

Coppice conversion, a difficult and long-lasting process in Europe

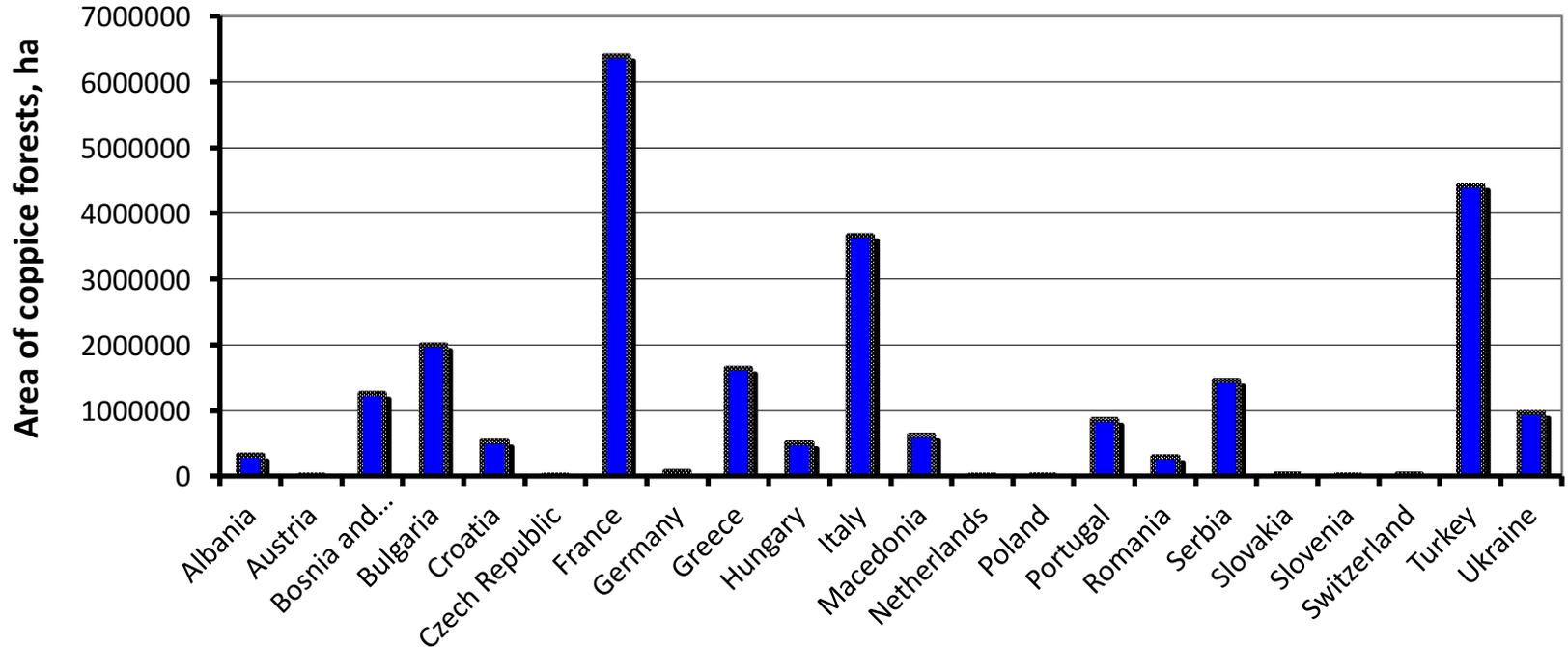
Valeriu-Norocel Nicolescu (Romania), **Gavriil Spyroglou** (Greece),
Tomislav Dubravac (Croatia), **Martina Tijardovic** (Croatia), **Cornelia Hernea** (Romania), **Milun Krstic** (Serbia), **Joao Carvalho** (Portugal), **Iryna Matsiakh** (Ukraine), **Halil Bariş Özel** (Turkey), **Pande Trajkov** (Macedonia)

Some relevant figures on European forests

- **Total forest area: 215 million ha**
- *Privately owned: 107 million ha (51%)*
- EU: average size of private forest holdings = 13 ha; 2/3 of private forest holdings have less than 3 ha
- Pure broadleaved forests: 36% of area and 43% of growing stock
- ***Annual harvest of firewood (2015): 115 million cu.m***
- *Coppicing (2010): 5% (8.8. million ha) of forest area under regeneration*

Coppice forests in Europe

Currently cover **over 25 million ha** (?). Major countries: France, Turkey, Italy, Bulgaria, Greece, Serbia, Bosnia and Herzegovina, etc.



Some major traits of coppice forests in Europe

- Are dominated by **broadleaved species** such as oaks (*Quercus robur*, *Q. petraea*, *Q. cerris*, *Q. frainetto*, *Q. pubescens*, *Q. pyrenaica*, *Q. ilex*, *Q. trojana*, *Q. coccifera*) and beech (*Fagus sylvatica*, *F. moesica*, *F. orientalis*).
- Also include **other broadleaves** such as *Castanea sativa*, *Carpinus betulus*, *Carpinus orientalis*, *Betula* spp., *Alnus* spp., *Salix* spp., *Populus* spp., *Acer* spp., *Fraxinus* spp.
- Produce especially **small-sized timber** for energetic uses.
- Are an important component of **rural areas**, especially in the centre, southern and south-eastern parts of the continent.

Conversion: background

= *the change of a forest from a form specific to a certain **regeneration method** (high forest, coppice, and coppice-with-standards) to another form specific to a different regeneration method.*

= it is imposed by the change of management objectives or the targeted yield products (industrial wood vs. firewood), or concerns related to soil protection, conservation and landscape.

= *imposes the change from one silvicultural system to another silvicultural system, specific to a different regeneration method.*

Types of conversion

As there are three different regeneration methods (high forest, coppice and coppice-with-standards), conversions can have **six** possible directions (Lorentz and Parade 1883; Boppe 1889):

From high forest: to simple coppice or to coppice-with-standards.

From simple coppice: to coppice-with-standards or to high forest.

From coppice-with-standards: to simple coppice or to high forest.

The ***most frequent conversion methods*** used in different European countries = *from simple coppice or coppice-with-standards to high forest.*



Main *target* of conversion:

= the transformation of ***low productive coppices***, producing mostly firewood, into ***more productive high forests***, including higher amounts of timber with various industrial uses.

Wood assortments derived from forests (per cent of total production) (from Lanier 1986)

Silvicultural regime or system	Waste and small wood	Firewood	Pulp and paper wood	Sawlogs and veneer logs
Broadleaved high forest	18	34	17	31
Coniferous high forest	13	14	25	48
<i>Simple coppice</i>	15	65	20	0
<i>Coppice-with-standards</i>	16	58	20	6









Conversion: a bit of early history...

Main initial reason for early conversion: the pressure to produce *large-diameter logs for industrial uses*.

Beginning of conversion of coppice forest in Europe:

- first conversion management plan, using *indirect conversion* through coppice-with-standards: elaborated in France for *Forêt d'Amance* (close to Nancy) in **1824-1825**, under the influence of Prof. Bernard Lorentz from *Ecole Royale des Eaux et Forêts* (Nancy).

Methods of conversion (i)

a. Direct conversion

1. **By ageing (*by natural regeneration* = full cessation of simple coppice cuttings)** = *healthy, vigorous, and productive simple coppice stands, with full canopy cover, in which the target species are found in high proportion and the soil conditions are favourable to natural regeneration by seed.*
2. **Mixed (= partial cessation of simple coppice cuttings)**
3. **By replacement/restoration (*by artificial regeneration*)** = *degraded simple coppice stands that have a low proportion of valuable tree species, low canopy cover/stand density, low productivity, old stumps and low potential of natural regeneration by seed, compacted and fallow soils, etc.*



Methods of conversion (ii)

b. Indirect conversion

Applied for the conversion of simple coppice to high forest through the use of *coppice-with-standards*.





Direct and indirect conversion: *used in similar ways Europe-wide in order to enhance the ecological, commercial and social values of coppice forests.*

Current reasons for converting coppice forests to high forests:

- Low yield of coppice forests
- Protection of soil against degradation and erosion.
- Increase of biodiversity (both flora and fauna)
- Keep local population in rural areas and increase their income from forest products and services
- Carbon sequestration
- Climate change mitigation



Case studies

Macedonia: *politically driven*

- **1949-1950** inventory: **268,270 ha** of "regular" coppice forests, 130,222 ha heavily exploited forests, 231,068 ha shrubs.

- 2nd half of XXth century (1955, 1958, 1960, etc.): coppices considered as "degraded forests" and conversion (direct by replacement/substitution and indirect) to high forest recommended.

- Important measure to improve the state of forests: **ban** (1948) on breeding goats (1.2 million goats killed in several years).

- **1970**: Log-term program for the development of forests in the SR of Macedonia: 330,000 ha in conversion (30,000 ha direct and 300,000 ha indirect). *Based on state budget funding.*

BUT: NO analysis of the results of these planned activities; much of the conversion work has been carried out, but *the silvicultural objectives in many in-conversion stands (subjected to one or two thinnings) have been changed again lately and the stands re-directed to coppice management.*

Serbia: *politically driven*

- Coppice forests: 1.456,000 ha (64.7% of total forestland); most of them (76.3%) in good conditions, 21.3% with low canopy cover, and 2.4% `devastated`

- Private ownership over coppice forests: 61.4%

- One of the objectives of *current National policy for sustainable forest management*: increase the share of high forests, from 35.4% to 55-60% by conversion of coppice forests

= *Direct* (by restitution/substitution of degraded coppice) and *indirect* (by ageing of good condition coppices) conversion

Romania: *politically driven*

- Conversion of simple coppice and coppice-with-standard stands (over 30% of Romanian forests before WWII): after the nationalization of all forests in **1948**
- **1948**: application of coppice-with-standards system = legally forbidden, and conversion of CWS forests to high forests started
- **1951** (*Technical instructions for forest management*): compulsory conversion of ca. 600,000 ha of simple coppice forests (ca. 10% of national forest area)
- **Currently** coppice forests cover about 5% of Romanian forest area

BUT: even the **process of conversion of simple coppices to high forests** has started about 70 years ago **it is still on-going** in pure and mixed pedunculate oak, Turkey oak, Hungarian oak, sessile oak, European beech-dominated forests, treated as simple coppices in the past!

Greece: *politically driven*

- 75% of country's forests = publicly owned
- conversion (mostly direct but also indirect) of coppice forests: ***based on the Forest Law*** (released in 1938, enforced in late 1950's): *$\frac{3}{4}$ of publicly owned coppice forests, $\frac{1}{2}$ of coppices belonging to monasteries, municipalities and legal entities and $\frac{1}{4}$ of coppice forests owned by individual private owners should be converted to high forests*
- **Initially:** the law did not provide any subsidies for the conversion of privately-owned coppice forests
- **Currently:** the forest owners can submit proposals for having subsidized the coppice conversion; *the process is too bureaucratic and the forest owners simply do not prepare such proposals as they generally hate the coppice conversion!*

One special situation when conversion is compulsory: in NATURA 2000 sites, all coppice forests should be converted into high forests

Croatia = *EU-incentive driven*

- Conversion of privately-owned *degraded forest stands* (= loss of commercially important native tree species), due to inappropriate management in the past
- A significant share of degraded forest stands = **privately-owned**, with coppices covering 278,554 ha (52.2% of Croatian coppices)
- Initiative for (direct or indirect) conversion = part of *Rural Development Program* for Croatia (2014-2020), aiming at economic growth and development (reduction of poverty) and creation of new employments in rural areas = social benefits

= based on **EU subsidies** (for private and public forest holders) of **60 million HRK (8 million Euro)** (call opened **15.06. 2016**)

First results:

- **Reduced use of subsidies**
- **Low number of applied conversion programs**

Portugal: ***NO obligations for conversion***

- Coppice area (excluding eucalyptus species): 41,000 ha (oaks – *Quercus robur*, *Q. pyrenaica*, *Q. faginea*, *Q. rotundifolia* -, sweet chestnut).
- **NO** legal obligation to convert coppice forests in any kind of forest estate (*i.e. state, community, private*)
- If done, coppice conversion: (1) because of coppice abandonment, (2) to produce better-quality wood and provide other functions, (3) change towards silvo-pastoral system, (4) for biodiversity purposes, (5) changes in wood market (low demand for chestnut small diameter coppice; low demand for wood fences).
- **Non-significant** financial incentives (*e.g. EU-funded measure ‘Improvement of the Stand Productivity Potential’*), financing conversion in order to improve the stand potential.

RESULT of such liberal policy: *Some coppice areas might be converted but it is impossible to say how much - would be a small share of the existing coppices.*

Some conclusions...

Coppice conversion:

- Long-lasting and difficult process.
- Either driven by political/legal requirements (forest laws and regulations) or financial incentives; in more liberal countries, NO obligation for conversion.

And one question...

What is next? Can we/is there any need to continue (under certain conditions) the conversion process, especially in the context of revival of coppice forests as the result of *increasing use/increasing price of firewood* in the rural areas?

Definitely, coppice conversion can NOT/should NOT be generalized Europe-wide in the state, public or private forests.

Thank you!



COST Action FP1301 EuroCoppice

Innovative management and multifunctional utilisation of traditional coppice forests – an answer to future ecological, economic and social challenges in the European forestry sector

Corresponding author contact information:

nvniculescu@unitbv.ro

www.eurocoppice.uni-freiburg.de

Session 82 a/b - IUFRO 125th Anniversary Congress, Freiburg, Germany
15:00 – 19:30, Tuesday Sept. 19th, 2017

