

chokecherry

Prunus virginiana L.

Synonyms: *Prunus virginiana* ssp. *demissa* (Nutt.) Roy L. Taylor & MacBryde, *P. demissa* (Nutt.) Walp.

Other common names: black chokecherry, bitter-berry, cabinet cherry, California chokecherry, caupulin, chuckleyplum, common chokecherry, eastern chokecherry, jamcherry, red chokecherry, rum chokecherry, sloe tree, Virginia chokecherry, western chokecherry, whiskey chokecherry, wild blackcherry, wild cherry

Family: Rosaceae

Invasiveness Rank: 83 The invasiveness rank is calculated based on a species' ecological impacts, biological attributes, distribution, and response to control measures. The ranks are scaled from 0 to 100, with 0 representing a plant that poses no threat to native ecosystems and 100 representing a plant that poses a major threat to native ecosystems.

Description

Chokecherry is a deciduous, thicket-forming, erect shrub or small tree that grows 1 to 6 m tall from an extensive network of lateral roots. Roots can extend more than 10 m horizontally and 2 m vertically. Young twigs are often hairy. Stems are numerous, slender, and branched. Bark is smooth to fine-scaly and red-brown to grey-brown. Leaves are alternate, elliptic to ovate, and 3 to 10 cm long with pointed tips and toothed margins. Upper surfaces are green and glabrous, and lower surfaces are pale green and glabrous to hairy. Petioles have one or two prominent glands near the top. Racemes are 4 to 15 cm long and arise at the ends of short, leafy branches. Calyxes have five rounded lobes. Fruiting calyxes are approximately 1.5 mm in diameter. Flowers are white and consist of five petals. Petals are nearly circular and 4 to 6 mm long. Pedicels are 4 to 8 mm long. Drupes are red to black, shiny, fleshy, spherical to ovoid, and 4 to 12 mm in diameter. Each drupe contains a single seed (Mulligan and Munro 1981, Johnson 2000, Klinkenberg 2010).

Similar species: Several non-native *Prunus* species can be confused with chokecherry in Alaska. Unlike chokecherry, which has glabrous inner surfaces of the basal sections of the flowers, European bird cherry (*Prunus padus*) has hairy inner surfaces of the basal sections of the flowers. Chokecherry can also be differentiated from European bird cherry by its foliage, which turns red in late summer and fall; the leaves of European bird cherry remain green throughout the summer. Sweet cherry (*Prunus avium*) and sour cherry (*Prunus cerasus*), which are both occasionally cultivated in southeast Alaska, can be distinguished from chokecherry by the presence of flowers that are arranged in umbel-like clusters rather than in racemes (Welsh 1974). Black cherry (*Prunus serotina*), which is native to Canada and found in British Columbia, can be distinguished from chokecherry by the presence of fruiting calyxes that are 4 mm or more in diameter and thick mats of brown, appressed hairs on the lower leaf surfaces (Mulligan and Munro 1981).



Raceme [Left] and fruits [Right] of *Prunus virginiana* L. Photo by M. Harte [Left] and P. Wray [Right].



Foliage of *Prunus virginiana* L. Photo by P. Wray.

Ecological Impact

Impact on community composition, structure, and interactions: Chokecherry is capable of forming tall, dense thickets on forest edges (Johnson 2000). It grows

up to 6 m tall in British Columbia (Klinkenberg 2010), is tolerant of partial shade (Mulligan and Munro 1981, Johnson 2000), and grows in wooded areas throughout its range (Buell and Cantlon 1951, Vilkitis 1974), suggesting that this species has the potential to form new tall shrub layers in forests. This species can contribute to tall shrub layers that reduce the survival of native tree seedlings (Lorimer et al. 1994). Many mammals, including bears, moose, coyotes, pronghorn, bighorn sheep, elk, and deer, are known to feed on chokecherry in North America (Johnson 2000). The fruits provide a food source for many species of birds and small mammals (Vilkitis 1974, Meyer and Witmer 1998). This species contains a cyanogenic glycoside and can be toxic to mammals with segmented stomachs (rumens), including moose, deer, sheep, goats, and cattle (Mulligan and Munro 1981, Johnson 2000, Harms 2011). Chokecherry has been responsible for poisoning moose calves in Anchorage (Grant pers. obs., Graziano pers. obs.). Poisoning from *Prunus* species usually occurs after the plants freeze (Harms 2011). Chokecherry is associated with many plant diseases and insect pests in North America (Vilkitis 1974).

Impact on ecosystem processes: The impacts of chokecherry on ecosystem processes are unknown.



The foliage of Canada red chokecherry, a cultivar of *Prunus virginiana* L., turns red in late summer and fall.

Biology and Invasive Potential

Reproductive potential: Chokecherry reproduces sexually by seeds and vegetatively from suckers on extensive lateral root systems (Mulligan and Munro 1981). Plants in open areas produce more seeds than plants in shaded areas (Johnson 2000). In riparian habitats in western Montana, chokecherry produced between 600 and 3,000 seeds per plant (Parciak 2002). Chokecherry forms persistent seed banks (Johnson 2000); however, the exact amount of time seeds remain viable has not been documented. After 2 years in seed traps in Alaska, only 27% of seeds of a similar species, *Prunus padus*, were viable (Flagstad et al. 2010). Once established, populations grow quickly and form dense thickets by vegetative spread (Vilkitis 1974).

Role of disturbance in establishment: Chokecherry often establishes in early successional habitats, such as logged or burned areas (Johnson 2000). It was a prominent initial colonizer of a clear-cut hardwood forest in Ontario (Brown 1994). However, seeds can germinate under open and closed forest canopies (Johnson 2000) and seedlings can survive and mature in partially shaded habitats (Mulligan and Munro 1981, Johnson 2000).

Potential for long-distance dispersal: Fruits are attractive to many mammals and birds, and seeds can be dispersed after being ingested (Webb and Wilson 1985, Meyer and Witmer 1998, Johnson 2000). In riparian habitats in western Montana, birds dispersed seeds a substantial distance beyond chokecherry populations; approximately 40% of seeds were dispersed 6.4 m to 15 m away from canopies of this species (Parciak 2002). Large volumes of seeds can be dispersed in the scat of black bears (Auger et al. 2002).

Potential to be spread by human activity: Chokecherry is planted as an ornamental shrub or tree in Alaska (Dinstel 2008) and has been documented outside of cultivation (AKEPIC 2011).

Germination requirements: Ingestion of fruits by mammals or birds improves germination as it removes fruit pulp from the seeds (Meyer and Witmer 1998, Auger et al. 2002). Most seeds require an after-ripening period in the presence of oxygen and moisture before they germinate (Johnson 2000). Soaking in water and cold stratification improve germination rates (Mulligan and Munro 1981).

Growth requirements: Chokecherry is known to grow in regions in Canada where temperatures drop to -40°C (Mulligan and Munro 1981). It can tolerate a wide range of climates, habitats, and soil conditions but grows best in soils with pH between 6 and 8 (Vilkitis 1974, Mulligan and Munro 1981). It is not tolerant of poorly drained soils or flooding (Johnson 2000).

Congeneric weeds: European bird cherry (*Prunus padus*) is known to occur as a non-native tree in Alaska with an invasiveness rank of 74 (AKEPIC 2011).

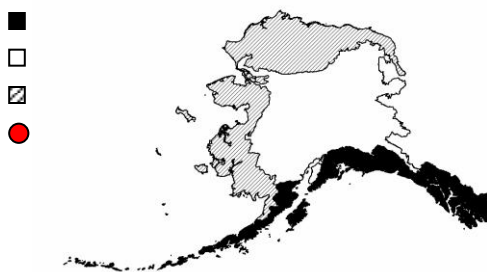
Legal Listings

- Has not been declared noxious
- Listed noxious in Alaska
- Listed noxious by other states
- Federal noxious weed
- Listed noxious in Canada or other countries

Distribution and Abundance

Chokecherry has been grown deliberately in its native range for revegetation of wildlife habitat and mine spoils and for soil stabilization (Johnson 2000). It is planted as an ornamental shrub or tree in Alaska (Dinstel 2008). Chokecherry has invaded riparian communities along Chester Creek and Campbell Creek in Anchorage (AKEPIC 2011).

Native and current distribution: Chokecherry is native to much of North America (Johnson 2000, Klinkenberg 2010) and its range extends into subarctic Canada in the Mackenzie District of Northwest Territories as far north as 62°N (Mulligan and Munro 1981). It grows in 44 states of the U.S. and throughout much of Canada (USDA 2011). This species has been documented from Anchorage and Fairbanks in the Interior-Boreal ecogeographic region of Alaska (AKEPIC 2011, UAM 2011).



Distribution of chokecherry in Alaska

Management

Chokecherry plants can regenerate from root crowns and lateral root fragments (Johnson 2000). Seedlings and young saplings can be controlled by digging plants out. Mature plants are difficult to control without the use of herbicides. Plants under 3 m tall are susceptible to foliar applications of 2, 4-, 5-T amine, ammonium sulphamate, 1:1 mixtures of 2, 4-D and 2, 4, 5-T, 1:1 mixtures of 2, 4-D and Dichlorprop, and 2:1 mixtures of 2, 4-D and Dicamba. Plants over 3 m tall can be controlled with herbicide applications on the basal 30 cm of bark, exposed roots, and/or cut stumps (Mulligan and Munro 1981).

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