

## FACTS AND FIGURES

Milun Krstić and Nenad Petrović

### Definitions

Coppice forest is a traditional silvicultural form that involves repetitive felling on the same stump, near to ground level, and allowing the shoots to regrow from that main stump or roots. Coppice forests in Serbia can be grouped into three categories based on their productivity: good productivity on a good site; low productivity on a good site; and low productivity on a bad site. Most common are productive coppice stands with valuable wood quality on a good site. The main silvicultural strategy in such coppice stands is indirect conversion towards high forest. Maximum rotation period is 80 years. Coppice is an important asset for private forest owners, especially for a regular supply of fuelwood from their small forest lots. The most abundant species are oak and beech.

*Izdanačke šume – panjače su su uzgojni oblik šume obnovljene vegetativnim putem, kada su se nova stabla razvila iz panjeva ili žila posečenih stabala. Izdanačke šume u Srbiji se mogu grupisati prema produktivnosti u sledeće kategorije: Dobre na dobrom staništu, loše na dobrom staništu i loše na lošem staništu. Najzastupljenije su dobre izdanačke šume na dobrom staništu. Glavna mera u toj kategoriji izdanačkih šuma je indirektna konverzija sa ciljem dobijanja visokih šuma. Maskimalna ophodnja u izdanačkim šumama je 80 godina. Izdanačke šume igraju važnu ulogu u redovnom snabdevanju privatnih šumovlasnika ogrevnim drvetom za sopstvene potrebe. Najzastupljenije vrste su hrast i bukva.*

Gajenje šuma – konverzija, melioracija i veštačko obnavljanje, 2006

### 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 (coppice and high forest originated from coppice). Coppice is a stand of deciduous trees with re-sprouting ability 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.

#### In the Forest law, 2016:

1. Coppice forest is a stand of coppice origin that has not overgrown the size of a pole stand. In coppice forests, the marking of trees is not mandatory.
2. Short rotation coppice is only allowed on agricultural land.

### Statistics

Coppice stands occupy 1,456,400 ha, which is 64.7% of the total forest area. They are predominantly oak (42%) and beech (21%). Most coppice forests are in private ownership with 61.4%. The most common are preserved coppice stands with 76.3%. The share of insufficient stocked coppice stands is 21.3% over the area. Devastated coppice stands represent 2.4%. There is an unfavourable age structure: young (10%), middle-aged (78%) and mature (12%).

Source: National forest inventory of the Republic of Serbia, 2009

## Typology

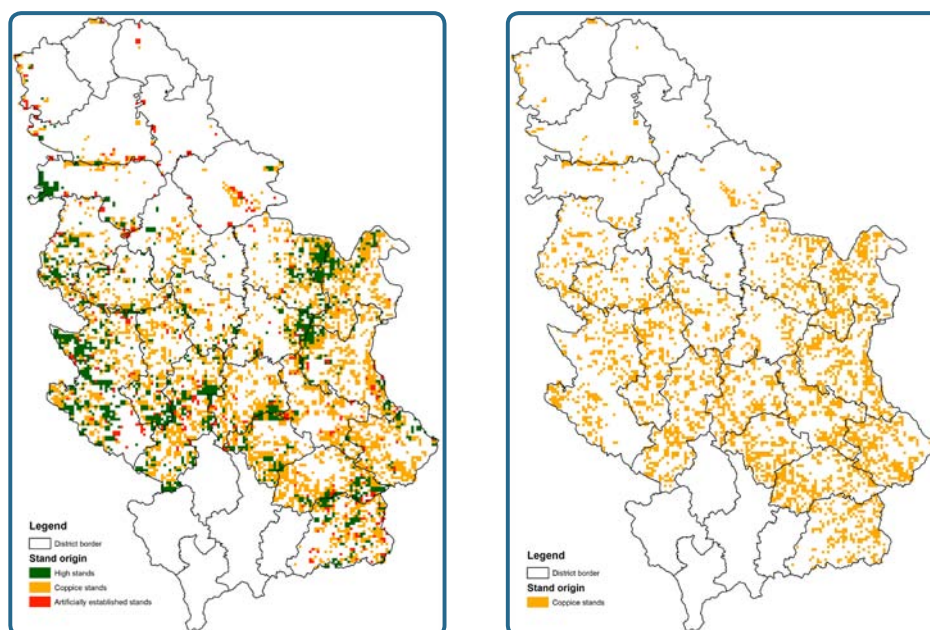
<b>Simple coppice</b>	Traditional natural regeneration methods
<b>Coppice with standards</b>	<i>Fagus</i> spp., <i>Quercus petraea</i> , <i>Q. cerris</i> , <i>Q. frainetto</i> , <i>Carpinus</i> spp.
<b>Pollarding</b>	Very rare
<b>Short rotation coppice</b>	<i>Salix</i> spp.
<b>Other types</b>	<p><u>False coppice</u>: <i>Fagus</i> spp., <i>Q. petraea</i>, <i>Q. cerris</i>, <i>Q. frainetto</i>; Very productive. This coppice type is scheduled by planning documents to be converted into high forests</p> <p><u>Preserved coppice</u>: Dense to complete canopy (1.0-0.6), good health and good-quality trees, there is a favourable ratio of principal and minor tree species.</p> <p><u>Insufficiently stocked coppice</u>: Incomplete canopy (0.4-0.6), good health and good-quality trees, but a less favourable ratio of principal and minor tree species.</p> <p><u>Devastated coppice</u>: Characterised either by broken canopy (below 0.4), or by poor tree health and quality, or completely unfavourable tree species ratio (favouring of minor species).</p>

## Images



## MAP

Nenad Petrović



Maps of coppice forests in Serbia (orange); compared to high forest (green) and artificially established stand (red) on the left and coppice on its own on the right (Data: National forest inventory of the Republic of Serbia, 2009)

## DESCRIPTION

Milun Krstić

The dominant form of silviculture in Serbia is coppice forests and they make up 1,456,400 ha, or 64.7% of the country's land area, and 50.0% of the forest volume. Most of the coppice forests, 61.4%, are in private ownership; 48% of those are dominated by oak and 25% by beech. The distribution of coppice forests by surface area is as follows: preserved coppice stands 76.3%, under-stocked coppice stands 21.3% and devastated coppice stands 2.4% (NFI 2009). Volume per hectare in preserved coppice forests is 133.0 m<sup>3</sup> ha<sup>-1</sup>; under-stocked 102.7 m<sup>3</sup> ha<sup>-1</sup>; devastated 42.5 m<sup>3</sup> ha<sup>-1</sup>. The age structure in the coppice forests is not favourable with the proportion of young, middle-aged and mature being 10:78:12. Coppice forests classified as energy coppice forests are not recorded as such in Serbia. Coppice forests produce a variety of products from small poles, used for fuel, to larger timber, etc.

The silvicultural methods used are those considered close to nature, in other words promoting permanently sustainable and economically justified activities, limited and conditioned by natural processes. Selection and application of suitable silvicultural or ameliorative methods depend on the precise degree of forest degradation (production, quality, condition, composition, origin, etc.) and the habitat and site conditions (the degree of degradation of soil, etc.), based on scientific criteria.

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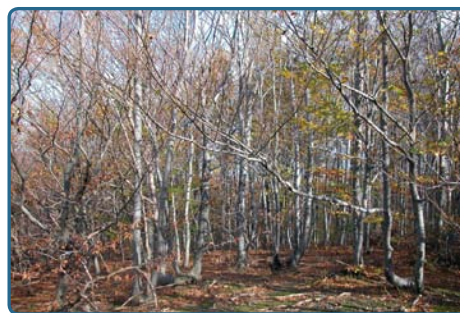


Figure 1. A typical example of coppice in Serbia

Precise silvicultural measures appropriate for application to coppice are divided into the following basic groups:

- Quality coppice forests of valuable tree species and preserved habitat: *Indirect conversion* into high forest. Young stands are extensively cultivated in the respective stages of development; at maturity they shall be naturally regenerated. According to Forest Law, harvesting cannot take place before the trees are 80 years of age.
- Where forests have been degraded then *direct conversion* processes should be applied, with the land preserved and the degraded forests removed. Amelioration is carried out either by artificial restoration of the same species (restitution) or, where stands and habitats are degraded, planting of appropriate species of trees that can grow successfully under such conditions (substitution).

Where stands are unequally degraded over the site area then the amelioration procedures of indirect methods of conversion, restitution and substitution, can be combined.

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