

## FACTS AND FIGURES

### Definition

Coppice is a stand of deciduous trees that have the ability to re-sprout from roots and tree stools, predominantly in the oak forest vegetation zones.

*VÝMLADKOVÝ LES. Výmladkový les tvoria listnaté porasty obnovované koreňovou a pňovou výmladnou schopnosťou, väčšinou v oblastiach dubového vegetačného stupňa.*

### Legal Framework

There is no direct legal framework, but coppice is mentioned in the classification of forests in the Regulation of the Ministry of Agriculture, nr. 453/2006. The classifications are coppice and high forest originating from coppice.

### Statistics

The extent of coppice forests in Slovakia is 34,463 ha (1.8 % of the total forest area), as well as 76,216 ha (3.9 %) of high forests originating from coppice in the first generation (the latter category is according to the Country Act nr. 453/2006, §19). The area of traditional coppice is decreasing due to conversion to high forest; in 1920 there were still 208,438 ha of coppice. The Slovak legislation does not count on having a significant amount of coppicing in the future.

A total area of SRC on forest land of Slovakia is 520 ha; the potential area for SRC on forest land is 15,000 ha. According to estimations of the National Forest Centre, the theoretical potential for SRC on agricultural land in Slovakia is 45,000 ha (however currently there are only about 150 ha of SRC).

National Forest Centre. 2011. *Národný program využitia potenciálu dreva Slovenskej republiky (National program of wood utilization potential in Slovak Republic)*. Online: [http://www.nlcsk.sk/nlc\\_sk/papvpdsr/n5ndur.aspx](http://www.nlcsk.sk/nlc_sk/papvpdsr/n5ndur.aspx)

### Typology

<b>Simple coppice</b>	Traditional natural forest regeneration method, recently limited use only, in black locust, oak, hornbeam, beech, alder, willow and poplar forests
<b>Coppice with standards</b>	Oak, rarely others
<b>Pollarding</b>	Historically; now rarely on roadsides or in yards & parks; willow, mulberries
<b>Short rotation coppice</b>	Willow, poplar
<b>Other types</b>	Coppice in conversion to high forests (oak-hornbeam, beech etc.)

## DESCRIPTION

Species used in different types of coppice are *Quercus cerris*, *Quercus petraea* agg., *Carpinus betulus*, *Fagus sylvatica* and *Robinia*

*pseudoacacia*. The most accepted type of coppice management is coppice with standards. Rotations of *Quercus* coppice stands are (or

were) 20-40 years, with the cutting season in winter. Pollarding was historically common, but is now only carried out by individuals, often illegally, and mostly practiced with *Salix*, although previously both *Morus* and *Robinia* were pollarded. In the 19<sup>th</sup> century, oaks were pollarded in e.g. the Upper Nitra region.

After beech, oaks are the most important deciduous woodland trees in Slovakia; it is, however, usually more difficult to restore than the former. Oak forests are unstable and their abundance fluctuates depending on human activities, but when they are coppiced, it usually increases plant diversity. Oak stands are light-demanding (if there are no clearings created, the oak seedlings die in the shade) and without traditional coppicing, preventing full canopy closure and the dominance of shade-demanding species, the oaks decline. Hornbeam, which is more shade tolerant, can proliferate and create a shrub layer under the oak overstorey that suppresses oak seedlings. In places where foresters removed hornbeam as a ‘weed’ tree, forests were light and this led to a vigorous herb layer with weeds, grasses and shrubs, which also prevented effective natural regeneration of oak from seed. Therefore, the best way to support the oak is likely to be by coppicing, but this requires further study to provide evidence to counteract currently fashionable views and opinions that are not always based on facts. Reduction of oak cover was also caused historically by the planting or spontaneous growth of other, often invasive species, especially *Robinia pseudoacacia*.

Coppice forests are considered an important part of the landscape pattern, requiring protection, and the NATURA 2000 areas include 10 coppice forest types (91G0\*, 91H0\*, 91I0\*, 91M0, 9170, 9180\*, 9110, 9130, 9140, 9150) although the ‘best practice’ manuals do not recommend future coppicing, except for habitat 9180\*. In the context of nature conservation,

decision making is a challenge. It is unclear whether forests should be preserved by less intensive management, although this risks oak decline, as well as light demanding components of the herbaceous layer or, alternatively, whether forests should be managed more intensively, even in protected areas, so there would be more light and the rare (and often protected) species would be retained. Furthermore, drier areas require simple management with thinning, while wetter forests require more frequent management.

Regulations do limit the planting of new black locust (*R. pseudoacacia*) forests, but they are not registered on the official list of invasive plant species (Regulation of the Ministry of Environment SR Nr. 158/2014).

The Slovak legislation does not include coppicing in future plans and there is no clear regulation of coppice management.

Short rotation coppice (SRC) is a new challenge. The total area of SRC on Slovakian forest land is 520 ha, although the potential area is 15,000 ha. The anticipated annual production is 10 t per ha of dry matter. According to estimates by the National Forest Centre, the theoretical potential for SRC on agricultural land is 45,000 ha, although currently there is only about 150 ha on agricultural land. The main tree species used in SRC are *Salix* and *Populus*. Rotation time is three (*Salix*) to twenty (*Populus*) years, with expected annual yields of 12 to 18 t fresh biomass per hectare (6 to 10 t dry matter under good conditions and management).



Figure 1. Aged coppice forest: *Quercus petraea* and *Q. dalechampii* at Nitra (SW Slovakia) (Photo: A. Feher)

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eurocoppice@fob.uni-freiburg.de  
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Editors: Alicia Unrau, Gero Becker, Raffaele Spinelli, Dagnija Lazdina, Natascia Magagnotti, Valeriu-Norocel Nicolescu, Peter Buckley, Debbie Bartlett and Pieter D. Kofman

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