Slovenia

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Facts and Figures

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Definitions

Coppice forest is forest with a short rotation period and is characterized by rejuvenation with stump shoots.	*Panjevski gozd je gozd s kratko obhodnjo, ki se obnavlja s poganjki iz panja.*

Legal Framework

1. Short rotation coppice is allowed only on agricultural land (Forest law, 2016).

2. 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 (Forest law, 2016).

Rotation Period

Distinctively short rotation; felling age is between 12-30 years.

Statistics

Coppice forests in Slovenia currently cover only 36,340 ha, which is less than 3,1 % of total forest area (Slovenian Forest Service, 2015). These forests are present in the west, south west, and south-east part of the country (see Map).

Typology

Simple coppice	Traditional natural forest regeneration method (beech, chestnut, black locust, oak)
Pollarding	Historically present in the south of the country
Short rotation coppice	Present on test plots – *Salix* spp.

Map

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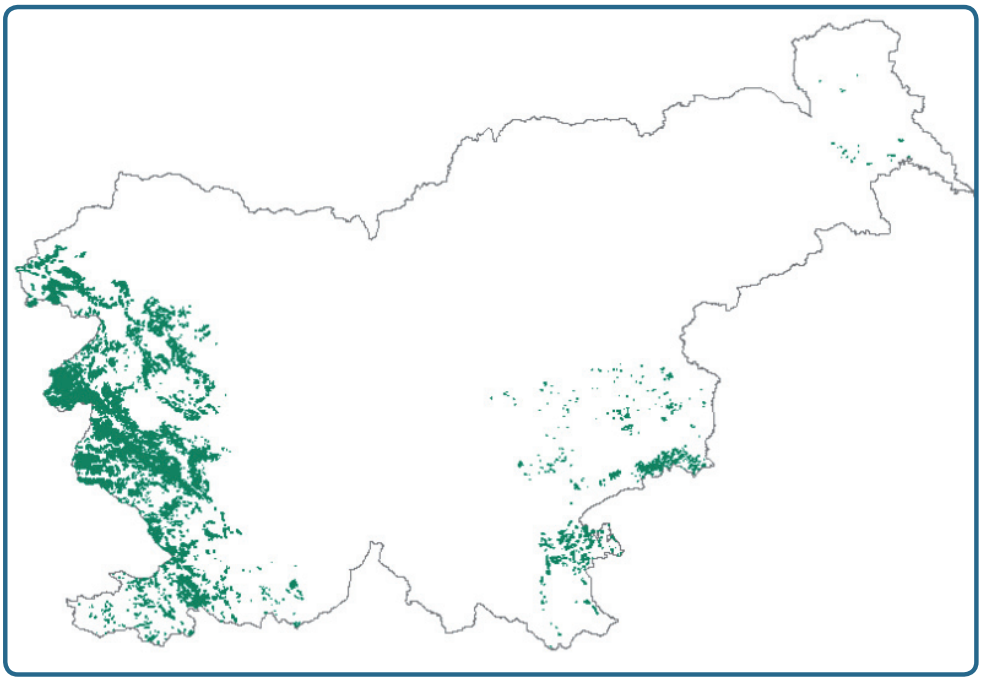

Map of coppice forests in Slovenia (in green)

Source: Slovenian Forest Service (2015)

Description

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Traditional coppice forests in Slovenia

According to official data from the Slovenian Forest Service, coppice forests in Slovenia (Figure 1) cover only 36,340 ha, which is less than 3,1 % of total forest area (Slovenian Forest Service, 2015). These forests are present in the west, south-west, and south-east parts of the country. Coppice production in the country uses distinctively short rotations of 12-30 years.

The traditional coppice forests in Slovenia can be divided into several types:

1. In the west, coppice was mostly used for production of poles and firewood. The main tree species used were *Robinia pseudoacacia, Quercus* spp. and to a lesser extent *Castanea sativa*.

2. In the south, coppice forests were mainly used for production of charcoal and are mostly dominated by beech. The high demand for charcoal originated from the ironworks and glass production that emerged at the end of the 18th century. However, this use of forests declined in the last century, which is why the share of beech coppice forest is decreasing; they have mainly been transformed into high forests.

Figure 1. Coppice forests in Slovenia (Photos: N. Krajnc)

3. Recently found evidence has indicated that coppice used to be heavily interconnected with animal grazing (Panjek, 2015). During the last 50 years, however, land use in the alpine region has changed and many grazing areas in mountain areas have been overgrown by natural vegetation (high forests).

4. In the east, chestnut coppice was also used for poles in vineyards and for other, mostly agricultural purposes. In the 1950s, a new and quite massive production of tannin started, which intensified coppicing (Wraber, 1955). The tannin industry and production of flooring from chestnut is still very much alive today. The company producing tannin in Slovenia, TANIN Sevnica, requires more than 50.000 m^3 of chestnut wood per year.

Short rotation plantations

Besides traditional coppice forests, there has also been a strong initiative to start short rotation plantations with willow in an area affected by mining activities. The mining company established 4 ha of test plantation measurements and measured the production potential of two different clones of willow (*Salix* sp., clones *Tordis* and *Inger*) as an alternative energy source. The measurements were performed each year for four years.

The quantity of accumulated biomass (absolutely dry) from these trials has been calculated as a product of mean volume of the coppice, number of coppices per hectare (where mortality is also considered) and mean basic density of the shoots. The quantity of wood biomass produced in the first year of coppice growth was 0.88 dry tons ha^{-1}, in the second year 4.58 dry tons ha^{-1} and 27.29 dry tons ha^{-1} in the third year in the case of the *Tordis* clone. The equivalent for the *Inger* clone gave lower values of 0.63, 3.49 and 9.17 dry tons ha^{-1}. The results are presented in Table 1.

Table 1. Results of the analysis of short rotation plantation in Velenje (Pilar et al., 2014)

Willow (*Salix* sp.) clones	*Tordis*			*Inger*		
Year	2010	2011	2012	2010	2011	2012
Survival of plants (%)	87	85	84	85	81	75
Mean number of shoots per stool	2.3	2.1	2.2	2.2	2.6	2.6
Mean height of the plant (cm)	147	319	624	136	290	403
Diameter at 1 m height (mm)	8.15	14.5	28.4	7.6	13.5	16.7
Mean volume of the shoot (cm^3)	95	559	2955	90	416	1000
Yield (t atro/ha)	0.88	4.58	27.29	0.63	3.49	9.17

References

Ara, P., Krajnc, N. (avtor, urednik), Jemec, T., Triplat, M. et al., 2014. *Demonstration plots with short rotation energy plantations: setting up of integrated strategies for the development of renewable energies.* [Ljubljana]: Slovenian Forestry Institute, Silva Slovenica, 3, str., ilustr. http://proforbiomed.eu/sites/default/files/Proforbiomed_PA_leaflet_1.6_web.pdf.

Panjek, A., 2015. *Kulturna krajina in okolje Krasa: o rabi naravnih virov v novem veku* [znanstvena monografija], 155 pp.

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