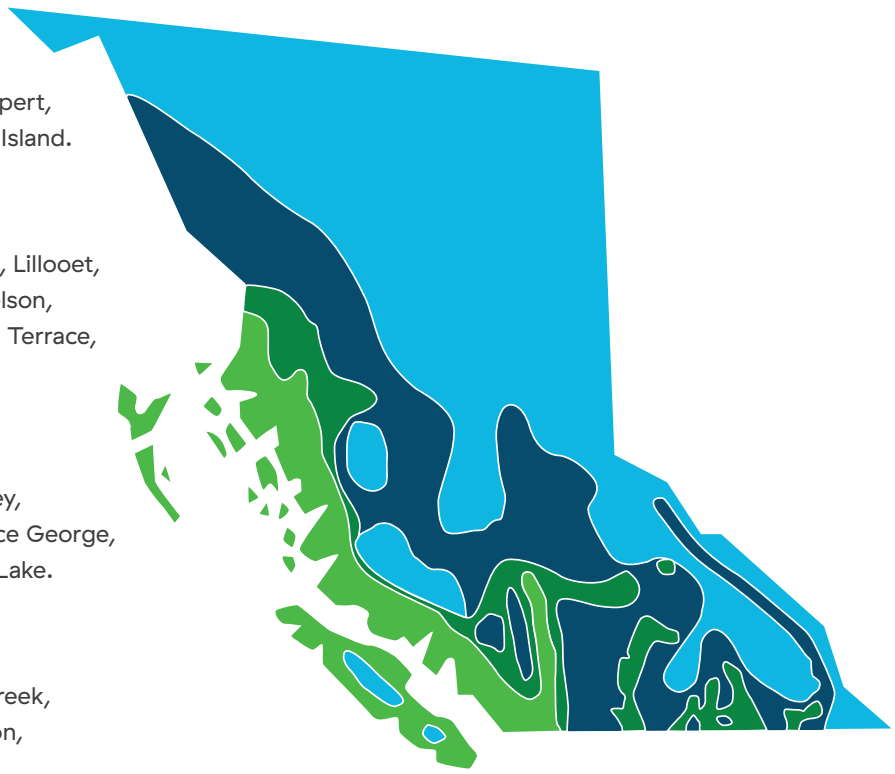
Cache Creek, Fernie, Grand Forks, Hope, Lillooet, Lytton, Kamloops, Kelowna, Nakusp, Nelson, New Hazelton, Revelstoke, Salmon Arm, Terrace, Trail, Vernon.

COLD WINTER AREAS

Cranbrook, Golden, Invermere, Kimberley, McBride, Merritt, 100 Mile House, Prince George, Quesnel, Tulameen, Whistler, Williams Lake.

EXTREME WINTER AREAS

Atlin, Burns Lake, Chetwynd, Dawson Creek, Fort St. John, Fort St. James, Fort Nelson, Mackenzie, Smithers, Vanderhoof.



Step 4: Determine what vegetation is recommended for Planting in your region

Determine if your planting site is in the low, medium or tall zone. If you are planting in the low or medium tree zones, consult the lists under your geographic region for recommended species appropriate for planting in these locations. If you wish to have a complex landscape design, creating a planting plan is a good idea. As you draw this, pay particular attention to areas around the service wire and power line. Keep in mind that vegetation around the service wire is not maintained by BC Hydro. To avoid maintenance in this area, select vegetation with a mature height of 1 m below the service wire.

For further information and assistance in selecting the right plant for the right place, contact a local garden center or nursery that is a part of the BC Landscape and Nursery Association (BCLNA).

Vegetation recommended for planting in extreme winter areas

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Low Zone	**Amelanchier alnifolia** (serviceberry, Saskatoon) Small tree or shrub, often multi-stemmed. White flowers and purplish edible fruit. Makes great pies and jellies.	**Acer ginnala 'Compactum'** (compact Amur maple) Excellent fall colour (yellow to brilliant red).Good spread, very hardy.
	Cornus alba 'Sibirica' (Tartarian/Siberian dogwood) Growth up to 4 metres. A fine hardy shrub that is attractive in winter and summer. Deep red stems give winter show. Many cultivars.	**Cornus sericea 'Baileyi'** (red twig dogwood) Growth up to 3 metres. Attractive shrub during summer and winter, when red stems make a showy winter scene.
	Juniperus communis (common juniper) Average growth 4.5 metres. Excellent evergreen small tree or shrub. Many cultivars.	**Juniperus scopulorum** (Rocky Mountain juniper; 'Skyrocket') Columnar shaped evergreen with attractive bluish-green foliage. Excellent as an accent or hedge.
	Physocarpus opulifolius (ninebark) Exfoliating bark peels in strips to reveal layers of reddish to light brown inner bark. Showy pink or white flowers appear in clusters.	**Picea pungens 'Glauca Globosa'** (dwarf globe blue spruce) A dwarf globe-shaped cultivar with a distinctive flat top.
	Pinus mugo (Mugo pine) Excellent cold weather pine pyramidal cultivars available, may be a broad shrub or small tree.	**Prunus virginiana** (chokecherry) Attractive foliage and white flowers with showy red fruit turning to dark purple. Excellent for jellies and wines.
	Ribes alpinum (alpine currant) Shiny green foliage turns red and gold in the fall. Small red fruits are popular with birds.	**Rosa acicularis** (prickly rose) Growth up to 1.5 metres. Showy pink flowers bloom from May to July.
	Salix discolor (pussy willow) Growth up to 5 metres. Shrub or small tree with early catkins in spring, full thick foliage through summer.	**Sambucus racemosa** (red elderberry) Growth up to 4 metres. Attractive elderberry shrub with flowers and berries. Choose cultivars adapted to planting area.

Photo credits: 1. Amur maple, Pat Breen 2. Chokecherry , DianesDigitals on Flickr 3. lilac ,Tom Wells 4. Tartarian dogwood, Pat Breen

Vegetation recommended for planting in extreme winter areas continued

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Low Zone	**Syringa vulgaris** (lilac) Beautiful and aromatic lilac is a favorite the world over. Choose a variety adapted to your planting area.	**Vaccinium myrtilloides** (velvetleaf blueberry) A low shrub with edible and sweet berries.
	Viburnum edule (highbush cranberry) Attractive summer flowers and fall berries make this hardy shrub a sound power line companion.	
Medium Zone	**Acer glabrum var. douglasii** (Douglas maple) Average growth up to 8 metres at maturity. An attractive and hardy maple, available in many varieties.	**Prunus spp.** (flowering cherries, plums) Wonderful spring blossoms and leaf colour. Always check with your local nursery professional for disease free varieties developed for your area.
	Salix spp. (willows) Another prolific genus from which many attractive cultivars have been developed.	**Sorbus americana** (American mountain–ash) Growth up to 4 – 6.5 metres. Well adapted to cold weather areas, handles wet or dry soil. Flowers white, fruit bright red.

Vegetation recommended for planting in cold winter areas

(in addition to vegetation listed in Extreme Winter areas for low and medium zones)

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Low Zone	●	**Acer tataricum 'GarAnn'** (Hot Wings® Tatarian maple) Attractive tree produces fiery red seeds in the late summer and turns an outstanding scarlet in the fall.	● ●	**Chamaecyparis pisifera 'Filifera'** (thread leaf cypress) Growth to 5 metres. Evergreen cultivar is columnar in shape and very hardy. Available in light, dark green and gold tips.
	●	**Chionanthus virginicus** (white fringetree) Long, white flowers are mildly fragrant in the summer. Dark green leaves turn gold in the fall.	● ●	**Cornus sericea 'Flaviramea'** (golden twig dogwood) Growth up to 3 metres. Similar to baileyi with brilliant yellow stem varieties.
	●	**Corylus americana** (American filbert) Long, white flowers are mildly fragrant in the summer. Dark green leaves turn gold in the fall.	●	**Crataegus spp.** (hawthorn) Growth up to 5 metres for some species. Beautiful flowers and berries. Consult with a nursery professional regarding an area adapted variety.
	● ●	**Euonymus alatus 'Compactus'** (dwarf burning bush) Great shrub for fall colours. Bright orangered berries.	● ●	**Philadelphus x virginalis** (mock orange) Growth to about 3 metres. A profusion of creamy white flowers covers this hardy shrub which is a great species for planting in limited space.
	●	**Rhus typhina** (staghorn sumac) Many species of sumac are hardy, prolific and small enough to be under power lines. An attractive tree with bright fall colours.	●	**Thuja occidentalis** (Arborvitae, white cedar) Growth up to 4.5 metres. Choose one of the low growing varieties of this popular plant for hedging or feature trees.
Medium Zone		**Acer tataricum** (Tatarian maple) Growth up to 10 metres. Small attractive tree, with red fruit in late summer and bright green leaves that turn yellow in fall.		**Acer griseum** (paperbark maple) Maximum growth 8 metres. Slow growing tree. Bark peels in thin, papery layers. Beautiful autumn foliage with red, orange, and pink hues.
		Cercis canadensis (redbud–Judas tree) Growth up to 10 metres. Showy choice in a wonderful flowering tree. Available in purple and white ('Alba') flowers.		**Cornus mas** (Cornelian cherry; dogwood) This hearty dogwood has clusters of yellow flowers in early spring before leaves are on the tree. Adaptable, hardy and showy.

Photo credits: 1. Mock orange, Pat Breen 2. Hot Wings (r) Tatarian maple ,NetPS Plant Finder 3. Staghorn sumac, NetPS Plant Finder 4. Burning bush, Pat Breen

Vegetation recommended for planting in cold winter areas

(in addition to vegetation listed in Extreme Winter areas for low and medium zones)

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Medium Zone	**Acer tataricum** (Tatarian maple) Growth up to 10 metres. Small attractive tree, with red fruit in late summer and bright green leaves that turn yellow in fall.	**Acer griseum** (paperbark maple) Maximum growth 8 metres. Slow growing tree. Bark peels in thin, papery layers. Beautiful autumn foliage with red, orange, and pink hues.
	Cercis canadensis (redbud–Judas tree) Growth up to 10 metres. Showy choice in a wonderful flowering tree. Available in purple and white ('Alba') flowers.	**Cornus mas** (Cornelian cherry; dogwood) This hearty dogwood has clusters of yellow flowers in early spring before leaves are on the tree. Adaptable, hardy and showy.
	Caution: *Malus spp.* (flowering crabapple) is host to the Apple codling moth and should not be planted in the Okanagan or other apple growing regions. Aways consult with your local nursery when planting trees in areas where commercial fruit crops are grown.	

Vegetation recommended for planting in moderate winter areas

(in addition to vegetation listed in Cold Winter areas for low and medium zones)

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Low Zone	● ●	**Acer campestre 'Carnival'** (variegated field maple) This unique maple has attractive green leaves margined with white and pinkish coloured tips in spring. Prefers light shade.	●	**Acer circinatum** (vine maple) B.C. native vine maple usually grows in clumps and offers attractive green foliage only outdone by its brilliant fall colour.
	●	**Acer palmatum** (Japanese maple) A great choice for a power line companion and available with red or green foliage. Be sure to plant a low-growing cultivar; see your local nursery.	● ●	**Carpinus betulus 'Pendula'** (weeping hornbeam) This grafted species is a nice addition to any garden with leaves turning yellow and then orange before they fall in the autumn.
	● ●	**Cercis canadensis 'Ace of Hearts'** (ace of hearts redbud) An eye pleasing cultivar with light purple flowers and small, heart-shaped leaves.	● ●	**Cercis canadensis 'Covey'** (lavender twist ® redbud) A weeping accent tree with a twisted trunk and showy pink to purple flowers in the spring.
	●	**Cercidiphyllum japonicum 'Pendula'** (weeping katsura tree) This grafted cultivar features an irregular cascading canopy of weeping branches that dip toward the ground.	● ●	**Chamaecyparis obtusa 'Templehof'** (Tempelhof compact hinoki cypress) A low maintenance shrub with goldenyellow outer foliage and resistant to deer and rabbits.
	●	**Cotinus coggygria** (smoke tree) The silk-like thread flowers of this handsome tree appear like smoke hovering over its attractive foliage. Available in green or purple, this will be a conversation piece in your front garden.	● ●	**Chaenomeles japonica** (Japanese quince) Large red, pink or white blossoms announce the spring with this fine shrub. Easily trainable, it makes a thick and attractive shrub.
	● ●	**Deutzia gracilis** (slender deutzia) Masses of fragrant white flowers grace this bush in the spring and early summer.	●	**Fagus sylvatica 'Purple Fountain'** (purple fountain beech) An ideal addition to small gardens with its narrow columnar shape. Has cascading branches with deep purple to burgundy foliage.
	● ●	**Forsythia x intermedia** (border Forsythia) A hardy plant with reams of bright yellow early-spring blossoms.	●	**Hamamelis x intermedia** (witch hazel) Hardy shrub with winter bloom, x intermedia has several varieties and several colours available.
	● ●	**Hibiscus syriacus** (Rose of Sharon) A deciduous shrub with large, trumpet shaped flowers. Has a long flowering period from early summer to fall.	●	**Kolkwitzia amabilis** (beauty bush) Growth up to 4 metres. The common name is right on for this handsome shrub with pink and white bell-like flowers.
	●	**Magnolia sieboldii** (Oyama magnolia; Siebold's magnolia) A deciduous tree with fragrant white flowers and showy pink fruit. Prefers light shade.	●	**Magnolia stellata** (star magnolia) Many small, star-like flowers cover this magnolia in early spring. An excellent choice.

Vegetation recommended for planting in moderate winter areas

(in addition to vegetation listed in Cold Winter areas for low and medium zones)

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Low Zone	**Malus 'Jewelcole'** (red jewel™ crabapple) A small tree with white flowers in the spring followed by cherry red fruit. Best grown in full sun.	**Malus sargentii** (Sargent crabapple) A dwarf crabapple variety with abundant clusters of fragrant white flowers in the spring. The red fruits are extremely popular with birds.
	Prunus x cistena (purpleleaf sand cherry) An ornamental shrub with reddish–purple foliage.	**Pyrus calleryana 'Jaczam'** (Jack® pear) Dwarf pear with a teardrop shaped form. Leaves turn red, purple and orange in the fall.
	Pyrus fauriei 'Westwood' (Korean sun™ pear) Deciduous tree with white flowers and small black fruit. Red to purple fall colours.	**Pyrus salicifolia 'Pendula'** (willowleaf pear) Weeping form provides year round interest. White flowers in spring followed by small, greenish–yellow pears (inedible).

Photo credits: 1. Rose of Sharon, Pat Breen 2. 'Carillon' Japanese snowbell 3. Variegated field maple, Robert Flogaus–Faust 4. Ace of hearts redbud, Pat Breen.

Vegetation recommended for planting in moderate winter areas

(in addition to vegetation listed in Cold Winter areas for low and medium zones)

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Low Zone	●	**Rhododendron spp.** (rhododendron) A Growth of some varieties up to 4 metres. Hundreds of varieties to choose from in this popular and attractive shrub.	● ●	**Spiraea prunifolia 'Arguta'** (bridal wreath) A wonderful spring flowering plant with masses of white flowers.
	● ●	**Prunus x cistena** (purpleleaf sand cherry) An ornamental shrub with reddish–purple foliage.		
Medium Zone		**Cercidiphyllum japonicum** (katsura tree) An excellent shade tree with leaves that turn from reddish purple to blue green, and finally, to yellow in the fall.		**Cornus 'Eddie's White Wonder'** (Eddie's dogwood) Very resistant to the dogwood leaf–blotch blight which affects the native "nuttallii". The choice for coastal planting of dogwood.
		Cornus kousa var. chinensis (Chinese dogwood) Large creamy white bracts light up this tree which prefers light shade.		**Koelreutaria paniculata** (goldenrain tree) Very attractive summer flowering tree with bright yellow flowers. An excellent choice for a feature tree.
		Laburnum x watereri 'Vossii' (golden chain) Wonderful flowering chains of yellow flowers on this fine tree. Very attractive. CAUTION: Flowers, fruits and seeds are extremely poisonous.		**Oxydendrum arboreum** (sorrel tree; sourwood) Lustrous leaves turn brilliant red in fall. Occasionally hard to find, but an interesting addition to any garden.
		Parrotia persica (Persian ironwood) One of the best small specimen trees. Interesting foliage and bark make it a conversation piece. Very problem resistant.		**Prunus x blireana** (Blireana plum) If you want a fine showy tree, you should consider Prunus. Blireana is just one of the stars in an extremely showy family.
		Stewartia koreana (Korean stewartia) Very handsome large shrub with white flowers and yellow stamens.		**Taxus spp.** (yew) In evergreen shrubs and small trees, the yews have a lot to offer. CAUTION: Very toxic leaves and berries.
	Note: Flowering Cherries are prohibited from being planted in the "Little cherry" control area of the Central Interior. This includes the entire Okanagan Valley, north to Kamloops and Salmon Arm and south to Princeton and Osoyoos. There is also a "Little cherry control area" in the Creston area. Check with your local nursery.			

Photo credits: 1. Strawberry tree, Erin Ursu 2. Japanese camellia, Pat Breen 3. Sourwood, Pat Breen 4. Siebold's Magnolia, Pat Breen.

Vegetation recommended for planting in mild winter areas

(in addition to vegetation listed in Mild Winter areas for low and medium zones)

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

LowZone	**Arbutus unedo** (strawberry tree) Smooth red bark peels on mature wood. White flowers and strawberry–like fruit are produced in the fall.	**Camellia japonica** (Japanese camellia; rose of winter) An absolute delight every spring as the bright flowers show off against a glossy green foliage. Must be planted in sheltered areas.
	Cephalotaxus harringtonia (Japanese plum yew) Harder to find than other yews but a good choice if you want the yew look in the milder winter settings.	**Holodiscus discolor** (ocean spray) An impressive shrub with creamy white flowers in feathery plumes. Many excellent landscape applications.
	Magnolia x 'Susan' (Susan magnolia) A showy, fragrant hybrid that will grace your garden with purple flowers in mid–spring. Prefers clay soils in full sun or partial shade.	**Photinia fraseri** (Fraser's photinia) Famous red tip shrub is an eye catcher as a hedge or a feature bush.
	Syringa meyeri (Meyer lilac) Growth up to 2 meters. A shrubby cultivar that produces highly fragrant, bluish–pink flowers.	**Thuja occidentalis 'Smaragd'** (emerald cedar) An attractive pyramidal bright green tree. Used as a boundary, hedge or feature tree
	Viburnum opulus (guelder rose) An attractive white cluster of flowers is a feature of this fine shrub. Several varieties to choose from.	

Vegetation recommended for planting in mild winter areas

(in addition to vegetation listed in Mild Winter areas for low and medium zones)

- Transmission line compatible (3 m or less)
- Distribution line compatible (5 m or less)

Medium Zone	**Carpinus betulus 'Columnaris'** (European hornbeam) An attractive roadside tree. Develops an egg shaped profile.	**Cercidiphyllum japonicum** (katsura tree) An excellent shade tree with leaves that turn from reddish purple to blue green, and finally, to yellow in the fall.
	Cornus "Eddie's White Wonder" (Eddie's dogwood) Very resistant to the dogwood leaf–blotch blight which affects the native "nuttallii". The choice for coastal planting of dogwood.	**Cornus kousa** (Chinese or Korean dogwood) Small, bushy tree with showy white flowers and scarlet red fruit.
	Koelreutaria paniculata (goldenrain tree) Very attractive summer flowering tree with bright yellow flowers. An excellent choice for a feature tree.	**Malus spp.** (flowering crabapple) Beautiful flowers in the spring and small fruits provide winter attraction. Consult with a nursery professional regarding an area adapted variety.
	Oxydendrum arboreum (sorrel tree; sourwood) Lustrous leaves turn brilliant red in fall. Occasionally hard to find, but an interesting addition to any garden.	**Prunus spp.** (flowering cherries, plums, peaches) Star studded line–up of single and double flowering trees. Many varieties available.
	Sciadopitys verticillata (Japanese umbrella – pine) A unique conifer with glossy green needles arranged in umbrella–like spokes. Prefers semi–shade.	**Thuja occidentalis 'Fastigiata'** (pyramidal cedar) The pyramidal variety of Thuja plicata (red cedar). Excellent tree, but does need annual trimming and tying.
	Caution: *Malus spp.* (flowering crabapple) is host to the Apple codling moth and should not be planted in Okanagan or other apple growing regions. Always consult with your local nursery when planting trees in areas where commercial fruit crops are grown.	

Note:

Hedges are not recommended directly under power lines. However, they are acceptable given the right species is selected and there is an appropriate set back from power lines. Hedges must be maintained by the home owner, as annual pruning is required in order to keep hedges healthy, vibrant, and at a compatible height with the power lines. We suggest you call the Properties Helpdesk to help determine the maximum allowable height of hedges and appropriate setback of hedges. Email **properties.helpdesk@bchydro.com** or call **1 800 667 1517** for more information.

Plants recommended for hedges

- *Acer campestre* (hedge maple)
- *Cotoneaster lucidis* (cotoneaster)
- *Azalea japonica* (Japanese azaleas)
- *Juniperus* (juniper)
- *Ligustrum* (privet)
- *Buxus* (boxwood)
- *Photinia* (photinia)
- *Chaenomeles* (quince)
- *Thuja* (arborvitae, cedar)
- *Choisya ternata* (Mexican orange blossom)
- *Vibrunum* (viburnum)

Additional Resources:

The following websites provide detailed information on many of the native and ornamental species listed in this guide, including growth characteristics and photos of the species during different times of the year.

http://www.geog.ubc.ca/biodiversity/eflora/

http://oregonstate.edu/dept/ldplants/common.htm

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For more information visit our website at **bchydro.com/trees**.

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