

***Crataegus douglasii* Lindl.**

Həŋqəmiŋəm (Downriver): metthun'uip

Halkomelem (Upriver): méts'əl (berries); mets'iyətp (plant)

Ucwalmícwts (Lílwat): (s-)q'an (berries); q'an-az' (plant)

English name: black hawthorn

Family: Rosaceae (Rose Family)

Identifying characteristics:

Black hawthorn is a deciduous, multi-stemmed shrub-tree with an upright, spreading habit that grows 1-10m tall and 5-7m wide. Branching is alternate, with short sharp 2cm reddish thorns (Figure 2). Bark is reddish-brown on new twigs, turning to grey as the plant ages (Douglas et al, 1999). Black hawthorns have narrow leaf scars with three vein scars (Natural Resources Canada [NRC], 2015).



Figure 1. Leaves and fruit.



Figure 2. Twig with emerging leaves and a thorn.

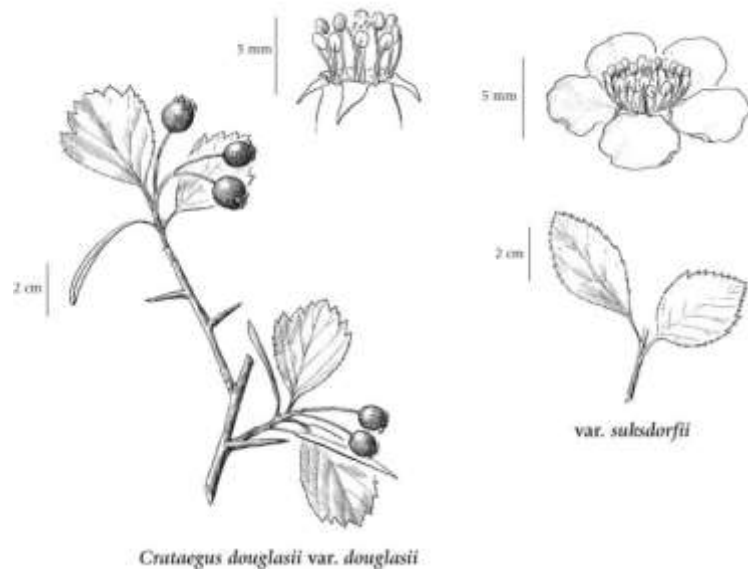


Figure 3. Twig, leaf, flower, and fruit.

Leaf shape varies throughout the tree; they are obovate to ovate (Figure 3), have a cuneate base with an acute or rounded apex, 2-8cm long and are variably lobed. Leaves are simple, serrated, leathery and dark green. Fall colour (Figure 4) can be showy and ranges from yellow to orange and red (NRC, 2015).



Figure 4. Fall leaf colour.

Showy white corymbs (flowers) cover the hawthorn in spring. Flowers are perfect with five petals in stellate formation. Flowers give way to clusters of 8-10mm black-purple pomes or haws that can dry and remain on the plant in the winter (KPU, 2015). Each haw has 1-5 nutlets (Hansen, 2012).

Distribution:

Black hawthorns are found throughout western BC with their northern range extending to southern Alaska and Haida Gwaii (Douglas et al, 1999). As shown in Figure 5, this species can be found as far east as Ontario and south to California (KPU, 2015). Globally, *Crataegus douglasii* is considered to be of least conservation concern (BGCI and IUCN, 2018).



Figure 5. Range map of black hawthorn (*Crataegus douglasii*) (USGS, 1999).

Habitat:

Black hawthorn is a very adaptive plant and on the KPU Langley campus can be found in wetland and adjacent upland habitats. When occupying wetlands, it is an indicator of nutrient-rich soils (Klinka et al, 1989). While black hawthorn thrives in a sunny exposure, it will tolerate shade (NRC, 2015). There are many habitats that are suitable for black hawthorn; from rocky slopes to forest edges, or fields to stream banks with heavy clay soils (Douglas et al, 1999). On Logan

Creek, several black hawthorns persisting from the colonial agricultural period are found near bitter cherry (*Prunus emarginata*), common snowberry (*Symphoricarpos albus*), hardhack (*Spiraea douglasii*), red elderberry (*Sambucus racemosa*), and Pacific crabapple (*Malus fusca*).

Pests and Diseases:

Black hawthorn is not susceptible to the hawthorn leaf blight (*Diplocarpon mespili*) that affects the European varieties. It is susceptible to rust diseases affecting Rosaceae, but they are part of the natural life cycle of the plant.

Wildlife Values:

Black hawthorn flowers attract many insects for pollen and nectar. The fruit is useful to frugivorous birds, and young saplings are prone to animal browsing, which we have observed at Logan Creek.

Reproduction and Propagation:

Flowers attract moths, bees and butterflies for pollination (Cane, 2013). The seeds are dispersed via animals; the thick endocarp protects the seeds so they can pass through the digestive system of animals and be deposited someplace else (Hansen, 2012).

Cuttings can be used to clone black hawthorn though the success rate can be low (Hansen, 2012), as is genetic diversity. Seeds should be harvested from ripe fruit and cleaned prior to scarification and stratification. There are approximately 10 seeds per gram. To increase percent germination, seeds require acid scarification for 0.5 to 3 hours, followed by 84 to 112 days of cold moist stratification at 5°C (USDA, NRCS, 2019). Seeds are planted early in the fall and covered with 1cm of soil. Seedlings have long tap roots and should be shifted to larger containers or planted out within a year for successful establishment.

Interactions and Human Interest:

Black hawthorn are fabulous plants for birds and other wildlife including many pollinators as it provides both food and habitat. The fruit dries on the bush and persists into the winter providing food for birds and wildlife such as bears. The plant forms thorny shrub-tree thickets that provide excellent protection and cover for nesting birds and other wildlife (Splitrock Environmental, 2013).

A welcome addition to both naturalized and traditional gardens, black hawthorn's clusters or corymbs of white blossoms (Figure 6) in the spring give way to reddish-black berries in late summer to bring interest and beauty to the garden. Diverse fall colours extend the interest of black hawthorn in any garden setting. The thorns make this plant an excellent privacy hedge but care must be taken to ensure the plant isn't beside walkways or in areas that will be frequented by people (Splitrock Environmental, 2013). Hawthorn are hardy to zone 5 (-29 to -23°C) (KPU, 2015).



Figure 6. Flowers.

The Latin name, *Crataegus*, is Greek for strength, referring to the strong wood. Due to the small branching though it is only useful for small items such as boxes, combs and waking sticks. It also burns very hot and is great for charcoal. The common name, hawthorn, comes from “haguthorn” meaning “fence with thorns” (Hansen, 2012).

In BC the “black” in the common name refers to the colour of the fruit which is edible, but seedy. Commonly the flowers and fruits are used for medicinal purposes such as tea and tinctures. Black hawthorn tea is good for sore throats. It is also used as a diuretic for water retention and to improve kidney function. However, it is best known for improving heart circulation and cardiac function and is excellent for overall heart health (Shock, n.d.).

While *Crataegus douglasii* is not invasive, the English variety *Crataegus monogyna* Jacq. can be very aggressive so ensure when planting from nursery stock that you are using the native species. English hawthorn has larger thorns and will form dense thickets in a variety of habitats. It is naturalized in North America, Australia, New Zealand and South Africa (King County, 2018), and has escaped cultivation on the KPU Langley landscape.

Ethnobotany:

Black hawthorn thorns, fruit, and bark have many uses for local First Nations. Thorns are used for piercing ears and skin ailments like blisters and boils (Turner, 2014). The hard wood is useful for tool handles (Pojar and MacKinnon, 2004). Thorns can also be used for fish hooks and rake prongs, and can be made into very sharp needles for sewing (Shock, n.d.). The dried berries are kneaded and made into cakes for winter, though the seediness places black hawthorn in the survival or poverty food category when other tastier berries are not available (Turner, 2014). Fruit can be mixed with venison and fat for pemmican. Hawthorn bark and berries were used to treat diarrhea and other stomach issues (Splitrock Environmental, 2013). *Crataegus* spp. leaves and fruit contain compounds that have been documented as valuable in protection of circulation specifically in the heart, eyes, and feet (Wang et al, 2013).

Harvesting:

Haws (fruit) should be gathered as soon as they ripen in late summer. They can be eaten fresh or collected for jellies and baking. Take care when harvesting as the berries will over ripen quickly and begin to ferment on the branches (Shock, n.d.). Turner (2014) notes that in the Okanagan valley bottoms, ripe black hawthorn fruit are an indicator that black huckleberries (*Vaccinium membranaceum*) are ripening in the hills.

Recipe: Sweet and Spicy Hawthorn Ketchup (adapted from Olsen, n.d.)

Ingredients:

3 cups (700 ml) hawthorn fruits
1/2 cup (120 ml) apple cider vinegar
1/2 cup (120 ml) of water
1/4 cup (60 ml) of black cherry jam or honey (slowly add and taste, you may want more or less)
1/4 cup (60 ml) black cherry juice (or apple cider if you prefer)
1 teaspoon sea salt (or to taste)
Black pepper & dash of cayenne (to taste)
Pinch of cardamom, cinnamon, allspice, and nutmeg (or other spices to taste)

Instructions:

1. Remove the fruits from their stalks then rinse in cold water.
2. Place in large saucepan, adding the vinegar and water. Gently bring to a boil and simmer for about 30 minutes until the skins start to split.
3. After cooling, push the mixture through a sieve or pass through a food mill to remove the pits.
4. Return the mixture to the pan, adding your jam or honey, and slowly heat, stirring frequently. Add spices or flavourings.
5. Bring to a low boil; then simmer for a further 5-10 minutes, until the sauce thickens and becomes syrupy.
6. Remove from heat; then add a little bit at a time, the black cherry juice, stirring until you find just the right consistency you prefer in your ketchup. (Remember the sauce will thicken once cooled and you want to be sure it will be able to leave the bottle!)
7. When happy with your result, pour the ketchup into a sterilized bottle. Refrigerate and use within 2 months.

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Images:

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Figure 2. K. Dunster

Figure 3. Douglas, G.W., D.V. Meidinger, and J. Pojar (editors). (1999). *Illustrated Flora of British Columbia. Volume 4: Dicotyledons (Orobanchaceae Through Rubiaceae)*. B.C. Ministry of Environment, Lands & Parks and B.C. Ministry of Forests. Victoria. Retrieved from E-Flora BC <http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Crataegus%20douglasii>

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Figure 5. USGS (1999). File:Crataegus douglasii range map 2.png. (2016, November 25). *Wikimedia Commons, the free media repository*. Retrieved from https://commons.wikimedia.org/w/index.php?title=File:Crataegus_douglasii_range_map_2.png&oldid=219182947

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