fYR of Macedonia

Pande Trajkov and Ljupco Nestorovski

Facts and Figures

Pande Trajkov

Definitions

Coppice forest – a forest originating by vegetative means, i.e. by basal shoots, root suckers or both.	*Нискостеблена шума – е шума настаната по вегетативен пат односно изданци од пенушки, ибојци од корења или на двата начини.*

Legal Framework

1. Forest land with more than 20% cover and
2. Volume density of more than 0,3 (30% of "normal" stands)

Regulation for Forest Management Plans (http://www.mzsv.gov.mk).

Statistics

Total forest area in 2012: 989,000 ha

Managed forest: 902,000 ha

High forest: 276,000 ha

Coppice forest: 561,000 ha

Coppice with standards: 3,000 ha

Shrubs, maquis, etc.: 54,000 ha

Artificial forest (up to 20 years): 8,000 ha

Unmanaged forest: 87,000 ha

Main species: *Fagus moesiaca, Quercus petraea, Q. conferta, Q. cerris, Q. trojana, Q. pubescens* and *Q. coccifera.*

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Typology

Simple coppice	Traditional, clearcuts, rotation 40-50 years
Coppice with standards	Very rare
Pollarding	Practised in the past; very rare today
Short rotation coppice	Not practised
Other types	Coppice in conversion process (oak and beech) with natural regeneration (seeds) or introduction of conifers (*Pinus, Abies, Picea*)

Images

Overaged oak stand with natural seeds regeneration (Goten Mountain)

Harvested oak plantation

Successfully regenerated sessile oak coppice stand (Bushava Mountain)

Beech coppice stand (Bistra Mountain)

Description

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Due to a combination of traditional forest management, extensive cattle breeding that was practiced until the middle of the 20th century and cruel environmental and climatic conditions, large areas of the forests in the Republic of Macedonia are coppiced and degraded. In previous times, the landscape in the lower and middle parts of the mountains mainly comprised coppiced forests. In order to improve their condition and prevent further degradation of forests, an Act was introduced in 1948 to prohibit the breeding of goats (Nikolovski, 1955). The result was a rapid reduction in the goat population. During the second half of the 20th century the recommendation was for coppice to be transformed into high forest (Nikolovski, 1955, 1958, 1960, 1964, 1966; Mircevski, 1977, 1989). Direct conversion, combined with replacement of tree species, was recommended for degraded coppice forests, while the preserved stands were subjected to indirect conversion. The most common species used for re-forestation was black pine, which has a low growth rate on poor sites and suffers damage from frequently occurring forest fires and pests (Trajkov, 2007). This history, along with a lack of knowledge on the growth of other species, has meant that only few coppice forests have actually been converted in recent decades.

Today the total area of managed coppice forests is about 618,000 hectares, or about 68.5% of the total managed forest. 54,000 hectares of these are shrubs and pseudo-maquis. The coppice forests consist mainly of beech (*Fagus moesiaca*) and several species of oak: sessile (*Quercus petraea*), Hungarian (*Q. conferta*), Turkey (*Q. cerris*), Macedonian (*Q. trojana*), downy (*Q. pubescens*) and kermes (*Q. coccifera*). There are also several types of hornbeam: the European (*Carpinus betulus*), Oriental (*C. orientalis*) and hop hornbeam (*Ostrya carpinifolia*), as well as maples (*Acer campestre, A. monspessulanum, A. obtusatum*), manna ash (*Fraxinus ornus*) and aspen (*Populus tremula*).

Oak coppice forests (Figure 1) cover a wide range across the vertical distribution of vegetation. As a result of human influence, almost all the oak forests occurring up to an altitude of 1100 meters are coppiced, except for small areas around religious objects or deep in the mountains, far from human settlements. Both beech and oak stands re-spout well from coppiced stools until they are very old; these are managed on a rotation of 50 years. The wood from the coppice forests is mainly used as firewood.

As a result of the large coppice resource and despite the continuation of coppicing, there

are now over-aged stands, older than 50 years, whose regeneration is debatable. In privately owned coppiced oak forests, thinning has been practised in order to provide continuous annual yield. This approach has led to a reduction in the canopy and the emergence of a vigorous understorey that now obstructs its transformation to high forest. On the other hand, the reduced number of stools in these stands means that the classic coppice system cannot be applied and economics prevents owners from performing direct transformation. Thus, oak coppice stands are being quietly transformed into hornbeam and ash stands.

Environmental and political development in the country is increasingly threatening the existence of the coppice system. The public comments negatively on large areas of clear cut near settlements, close to recreation centers or along roads.

Figure 1. Oak coppice stands in the regeneration stage

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Forestry Regulations

Ljupco Nestorovski

In the Republic of Macedonia, the **Law on Forest** (Official Gazette no. 64/09, and subsequent modifications from 24/11, 53/11, 25/13, 79/13, 147/13 and 43/14) gives instructions and specifies the responsibilities of stakeholders for the management of forests. These guidelines cover the most important goals for state and privately owned forest in order to preserve and further develop sustainable, multifunctional forestry, as well as the socio-economic welfare of stakeholders. Environmental protection and the promotion of other forest functions and values are partly covered within the same Law, and partly in the **Law on Nature Protection** (Official gazette no.53/05 and its modifications). Both Laws have provisions that concern topics such as forest management, forest planning, protection and silviculture.

Following a chain of historical, economic and political events, organised forest management and planning systems for forests in the Republic of Macedonia began after the Second World War. The first Law on Forests was adopted in former Yugoslavia in 1949 and it was subsequently revised several times (1956, 1974, 1986). After independence in 1991, the new Law on Forests was adopted in 1997 and became operational in 1999.

There are no special issues in this Law that treat coppice separate from high forest. Coppicing is considered a regular way of managing forests. The rotation depends on tree species (mostly different types of oak, ash, beech and hornbeam), and is usually done every 30-50 years. The most common treatment is traditional coppicing. To date there is no national inventory, but forest management plans are made for every unit (limited to a maximum of 5,000 ha). There are no differences in the treatment of private and state-owned forests. Private owners with an area of forest greater than 100 ha are obliged to make a **Forest Management Plan** (FMP) that must be approved by the Ministry of Agriculture, Forestry and Water Economy. This also applies to the Public enterprise "Makedonski sumi" that manages state-owned forests, in accordance with the provisions in FMP of the surrounding forests. The **Ministry of Agriculture, Forestry and Water Economy** is also responsible for licensing forest engineers to be able to plan activities in private owned forests.

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UKIM, Faculty of Forestry, Skopje Republic of Macedonia

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