



Birch common name for some members of the Betulaceae, a family of deciduous trees or shrubs bearing male and female flowers on separate plants, widely distributed in the Northern Hemisphere. They are valued for their hardwood lumber and edible fruits and as ornamental trees. The species of Betulaceae native to the United States represent five genera— Alnus (alder), Betula (the birches), Corylus (hazel), and Carpinus (hornbeam) and Ostrya (hop hornbeam), both also called ironwood. The sixth genus, Ostryopsis, is restricted to Mongolia. The birches, beautiful bushes or trees of temperate and arctic regions, are often found mingled with evergreens in northern coniferous forests. Most American species are trees of the Northeast; a few smaller and scrub species grow in the West. The close-grained hardwood of several of the trees is valued for furniture, flooring, and similar uses (in America, particularly that of the yellow birch, *B. lutea*); stained birch provides much of the so-called mahogany of lower-priced furniture. White-barked birches are often used as ornamental trees, e.g., the famous paper, or canoe, birch (*B. papyrifera*) of the N United States and Canada. Its bark, which separates in layers, was used by the Native Americans for canoes and baskets. Various birches have yielded sugar, vinegar, a tea from the leaves, and a birch beer from the sap. The sweet, or black, birch (*B. lenta*) is now the chief source of oil of wintergreen . The Betulaceae is classified in the division Magnoliophyta , class Magnoliopsida, order Fagales.

Birch is the name of any tree of the genus *Betula* (Bé-tu-la), in the family Betulaceae, closely related to the beech/oak family, Fagaceae. These are generally small to medium-size trees or shrubs, mostly of northern temperate climates. The simple leaves may be toothed or lobed. The fruit is a small samara, although the wings may be obscure in some species. They differ from the alders (*Alnus*, the other genus in the family) in that the female catkins are not woody and disintegrate at maturity, falling apart to release the seeds, unlike the woody cone-like female alder catkins.

The common name birch is derived from an old Germanic root, birka, with the Proto-Indo-European root *bherǵ, "white, bright; to shine." The Proto-Germanic rune berkanan is named after the birch. The botanic name *Betula* is from the original Latin. Birch is used as a food plant by the larvae of a large number of Lepidoptera (butterflies and moths) species, see List of Lepidoptera that feed on birches.

The birch is considered a national tree of Russia, where it used to be worshipped as a goddess during the Green Week in early June.

The bark of all birches is characteristically marked with long horizontal lenticels, and often separates into thin papery plates, especially upon the Paper Birch. It is practically imperishable, due to the resinous oil which it contains. Its decided color gives the common names Red, White, Black, Silver and Yellow to different species.

The buds form early and are full grown by midsummer, all are lateral, no terminal bud is formed; the branch is prolonged by the upper lateral bud. The wood of all the species is close-grained with satiny texture and capable of taking a fine polish; its fuel value is fair.

The leaves of the different species vary but little. All are alternate, doubly serrate, feather-veined, petiolate, and stipulate. Apparently they often appear in pairs, but these pairs are really borne on spur-like two-leaved lateral branchlets.

Flower and fruit

The flowers are monoecious, opening with or before the leaves and borne on three-flowered clusters in the axils of the scales of drooping or erect aments. Staminate aments are pendulous, clustered or solitary in the axils of the last leaves of the branch of the year or near the ends of the short lateral branchlets of the year. They form in early autumn and remain rigid during the winter. The scales of the staminate aments when mature are broadly ovate, rounded, yellow or orange color below the middle, dark chestnut brown at apex. Each scale bears two bractlets and three sterile flowers, each flower consisting of a sessile, membranaceous, usually two-lobed, calyx. Each calyx bears four short filaments with one-celled anthers or strictly, two filaments divided into two branches, each bearing a half-anther. Anther cells open longitudinally. The pistillate aments (catkins) are erect or pendulous, solitary; terminal on the two-leaved lateral spur-like branchlets of the year. The pistillate scales are oblong-ovate, three-lobed, pale yellow green often tinged with red, becoming brown at maturity. These scales bear two or three fertile flowers, each flower consisting of a naked ovary. The ovary is compressed, two-celled, crowned with two slender styles; the ovule is solitary.

The ripened pistillate ament is called a strobile and bears tiny winged nuts, packed in the protecting curve of each brown and woody scale. These nuts are pale chestnut brown, compressed, crowned by the persistent stigmas. The seed fills the cavity of the nut. The cotyledons are flat and fleshy. All the species are easily grown from seed.[1]

Ecology

Birches often form even-aged stands on light, well-drained, particularly acidic soils. They are regarded as pioneer species, rapidly colonising open ground especially in secondary successional sequences following a disturbance or fire. Birches are early tree species to establish in primary successions and can become a threat to heathland if the seedlings and saplings are not suppressed by grazing or periodic burning. Birches are generally lowland species, but some species such as *Betula nana* have a montane distribution.

Species

See also: Taxonomy of *Betula*

Birches of North America include

Betula alleghaniensis - Yellow Birch (*B. lutea*)

Betula cordifolia - Mountain Paper Birch

Betula glandulosa - American Dwarf Birch

Betula lenta - Sweet Birch, Cherry Birch, or Black Birch

Betula lenta subsp. *uber* - Virginia Round-Leaf Birch (endemic, Cressy Creek, Smyth County, Virginia)

Betula michauxii - Newfoundland Dwarf Birch

Betula nana - Dwarf Birch or Bog Birch (also in northern Europe and Asia)

Betula neoalaskana - Alaska Birch or Yukon Birch

Betula nigra - River Birch or Black Birch

Betula occidentalis - Water Birch or Red Birch (*B. fontinalis*)

Betula papyrifera - Paper Birch, Canoe Birch or American White Birch

Betula populifolia - Gray Birch

Betula pubescens - Downy Birch also known as White Birch, European White Birch, Hairy Birch (Greenland; also in Europe incl. Iceland, northern Asia)

Betula pubescens subspecies *tortuosa* - Arctic Downy Birch (Greenland; also in subarctic Eurasia incl. Iceland)

Betula pumila - Swamp Birch

Birches of Europe and Asia include

Betula albosinensis - Chinese Red Birch

Betula albosinensis var. *septentrionalis* - North Chinese Red Birch

Betula alnoides - Alder-leaf Birch

Betula austrosinensis - South China Birch

Betula chinensis - Chinese Dwarf Birch

Betula ermanii - Erman's Birch

Betula grossa - Japanese Cherry Birch

Betula jacquemontii (*Betula utilis* subsp. *jacquemontii*) - White-barked Himalayan Birch

Betula mandschurica - Manchurian Birch

Betula mandschurica var. *japonica* - Japanese Birch

Betula maximowiczii - Monarch Birch

Betula medwediewii - Caucasian Birch

Betula nana - Dwarf Birch (also in northern North America)

Betula pendula - Silver Birch

Betula platyphylla (Betula pendula var. platyphylla) - Siberian Silver Birch

Betula pubescens - Downy Birch also known as White Birch, European White Birch, Hairy Birch (Europe incl. Iceland, northern Asia; also in Greenland in North America)

Betula pubescens subspecies tortuosa - Arctic Downy Birch (subarctic Eurasia incl. Iceland; also in Greenland in North America)

Betula szechuanica (Betula pendula var. szechuanica) - Sichuan Birch

Betula utilis - Himalayan Birch

Note: many American texts have B. pendula and B. pubescens confused, though they are distinct species with different chromosome numbers

Uses

Birch Plywood

Birch bark can easily be peeled off and used. Birch wood is fine-grained and pale in colour, often with an attractive satin-like sheen. Ripple figuring may occur, increasing the value of the timber for veneer and furniture-making. The highly-decorative Masur (or Karelian) birch, from *Betula verrucosa* var. *carelica* has ripple texture combined with attractive dark streaks and lines. Birch wood is suitable for veneer, and birch ply is among the strongest and most dimensionally-stable plywoods, although it is unsuitable for exterior use.

Due to birch pulp's short-fibre qualities, this hardwood can be used to make printing paper. In India the thin bark coming off in winter was used as writing paper. This has excellent life. The paper is known as bhoorj patra. Bhoorj is the Sanskrit name of tree and patra means paper.

Extracts of birch are used for flavoring or leather oil, and in cosmetics such as soap or shampoo. In the past, commercial oil of wintergreen (methyl salicylate) was made from the Sweet Birch (*Betula lenta*). Birch tar or Russian Oil, extracted from birch bark[2], is thermoplastic and waterproof; it was used as a glue on, for example, arrows, and also for medicinal purposes.

Silver Birch (*Betula pendula*) is Finland's national tree. Occasionally one uses leafy, fragrant twigs of silver birch to gently beat oneself in a sauna. The twigs are called vihta or vasta. This has a relaxing effect on the muscles.

Birch leaves make a diuretic tea and to make extracts for dyes and cosmetics.

Ground birch bark, fermented in sea water, is used for seasoning the woolen, hemp or linen sails and hemp rope of traditional Norwegian boats.

Birch twigs were bound in a bundle, also called birch, to be used for birching, a form of corporal punishment.

Many of the First Nations of North America prized the birch for its bark, which due to its light weight, flexibility, and the ease with which it could be stripped from fallen trees, was often used for the construction of strong, waterproof but lightweight canoes, bowls, and wigwams.

Birch is used as firewood due to its high calorific value per unit weight and unit volume. Birch is prized by the Sami people as it burns well, without popping, even when frozen and freshly hewn. The bark is also used in starting fires. The bark will burn very well, even when wet, because of the oils it contains. With care, the bark can be split into very thin sheets that will ignite from even the smallest of sparks.

Birches also have spiritual importance in several religions, both modern and historical.

Birch ply is made from laminations of birch veneer. It is light but strong and has many other good properties. Birch ply is used to make longboards (skateboard), giving it a strong yet flexy ride. It is also used (often in very thin grades with many laminations) for making model aircraft.

Tonewood

Baltic Birch is among the most sought after wood in the manufacture of speaker cabinets. Birch has a natural resonance that peaks in the high and low frequencies, which are also the hardest for speakers to reproduce. This resonance compensates for the roll-off of low and high frequencies in the speakers, and evens the tone. Birch is known for having "natural EQ."

Drums are often made from Birch. Prior to the 1970s, Birch was one of the most popular drum woods. Because of the need for greater volume and midrange clarity, drums were made almost entirely from maple until recently, when advancements in live sound reinforcement and drum mics have allowed the use of Birch in high volume situations. Birch drums have a natural boost in the high and low frequencies, which allow the drums to sound fuller.

Birch wood is sometimes used as a tonewood for semi-acoustic and acoustic guitar bodies and occasionally used for solid-body guitar bodies. Birch wood is also a common material used in mallets for keyboard percussion.

Food

In Belarus, Russia, the Baltic States, Finland, and parts of northern China, birch sap is consumed as a refreshing beverage, and is believed to have tonic qualities. It is watery and pale green in color, with a slightly sweet flavor, and is bottled commercially. Birch sap may also be made into kvass. The sap of particular birch species may also be rendered into birch syrup, vinegar, birch beer (a drink similar to root beer), and other foods. In contrast to maple syrup, birch syrup is very difficult to produce, making it more expensive than other food syrups. It is also considerably less sweet than maple syrup and the sap for syrup production is not available until a month later than maple's. The syrup is made mainly in Alaska (from Alaska Birch) and Russia (from several species), and more rarely elsewhere.

Xylitol can also be extracted from birch, a sugar alcohol artificial sweetener, which has shown effectiveness in preventing, and in some cases repairing, tooth decay.

According to the Food Network series Unwrapped, birch is a preferred wood for the manufacture of toothpicks.

Medicinal

In northern latitudes birch is considered to be the most important allergenic tree pollen, with an estimated 15-20% of hay fever sufferers sensitive to birch pollen grains.

The chaga mushroom is an adaptogen that grows on white birch trees, extracting the birch constituents and is used as a remedy for cancer.

The bark is high in betulin and betulinic acid, phytochemicals which have potential as pharmaceuticals, and other chemicals which show promise as industrial lubricants.

Birch bark can be soaked until moist in hot water, and then formed into a cast for a broken arm.

The inner bark of birch can be ingested safely.