



5 Governance

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Socio-Economic Factors Influencing Coppice Management in Europe

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The data compiled to produce this fact sheet comes from six countries that have been used as case studies and, while not necessarily representative, these provide a wide perspective on the issues influencing decisions regarding coppice management and the alternative approaches adopted. This was agreed as the common understanding of the term governance for the purpose of this fact sheet. The focus is on traditional coppice rather than short

rotation coppice (SRC) on agricultural land. The term forest has been used throughout although it should be noted that in British English the appropriate word would be woodland; forest has a rather different meaning and would not be used in the context of coppice.

In each country, coppice must be considered within the context of the national forest resource, illustrated in Table 1.

Table 1. Forest area

	Croatia	England	Germany	Italy	Serbia	Spain
Forest area in ha	2,580,000	1,294,000	11,419,124	10,467,533	2,252,400	18,600,000
Percentage of land area	46%	9.9%	32%	35%	29.1%	37%
Proportion of: conifer	7%	34%	56%	11.2%	9.3%	35%
mixed	31%			15.7%	2.4%	20%
broadleaf	62%	66%	44%	56.8%	88.3%	45%
other forested land				16.3%		
Coppice as percentage of total forest	39 %	No data	0.7%	41%	64.7%	11.8%

References: England: National Inventory of Woodland and Trees (2014); Germany: Thünen-Institut (2014) - National Forest Inventory BWI3; Italy: National Inventory of Forests and forest Carbon pools (2005)

International and European Policy Context

Coppice forest management is very rarely mentioned in international and European forest policy documents. In 34 key documents, traditional coppice is only mentioned in one, 'State of Europe's Forests 2011: Status and trends in sustainable forest management', in the context of (a) regeneration types and (b) cultural and spiritual values. This document also mentions SRC, as do a number of others.

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While the forest area is around a third in most countries, except England, the figure for coppice varies considerably. In Croatia, Italy and Serbia most of the broadleaf forests are coppice, while in Germany very little is managed in this way. In many countries there is no legal definition of coppice, but it is generally agreed to be trees/ woodland/forest originating from shoots from stumps or roots; this may be combined with standard trees. Italy and Germany have official

definitions in their National Inventories. The German inventory defines coppice as less than 40 years old.

The policy context is set nationally in Croatia, England, Italy and Serbia, but is devolved in Germany and Spain. Most of the forest related national policy documents do not mention coppice; the most important documents that include specific references to coppice are listed in Table 2.

Table 2. National policy documents specifically mentioning coppice

Croatia	<ul style="list-style-type: none"> • The Forest Act (2005) is the most important policy document affecting coppice • Coppice is mentioned in subordinate regulations e.g. Ordinance for making forest management plans (2015), which defines silviculture and rotation periods
England	<ul style="list-style-type: none"> • Forestry Commission England's Corporate Plan 2014-15 mentions coppice. • The UK Forestry Standard: The Governments' Approach to Sustainable Forestry (2011) refers to both traditional and SRC. • The Woodfuel Strategy for England (2006) included traditional coppice and SRC
Germany	<ul style="list-style-type: none"> • Forest Strategy 2020 (2011) and the National Strategy on Biological Diversity (2007) both mention traditional coppice positively in the context of biodiversity, nature conservation, and recreation. However, the former also states that coppice does not play a noteworthy role in forest regeneration methods. • Forest Report of the Federal Government (2009) and Energy for Tomorrow Opportunities for Rural Areas (2009) both mention SRC
Italy	<ul style="list-style-type: none"> • The Framework Programme for the Forest Sector (2008) identifies priorities, including maintaining and preserving the social and environmental functions of the forest, as well as the economic aspects • FPFS (2008) refers to the conversion of coppice into high forest • The National Strategy on Biodiversity (2010) Industry Plan 2012-2014 • Bioenergy Sector Plan (2014) SRC Wood
Serbia	<ul style="list-style-type: none"> • The Law on Forests (2010) ensures the resources are available for priorities including conversion of coppice to high forest • Forestry Development Strategy (2006) identifies the unfavourable condition of coppice forests • National Strategy for Sustainable Development (2008) • Biomass Action Plan 2010-2012 SRC
Spain	<ul style="list-style-type: none"> • The Spanish Forestry Plan (2003-2032) suggests transformation of coppice into high forest • Energy crops are mentioned in Renewable Electricity Laws, but coppice is not

THE CURRENT SITUATION FOR COPPICE IN EACH OF THE CASE STUDY COUNTRIES

In many countries physical and biological variation combined with land use result in forest – and therefore the potential for coppice management – being regionalised. There is a divergence of opinion as to whether rotational coppice, or what is referred to as ‘close to nature’ high forest is the best option for combining commercial productivity and wildlife protection. This is likely to be context specific. Sustainable forest management requires a diversity of both species composition and age structure. If forest areas are large enough it is possible to achieve this with high forest management: however, where

areas are small and widely dispersed, these criteria can only be met by rotational management such as coppicing. This is the situation in countries such as the UK. In much of Europe there is a policy of converting coppice to high forest. In cases where coppice is locally important for social, environmental and economic reasons then it may be permitted to remain. Realistically, conversion is a labour intensive process and is not likely to be achieved without significant investment and the availability of subsidies.

Croatia Traditional coppice management was linked mostly to rural areas where indigenous tree species, such as oaks, chestnut, hornbeam, and beech, are tolerant of coppice management. This also applies to some introduced species, for example black locust. Wood products from coppice were primarily used for private purposes and rarely marketed. Traditional products from coppice were used in agriculture and for firewood. With rural emigration and the appearance of new materials, intensive coppice management ceased. As a result of abandoning coppice forest management combined with the general opinion that high forest has higher biodiversity, the focus of national and European funds for subsidies strongly support conversion of coppice to high forest of mixed native species.

England Historically the majority of England’s woodland was broadleaf. Until the introduction of motor manual felling, the smallest diameter material possible was harvested due to the amount of effort involved. This has resulted in ancient coppice stools still producing poles that, until recently, supplied the lucrative markets for hop poles and mining bars. In south and south east England coppices have remained as they are effectively far more profitable than alternative land uses (i.e. clearance for agriculture or high forest). As a silvicultural system they require virtually no input and continue to yield profit, at the low end from firewood and at the higher from chestnut fencing products. The coppice industry is mostly ‘under the radar’ of the forestry authorities as, due to small stem size, no permission is usually required for harvesting and national forestry surveys do not accurately include it. The workers, particularly in the chestnut sector, tend to be from a family tradition of coppice work and the same can be said of many of the larger landowners as a significant quantity of coppice is on large estates. Coppice woodland is valued not merely for profit, when the right to cut is sold annually, but also in terms of rural livelihoods, the landscape, recreation, cultural heritage and for wildlife and game. Woodland management, which includes coppice, is more widely taught than forestry, a subject found in very few Universities in England / the UK.

Germany Coppice forest management was previously of major importance in terms of personal use, rural livelihoods and industry, but only very few areas are currently under active coppice management. Main factors for this change include the widespread availability of other forms of energy or materials, a lessened dependence of individuals on rural resources, as well as the currently dominant view and corresponding legislation in which ‘close to nature high forest’ is proclaimed as most desirable. However, with its continuing decline there has been an increased interest in the services or value provided by coppice outside of the provision of materials, such as biodiversity, erosion protection, recreation and cultural heritage.

Serbia Coppice forest and coppice with standards are the most dominant category in small scale private forests. This form of management is the best way to meet the needs of private forest owners for a regular supply of fuel wood for their households as well as saw logs for local marketing to improve cash flow in budget deficit situations. One of the main policies in the country relating to coppice forest is to support both public and private owners to begin conversion of coppice to high forest. During recent decades a movement of young private forest owners from rural areas to cities or abroad has been recorded. This has changed the approach from fuelwood production to more selling of the right to cut standing wood or lack of harvesting in recent years.

Italy Over the past 80 years, the coppice surface in Italy has remained practically unchanged, whereas the total forest surface has increased due to the abandonment of agricultural activity. The average age of coppice has increased so that now more than 50% is over 30 years old. The main reasons for the extent of coppice is, on one side, the strong relationship with agriculture (e.g., chestnut poles for vineyards, firewood for rural communities and for cooking in typical restaurants in the cities, the distribution of the seasonal workforce), and on the other, social factors (e.g. property: 75% of coppice is privately owned), climate and territorial characteristics (e.g., Mediterranean climate and forest species, distribution of forests in mountain regions).

Although the current paradigm for efficient and sustainable forest management favours conversion of coppice into high forest to increase certain ecosystem services, the observed trend is the slow “natural” evolution of coppices through ageing on less favourable sites. However, on more favourable sites utilisation continues and can, in some cases, lead to over-exploitation. Current legislation tends to emphasize the landscape and environmental aspects of forests, thus stimulating innovation in management and utilisation systems, including coppice.

Spain Coppice was a very important source of firewood for the rural population and small industries in past centuries. There were strict and detailed rules in some places, regulating firewood logging because of the high demand. Today coppice is mainly abandoned because of a decreasing demand for firewood (rural migration and the appearance of fuel alternatives). Currently, coppice is only the topic of some silvicultural research and forest management plans. This concept has disappeared from the National Forest Inventory and other national data bases. Owner associations and logging companies do not have a strong interest in maintaining or transforming coppice.

The current paradigm of good silviculture is the conversion treatment. In 2006 renewable energy had a strong impact on forest policy makers; they thought coppice could be productive again. However, following electricity fee cutbacks (2012) this powerful driver has disappeared. The firewood logging that remains is performed by small logging companies or non-professionals for their own use. Coppice does remain in Spain, but the trend is for it to decrease.

COPPICE IN MANAGEMENT PLANS

Some countries have landscape scale management plans that cover forest, but the majority have plans that specifically focus on wooded/forested areas. While larger owners and public forests are likely to have management plans, the situation for privately owned forest is more complex. In Croatia and Serbia these plans are compulsory for all ownerships. In Spain, if the forest is recognised as having a protective function, it must have a management plan, and in England these are essential if subsidies are being sought. All plans are formulated according to national and regional legislation, and in most cases must be formally approved. In Croatia and England the process has a participatory element. Coppice, if present, may be covered by these plans.

In Croatia, England and Germany, the owner has freedom of choice regarding the management aims for their forest. Permission is required to cut trees managed as coppice, except in England and Germany. In Croatia and Serbia coppice must be marked by an authorised person before it can be cut. There are restrictions on the size

of the area cut at any one time, although in Spain all species on rotations of less than 20 years can be cut without a specific management plan. In England no felling license is required for material less than 15cm dbh (diameter at breast height). In Italy a specific number of trees must be retained per ha.

Other areas managed as coppice include energy SRC that has been extensively planted in Italy. In northern Spain, eucalypts managed on a 12-year rotation for paper pulp have increased. In England native trees planted as screens on transport corridors are managed as coppice. In all countries naturally regenerating woody broadleaved material under power lines, along rivers and roadsides are regularly cut and are effectively coppiced.

A significant management issue in many countries is deer browsing, which prevents regeneration of coppice and can necessitate capital expenditure on fencing and/or control if coppice is to persist.

COPPICE OWNERSHIP

In general coppice is more frequent in private ownership. Many of the forests, particularly those in private ownership, are small (see *FACESMAP* for details). These tend to be a mix of traditional rural/farming and non-farming/new rural landowners, particularly in England. Owners get advice from a variety of sources such as State/Regional forestry advisory service, private land managers, websites and peer groups. In England farming associations such as the National Farmers Union and the Country

Landowners Association¹ include woodland; there is also the Small Woodland Owners Group (SWOG) representing the non-farming faction and the Royal Forestry Society (RFS). In other countries there are specific forestry owners' groups. In Croatia, Germany, Italy, Serbia and Spain there are multiple owner associations, most of which have national umbrella federations enabling them to contribute the Confederation of European Forest Owners.

¹ Still commonly known by this name although the full name is the Country Land and Business Association

None are specific to coppice and membership is apparently low, which restricts effective communication. In some countries there is a tradition of common ownership of some areas of coppice with a formal system of allocating harvesting rights to different people. In Germany this is now in decline as the entitlement, if not used, ceases to exist and there is no automatic transfer of rights. In Serbia, while some regional private forest owners associations exist their activities and the support they provide for private forest owners are very limited. Most were established externally, with international project money, and so do not reflect the interests of owners in the region.

In Croatia, England and Serbia, most small scale owners have some coppice; in Germany and Italy the proportion is very low and in Spain the picture is not clear. There is little data on the gender balance of owners although it is generally thought that the majority are male. Research carried out in Western Serbia corroborated this, revealing 82.4% of owners to be men. In Bavaria, Germany, 8% of owners were found to be women and it has been estimated for Germany as a whole that 20% are female (FACESMAP Germany Country Report).

In some countries, such as Croatia, Italy and Spain, there are significant areas of forest, including coppice, with unknown ownership as a result of split inheritance and rural emigration; abandonment can contribute to fire risk. Fragmentation is recognised as a problem for cohesive management and in some countries incentives are offered for consolidation, combining small parcels into a single ownership. Conversely, in southern England the persistence of large estates, with a long tradition of family ownership, significantly influences the persistence of coppice management.

In the past, the management of coppice forests under common ownership was important in some countries, such as Germany. Examples can still be found, but most have been converted to another form of ownership and frequently to another forest type. Systems of common ownership regulated harvesting and use of the coppice area, and often included unique local customs for allocating harvesting rights. One specific regulation, found in several German examples, is that the right is lost if not used and a federal law forbids the transfer of these rights.

OTHER ISSUES AFFECTING COPPICE MANAGEMENT

Traditionally coppice existed to provide small diameter roundwood for a variety of markets. Many of these are now met by alternatives, or have disappeared, although coppice is still valued for multiple reasons. The current issues affecting coppice are outlined in the following section.

Markets for Coppice Products

The main influences for continuation of coppice management include demand for fuel wood, biomass, landscape, natural and cultural heritage and recreation. While profit from coppice is limited, it is low input and can make a positive contribution to rural livelihoods. Although firewood markets are generally

good in some countries coppice biomass is not economically viable without subsidies.

- There are some specific markets driving coppice management, for example the demand for small diameter chestnut for fencing and poles. There are a wide range of other products produced from coppice serving local niche markets.

- Some markets require products to be certified, and coppice can be certified. This requirement may be stipulated in purchasing policies, particularly those of public authorities and larger companies. Certification is less important for local markets, such as firewood. The cost of certification may be an issue for small scale owners.
- The price of forest managed as coppice is low in comparison to agricultural land or high forest. The exception is where it is sold in small plots for recreational use, for example in the UK.

The Coppice Workforce

Where there is coppice, with ownership willing to manage it, and demand for the product, this will only be realised if there are workers available to carry out the necessary tasks.

- In most countries forestry contractors cut coppice as part of their job, these contractors may be State owned or private companies of various sizes. They may be members of Forestry Contracting Associations; in Italy there are workers co-operatives.
- In England many coppice workers work alone or in small, often family, groups; this structure contributes to the burden of overheads. The product from these workers may be collected and sold on via a coppice merchant who acts as the intermediary between the workers and the market place. There is at least one co-operative specifically representing coppice workers.
- Where seasonal restrictions are limiting, for nature conservation considerations, linked to the hunting season, or fire risk, then agricultural or landscape alternatives may be taken during the summer months. For some workers there is a move to processing or moving material cut in winter to market.
- Small scale owners, particularly those who are farmers, produce firewood for personal consumption and local markets during the winter. This may include those with common ownership rights and, in some cases, coppicing may be undertaken by volunteers.
- A lack of skilled coppice workers has been identified, specifically in England and Germany. Various training schemes have been considered in England, but with limited success. This may be due to this sector being less attractive than larger scale forestry.
- Capital investment in this sector is probably limited to national rural development programmes, for example for firewood processing equipment. In England there are coppice specific subsidies available to land-owners in some areas.
- It can be difficult to harvest coppice on steep slopes. Access may be difficult, for example on water retentive soils, where forest is fragmented and surrounded by farmland or where, as in Germany, the paradigm is conversion to high forest when land is productive, effectively marginalising coppice to less favourable areas where mechanisation is not possible.



Coppice in the UK (Photo: Debbie Bartlett)

CONCLUSIONS

The research undertaken to produce this factsheet has highlighted that coppice generally falls outside strategic forestry frameworks at international and national levels, other than where there is an explicit policy for conversion to high forest. It has also revealed a variety of governance approaches at regional and local levels and that there are significant areas of uncertainty, not least the lack of valid statistics on the area of coppice and the extent of active management.

In order to determine the place for traditional coppice management in addressing future ecological, economic and social challenges for the European forest sector it is suggested that the following questions will need to be considered:

- Will the prevalence of the policy to convert to high forest impact on small scale private owners as well as public ones?
- To what extent will this trend towards conversion be influenced by the availability of funding?
- Does the apparent lack of coppice specific policy at national level originate in the regional, rather than general, distribution of coppice?
- How significant is the demand for fire/fuel wood and specialist products?
- What effects do nature conservation, landscape, amenity and ecosystem service provision agendas have?
- What effects will the increasing interest in ecosystem services at international/national and local levels have on coppice?
- How effective are the knowledge transfer networks, for example between owners, coppice workers, extension services and the end market?

REFERENCES

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The Potential Barriers to Persistence and Development of Small Scale Coppice Forest Management in Europe

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This paper is based on original research into the factors influencing coppice management carried out during the COST Action FP1301 *EuroCoppice: Innovative management and multifunctional utilization of traditional coppice forests – an answer to future ecological, economic and social challenges in the European forestry sector*. This involved several Working Groups, with WG5 focusing on governance issues and the role of the people who make decisions affecting coppice forests. These range from policy makers, at national

and European level, to woodland owners and managers and those who make commercial decisions, woodland workers, processors and purchasers. A complex interplay of factors was revealed, with significant differences between countries.

The contents of this paper provided a basis for a presentation by Debbie Bartlett at the IUFRO 125th Anniversary Congress in the Session 82a “Traditional coppice: ecology, silviculture and socio-economic aspects”.

1 INTRODUCTION

Coppice is considered to be the oldest form of sustainable forest management and is still abundant with an estimated resource of more than 20 million hectares of forest currently managed as coppice across Europe and even more was formerly managed in this way. In the past roundwood was important, particularly for fuel, but, from early in the 20th century the most prevalent form of management changed to favour high forest systems, driven by increased use of fossil fuels, demand for larger timber and advances in technology. As a result, many coppices were converted to high forest, over planted or abandoned. There has been a resurgence of interest in coppice management as a component of sustainable forest management and it is increasingly recognised that coppice provides a diverse range of products and services of value to society.

The COST Action FP1301 EuroCoppice set out to consider how this traditional practice could be developed into a modern multifunctional system to increase the benefits from this currently under-utilised resource with representatives from member states contributing to different working groups to consider how this could be achieved. This paper has been produced by members of Working Group (WG) 5, “Ownership and Governance” who had the task of looking at potential barriers to increasing coppice management and how these could be overcome. The first step towards achieving this goal was to find out the current situation regarding coppice management in the countries involved in the Action.

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2 METHOD

Research began with a focused discussion between WG5 members at the first EuroCoppice conference, held in Florence, Italy, in February 2014. Data gathering began at the second conference, held in England in November 2014, entitled ‘People and Coppice’¹. This brought together academics and practitioners to explore the issues for different stakeholders, stimulating discussion of the differences and similarities between countries. All the delegates were asked to engage in participatory exercises during the event to provide information about coppice management by country.

2.1 Data collection at the ‘People and Coppice’ conference

All delegates were asked to identify the key issue(s) for coppice in their country on a flip chart as part of the registration process, before the formal conference events began. The rationale was to begin to get an overview of what the barriers to development in the sector might be.

The conference was organised into three sessions: the coppice resource, access to this resource, and the people involved. There were speakers from the government agencies concerned with policy and implementing legislation, the perspectives of different ownership groups (traditional large estates as well as small woodland owners) and – perhaps unusually – from woodland workers and processors. Everyone attending was given a form listing all the talks and with spaces for comments to be filled in after each presentation. These were not completed by all delegates but a significant amount of data was generated and analysed.

2.2 The Fact Sheet

Working Group 5 members collaborated to produce a ‘Fact Sheet’ exploring in depth the socio-economic issues and providing the context for coppice forest management in Croatia, England, Germany, Italy, Serbia and Spain (EuroCoppice Working Group 5, 2017; see the previous article of this volume, ‘Socio-Economic Factors Influencing Coppice Management in Europe’ for an updated version of this document). Analysis of these six examples provided information on some of the constraints and opportunities that apply when considering the way forward to develop a modern, multi-functional, coppice sector.

2.3 Modelling future scenarios

A Short Term Scientific Mission (STSM), funded by the COST Action FP1301 EuroCoppice, enabled a member of WG5 to study the potential for using Agent Based Modelling (ABM) as a tool to explore the relative importance of different factors affecting coppice (Gomez-Martin 2017). ABM uses computational models to simulate the actions and interactions of autonomous agents between themselves and the environment. They can be used to predict the likely effect of any action, or changes in interaction(s), on a system (Bonabeau 2002). Once the structure of a complex system has been accurately captured then the model can be manipulated to stimulate the dynamic evolution of actions over time. This approach has been receiving increasing attention as a tool in land use decision-making and environmental management, as it has the capacity to dynamically link social and environmental processes (Matthews et al., 2007).

¹ For details, including presentations, please see <https://www.eurocoppice.uni-freiburg.de/conferences/2014inChatham>

3 RESULTS

These are recorded with the same headings as in the method section.

3.1 Data collection at the 'People and Coppice' conference

Delegates' responses to the question 'what is the key issue for coppice in your country?' are given in Table 1.

Table 1. The key issues for coppice in different countries

Country	Key issues for the coppice industry
Albania	50% of forest area; traditional working system
Belgium	small scale; expensive; biofuel high price compared to fossil fuels; land costs and harvesting
Bulgaria	legislation restricts coppicing; small sized forest ownerships
Denmark	no problems
Estonia	high cost of transport/harvesting; falling prices of woodchip and logs
Finland	cost of biofuels and harvesting technologies; competition of existing natural forests
Germany	coppice on low productivity land; high cost of harvesting; no management plans; biodiversity concerns
Greece	low management standards; grazing; forest fires
Ireland	little coppice; few markets; lack of knowledge; farmers increasingly interested in firewood
Italy	mechanised felling; small ownerships
Latvia	coppicing is traditional; natural regeneration of deciduous forest
Lithuania	finance, resources and knowledge of such practice
Poland	coppicing is not traditional; rarely used
Romania	conversion of high forest to coppice; increase of willow/poplar SRC
S Africa	mechanical harvesting and planting of rotational coppice
Slovakia	sector under-developed; market drivers favour fossil/nuclear over biofuels; high investment needed to compete with fossil fuel and nuclear companies
Spain	mechanised felling is progressing and improving but is still far from profitable; overstood coppice; poor market; length of supply chain
Sweden	low product price; coppice not near e.g. railway; large producers buy small woods; mechanisation causing lack of skilled cutters

The responses to each of the sessions was recorded by participants on pre-prepared forms, printed on green paper to distinguish them from other papers in the delegate packs. A summary of the responses is included in Table 2.

Table 2. Summary of 'green sheet' responses

Session 1 The Resource

Ancient Woodland Policy (presented by Dr Keith Kirby)

How is the heritage value of coppice taken into account in your country?

Most responded that it is not. The few who responded that heritage value was taken into account related this to specific small areas. The only exceptions, from Italy and Spain, related the heritage value to sustainable supply of firewood.

Protection of Coppice for Biodiversity (presented by Christine Reid)

How is the biodiversity/natural heritage value of coppice taken into account in your country?

Responses to this question diverged widely. Some reported a high level of legislative protection particularly in, for example SACs, while others stated that no value was attached to coppice as biodiversity was associated with high forest systems. Approximately equal numbers were in either camp.

Landscape and Economy - Coppice in the landscape (presented by Sally Marsh)

How is the coppice woodland management valued as part of the landscape and local economy?

Again the responses varied between two extremes. Some reported that coppice was of no value; one delegate stated that it costs money to harvest while others reported that it was very important to the local economy for fuel.

One alluded to non-timber forest products, such as mushrooms, being economically important. Few mentioned the landscape.

Session 2 Access to the Resource

Estimates of local woodland resource (presented by Matthew Woodcock)

How does your national forest service/government agency record coppice woodland?

The carrying out of regular forest inventories appeared to be the norm in most countries. However, many delegates seemed unclear as to how coppice was recorded and the precise definition of this woodland type.

On-going coppice survey (presented by Dr Debbie Bartlett)

(a voluntary initiative to try to establish how much coppice is in active management in Kent)

Do you have similar initiatives? Can you get figures for the area coppiced each year?

22 simply responded that they could not get this figure. Others were unsure. Four mentioned that some information could be derived from questionnaires sent to owners but these seemed to be small scale. Only one country (Albania) reported confidently that the Forestry Authority had the data.

Linking to Landowners – the agent's perspective (presented by Mike Bax)

(this presentation described the historical practice of selling standing coppice at auction and how this had now changed to a system of private contracts between the owner and coppice)

How do woodland owners and workers get together to achieve coppice management?

An interesting contrast emerged in the responses between those countries with large state owned contracting companies, those where coppice was small scale and harvested by the owners for their own use and those where there were effective owner associations that were able to arrange harvesting.

Session 2 Access to the Resource (continued)

The Local Woodland Register (presented by Alan Sage)
(an on-line resource listing those wanting wood and owners wanting their coppice cut)

Would this be an idea that would work in your country? Is there something similar already?

Representatives from Germany, Croatia, Bulgaria and Poland reported that there were databases of owners; some others mentioned there were people who put people in touch but it was a new idea to the majority. Some felt it would work while others felt the coppice resource was too small.

Session 3 The People Involved

Small Woodland Owners Group (presented by Judith Millidge)

It was at this point that responses began to trail off. Some pointed out most coppice was in public ownership, while others identified the problem that no owners can be traced for many abandoned coppices. The issue of restitution, where coppice is returned to private ownership, was also mentioned. One comment was “this is too beautiful to be true!”. 17 left this section blank.

Views of Small Woodland Owners (presented by Matt Pitts)

This revealed a marked contrast with many of the delegates, mostly forestry specialists in academic institutions, finding it difficult to believe that people would buy woodlands for recreational/pleasure reasons. The importance of production was emphasised by many, although a few recognised that the younger generation inheriting woodlands were more likely to appreciate the wider range of woodland services that coppice can deliver.

The Local Authority Perspective – managing publicly owned coppice for recreation and amenity (presented by Tim Bell)

This seemed a rather unusual idea to the forestry audience with few commenting. The idea of harvesting coppice in a public park was considered unusual and the comment made that such parks tend to be heavily subsidised.

Contracting issues in a range of woodlands – The view from a contractor working in East Sussex and Kent (presented by Nick Hilton)

Those that wrote comments in response to this presentation were highly complementary, mentioning entrepreneurial skills and the importance of this to the industry. One said “Practical presentation. This kind of people should be more invited to scientific conferences to show the big issues...“.

Wood fuel manufacture and supply – view from a local log producer and supplier (presented by Mike Gilman)

This generated some interest as an example of a highly organised approach to supply, however others felt that wood fuel production and marketing was small scale and happened without intervention.

Chestnut fencing manufacturing – the view from a long-established Surrey-based company (presented by Steve Homewood)

This elicited a response from delegates from chestnut growing countries, although this type of fencing was new to them (demonstrated during the field trip).

Surrey and Sussex Coppice Group – coppice cutters working together (presented by Chris Letchford)
This produced few responses but the approach was not familiar to those who did comment.

The completion rate of these sheets declined dramatically as the day progressed (see Figure 1) and as the topics moved from conventional forestry topics into socio-economic areas that were perhaps less familiar to the delegates.



Figure 1. Number of responses to each of the presentations

3.2 The Fact Sheet²

The research undertaken to produce the factsheet identified that, in general coppice is not included in forestry frameworks at international or national level. The exception is in those countries where there is a policy to convert coppice to high forest. It also revealed significant areas of uncertainty, including a lack of robust statistics on the area of coppice and how much is actively managed. It was found that coppice was not always included in management plans and that key issues were coppice ownership, markets for coppice products and the coppice workforce (EuroCoppice Working Group 5, 2017).

3.3 Modelling to understand future scenarios

The initial work by WG5 clearly identified that complex factors influence decision making in coppice management and that the context varies considerably between countries. The first step in developing a model was to list these factors and classify them according to their likely impact (see Figure 2).

The next step was to identify and list all the potential interactions between agents (for information on terminology see Gomez-Martin, 2017). This process can enable the building of a model that enables the impact of manipulating different elements in the system to be seen. An illustration is provided in Figure 3.

² For the full fact sheet see <https://www.eurocoppice.uni-freiburg.de/intern/pdf/deliverables/socio-economic>

FACTORS INFLUENCING COPPICE MANAGEMENT		
Positive	Negative	Context
Subsidies to recoppice Subsides for equipment	Seasonal restrictions Subsides to convert into high forest Thought that high forest is more 'close to nature'	Policy context
Biomass fuel demand	New materials substituing small-diameter wood Alternatives sources of fuel	Demand
	Emigration to cities New owners with recreational focus Low price of coppice land compared with agricultural land	Ownership
Increase productivity/profitability	Damage to wildlife and cultural heritage Loans/interest rate burden (total labor costs: taxes, insurance...)	Mechanisation
Family groups Coppicing can be a 'life style choice'	Lack of skilled people Low wages Physically hard work	Workforce
Certification increases demand Local markets Co-operatives/Co-operative working	Cost of certification Distance to markets Low capital investment	Supply chain
	Deer browsing Novel diseases	Pest and diseases

Figure 2. Factors affecting coppice management
(Source: Gómez Martín, 2017)

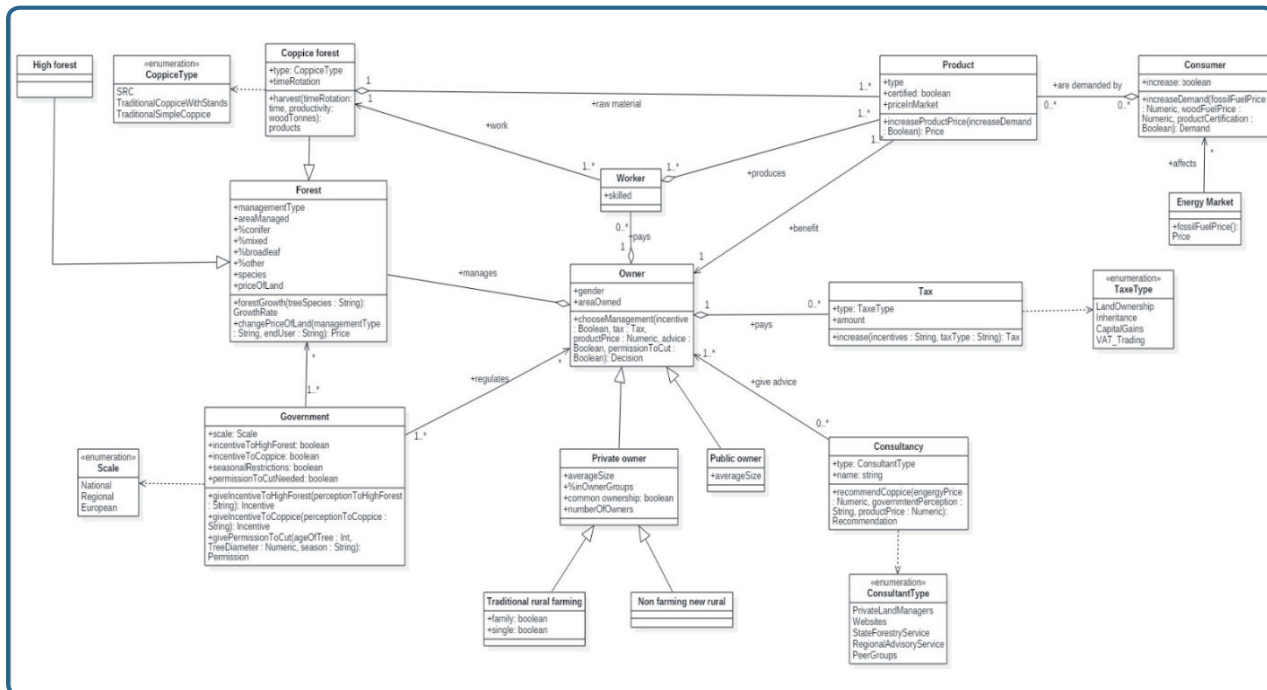


Figure 3. Class Diagram representing the coppice system
(Source: Gómez Martín, 2017)

4 DISCUSSION

While the first meeting of Working Group 5, in Florence, Italy, provided the opportunity for an initial 'brainstorming' of ideas, it was the second conference, in Chatham, England, that was the first chance to begin to gather data. The programme was designed to demonstrate the levels of governance and begin to understand the context in which decisions affecting the coppice sector are made. The rationale was that understanding the current situation is vital as a pre-requisite for proposing any actions. The participatory element, the use of flip charts to identify the key issue for coppice in each country (Table 1) and the responses made by delegates to each of the presentations (Table 2) effectively demonstrated firstly, that there are significant differences between countries about virtually every aspect of coppice, and secondly, that basic information about the resource is lacking.

A detailed investigation into the issues affecting coppice was undertaken, focusing on the countries represented in the Working Group, and this further emphasised the differences between countries. However, there were some common features, notably the lack of significant reference to coppice legislation and policy, and uncertainty regarding statistics (EuroCoppice Working Group 5, 2017). The conclusion reached was that more information about governance issues would be needed to inform development of a modern multifunctional coppice system.

The fact sheet identified a list of questions, included below, as the basis for further research:

- Will the prevalence of the policy to convert to high forest impact on small scale private owners as well as public ones?
- To what extent will this trend towards conversion be influenced by the availability of funding?

- Does the apparent lack of coppice specific policy at national level originate in the regional, rather than general, distribution of coppice?
- How significant is the demand for fire/fuel wood and specialist products?
- What effects do nature conservation, landscape, amenity and ecosystem service provision agendas have?
- What effects will the increasing interest in ecosystem services at international/national and local levels have on coppice?
- How effective are the knowledge transfer networks, for example between owners, coppice workers, extension services and the end market?

While these questions are general and, if explored in depth, would increase the broad understanding of coppice forest management, specific research is also needed on a country by country (and potentially regional) basis. Agent Based Modelling was identified as a potential method to enable greater understanding of the governance issues and of predicting the impact of interventions. A basic model has been developed (Figure 3) but more work is required to develop this further and also create a sequence diagram describing how the objects interact over time. Models are only as good as the data put into them, and the next step is to develop a method of capturing accurate data about each aspect of the system in the class diagram. This will need to be done for each country separately and, on the basis of the gaps in information previously identified, this is not likely to be a simple task. However, this will enable different scenarios to be explored, and the impact of interventions assessed, to inform the future management of coppice forest in Europe.

5 CONCLUSION AND RECOMMENDATIONS

A final output of COST Action FP1301 EuroCoppice was a paper intended to raise awareness among policy and decision makers of the unique characteristics of coppice forests and the valuable contribution these make to society, economy and the environment, by contributing to, for example:

Rural livelihoods: regular income, sustainable employment & resources

Low-carbon bioeconomy: renewable, sustainable, environmentally friendly biomaterials & fuels

Protective function: mitigates soil erosion, rockfall, landslides & avalanches

Sharing economy: community use & recreation

Provision: timber & non-timber forest products

Enrichment: biodiversity & cultural landscapes

See the ‘Summary for Policy Makers’, pages xiv-xv of this volume.

This paper has identified that, while endorsing the general characteristics of coppice, as stated above, there are wide differences between countries in the factors that affect decision making with respect to coppice.

The most significant barrier to development of coppice is simply the lack of robust data about coppice. Agent Based Modelling has been identified as a method that could enable greater understanding of the interactions inherent in the coppice system, such as the legislative framework, land ownership, markets and workers. It is recommended that this approach is developed, using sample countries as case studies, to identify potential barriers to persistence and development of small scale coppice forest management in Europe.

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APPENDIX - EXAMPLE OF GREEN SHEET RESPONSES

Ancient Woodland Policy (presented by Dr Keith Kirby)

How is the heritage value of coppice taken into account in your country?

Albania	Coppice forest, which covers about 60% of the land is traditional with great historical value.
Belgium	?
Bulgaria	By including them (or part of them) into Natura 2000
Croatia	Only small scale forest owners value coppice, as they use it for fuelwood, big owners and the state are not interested due to the lack of market for coppice products
England	On protected areas historic coppice landscape features (old stools and notable/veteran trees) are identified so future management does not damage them.
England	It is
Estonia	The main aim of coppice- to get firewood - has been maintained through centuries
Finland	<i>Corylus avellana</i> coppice in south Finland are considered to be part of heritage.
Germany	Few know what coppice is although widely used ~80 years ago the knowledge is lost
Germany	Experts/scientists have similar views as K Kirby but others believe it to be 'less valuable' as there are no big trees and that clear cuts of coppice is 'bad', destroying the forest
Greece	Those who moved to the countryside in search of a better career are reviving interest in 'traditional' products
Ireland	There is very little coppice in Ireland. I will check if any heritage areas have coppice
Italy	Most broadleaved woodlands could be classed as ancient but there is no institutional recognition or cataloguing
Italy	The heritage value of coppice is mainly at scientific level and not usually considered at all in practice; only some public forest managers consider this aspect.
Italy	Existing law regulation and voluntary protocols
Italy	Quite high. We have protective legislation firewood is very important coppice is considered for sustainable supply
Latvia	Huge in regeneration of deciduous trees forest. SRC as willow twigs for handicrafts. Small islands in meadows, river banks
Netherlands	Heritage is probably the most important value of Dutch coppice forests directly followed by biodiversity. This is not taken into account in management
Poland	Extensive form of FM (forest management?)
Poland	Heritage value of coppice is very low. It only exists in small protected areas (e.g. wetlands) with limited access
Poland	Coppice is not promoted and the values are not widely known and shared
Portugal	Coppice is view(ed) as a type of management to obtain small sized wood, originally around/close to rural communities (e.g. wood for fences, tools, firewood)
Romania	Almost lost. Coppice is not considered (except <i>poplar</i> , <i>salix</i> and <i>robinia</i>). Forestry legislative framework is to convert to high forest
Romania	Coppice has been converted to high forest (except <i>Robina pseudoacacia</i> , <i>Salix</i> sp and <i>Poplar</i> sp) so there is no heritage value
Romania	Little coppice and the heritage value is not considered. The main need is for the wood production
S Africa	Essentially not. However recognised and understood by communities
S Africa	Not at all
Slovenia	There is no special value of coppice forests
Slovenia	I do not think the heritage value of coppice is taken into account at all in Slovenia
Spain	Most coppice is abandoned; accumulated biomass is an under-utilised natural resource
Spain	For centuries it has been our main source of fuel and heating so it is much appreciated
Sweden	Through nature conservation and restoration, small areas
Sweden	The heritage value of coppice has been lost; it is completely unknown as an important part of the traditional economic system. Only people with skills in the traditional alpine culture feel the importance in terms of heritage. Few remain in contact with traditional rural activities (vine cultivation, collecting firewood) and so continue to exploit little coppice areas
Sweden	The tradition was lost between 1960 and 2000, but it is now coming back strongly (especially in chestnut) due to the need of products such as poles and energy wood.
Sweden	I only know one small area of hazel that has been coppiced for cattle fodder.
Switzerland	Coppice/woodland is undervalued and largely forgotten. Woodland in general is neglected, over grazed, fragmented and unmanaged. Most woodland is even aged

More than a Century of Experience: The Community Forest Beočin in Serbia

Nenad Petrović

INTRODUCTION

Beočin is a town and municipality in the Vojvodina province in Serbia (see location map, Figure 1). The population is 7,839, whilst that of the Beočin municipality is 15,726 inhabitants. The Beočin Community Forest (in Serbian: “Šumska Zajednica Beočin”), is the oldest Association of private forest owners in Serbia. It was established in 1903, when farmers from the village of Beočin, and who also worked in this forest, bought it from three Austro-Hungarian noblemen. This area was, at that time, on the periphery of the Austro-Hungarian Empire, and so it was of little interest to these owners, however, to the indigenous people of Beočin work in the forest was almost the only source of income. Mr. Bogdan Glumac, the village teacher, invited all the farmers to a special meeting and suggested that they join together, combining forces

to buy the forest. He declared: “Whoever wants to own the forest let him get up!” - and all the 79 farmers from Beočin stood up and the decision to buy the forest was made (Nas Vek, 2003). An Association was set up with the goal of helping members, who were mainly poor farmers, to secure some additional income and satisfy their household needs for wood through common management of the forest. Since then, this community forest has survived the many political changes that have occurred in Serbia, but has never stopped implementing forest management. An additional fact is that it is exceptional for an independent private forest to be located in the heart of a National Park.

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Figure 1. Location map of the Municipality Beočin and Community Forest Beočin (Photo: https://www.researchgate.net/figure/278037557_fig1_Fig-1-Map-of-Vojvodina-Northern-Serbia-with- Novi-Sad-modified-after-Basarin-et-al)

METHOD

This paper was prepared by intensive desk based analysis of the legal framework relevant to community forestry, as well as the scientific and other relevant literature including newspaper articles, and websites. The legal context is mainly based on the Law on Forests and the Law on Nature Protection, due to the fact

that the Community Forest is located inside the Fruska Gora National Park (Figure 1). The governance framework for the management of the Community Forest, with the rights and obligation of members, is set out in the Statute of Association, updated in 2006.

LEGAL FRAMEWORK - COMMUNITY FOREST ASSOCIATION

The umbrella document for the Community Forest is a Statute, adopted in 2006, that has provisions to regulate the management of the forest.

- **Article 1** defines the status of the Association, and states that: “The Association of private forest owners “Šumska zajednica” Beočin is a non-governmental, non-profitable association, established with no time limit to realise goals from the domain of forestry.”
- **Article 8** is directed toward collective work defines this as follows: “Bodies of association are constituted and implemented on the basis of collective work, decision-making and responsibility. Programs of activity are created on the basis of the democratically expressed will of Association members.”
- **Article 19** deals with family issues declaring that “owners of ideal forest parts and members of their families have the right of free recreational usage of the Community Forest complex, with the obligation to conserve natural beauty and to cherish them without causing any material damage (...)”. The use of the term ‘ideal’ here, referring to part of the forest, indicated that, while the owner knows they own an area of a specific size, there is no way for them to identify where within the forest this is located.

This theme of responsible forest management is one of the most important issues, and it is repeated in several articles:

- **Article 23** states that “members of the Association are obligated to complete their knowledge on the basic terminology relating to the management of privately owned forests (...)”
- **Article 39** continues that “Members of Administrative Board (...) are obliged to become familiar with the forest areas covered by the Association, the external borders and inner division into sections in order to enable them to make appropriate management decisions and carry out the duties entrusted to them.”
- **Article 34** enables the Administrative Board to “engage professional advisors as required to assist them, although these have no role in the democratic decision making process.”

HISTORICAL BACKGROUND

How the forest was bought

After the decision to buy this forest had been made, the legal aspects were entrusted to a lawyer named Dr. Jovan Jovanic. All of the farmers from Beočin assigned him a power of attorney to “represent them in all civil, legal and castigation matters, in front of the court, outside of the court and in front of political areas” (Nas Vek, 2003). Notably, the “lawyer is specifically authorised to sign the contract on behalf of the Association members with the original owners, namely Karl Kron from Novi Sad and Aleksandar Leopold and Ludvig Liht from Sepsard”. The sale contract was written in German, and comprised seven short paragraphs, as was the standard form of the time.

A deposit of 6,000 Crowns was paid directly to Kron, representing the Hungarian noblemen, with the remaining 54,000 Crowns handed over when the change of ownership was recorded in the land register, according to the contract. Two copies of the sale contract were signed by the forestry sellers (Kron, in Novi Sad, and Leopold and Liht in Sepsardu),

on February 27, 1903, with Dr. Jovanic signing on behalf of the villagers. These signatures were witnessed with a few sentences in Hungarian by the public notary in Novi Sad, who added his signature and seal. As the farmers were poor, they raised a loan from the “Srpska Banka” in Zagreb, with each of them pledging the entire property so having the same loan burden; this debt was repaid over the next 17 years.

During the Communist period, after the Second World War, the authorities demanded that agricultural owners renounce their property and contribute it to the Community, so the land was transferred into common ownership. This was exactly what had been done by the setting up of the Community Forest in 1903 so this was not an independent ownership, and the Beočin people managed to survive the communist system. From the very first day, the forest was managed equitably in exactly the way the Communists considered ideal, so there was simply no place for objections. Buying land from noblemen was considered as a successful example of effective class combat.



Figure 2. Names of the original members of the Association recorded on a panel on the outside wall of the Community building in Beočin (Photo: N. Petrovic)



Figure 3. The Community Forest Association Building (Photo: <https://www.facebook.com/229624460582008/photos/a.229794097231711.1073741830.229624460582008/713793868831729/?type=3&theater>)

PRESENT SITUATION

The Beočin Community Forest is located within the zone of protection in the Fruska Gora National Park, and is covered by the Forest Management plan, in compliance with the National Park Spatial Plan¹ which, in turn, is set in the framework of the Law on Forests² and the Law on Nature Protection³. The members of the Community Forest Association are actively involved in the formulation of the plan, including the amount of wood they would like to harvest, and so respect the management prescriptions and comply with them while using the forest resource. There is, in addition, a specific plan for the Community Forest, considered as a distinct management unit (FMU “Forest community”), consisting of 8 separate compartments that are further divided into stands; the current management plan is for the period 2017-2026.

The composition of the forest is influenced by its geographical position on the southern rim of the Panonian plain on the Fruska Goramountain, as well as by the landform, geological and pedology diversity. In some parts there are stands of sessile oak, beech and, to a lesser extent, lime or hornbeam; mixed stands are mainly lime and beech or, more rarely, hornbeam and sessile oak. Pure beech and pure hornbeam are very rare. It is classified as sessile oak forest with butcher’s-broom (*Aculeato-Quercus Carpinetum serbicum* Jov.). The management was originally mainly coppice and mostly used for firewood.

The forest management strategy has not changed since the forest came under the ownership of the community. According to the data from the Forest Management Plan for the period 2007-2016, natural coppice stands of broadleaves

covers 53.8% of forest area, while natural coppice stands of soft broadleaves covers 46% of area, which is in total 99.8%. Only 0.2% of forest area is covered with artificially established stands of conifers. Pure stands cover 18% of forest area, while mixed stands cover 82% of area.

Total yield planned for a ten-year period is 6,854.5 m³, which amounts to 685.45 m³ annually. Of the total yield, the quantity of main yield (from regeneration fellings) is 1,472.9 m³, which is 21.5% of total yield, and the quantity of previous yield (from thinnings) is 5,381.6 m³, or 78.5% of the total yield.

Concerning the assortment structure, having in mind that this is coppice forest, it is estimated that the amount of sawn wood is 30%, while the amount of firewood is 70%.

Expert technical tasks in the FC Beočin are performed by a forest technician, who is also a member of the Community. The Association is able to apply for State funding for constructing forest roads to enable efficient extraction; they do not own any equipment. The Community Forest comprises an Assembly and a Steering Committee; the majority of members (65%) live in Beočin and its surroundings.

Since nobody knows which specific part of the forest they own, there can be no independent harvesting. Individual shares can be sold, but only to community members, ensuring that this forest remains in the possession of the successors of original Beočin peasants (Figure 2) who invested everything they had in this forest. If there is more than one inheritor, the original

¹ Spatial Plan of the special purpose area of NP “Fruska Gora” to the year 2022. Official Gazette of Autonomous Province of Vojvodina Nr. 16/04

² Law on forests. Official Gazette of the Republic of Serbia, Nr. 30/2010, 93/2012 & 89/2015

³ Law on Nature Protection. Official Gazette of the Republic of Serbia, Nr. 36/2009, 88/2010, 91/2010 - cor. & 14/2016

share can be split, into new equal parts. In this way no member can exclude themselves from the Association, nor can the right to timber be taken away, except when forbidden from participating in work of the Community as a result of failure to respect the special “code of conduct”, which includes 30 items. The most interesting thing concerning this association is the provision that no owner is allowed to sell his/her part to anyone outside the community. An Assembly of members is held (Figure 3) to decide who can buy shares if they are offered for sale, and those with smaller shares have priority. If no one is interested, the Association will purchase them.

Every year approximately 1,000 m³ is felled. 552 m³ is divided into 46 integral parts, with each member receiving an allocation in accordance with their shares. The remainder of the timber is sold and the revenue is divided according to the same principle. Participation varies from 0.166 to 1.5 ‘ideal parts’ (individual shares), depending on the participation of individuals in the original purchase of the forest, and how these have been divided up on inheritance or combined by purchase (Table 1).

In April 2003, the Community Forest “Šumska zajednica Beočin” celebrated a century of existence. This community represents a significant exception to the general principle of private forest management in Serbia. Its success and long survival demonstrates that good cooperation between forest owners is possible under such conditions.

It is interesting that, until the 1960s, inheritance was only through the male line. Until then, women were not permitted to own any part of the forest, so those in the line of succession were compensated either financially or with agricultural land, enabling the forest share to pass to their brother. As the result of societal change, this no longer takes place. However, it took a century from the date of establishment for a woman to be elected as the head of the Association. Today, more than half of the owners are women, and the president of the Community Forest is Mrs. Sonja Kokic, one of the owners.

Changes in lifestyle has resulted in a new type of owner, based in the city rather than the countryside and this is likely to result in changes in the way this forest is managed. Nevertheless, there is still a “critical mass” (Oliver, et al., 1985)

Table 1. Current participation of owners in total ownership of FC “Beočin”

Share	Number of owners	Number of ‘ideal’ parts	Part for distribution (m ³)	
			Per owner	Total
1.5	1	1.50	18	18
1.25	1	1.25	15	15
1	21	21.00	12	252
0.75	1	0.75	9	9
0.66	2	1.33	8	16
0.5	27	13.50	6	162
0.33	12	4.00	4	48
0.25	8	2.00	3	24
0.166	4	0.67	2	8
TOTAL	77	46.00	-	552

that is the driving force for all of the activities implemented in this forest and the widespread collective action within this community.

According to Schraml (2005) “forestry associations represent an important forest policy tool for overcoming the problems that often arise with small forest ownership”. This community has survived for more than one century with no change in its internal organisation, other than in the legal constitution reflecting changes in regulations. According to Kittredge (2005), in the United States and many other countries a feature of community forestry, the association, is the main distributor of timber to market, which has a positive impact for the owners. These also

benefit from joint management, enabling the production of larger quantities of timber and sharing the costs of harvesting and extraction. One of the largest benefits of the owners is that the Community Forest Association can negotiate a higher price of timber and other forest products than would be possible for individual forest owners.

As there are no boundaries between properties and owners don't know where their property is located, there are no barriers to cooperation and joint management. The management plan is based on the concept of ‘close to nature’ forest management, respecting the natural, cultural and economic context (Kittredge, 2005).

CONCLUSION

The Community Forest “Šumska zajednica Beočin” was established in 1903 and has remained active since then, despite all of the changes that have taken place in Serbia. This could be promoted as a successful example of cooperation.

The members of the Beočin forest community are volunteers driven by tradition, heritage and moral obligation towards their ancestors; this unique approach should be supported to enable it to continue into the future.

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