

Prunus padus in Europe: distribution, habitat, usage and threats

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Prunus padus L., commonly known as bird cherry or hackberry, is the most widely distributed of the *Prunus* species and can be found across northern Europe and Asia. It is a small deciduous tree or shrub with decorative white flowers and bitter edible berries that are sometimes used to flavour alcoholic drinks. As its name suggests, the berries are an important food for some bird species.

Prunus padus L., or bird cherry, is a deciduous tree or large shrub native to Europe and Asia. It is small (normally up to 14m in height) and conic in shape, becoming rounded with age. It is short-lived, rarely reaching more than 60 years of age¹. The bark is smooth and a dull grey-brown with an acrid odour, and the leaves are **obovate** with fine serrations^{2, 3}. The white flowers appear in late spring and are carried on long stalks at the ends of shoots. A number of cultivars with different coloured flowers have been bred⁴. The blossoms are strongly scented and are visited by a number of pollinating insects, particularly bees and flies⁵. The fruits are around 8mm in size, shiny black when ripe and bitter to taste. Most other parts of the plant, particularly the bark and seeds, are toxic^{1, 6}.

Distribution

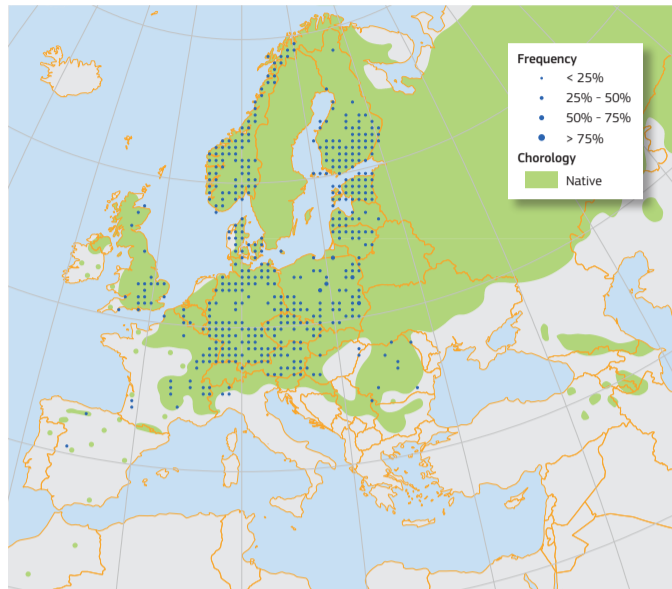
The bird cherry is the most widely distributed species of the genus *Prunus* and can be found throughout northern Europe, central Asia and as far east as Siberia, Northern China and Japan¹. Its northern limit coincides broadly with the shores of the Arctic Ocean, and in the south it has been recorded in Morocco⁵.

Habitat and Ecology

The bird cherry is a hardy species (the most northerly distributed of its genus) and in the southern part of its range it tends to be found in the mountains. In the Alps it grows at a higher altitude than any other deciduous tree and can be found at 2000m. However, it can also survive hot summers⁵. It tolerates a wide variety of soil types⁴. It often regenerates from branches bent to the ground, and also by means of basal shoots, resulting in dense thickets that may form as far as 20m from the mother tree^{1, 7}. These properties mean that it can become invasive in some regions⁸. Seed dispersal is also aided by birds who feed on the fruits.

Importance and Usage

The timber of the bird cherry has little economic importance, although it is sometimes used by cabinet-makers⁴. Given its rapid growth and tendency to form thickets, it makes an effective wind-break and sound-break⁷. The fruit is too bitter for human taste but can be used to make jams or to flavour alcoholic drinks such as brandy and wine. The fruits also form an important food for some bird species. This species has been widely used as a traditional medicine and methanolic extracts of the stem have been shown to have anti-inflammatory properties⁹.



Map 1: Plot distribution and simplified chorology map for *Prunus padus*. Frequency of *Prunus padus* occurrences within the field observations as reported by the National Forest Inventories. The chorology of the native spatial range for *P. padus* is derived after several sources¹⁸⁻²².

The distribution range of the bird cherry includes several areas with high erosion rates such as the European mountain systems¹⁰. Its adventitious roots are very suitable to be exploited for soil bioengineering to increase the stability of slopes and mitigate erosion¹¹. It is also useful for deep reinforcement and soil strength enhancement¹².

Threats and Diseases

Bird cherry does not suffer as much from insect pests as some other species¹³. It is the primary host of the bird cherry-oat aphid (*Rhopalosiphum padi*) and the bird cherry ermine moth (*Yponomeuta evonymella*), both of which can cause widespread damage to the tree⁵. In common with most species of the genus *Prunus*, bird cherry is vulnerable to the gypsy moth (*Lymantria dispar*)^{14, 15}.



The white flowers arranged in pendulous racemes are insect pollinated. (Copyright AnRo0002, commons.wikimedia.org: CCO)



Shiny black fruits: these fleshy drupes have a bitter taste. (Copyright AnRo0002, commons.wikimedia.org: CCO)



Bird cherry in the countryside near Rhine river (Hockenheim, Germany). (Copyright AnRo0002, commons.wikimedia.org: CCO)

References

- [1] P. Schütt, U. M. Lang, *Enzyklopädie der Holzgewächse: Handbuch und Atlas der Dendrologie*, A. Roloff, H. Weisgerber, U. M. Lang, B. Stimm, P. Schütt, eds. (Wiley-Vch Verlag, Weinheim, 1998), vol. 3.
- [2] A. F. Mitchell, *A field guide to the trees of Britain and northern Europe* (Collins, 1974).
- [3] O. Johnson, D. More, *Collins tree guide* (Collins, 2006).
- [4] W. J. Bean, *Trees and Shrubs Hardy in the British Isles Volume 3: N-Rh* (John Murray, 1987), 8th edn.
- [5] S. R. Leather, *Journal of Ecology* **84**, 125 (1996).
- [6] N. D. Sargison, D. S. Williamson, J. R. Duncan, R. W. McCance, *Veterinary record* **138** (1996).
- [7] M. Uusitalo, *European bird cherry (Prunus padus Linneaus) - a biodiverse wild plant for horticulture* (MTT Agrifood Research Finland, 2004).
- [8] D. A. Roon, M. S. Wipfli, T. L. Wurtz, *Hydrobiologia* **736**, 17 (2014).
- [9] J. H. Choi, D. S. Cha, H. Jeon, *Journal of Ethnopharmacology* **144**, 379 (2012).
- [10] C. Bosco, D. de Rigo, O. Dewitte, J. Poesen, P. Panagos, *Natural Hazards and Earth System Science* **15**, 225 (2015).
- [11] F. Florineth, H. P. Rauch, H. Staffler, *Proceedings of the International Congress INTERPRAEVENT 2002 in the Pacific Rim* (2002), vol. 2, pp. 827-837.
- [12] J. E. Norris, A. Di Iorio, A. Stokes, B. C. Nicoll, A. Achim, *Slope Stability and Erosion Control: Ecotechnological Solutions*, J. E. Norris, et al., eds. (Springer Netherlands, 2008), pp. 167-210.
- [13] S. R. Leather, *Ecological Entomology* **10**, 43 (1985).
- [14] D. de Rigo, et al., *Scientific Topics Focus* **2**, mri10a15+ (2016).
- [15] A. M. Liebhold, et al., *Suitability of north american tree species to gypsy moth: a summary of field and laboratory tests*, Tech. Rep. NE-211, U. S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station (1995).
- [16] H. Meusel, E. Jäger, eds., *Vergleichende Chorologie der Zentraleuropäischen Flora - Band I, II, III* (Gustav Fischer Verlag, Jena, 1998).
- [17] O. de Bolòs, J. Vigo, *Flora dels països catalans, vol I-IV* (Barcino, Barcelona, 1984-2001).
- [18] S. M. Hennekens, *Dutch Vegetation Database (LVD)* (Alterra, Wageningen, NL, 2014).
- [19] Botanical Society of Britain & Ireland, *BSBI Big Database* (2015). <http://bsbibd.org.uk>.
- [20] Anthos, *Information System of the plants of Spain* (Real Jardín Botánico, CSIC - Fundación Biodiversidad, 2015). <http://www.anthos.es>.
- [21] Tela Botanica, eFlora (2015). <http://www.tela-botanica.org>.
- [22] Sociedade Portuguesa de Botânica, *Flora-On: Flora de Portugal Interactiva* (2014). <http://www.flora-on.pt>.

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