

***Prunus virginiana* L.**

Halkomelem (Upriver): təx^wtəx^w

Ucwalmicwts (Lilwat): Zelkwu7 or zəlk^wú? (fruit); zəlk^wú?-az' (plant)

English Name: chokecherry

Family: Rosaceae (Rose family)

Identifying Characteristics:

Prunus virginiana is a large deciduous shrub or small shrub-tree that reaches heights of 1 to 6 m. It can sprout from suckers that form into irregular-shaped thickets that grow 1-6m tall (Douglas et al, 1999; Crowder et al, 2015).

The colour of young plant bark varies from gray to reddish-brown (Crowder et al, 2004), while on old plants the bark transforms to a dark brown colour, with distinct furrows. As the stem grows, the bark becomes marked with horizontal rows of raised air pores known as lenticels that develop into shallow grooves as the plant matures (Crowder et al, 2015).



Figure 1. *P. virginiana* form.

The dark green and glossy simple leaves are alternate, and oval to elliptic, with finely toothed (serrated) margins and short-pointed tips (Figure 2). Each leaf is stalked and 50 – 75 mm in length. Fall colour is yellow with reddish tinges (Figure 4).



Prunus virginiana ssp. *demissa*

Figure 2. Chokecherry plant parts.

Two subspecies of *P. virginiana* occur in BC (Douglas et al, 1999):

P. virginiana ssp. *demissa* L. (Nutt.) Taylor & MacBryde (western chokecherry) occurs west of the Coast Mountains (where KPU Langley is located); plants have red fruit and leaves that are velvety-hairy beneath.

P. virginiana ssp. *melanocarpa* (Nels.) Taylor & MacBryde, occurs east of the Coast Mountains; plants have bluish-purple to black fruits and leaves that are smooth beneath of hairy in the vein axils.



The fragrant flowers (Figure 3) are small, white and each have 5 rounded petals typical of *Rosaceae*. Flowers are arranged in 4 to 11 cm elongated clusters, known as racemes.

Figure 3. Chokecherry flowers and leaves.

Note:

With the exception of the fleshy part of the fruit, the leaves, bark, stem, and stone (seed) of chokecherry produce hydrocyanic (Prussic) acid and are toxic to humans and other mammals (Crowder et al, 2015).



Figure 4. Ripe fruits.

The 6-9mm wide fruits are red, ripening to shiny red, purple or bluish-black drupes depending on subspecies (Figure 4). Each cherry has a single stone. The fruit hangs off the branches in a long, drooping cluster of 6-12 berries.

The edible flesh ripens in the summer and unless completely ripe, is very tart with a strong (astringent) aftertaste. If the plant is protected from birds and bears, after the first frost the fruit becomes sweeter and much more flavourful (Kuhnlein and Turner, 1991).

Distribution:

Prunus virginiana is a native species that is scattered and locally abundant across Turtle Island (Figure 5), with a range stretching from the Yukon to New Mexico and from BC to Newfoundland.

In BC chokecherry is more common east of the Coast Mountains where it thrives near forest edges (Lil'wat Nation, 2017) and is found in where climatic conditions are cool temperate to cool semiarid (Douglas et al, 1999). It is less common in coastal BC, occurring in the Lower Mainland and southern Vancouver Island.



Figure 5. Distribution of *P. virginiana*

Habitat:

Because of its wide distribution, *P. virginiana* can be found in many types of habitat, plant associations, and ecological communities. Chokecherry is commonly found at low to mid-elevations, open forests, grasslands and clearings in warm aspects (Parish et al, 1996). It responds to fire, windthrow, or logging disturbances by rapidly colonizing moist, well-drained, open sunny sites. Chokecherry persists in forests as secondary succession continues and can be found in the shady shrub layer of older forests.

Pests and Diseases:

Like many of the *Prunus* genus, chokecherries are prone to a few diseases including chokecherry shothole, powdery mildew, black knot, and western X-disease.

Chokecherry shothole is caused by either a fungus or bacteria. The fungus *Coccomyces lutescens* overwinters on fallen leaves, with spores dispersing from fruiting bodies in spring when the weather warms, spreading by wind to infect newly formed leaves (Agriculture and Agri-food Canada, 2014). In the summer, reinfection occurs when the white spore masses on infected leaves mature and disperse to the ground. The bacteria known as *Pseudomonas syringae* pv. *syringae* overwinters within cankers on chokecherry branches, spreading onto wet leaves during cool, rainy spring weather. Wet weather contributes to the spread of the bacteria to stems and fruits, and reinfection occurs if the wet weather persists into summer. In Canada there are currently no fungicides registered for chokecherry disease control. Pruning infected parts and sanitation including leaf litter removal are the only control measures available (Agriculture and Agri-food Canada, 2014).

Several species of leafhopper infect plants with western X-disease, as they feed on chokecherry leaves. The disease is known as a spiroplasma, and is transmitted from June to September but manifests the year following infection (Agriculture and Agri-food Canada, 2014). The only treatment is to remove the plant and burn it.

Black knot is caused by *Dibotryon morbosum*, a fungus that can seriously harm both wild and cultivated domestic varieties of *Prunus* spp., resulting in reduced crop yields and stunted growth (Agriculture and Agri-food Canada, 2014). To control black knot, prune out infected wood in late winter/early spring. Tools must be disinfected between every cut using a 1:10 bleach to water solution. Infected wood should be burned in the winter. If using native chokecherry for hedging, windbreaks, or ecosystem repair, keep the chokecherries at least 200 m away from an orchard with any *Prunus* trees to reduce risk of contamination.

Wildlife Use:

Chokecherry is important to many wildlife species including insects, birds, and mammals. During early spring, the flowers are an important food source of nectar for butterflies, flies, native bees, and ants. Birds, rabbits, rodents, and bears eat the fruit. The plant provides food, shelter and nesting habitat for various birds, and deer browse during the winter months.

Reproduction and Propagation:

Chokecherries require insects for pollination, and flies primarily are attracted by the fragrance of the blossoms. Seed crops are regular and very viable; select for desirable traits such as open grown or understory shade persistence. When naturally dispersed the seeds can be dispersed long distances from the parent plant by birds or mammals, helping with genetic diversity. Expect about 7 to 20 seeds per gram. Soak fruit in water for 24–48 hours and remove pulp prior to stratification. Chokecherry seeds require acid scarification pre-treatment with H^2SO^4 for 15–90 minutes to weaken the hard seed coat. Stratify warm (room temperature) for 60 days followed by 120 days in cold moist peat. Or, seeds can be sown into nursery beds in the late-summer or fall for natural stratification, or hand sown directly on site.

Though chokecherry can be heavily browsed by deer, it suckers easily from the root crown allowing it to continuously reproduce vegetatively. By producing new sprouts, chokecherry can dominate a site for an extended period of time through clonal expansion. Suckers can be used for semi-hardwood cuttings; root cuttings can also be successfully taken and propagated.

Interactions and Human Interest:

Prunus is from the Greek “*prounos*”, an ancient name for the plum tree. The species name, *virginiana*, means “of Virginia”.

Hardy from USDA zones 0 to 9, chokecherry is used extensively across the continent in shelterbelts, windbreaks, wildlife habitat, mass plantings for erosion control (Johnson, 2000), and ecosystem repair such as mine reclamation. Chokecherry does well in riparian repair plantings, providing shade over water and streambank stabilization.

*Children have previously been poisoned and died by over consumption of raw berries. Also, all types of livestock can be poisoned by ingesting plant material (Liłwat Nation, 2017).

Because of its hardiness, showy flowers, and useful fruit, there is horticultural interest in using *P. virginiana* in the garden, and for commercial crop production. Nursery cultivars easily acquired include ‘Schubert’, also known as ‘Canada Red’, and ‘Midnight Schubert’.

Named varieties for commercial crop production are mostly available from the Prairie Provinces including 'Pickup's Pride'; 'Garrington' (low and bushy); 'Red' or 'Lee Red' (red leaves); 'Robert' (red leaves); 'Boughen's Golden' (yellow fruit); and 'Goertz', a non-astringent release from Agriculture Canada.

Ethnobotany:

Because of its broad range across the continent, chokecherry has been used since time immemorial to treat various health problems (Moerman, 2010). Had helping astringent properties and beneficial effect upon the respiratory system. Some women used chokecherry juice to stop post-partum hemorrhages (Moerman, 2010; Turner, 2014). Chokecherry stems are used to make digging tools for harvesting *Erythronium grandiflorum* (yellow glacier lily) bulbs (Kuhmlein and Turner, 1991) and for spreading salmon for smoking (Turner, 2014). Boiled bark is used to make a red dye for basketry (Turner, 2014).

The inner bark is used to make cough syrup or tea used for treating colds and other ailments (Moerman, 2010). Cherries can also be dried and put into a jar and topped off with boiling water to make a concentrated juice, that was used as a blood cleanser by the Lílwat7úl (Lílwat Nation, 2017). The Secwepemc drank chokecherry juice for strength after illness (Parrish et al, 1996). Willow (*Salix* spp.) tea was then used to counteract the laxative effects of the chokecherry (Crowder et al, 2015). The Secwepemc boiled the roots to make beer, and used dried cherries to make wine (Moerman, 2010). They also mixed the cherries with bear grease to make a paint for colouring stone pictographs (Turner, 2007).

Harvesting:

The best time to harvest fruit is late-summer into September, when the cherries are fully ripe and are either shiny red or deep purple to black. In the fall after all the leaves have fallen off, the bark is harvested for medicinal purposes. Important to leave some fruit for birds and other wildlife. Harvest only twigs or branches for bark. Don't disturb the main stems for harvesting.

Recipes:

In keeping with traditional uses, begin by making chokecherry juice, which can then also be used for shrub (vinegar), syrup or jelly. If using for jelly, some under-ripe fruit will raise the pectin levels in the juice and help the jelly to set.

Chokecherry Juice

2.5 litres chokecherries, washed, with stems and debris removed
1.25 litres water

Add the chokecherries to the water bring to the boil and simmer for 15 minutes. Mash fruit with a spoon or potato masher as it cooks and softens. Drain through a jelly bag; no squeezing. Save the seeds for propagation. Use immediately for jelly or other recipes, otherwise preserve by bottling into sterilized jars and processing in a boiling water bath for 10 minutes.

Chokecherry Shrub (Vinegar)

1 litre chokecherries, washed, with stems and debris removed
350 ml vinegar

350 ml water
sugar

Wash and mash the cherries. In a non-reactive (glass) bowl, combine cherries, vinegar, and water, topping up to cover the fruit. Let stand 24 hours, stirring occasionally. Place in a large saucepan, and slowly bring the mixture to a rolling boil. After 5 minutes strain through a jelly bag. Do not squeeze bag. Save the seeds for propagation. For each 250 ml of juice, add 250 ml granulated white sugar. Bring to a rolling boil and maintain for several minutes. Remove from heat. Allow to settle. Bottle and refrigerate for up to 6 months, or pour into sterilized jars, seal and process for 10 minutes in a boiling water bath. To serve, add 2 – 4 tablespoons of chokecherry shrub to a glass and fill with sparkling water.

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Images:

Figure 1. File: Chokecherry2web.jpg. Retrieved from <https://upload.wikimedia.org/wikipedia/commons/c/ce/Chokecherry2web.jpg>

Figure 2. Douglas, G.W., Meidinger, D.V., and Pojar, J. (editors). (1999). *Illustrated Flora of British Columbia. Volume 4: Dicotyledons (Orobanchaceae Through Rubiaceae)*. Victoria, BC: Ministry of Environment, Lands & Parks and Ministry of Forests. Retrieved from E-Flora BC <http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Prunus%20virginiana&redblue=Both&lifeform=2>

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