

# Nature trail "Oborou Hvězda", information board No.8 - Beech-Wood under the Pleasure House

( [Bučina pod Letohrádkem](#) - informace v českém jazyce)

## Beech-Wood characteristics

The tree layer is dominated by European beech, accompanied by sycamore, silver fir, and less frequently also by European ash, or small-leaved lime. In higher positions, the share of Norway spruce and mountain ash grows, while in the lower positions, beech is gradually replaced by pedunculate oak or sessile oak. The shrub layer is generally poor regarding the species, mostly formed by regenerative woods of the tree layer, or quite often it is missing completely. Regarding the shrub species, there may be common hazel, honeysuckle, or spurge laurel. The species forming the herbal layer are largely different according to the type of the beech-wood. Acid beech-wood is the poorest regarding the herbal layer composition. Flowering and calciphile beech-wood has a herbal layer consisting of the so-called grove flora, for example anemone, lily of the valley, seal wort, etc.



Subalpine beech woods consist of species of subalpine woods, e.g. Alpine sow-thistle, Austrian leopard's bane, etc. Very often, there are stages with practically missing herbal layer called Fagetum nudum in the beech-woods, even in the natural primeval forest growths. This stage corresponds to a younger age category, when the beech growth is strongly participating and the soil is shadowed greatly.

Beech wood decomposition takes very long, and therefore it limits the growth of species in the herbal layer. Beech woods are situated on calcific and acid substrates from low levels up to the mountains. In the Carpathian Mountains, especially in the eastern part thereof, beech wood even substitutes the pine-wood zone to a certain extent, possibly extending to the upper border of the forest. In the Czech Republic, the upper border of beech woods is marked by 1000 m above sea level, although on the southern slopes of Blanský forest and Šumava, influenced by the warm southern flow of the subalpine föhn, the beech woods may rise up to 1150 m above sea level.

A former settlement named Bučina (Beechwood), to the South from Kvilda in the Šumava National Park, is situated 1150 m above sea level. On the contrary, in the deep valleys, especially those underflooded, pine woods may descend below 700 m. The lower border of beech woods is generally between 300 and 400 m; with oak woods rising higher in the southern and western Bohemia, especially due to prevailing sandy and poor substrates, and beech woods only occurring higher than 500 m.

Beech woods prefer substrates with medium moisture and deeper soil. They are replaced with debris forests in shallow, stony or debris soil. In case of high moisture, they are replaced by alder woods, or eventually by underflooded pine woods. There are different types of fir woods in dry (sandy or rocky) locations. A great number of beech woods was devastated by deforestation and cattle pastures in the Bohemian Massif from the medieval times on. The forest keepers then transformed these remains of beech woods to mostly pine woods, or even fir woods (often even monocultures) during the 19th century. This was due to the greater economic efficiency of pine woods, compared to the beech wood, which grew more slowly and was more problematic to sell. There is an exception to this trend, for example in the Moravian Carpathian Mountains (Chřiby, Bílé Karpaty, ...) and in localities with difficult access (beech woods in Jizerské hory). Chřiby, above all, are covered with high-quality beech economic woods, renewed via a spontaneous natural renewal on a long-term basis thanks to the effort of a significant forester A. Indruch.

Originally, beech wood occupied approximately 40 % of the Bohemian territory. At present, beech only accounts for nearly 13 % of forest woods, especially in the protected natural territories. Woods accessory to the beech woods marked an even greater recession, especially the silver fir, which is sensitive to acid rains and acidification of the soil. The share of mixed forests with a share of fir and beech, or even of purely beech growths, keeps increasing lately. A number of beech woods are protected as specially protected territories. Beech, sycamore, silver fir and lime tree are all ameliorative and fixing woods, the planting of which is (to a certain percentage share) obligatory and given by the forest laws. Excessive reproduction of hoofed game (red deer, roe deer, fallow deer, mouflon, ...) represents a significant problem preventing natural renewal and greater representation of these woods. The excessive numbers of game cause damage to the newly planted trees and make the return of the beech tree in the Czech forests very difficult and expensive. Beech woods are protected in several primeval forest reservations, e.g. Žofín primeval forest, Hojná voda, lower parts of Boubín primeval forest, Uhlířský vrch, Kohoutov, Jezeří, etc. There is a significant share of beech woods in the protected natural territories of White Carpathian Mountains, the surrounding of Křivoklát and Beskydy, and in the Podyjí National Park.

## Beech trees at Hvězda

Beech trees were mentioned in this locality in the past, although the original growth mostly consisted of oak trees, with ash trees

prevailing in the lower sections by the Světlička Stream, and willows situated towards the meadow and the wetland. Similarly to beech trees, oak trees were a great attraction for all those who needed high-quality wood, or wood as such for burning in the military camps. Due to this fact, the original growth was completely cut in 1741, when the allied French armies were camped in the game-preserve. The game-preserve was plundered, with many trees cut down. In 1742, the game-preserve was plundered again, this time by the French and Bavarian armies. Extensive parts of the game-preserve were deforested with 2700 trees cut down in two alleys only. With the permission of the Chamber, wood left in the game-preserve by the French was processed and carried away to the citizens of Prague by Prague mayors lead by the Old Town mayor Šašek. At this time, the old oak alley leading from Prague Gate to Vypich and Prague was also cut down. In 1743, renewal of the game-preserve plundered during the previous years started. The remaining young beech trees were cut down on the surface. The castle building scrivener J. H. Dienebier depicted these activities in the ground plan of the game-preserve. According to the preserved documents, the forest growth was then renewed via planting oak and beech seeds. There is also a preserved report of the game-keeper claiming that acorns, beechnuts, and lime tree seeds planted in grooves in other places were all consumed by mice, which reproduced extensively after the military camping in the game-preserve.

However, the forest did not cover the entire slope under the pleasure house; the surface below the pleasure house all the way to the meadow, delimited by the wall enclosure, served the purposes of a livery field and garden for the game-keeper. The sand-stone quarry and well (Světlička) were also reported within the slope.

The forest surrounding the pleasure house is not the original forest planted here in 1743. The forest was maintained with low rotation period, with birch trees dominating. This means it is an air-raid growth within the original pruned growths. It is clear therefore that wood is mostly used for firing. The first detailed forestry map dated 1835 depicts four-year-old birch growth around the pleasure house in the eastern part of the slope, and five-year-old birch growth by the pleasure house, and exploitable oak, pine and hornbeam growth above Světlička. That means there were no traces of beech trees at the time. A map dated 1854 already depicts cleared spaces around the pleasure house with young growth, apparently of sprout origin. It was only several years later when beech trees were again planted in the air-raid woods. A photograph from around the year 1900 shows a view from the Litovický Stream with nice foliate pole timber or even weak trunks depicted in the background, with prevailing beech tree according to the tree constitution. Technical Sergeant J. Matěna provided more accurate information regarding the composition of the growth within the slope around the pleasure house, as he prepared a detailed map within the grid system for Hvězda as of the end of 1934. According to these data, the growth within the slope consists of beech trees, hornbeams and birch trees, with oak and pine trees mixed in to the West of the pleasure house.

Beech trees, being among the woods capable of achieving higher age, are prevailing in the growth within the slope today.

Common beech (*Fagus sylvatica*) is a local wood achieving medium age, having greater demands regarding soil and air humidity, suffering from severe frost in the valleys, sensitive to immediate release from the growth (sun scorch), with low regenerative capability. The root system is made up of a taproot, which starts branching at young age, becoming stunted in the lower parts; the anchoring function is taken over by the very long and richly branched accessory roots. The tree does not suffer from windfalls.

Hornbeams, oaks, ash trees and common maple trees are mixed in the growth on the eastern side of the slope, with lime trees and Norway maple among the air-raid woods. The growth is designated for a selected way of renewal in the following period.

There is a very nice beech growth in the lower part of the eastern segment, with dispersed sycamores, ash trees and elm trees, and with rather unsuitable larch trees and spruce trees. The growth is designated for gradual renewal, starting with places with naturally regenerating woods.

Nearby the pleasure house, in a place with a rocky subsoil, there is a group of ash trees, maple trees, birch trees and acacias. The acacias should be cut down as a geographically unoriginal wood, and natural regeneration of field maple most of all should be used for the renewal of the growth, as the field maple best tolerates the local poor soil and sun-exposed position. The local marl belongs to the Bílá Hora layer of Bohemian Cretaceous Period, being approximately 90 million years old. During the sedimentation of marl in the Bílá Hora layers, the Bohemian Cretaceous Sea was deepened and extended. Marl deposited further away from the shore and spread significantly in the Bohemian region. These sediments are fine-grained with strong dust admixture, which makes them firm, resisting bad weather for hundreds of years. Marl was exploited as building stone not only at Hvězda, but also at Strahov, Břevnov and around Bílá Hora. Today, nearly all quarries and small marl quarries are filled up, and the small, partially overgrown quarry near Hvězda has become a precious rarity. In the past, marl represented an important building material. This quarry was probably the biggest. Throughout the game-preserve territory, there are traces of other former quarries, which nevertheless mostly served as the sources of building stone for the enclosure of the game-preserve. A quarry is also depicted in Bretschneider's map dated 1775. Regarding Prague building activities, the main sources of building stone were mostly represented by quarries at Petřín, Strahov, and Bílá Hora nearby ever since the medieval times. Stones used to strengthen the paths in the game-preserve were still quarried in the area in front of the pleasure house in the first half of the previous century.

ON BEECH /a passage from the herbarium of Tadeáš Hájek of Hájek/

The beech is a very high and branched tree, with bark lighter than an oak. Its leaves resemble hornbeam, being lighter, wider and

more beautiful. In time, spired balls grow in the middle of the leaves, being of green and purple colour. The beech belongs to oak trees, although it has no acorns but only beechnuts, which do not resemble acorns in any way, being covered with a round scale, hairy and prickly, with a triangular seed inside, covered with a thin layer, almost like a chestnut. Their taste is sweet and sourish. Where does it grow? It grows in the forests and in the mountains. House mice as well as brown rats like to feed on this fruit very much, and so they gather around the beech woods naturally. This is also true for squirrels, fieldfares, thrush birds and other birds. Cornelius Alexander wrote that upon the siege of the town named Chium, they ate a lot of these fruits in the town and survived until the enemies left.

This tree has contracting, cooling and drying powers. A fresh beech tree, if chewed, heals the mouth and gingival ruptures. Rain water stored in old beech trees, rotten inside, and in holes and gaps everywhere, heals scabies in those washing in it; some people also tried it with cattle.

Grove flora represented in the game-preserve

Grove flora is adapted to use for its blooming the season offering most light – which means early spring within the grove. The grove flora must manage to cease blooming after the snow melts and the soil warms up to the minimum acceptable values (mostly 3 to 5 °C), but before foliage, or simultaneously with the start of foliage on the trees. This is due to the fact that after the foliage, the amount of sunshine penetrating the growth drops significantly. Therefore the period of bloom for the grove flora is relatively short (2 to 5 weeks) between March and early May.

Nature trail "Oborou Hvězda":

1. [Bučina pod Letohrádkem - Nature Reserve](#)
2. [Bučina pod Letohrádkem - Nature Reserve](#) ( [Bučina pod Letohrádkem](#) - informace v českém jazyce)