The Čečiny Marteloscope

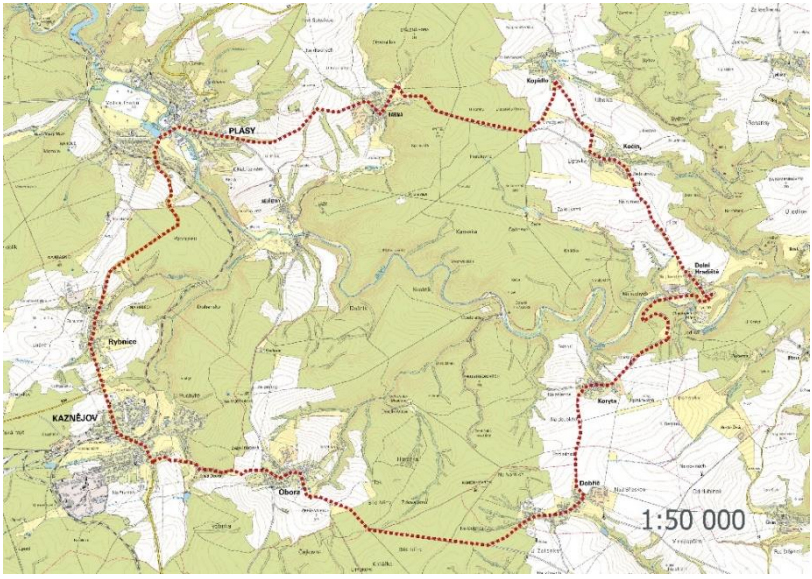
Field guide

LESY ČR

The Čečiny Forest Complex

The Doubrava forest range is situated north of the regional capital Pilsen near the town of Plasy. The forest range is part of the Plasy Forest District and is managed by LČR (Forests of the Czech Republic – State Forests). The forest range extends along the river banks of the lower Střela River. It includes a gene pool area of sessile oak (approximately 413 ha), the '*Čečiny Forest Management Demonstration Object*' and the '*Střela River Canyon*' (Site of Community Interest). The total forest area comprises nearly 1600 ha.

Climate change, evolving global timber markets and increasing societal demands need to be reflected in forest management. For these purposes so called 'demonstration objects' were established which allow to compare different silvicultural systems with respect to their economic, ecological and social implications. Results from demonstration objects allow forest owners to compare silvicultural approaches and help them to select most suitable management measures that meet both their own objectives and those of society. The *'Čečiny Demonstration Object'* focusses primarily on the oak management system in the Permian-carboniferous basin of the West-Bohemian Hills and includes e.g. (1) remnants of old oak stands, (2) a variation of tending approaches as research plots, (3) sites focussing on options for diversifying stand structure through natural regeneration, (4) investigating the effects of different stand structures on oak regeneration, (5) "in vitro" use of planting stock for less common tree species including cherry (Prunus *avium*), wild service tree (*Sorbus torminalis*) as well as different apple and pear species and (6) a designated oak provenance area.



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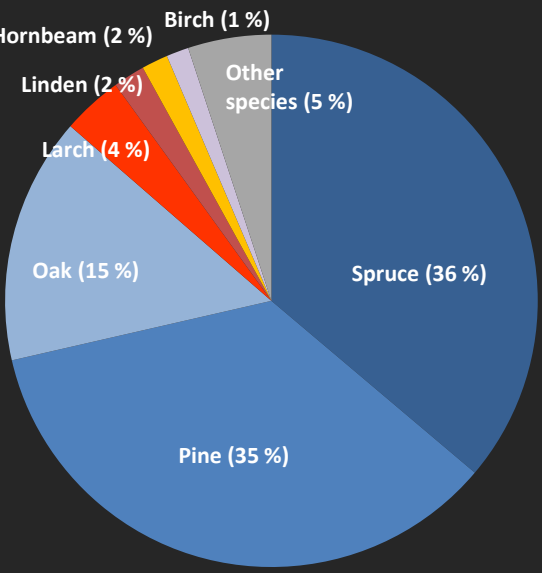
1,594 ha
Total forest area

7 m³/ha
Annual increment

241 m³/ha
Actual average stock

24 %
Broadleaves

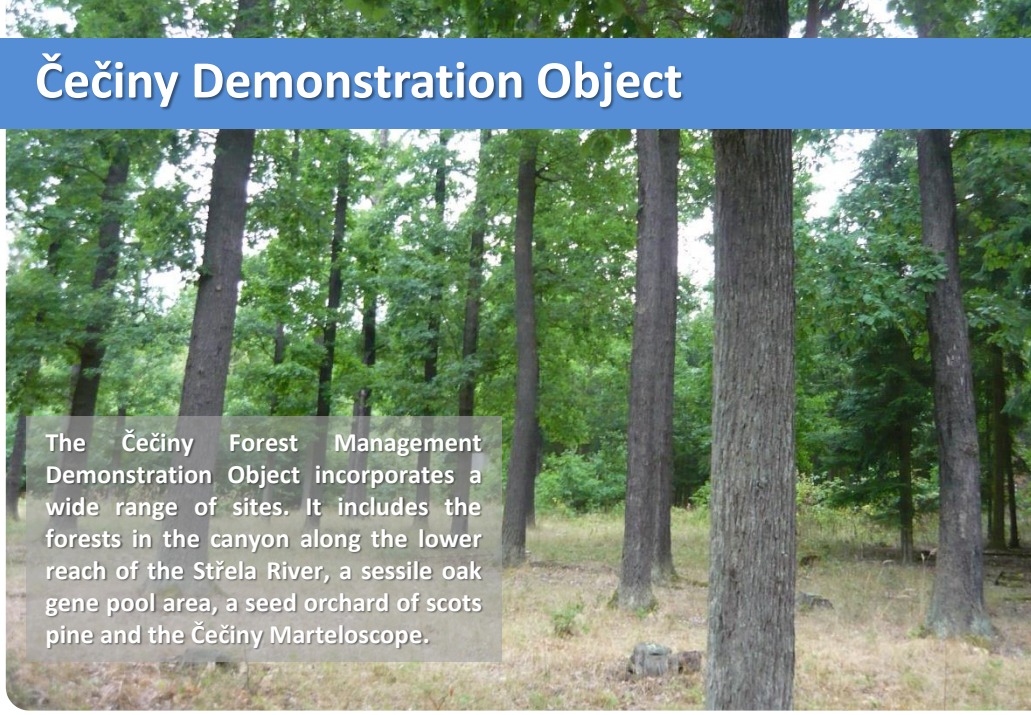
76 %
Conifers



11,045 m³
is the annual increment measured over the total forest

6.65 m³/ha
is the annual cutting-rate

Čečiny Demonstration Object



The Čečiny Forest Management Demonstration Object incorporates a wide range of sites. It includes the forests in the canyon along the lower reach of the Střela River, a sessile oak gene pool area, a seed orchard of scots pine and the Čečiny Marteloscope.

Site of Community Interest

The Natura 2000 Site of Community Interest is located within the canyon on the lower reach of the Střela River. It stretches from Nebřeziny near Plasy to Dolní Hradiště close to the confluence with the Berounka River. The deeply incised valley is a distinctive landscape phenomenon.

Due to inaccessibility of the terrain, near-natural forest stands are still found on this Natura 2000 site, reflecting a wide range of site conditions.

A special feature of the site is the occurrence of scree forests (*Mercuriali-Tilietum*) with a very minor human intervention. Significant is also the abundant occurrence of saxicolous habitats and a variety of protected vascular plant species.

Noteworthy are the animal species longhorn beetle (*Phymatodes pusillus*) and eagle owl (*Bubo bubo*).

Gene pool area of sessile oak (*Quercus petrea*)

The gene pool area is located in the Plasy Forest District and historically belonged to the Cistercian Monks of Plasy.

The main management aim of gene pool areas is to preserve and extend the biological diversity of tree species. The gene pool areas are classified in forest management plans under the category '*special-purpose forests*'.

Seed orchard of Scots pine

A Scots pine (*Pinus sylvestris*) seed orchard plot of around 6 ha, was established in the Doubrava forest range. It is located at an altitude of 385 m.a.s.l. The planting of grafts was launched in 1979 and finalised by 1981. Altogether 86 clones were planted in the fenced area at a spacing of 6 x 8 meters.

Around **20 %**

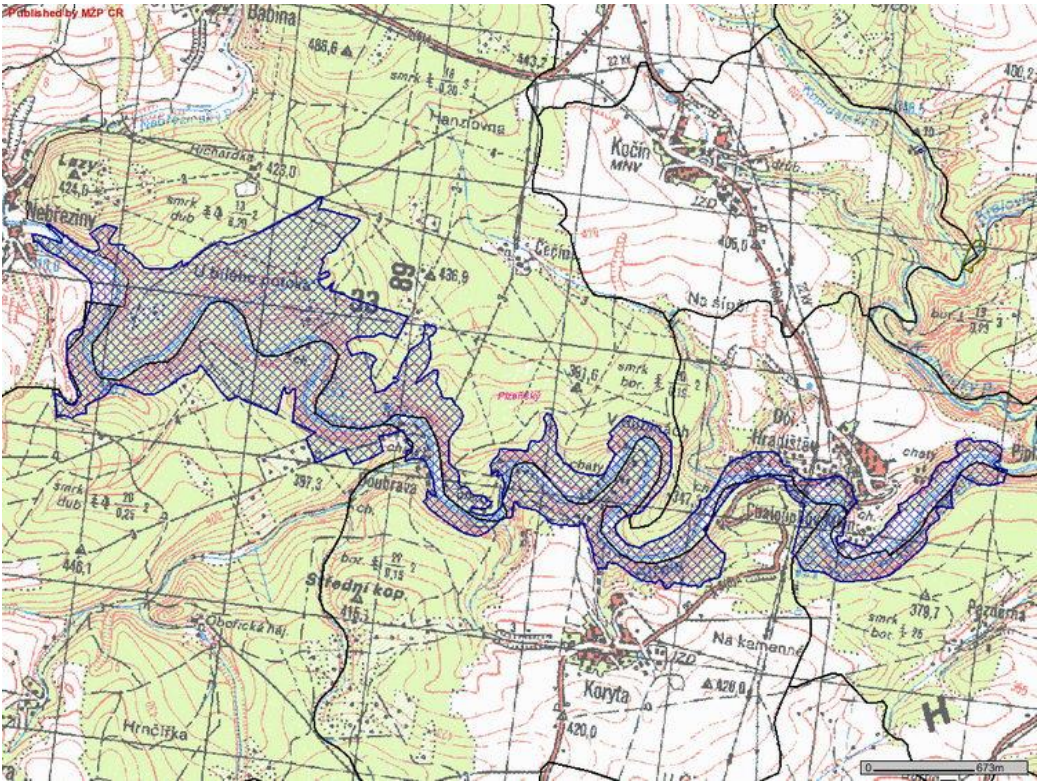
or 358 ha of the total area, are designated as Site of Community Interest under Natura 2000

407 ha

of the total area are gene pool reserve for sessile oak (*Quercus petrea*)

6.5 ha

are designated as Scots pine (*Pinus sylvestris*) seed orchard

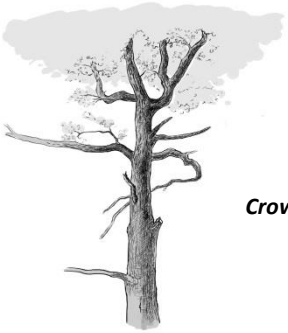


Habitat structures

Large quantities of deadwood and a high density of old microhabitat-bearing trees are characteristic elements of natural forests, especially of the old-growth phases. These phases are often absent or rare in managed forests, even in forests under close-to-nature management. Also in selective harvests and thinnings, 'defective' trees referring to these old-growth phases (hollow, dead and languishing trees) are often removed. Yet, an important share of forest biodiversity is strictly or primarily dependent on these elements for their survival, especially 'saproxylic' species, those are species depending on deadwood.

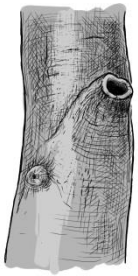
Most species dependent of old-growth-elements and phases have become threatened. Conservation of biodiversity in commercial forest stands is mainly a question of conservation of adequate amounts of deadwood and retention of such microhabitat structures.

Fruiting bodies fungi



Crown deadwood

Branch holes



Bark loss

….and biodiversity

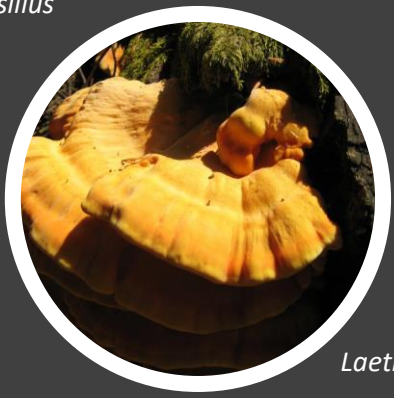
Bubo bubo

Ficedula albicollis

Phymatodes pusillus

Dicranum viride

Lucanus cervus



Laetiporus sulphureus

Site conditions

Altitude:	**420 - 450 m.a.s.l.**
Forest ecological region:	**6 – Západočeská pahorkatina**
Soil	**Cambisols**
Site description:	**Pyllites**
Mean annual temperature:	**7.4 °C**
Annual precipitation:	**491 mm**
Natural forest community:	***Fageto – Quercetum mesotrosphicum***

The site belongs to the most abundant group of the forest altitudinal vegetation zone 2 which occurs particularly on slopes of diverse gradients. Soil types are mesotrophic modal cambisols. These are soils with a medium supply of nutrients, mainly of sandy-loam character, mildly to moderately skeletal and drought-prone in the summer period. The main tree species *Quercus petraea* with a notable admixture of *Carpinus betulus* and *Fagus sylvatica* which grows at the boundary of its ecological amplitude. Other species that may occur are *Tilia cordata* and *Sorbus torminalis*.

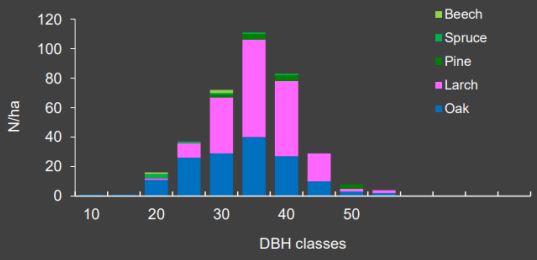
The undergrowth is dominated by grass species such as: *Poa nemoralis, Melica nutans, Festuca heterophylla, Dactylis polygama* and *Carex montana*. Other species of abundance are *Campanula persicifolia Silene nutans, Stellaria holostea, Galium odoratum* and *Dentaria bulbifera*.

Stand characteristics

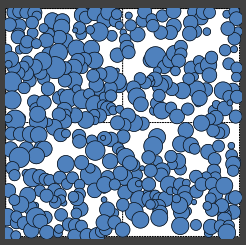
The **Čečiny** Marteloscope is located in a mixed oak – larch forest.

Stand data

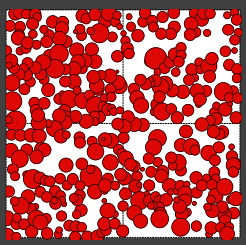
N [stems/ha]	387
BA [m²/ha]	38.1
Volume [m³/ha]	480
Habitat value [points]	1,361
Economic value [Kč]	780,790.-



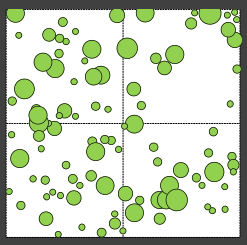
Volume [m³]



Economic value [Kč]



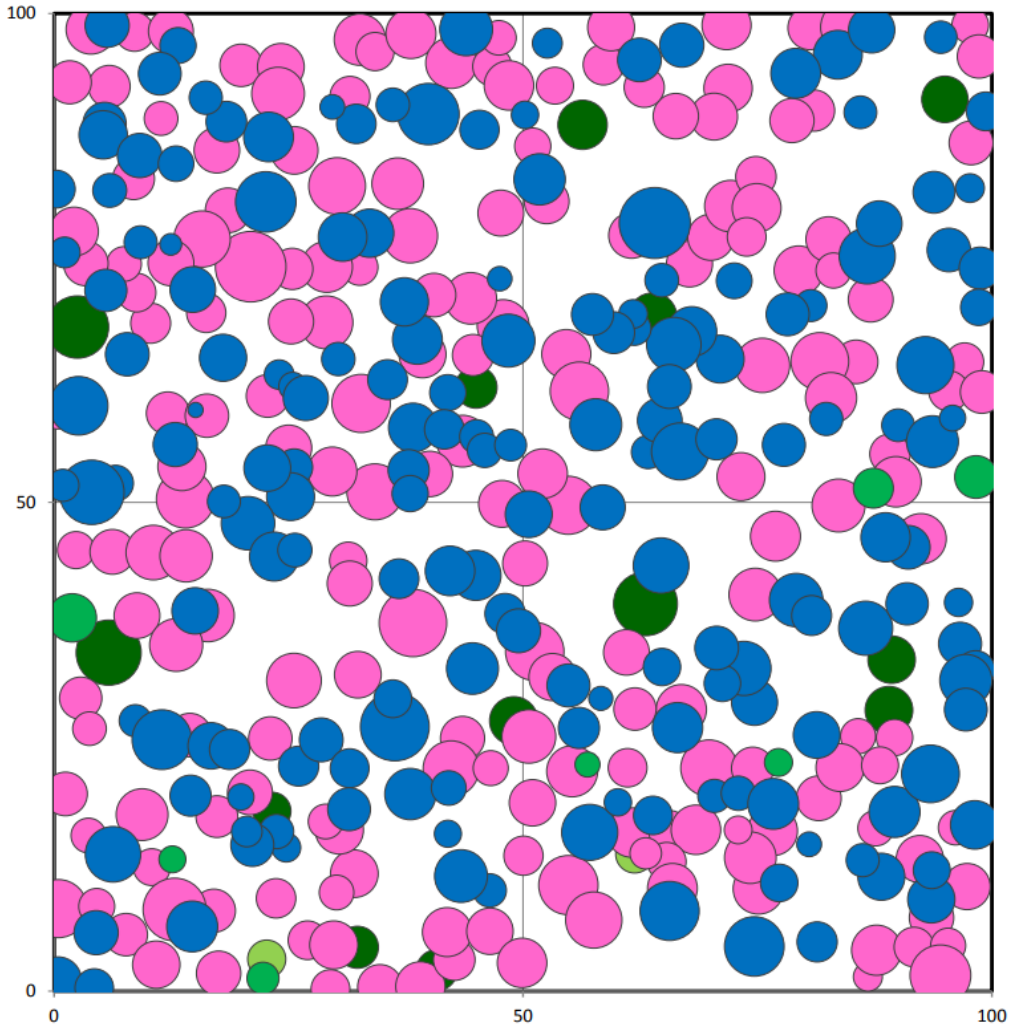
Habitat value [points]



The **economic value** (in Kč) is estimated for each tree based on volume, stem quality and corresponding local timber price lists.

The **habitat value (in points)** is assessed for each tree based on tree microhabitats, taking into account rarity of each habitat and duration for it to develop.

The evaluation of the habitat value is based on a comprehensive catalogue of tree microhabitats. It comprises 23 saproxylic and epixylic features such as cavities, large dead branches, cracks and loose bark, epiphytes, sap runs, or trunk rot characteristics. Tree microhabitats are of prime importance for specialized and often endangered forest species of flora and fauna.



Tree species

- Beech
- Spruce
- Pine
- Larch
- Oak

DBH (cm)

7,5 - 15,0	65,1 - 75,0
15,1 - 25,0	75,1 - 85,0
25,1 - 35,0	85,1 - 95,0
35,1 - 45,0	95,1 - 105,0
45,1 - 55,0	105,1 - 115,0
55,1 - 65,0	

N

Notes

Integrate+ is a demonstration project funded by the German Federal Ministry of Food and Agriculture (BMEL) to establish a European network of demonstration sites for the integration of biodiversity conservation into forest management.

The Integrate+ project runs from December 2013 to December 2016 and builds on a partner network from research and practice with a focus on implementation of integrative management and enhancing transnational exchange of experiences.

Lehnerová, L., Schuck, A., Kraus, D., 2016. The Čečiny Marteloscope field guide. Integrate+ Technical Paper No. 15. 12 p.

European Forest Institute, 2016

www.integrateplus.org