

Socio-economics and business organisation in the chestnut industry:

a comparison between Italy (Tuscany) and England (Kent)

Report of an STSM carried out as part of

COST Action 1301 EuroCoppice



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1 Introduction

The aim of this STSM was to visit Tuscany, a chestnut producing area, to learn about the industry there, compare and contrast this with the situation in England, and incorporate outcomes into future training/business development proposals. On arrival in Italy it became clear that CNR/IVALSA, the host organisation, had arranged a very interesting programme of visits for us that extended beyond Tuscany into the Regions of Piedmont (Piemonte) and the north eastern Alps (Friuli Venezia Giulia). This has increased the breath of the research area and provided useful insight into the differences between the three regions.

1.1 Rationale

The choice of Italy and the northern region of Tuscany as the location for this STSM was based on the long term cultivation of chestnut (*Castanea sativa*) a factor enabling comparing and contrasting the socio-economic development with that in south east England. According to Grove & Rackham (2003; 163) it is doubtfully that chestnut is native to Italy but has been cultivated since the sixth millennium BC. Squatriti (2013; 168) contests this arguing advances in palynological tools have established it as native to northern Italy. Although chestnut was, prior to the development of pollen analysis, considered native, archaeological evidence¹ has established it to have been a Roman introduction to England, possible to produce nuts (Rackham 1986; 55).

Italy has been considered as the “*greatest stronghold of coppicing in Europe*” (Grove & Rackham 2003; 188) and this technique has a long history of use for conservative woodland management. Documentary evidence² includes references by Pliny the younger (ibid 173) and learned accounts by Columnella, who recommended cutting chestnut underwood at five years growth and oak after seven years (Rackham, 1990). The South east of England is the most wooded area of England (Forestry Commission 2011) and remains the stronghold of the coppice industry, with archaeological evidence for this practice that can be traced back to the Bronze age and demonstrates that it was widespread throughout the Roman and Saxon periods (e.g. Piggott, 1981).

There are similarities in the way in which woodland history can be traced through documentary and field research. Grove & Rackham (2003; 183) describe the example of Bosco della Pianora, Pisa, which comprises about 5 km² and can be traced back to the middle ages with boundaries that have hardly changed over 250 years. In the C16th the oak and chestnut was coppiced on about a ten year rotation, with later invaded by pines which increased the number of fires which in turn encouraged invasion by *Robinia*. The same combination of techniques is used in England, with similar examples (Bannister & Bartlett 2005; 2008; 2009)

¹ In the form of charcoal at sites conclusively dated to the Roman period

² Both writing about 2000 years ago

NB the term forest is used in Italy; in England woodland is the equivalent term.

2 Forest policy

The EU level policies affecting forests are found under several topics (e.g. environment, rural development, industry, trade) and this led to the adoption of a non-legally binding EU Forestry Strategy being adopted in 1998 to increase coordination between national forest policies and different forest related EU policies. This was followed by the adoption of an EU Forest Action Plan for 2007-2011. The current context is set by the FOREST EUROPE principles³ agreed in 2011 and – in theory at least - applied by Member States' in their policies.

In Italy national policy is the responsibility of the Ministry of Agricultural, Food and Forestry Policies⁴ but each region, of which there are 21⁵, has the power to set local laws within the national context. There has been a National policy to convert coppice to high forest on the assumption that this was a more natural forest structure for the last thirty years. This is now generally considered to be incorrect but the policy will take time to change and the practice is still subsidised regionally, with grants released by different agencies, depending on the region⁶.

In England the national framework is the Government forestry policy statement Sustaining and enhancing trees, forests and woodland (DEFRA 2013)⁷. It incorporates the Government's Response to the Independent Panel on Forestry's Final Report, a large scale, national, stakeholder consultation and acknowledges regional differences in the statement:

“Localism – local authorities, businesses and communities know their areas and are best placed to decide their local priorities. We should facilitate, not dictate” (page 7)

There was greater emphasis on regional autonomy in the England Forestry Strategy A New Focus for England's Woodlands, published in 1998, which empowered each region to develop its own strategy to address the issues and objectives raised in the national strategy; the south east strategy 'Seeing the Wood for the Trees' was produced in 2005⁸.

The EU Health and Safety directives set the minimum standards for the protection of workers with Member States then conforming or setting higher levels of protection. There is Italian national policy relating to training and certification of workers and businesses with compliance mandatory for those working in the publically owned

³ See http://5th.mcpfe.org/foresteurope.org/pBI7xY4UEJFW9S_TdLVYDCFspY39Ec720-U9or6XP.ips

⁴ the Ministero delle Politiche Agricole, Alimentari e Forestali or MiPAAF

⁵ if the two independent Provinces (Trento and Bolzano) are included

⁶ Presumably the funding originates as part of section 33 of the CAP, with National Treasury match

⁷ <https://www.gov.uk/government/publications/government-forestry-policy-statement>

⁸ Available at <http://www.forestry.gov.uk/seeingthewoodforthetrees>

forests, the most desirable as this is where the best quality material is found. There are significant regional differences in the way this is implemented and administered with registration of companies and/or individuals for between three and five years, depending on the region, in return for submission of documentary evidence and a fee. The system used to be more flexible and initial registration could be on the basis of experience, similarly to the 'grandfather' rights in England although these ceased in the early 1990s when certification became mandatory. There is no difference in the way Health and Safety legislation is implemented in different parts of England.

Deer control is not permitted in Italian protected areas such as National Parks and publicly owned forests. However in those areas with above average designated area then, as long as the set area of deer protection has been met control can take place in other areas (Antonio Ventre, pers comm). In England deer control requires the permission of the landowner and is undertaken in public forests by the Forestry Commission stalkers. Replanting of trees is not permitted in Italy without permission and forestry practice is based on regeneration (Mario di Gallo). There is a move towards favouring natural regeneration in England but replanting is common, particularly when plantation woodland is being restored.

3 The Resource

Across Europe about 44% of the land area is wooded, in Italy the figure is around 30% and in the UK about 12%⁹. Italy is the fourth largest global producer of chestnuts and the first in Europe with about 800,000ha of chestnut woods of which about 150,000 are orchards (Castellini et al 2010). Tuscany is the most wooded region with 1100,000 out of the 10,982.013 Hectares of forest in Italy¹⁰ (A Ventre/E Marchi). Across Italy 40% is in public ownership (Marchi), although this figure is only 10% in Tuscany, with 90% in private hands. In Piedmont 70% is privately owned and this comprises most of the chestnut/mixed broadleaves, the 30% public forest is mostly mountain and conifer (Franco Gottero)

The south east of England is the most wooded region and holds the majority of the chestnut resource. Calculations of the area vary, with Dannet (1991) suggesting an overall figure for the South East of 18,066 ha and county areas of 12,544 (Kent), 3,349 (East Sussex) and 1,393 (West Sussex). Lindsay Marketing Services (1993) suggested a lower total of 17,286 and the Forestry Commission calculated about 16,000 hectares in Kent and East Sussex (Forestry Commission Research Division, 1996). Braden and Russell (2001) consider there are 18,788 ha of chestnut in the UK, 96% in England and about 60% in Kent, East and West Sussex. More recently Lockhart Garratt (2009) suggested these figures are an under-estimate of the chestnut resource.

⁹ Source: <http://gabrielhemery.com/2011/02/28/european-countries-and-their-forest-cover/>

¹⁰ Figures for woodland cover and chestnut in the regions visited, to be supplied by CNR did not materialise

Northern Italy has most of the large public forests and these have the better quality timber and coppice underwood than those in private ownership. The resource in central Italy is poor quality and used for firewood with more small companies working under the radar. In the south east of England public ownership is about 10%, similar to the situation in Tuscany and, while this includes a significant proportion of the conifer timber trees, the majority of the commercial chestnut is private; Braden and Russell (2001) found only 216 ha in public ownership.

While the scrubbing up of abandoned grazing or agricultural land is a recognised phenomenon in Italy, with owners often requiring clearance before this can be classified as forest for legislative purposes, there seems to be no specific designation for consistently wooded land. In England woodland is classified as either 'Ancient', meaning it was shown as having tree cover on early maps of around 1600, or 'secondary' when land has been cleared but reverted back to woodland. In both countries there are wooded areas designated as SACs, part of the European network of Natura 2000 sites. It would be interesting to look at this aspect in more detail, exploring the correlation (if any) between coppice management and biodiversity value.

It is difficult to determine the area of woodland that is being actively managed as coppice as rotation varies with species, product and market dynamics. In Italy information is available from an analysis of the tenders let by the public forests and, although this reveals the area that has been approved for coppicing or felling, rather than constituting evidence that it has been cut. Declaration of area of coppice cut before it is sold is another way data is collected in Italy and an analysis of 80 contracts let has been carried out for Tuscany. This has enabled a comparison to be made with the situation in other Alpine areas (Swiss, French, Austrian and German) on the costs of cable yarding and the price in relation to the conditions (Spinelly 2014 in preparation). In Tuscany¹¹ cuts of less than 1000m² or of in rotation coppice up to 5 ha have to be declared, but cuts of more than 5 ha must be authorized. No cut can be more than 20 ha and, if coppice is overstood (40 years or more) then a strip of forest at least 100 m wide must be maintained between adjacent cuts. Any proposed cut of overstood material must be notified and it can take up to 45 days for permission to be granted; this costs 16 Euros in Tuscany. In some other regions the system is electronic.

There are similar difficulties in England, exacerbated by the fact that most chestnut coppice is privately owned. Until the late 1990s the majority was sold by public auction so the price acre⁻¹ and total area sold could be tracked; now sales are by private contract and no formal permission is usually¹² required for felling coppice. There is no interest from the public sector in paying for any research so data is collected and analysed voluntarily. A survey has been carried out asking coppice

¹¹ Each Region has more or less equivalent parameters although these are not identical

¹² A felling license is only required for large diameter material or large quantities

workers to complete a simple form asking the area and species they had cut between 1st September and 31st August. This has revealed that far more coppice is actively managed than previously thought and data is currently being collected for 2013/14

Table 3.1 Coppice Survey Results for Kent (all figures are hectares)

	CHESTNUT	MIXED	ALL COPPICE
1999/00 ¹³	48.99	27.08	76.07
2000/01	61.98	131.78	193.76
2001/02	61.51	75.68	137.19
2002/03	104.50	68.90	174.30
2007/08	71.90	202.00	274.90
2008/09	193.00	80.40	275.00
2009/10	70.50	77.30	150.40

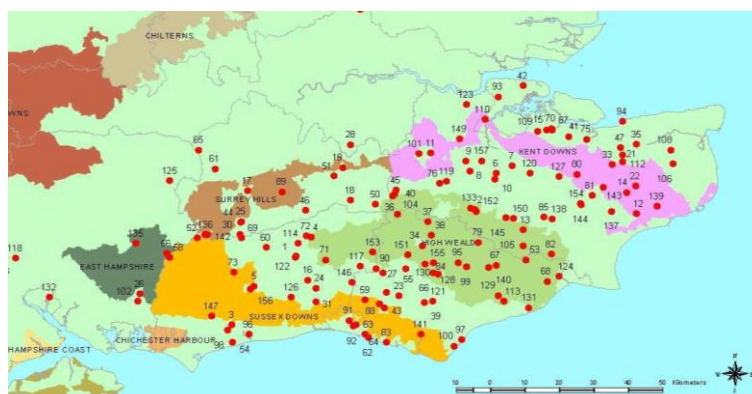


Figure 3.1 results of coppice survey plotted onto GIS

4 Forest Administration

In Italy the Ministry of Agricultural, Food and Forestry Policies has overall responsibility for the sector. There about 10,000 members of the national Forestry Police who have a remit that includes control of hunting. The autonomous regions (Valle d'Aosta, Friuli Venezia Giulia, Sicilia, Sardegna) and provinces (Trento and Bolzano) have regional Forest Guards who have a similar role; some of these patrol mounted on horseback. Management plans for all public forests are developed by the regional forest technicians, who advise and may communicate with private owners, and in Tuscany each local administration has up to 6 of these. There are 550 forest workers, coppicing in winter but moving onto fire prevention work in the summer. 25% of their wages are paid by the region the remaining 75% being sourced from a national budget (A Ventre; E Marchi). Research funding comes from

¹³ This was a pilot with limited response to the figures are likely to be an under estimate

multiple sources, including the EU, the Regions, Government agencies and private companies.

In England responsibility for forestry policy lies with DEFRA¹⁴ although implementation is carried out by the Forestry Commission. This has the dual role of advising woodland owners and administering woodland grant schemes (part of the EU CAP budget), issuing felling licenses and monitoring tree felling as well as promoting biodiversity and recreation in the woodlands. Staff for England number 244¹⁵, a figure made up of 59 Forestry Commission and 185 Forest Service workers. Forest Enterprise manage the nationally owned woodlands, with 845 staff. This is far fewer staff than in Italy and the officers do not carry guns or have any powers of arrest. All nationally owned woodlands have a Forest Design Plan developed in consultation with stakeholders and part of the advisory/grant role is to encourage woodland owners to prepare management plans. Forest Research are the in house research and development unit and number 193 although these are cross border, covering Scotland and Wales as well as England. Directly employed woodland workers were more common in the past and many had housing provided. There are in addition 240 corporate support and shared service staff covering the whole of the UK. Until the late 1990s many local authorities (counties, equivalent to Italian regions) had county woodland officers but this role has largely disappeared. There are various woodland initiatives run by NGOs or individual protected areas, such as the Areas of Outstanding Natural Beauty.

5 Size of the industry

In both countries figures can only be estimates as there is a mix of full and part time workers; there is no standardised way of collecting data.

5.1 The workforce

In Italy the division between the coppice workers and forestry contractors that can be seen in England is not apparent. The arboricultural sector is about ten times the size of both combined in England with the opposite found in Italy (although it was reported by Franco Gottero that this is expanding in Piedmont as displaced former Fiat workers diversify). In both countries loggers/coppice workers tend to feel training is a waste of time; it is effectively a tax as these loose earning time – it needs to be made really relevant to them.

Raffaele Spinelli has carried out a survey that suggests there are about 3,500 loggers operating in Northern Italy in 1200 firms and, while those operating illegally will not have been included, he feels this probably represents about 90% of the workforce. A sample of about 50 respondents, selected randomly, were contacted

¹⁴ Department for the Environment, Food and Rural Affairs

¹⁵ Source of figures Brian Grainger FC Pay and Awards manager, Edinburgh (23/6/14)

and interviewed to verify the data (Spinelli et al 2013). He estimates there are a few hundred companies in Tuscany and that a detailed survey has been carried out, particularly identifying the equipment resource. This has been repeated across six other regions (Piemonte, Val d'Aosta, Lombardia, Trentino, Veneto, and Friuli-Venezia Giulia) revealing 1206 companies with a total workforce of 3563 operators (Spinelli et al 2013). While there is a focus on the machinery aspect it is interesting to note that, similarly to the English experience industry in the Northern Italy was found to be dominated by small-scale companies with few modern machines. Only 5 businesses in Tuscany have harvesters (A Ventre)

While the Forestry Contractors Association holds data on the number of Forestry Contracting companies across the UK¹⁶ the divergence means that this does not include many coppice workers. Several coppice workforce surveys have been carried out in South East England (e.g. Bartlett and Rossney, 2007) as well as focus groups, Training Needs Analyses and participatory investigation into barriers to development (Bartlett 2011a & 2011b).

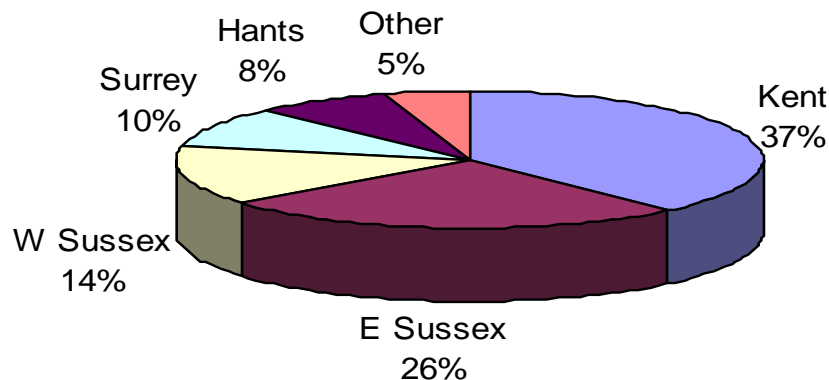


Figure 5.1 Proportion of the coppice industry split by county (South East England)

The extent to which the surveys carried out in the two countries can be productively compared is limited, particularly as the Italian one specifically targets firms and the English ones have focused on individuals. It would be interesting to design a specific questionnaire, taking elements from both and targeting the chestnut industry, particularly as it seems that the predominance of sole traders and informal associations is a common feature. There is a lack of real data on the extent of area under coppice management and the make-up of the workforce in both countries.

¹⁶ For more information see <http://www.fcauk.com/>

5.2 Knowledge transfer

Evidence to date suggests that there is a well-established, traditional pattern of intergenerational knowledge transfer in both Tuscany and Kent, with sons following their fathers into the forestry business (Bartlett 2011a; pers comm. Di Gallo; Gottero; Santini). The industry may be less insular than that in England, with ‘industry leaders’ who have established a dialogue with the institutions, although further data would be required to confirm this.

The recession has led to many new entrants, particularly into the firewood sector and, as these have no training and lack certification, they are able to undercut those who are compliant with the legislation. This has led to pressure from the established industry to increase inspections and this has had some effect, although there is a tendency for long standing businesses to bear the brunt of this as they are easier to access (Lamberto Santini), corroboration by Franco Gottero (Piedmont) who reported that IPLA has focused on training over the last year, as the current economic climate is increasing the number going into the woods – in contrast ten years ago there was an older, established and experienced workforce. The training manuals are translated into Eastern European languages as well as Arabic as Turin had a large immigrant worker community (e.g. for Fiat) that are now seeking alternative livelihoods. There has also been an increase in the arboricultural sector as Turin is the greenest city in Europe with many trees dating from the Napoleonic era. A ‘digital divide’ was reported by Mario di Gallo who has found that even younger workers do not always use computers or email. This is true of older workers in South East England but the majority mobile phone technology although very few use the internet for marketing.

A report has been produced by David Rossney on the training for coppice workers in both Northern Italy and South East England.

5.3 Industry Structure

In both countries business leaders collaborate to complete jobs and orders on an as and when required basis. In England the tradition of the ‘coppice merchant’ is well established¹⁷, a role that can pass down the generations and is one of co-ordinating often a large network of individual/small groups of workers. The term ‘placeholder’ and the concept of ‘active networks’ was coined by Latour (2005), who developed Actor-Network Theory (ANT, or more correctly A-NT) which views environmental resources, such as woodland, as an active participant rather than a passive resource, summing up all the interactions and relationships. It would be interesting to apply this approach, which goes beyond simple supply chain analysis, to identify potential risks and foci for development in the coppice industries in both countries.

¹⁷ In fiction this is represented in Thomas Hardy’s novel ‘The Woodlanders’

It is clear in South East England that there are individuals who play a very significant role supporting the livelihoods of many although they do not actually employ them.

5.3.1 Employment

The majority of forestry workers in Italy are self-employed, similarly to the coppice sector in England with the 'fiscal wedge' of tax, insurance and pension contributions working to discourage employing workers in both cases. The EU HSE legislation places responsibility on the employer for accidents and this covers loose arrangements, unless there is a formal sub-contract in place. The HSE in both countries is primarily agriculturally trained with few - if any forestry - professionals. Most businesses in both Italy and in England comprise two or three people working together. In England these are often supported by wives or girlfriends who do the office/paperwork; the same situation is found in Italy (Spinelli) although it is also reported as uncommon (Marchi).

Historically much woodland work was combined with other agricultural/rural livelihood activities. This continues to be the case in England, where, although some work all year round, others move to other forms of land management in the summer. In Italy the combined livelihood strategy remains in forestry with a move to thinning to beech, pine and fir in summer; some move to, for example, river bank clearance. The rising profile of the biomass industry has encouraged construction workers, who have existing equipment, into the industry. This causes problems as they have no experience. There is resentment as these lack experience, compete with established coppice workers and are not subject to the same inspections (Lamberto Santini).

5.3.2 Representation

There doesn't seem to be a formal organisation representing the coppice industry in Italy or Tuscany although there are many regional loggers associations. It is not clear whether the workforce or private woodland owners have a 'voice' in decision making at local, regional or national level. In England forestry is represented by the FCA¹⁸, the larger owners by the CLA¹⁹ and NFU²⁰ and small ones by SWOG²¹. While the recent consultation, the Independent Review of Forestry, which reported in 2012, was based on the findings of stakeholder workshops held around the country involvement of 'woodland floor' workers was limited and they are not generally invited to regional forestry forums.

The problem of lack of co-operation among woodland workers in England was observed in the 1920s by FitzRandolph and Hay (1926). The Chestnut Manufacturer's Association was set up in the 1970s to join forces to combat the decline in fencing quality driven by the introduction of compulsory complete

¹⁸ Forestry Contractors Association see <http://www.fcauk.com/>

¹⁹ Country Landowners Association see <https://www.cla.org.uk/>

²⁰ National Farmers Union see <http://www.nfuonline.com/home/>

²¹ Small Woodland Owners Group see <http://www.swog.org.uk/>

tendering. A national Coppice Association (CA) was instigated by the Department of Trade and Industry and the Forestry Commission in 1992. Membership rose to 450 by 1995 but in 1996 the national organisation was dissolved in favour of regional groups. The most significant of these is the Sussex and Surrey Coppice Group²² which has almost 100 members and has recently arranged data tagging of equipment and discounts for members.

Lamberto Santini is a member of a wood fuel co-operative that involved producers coming together to negotiate prices and guarantee supply. While only a minority of workers are involved in this practice it is reported to be increasingly common (Spinelli).

6 Chestnut coppice products

Historically chestnut timber was used extensively for construction, vineyard supports and fuelwood, which was so important that there are reports of a C14th mountain canal built to supply Bologna from the Appenines (Grove & Rackham 2003; 177). Some of the larger chestnut trees are still used for timber but, as in England, there is an issue with both ring and star shake. This is site specific but particularly bad in the Piedmont region around Turin (Franco Gottero). Nut production tends to be in specialised orchards but remnant pollards and buildings previously used by seasonal nut collectors were clearly evident on the visit to Lamberto Santini's work site on 3/6/14. According to Squatrini (2013) chestnuts were often multi-functional in the past, with leaves also being used for fodder.



Figure 6.1 Chestnut pollard



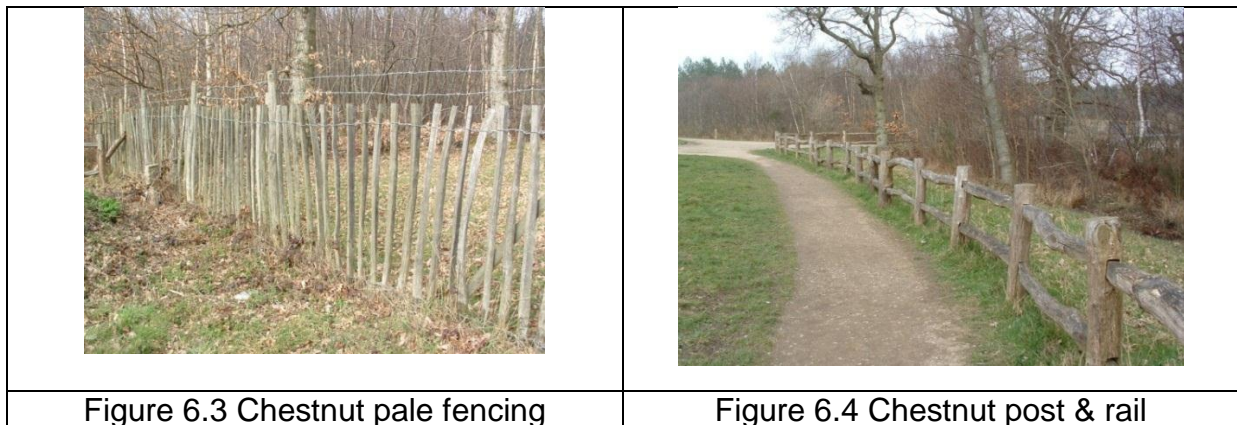
Figure 6.2 Seasonal shelter

All the workers encountered produced multiple products focusing on posts, firewood and biomass chip. Deadwood is desirable for harvesting as chips as it is already dry and 90% of coppice harvesting is not mechanised (Spinelli). The woods visited (near the Gothic line of resistance) were last cut before and during WW2, so are yielding 400m³ ha⁻¹; 28% is converted to posts, the remainder to firewood and chip. Lamberto Santini doubts if they will be cut again for another 20 or 30 years partly, due to the impact of deer on the regrowth. Deer are not a problem with chestnut in

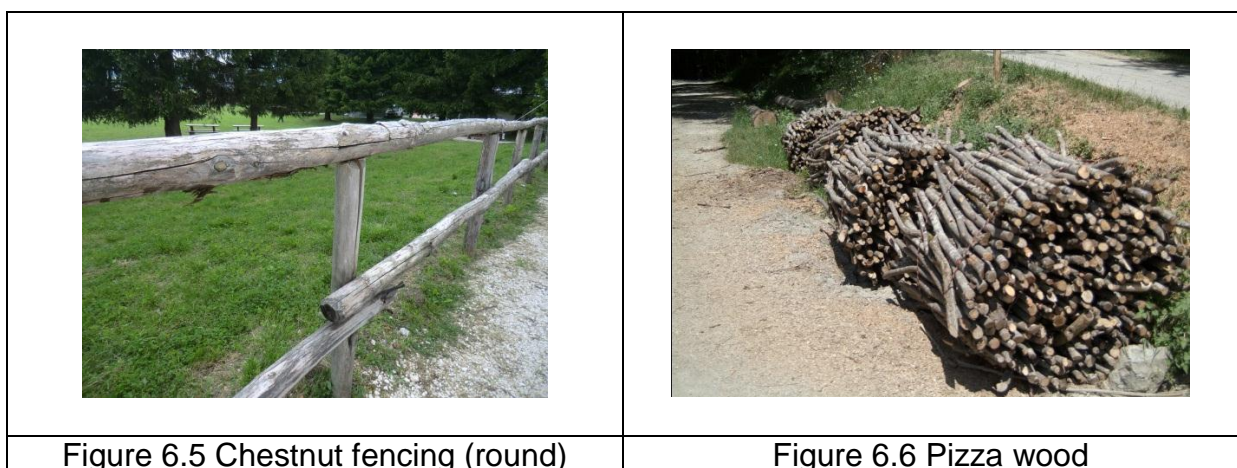
²² Details at <http://coppicgroup.wordpress.com/>

England as, although these²³ are numerous these prefer hazel (*Corylus avellana*) and ash (*Fraxinus excelsior*).

There is less specialisation apparent in the Italian chestnut industry, compared to in England, where the value added chestnut fencing industry produces pale (figure 6.3) and cleft post and rail fencing (figure 6.4). There are significant export markets for both. Poles for nursery and vineyard supports were observed but as a minor component in comparison to firewood and chip.



Not a single example of split chestnut was seen in Italy; all the fencing was made up round to round. This aspect requires further investigation – this practice is common across northern Europe and into Spain. The Travellinis supply three basket makers – the material must be cleft for weaving, whether the technique is standard or similar to the spale baskets made in northern England (but from oak) or from chestnut strips in Northern Spain.



²³ roe (*Capreolus capreolus*), fallow (*Dama dama*) and to a lesser extent muntjac (*Muntiacus reevesi*) and Sika (*Cervus nippon*)

The firewood industry appeared rather better organised than in England, where logs are commonly delivered loose from the back of a truck or at best in builders dumpy bags. In northern Italy many examples of logs delivered in returnable stillages were observed. Small diameter Pizza wood was observed tied in round bundles (figure 6.6.).

Wood chip is the lowest value product in both countries. The processing of wood into chip involves costly machinery and not all producers own a chipper. Lamberto Santini lends his out to other members of the co-operative but, if he is busy then an alternative has to be hired in. The Travellinis are grading chip to enable burning of micro-chip in boilers designed for pellets. The rationale is that pellet boilers are cheaper to buy and install than chip ones but use more expensive fuel. They also market the boilers and significant value is added by the grading process.

While there seem to be strong support for biomass combustion in both countries the fiscal instruments used to lever production differ. The tendency in England is to grant aid major capital projects on the basis that this will create a market draw and so drive the local wood harvesting/chip production industry. In Italy it is recognised that large plants need cheap fuel²⁴ and so are more likely to go to the global market and so micro-plants get the highest feed in tariff subsidy (Franco Gottero; collaborated Spinelli)

Tannin is required by a factory in Piedmont for leather production. This is extracted from about 500 tons of chestnut chips year⁻¹ with the residue used for heating (Franco Gottero). Chestnut tannin is also used as a substitute for antibiotics in animal feed (Lamberto Santini). It is unclear how much this market is currently taking but, according to a recent review, the potential is increasing (Redondo et al 2014).

It had been originally intended to investigate financial aspects in more depth, to determine for example, the relationship between the amount paid to the woodland owner (price per ha) production effort and profit, and to ask questions about local, regional, national and export sales. This did not prove possible.

7 Development issues

This has been investigated in South east England in some depth with research ongoing in this area (e.g. Bartlett 2011b; Bartlett 2012). Significant difference have been found in factors affecting the chestnut, hazel and mixed species coppice businesses.

²⁴ The European Commission, Directorate-General for the Environment, published a call (2014-08-07) for tenders for provision of a study on the environmental implications of the increased reliance of the EU on biomass for energy imported from North America.

The key issues for chestnut have been found to be:

- affordable housing
- secure yards, workshops and storage areas
- availability of affordable credit to ease cash flow
- administrative/cost burden of insurance and complex contracts
- public understanding that it is not environmentally damaging to coppice
- land owner appreciation of the constraints imposed by short ('conservation') cutting periods

The comparative situation for Italian chestnut coppice workers is discussed below. It is important to remember that this STSM permitted only very limited access to workers so these are preliminary findings that need more in depth research for confirmation.

7.1 Access to woodland

The better quality material tends to be in the publically owned forests and permission to cut is let on a tender basis, advertised in the Gazzetta Ufficiale Regionale²⁵ giving three years to fell and which can be extended for another three if necessary. Regions have different requirements regarding certification but, as in England, public authorities require documentary evidence of competence in chainsaws and machinery use (the CPC in Italy; NPTC in England), insurance and, for employers, that they are complying with national employment legislation. In England Forest Enterprise has a list of approved contractors and these will be notified of opportunities directly, usually by phone followed up with a letter giving details and deadline. These are not usually for coppice.

In Italy private woodland owners seem to make arrangements with local cutters and if the area is large this needs to be registered prior to harvesting and permission given. This lasts for three years and can be renewed for a further three if cutting has not taken place. In England standing underwood was often sold at public auction until the late 1990s when private contracts between land owner/agent replaced this system. Key figures are frequently approached by owners offering wood for cutting but these usually have no real idea of the value of the product or expense of harvesting/extraction. Limited sealed bid tendering has been introduced recently by some estates (e.g. Mereworth) for high value paling stands.

Access to raw materials is probably locally determined in both countries. The price in Italy is likely to be based on yield ha⁻¹ combined with ease of extraction as the main products are firewood and chip. In England the proportion that can be processed for added value and market fluctuations in demand will be significant

²⁵ This is the official paper of each Region which publicises all tender notices

influences. Contracts are usually limited to one season and may require all produce is extracted and off site before the summer.

Lamberto Santini reported that he owned woodland and this, combined with long contracts, meant he could switch production in response to market demand and had ten years security in raw material. This would be unlikely in England (other than on large estates with long standing relationships) and the price of woodland is high, driven by the recreational demand ('woodlotting').

In both countries those who are not compliant and certified will be restricted to cutting in woodlands where the owners do not require this documentation. This is a greater issue in northern Italy as there are more publically owned forests. However in England there are significant NGO landholdings (Woodland Trust, National Trust and Wildlife Trusts for example) where the same conditions apply. In Italy the Church is a large private owner, with its own central organisation.

In Piedmont private woodlands comprise 75% and tend to be small with an average parcel size of just 0.2ha; many have unidentified owners (Franco Gottero). In Kent 90% are privately owned; there is a lack of data on woods of less than 2 ha in size.

7.2 Cutting period

This is set regionally in Italy and varies with altitudes²⁶; the focus is more on growing period than on wildlife considerations despite the fact that the determining legislative factors in England are European, rather than National. The only information was that all contractors are expected to "keep their eyes open and leave trees that fruit and any that are of cultural or wildlife significance". In England the Forestry Commission published general guidelines in 2011²⁷ and specific ones for Guidance on managing woodlands with dormice (2007²⁸) and bats (up dated 2013²⁹). The 'official' bird nesting season is 1st March to 31st July in England although many feel milder winters mean the start date should be moved back to 1st February. While this may not be a material consideration in high forest it certainly is in coppice with many birds using it for nesting. Extending the season for cutting chestnut to the whole year is under discussion in Italy, partly in response to the emerging Chinese Wasp problem (Pier Giorgio Terzuolo, IPLA).

7.3 Distinction between coppice and high forest

If coppice has stood for more than twice the rotation length (18 years for chestnut) then, in Tuscany, it cannot be coppiced without a specific permission. If the authorities do not give this then it must be converted to high forest (Marchi). In

²⁶ Reported by Lamberto Santini to start 1st October and end 15th April, with a month permitted for extraction. At higher altitudes this changes to 15th September to 15th May.

²⁷ See <http://www.forestry.gov.uk/forestry/INFD-8BVEH4>

²⁸ See www.forestry.gov.uk/...dormouse.../england-protectedspecies-dormouse

²⁹ See www.forestry.gov.uk/pdf/...bats.pdf/.../england-protectedspecies-bats.pdf

England there was a trend to convert chestnut, thinning shoots after 10 years, producing quality product 10-15 years later depending on the timber market; shake and squirrels pose a problem. Here coppice can still be considered as 'in rotation' at eighty years+ and is used for post and rail fencing. It was interesting to hear about multi age coppice management, where poles of different ages are grown on a single stool. This has not been seen in England (or encountered in archives and historical records).

7.4 Markets

Biomass is being promoted in both countries, particularly as a market for poor quality material. Chips are a global commodity and can cost 80 Eu ton⁻¹ to produce locally but can be brought for 40 Eu ton⁻¹. This means the chip market is only realistic for small scale, local end users. Firewood demand is affected by the weather and cost of other forms of heating.

No charcoal production was observed in Italy and, although it was reported that some is made, almost all is imported. In England there is significant local production, particularly for summer barbeques.

Value added products have dynamic, sometimes seasonal markets, and stock piling can be a factor in cash flow and secure storage areas are needed.

7.5 Workforce recruitment

The persistence of families working in coppice woodlands seems to be a common feature of the two countries although this needs more research, particularly in Italy. 43% of all coppice workers and over 50% of chestnut coppice workers were found to have family members in the industry and this trend was particularly marked in Kent. These have often begun helping out in school holidays.

Lamberto Santini (Pistoia) said he was unable to find enough workers to expand the business but it was unclear whether he wanted to actually employ anyone. He did say that he had plenty of people to collaborate with as and when required. This is similar to the situation in South East England and in both countries there does not seem to be a formal apprenticeship system. In contrast the closure of the Fiat factory in Turin and the general recession has led to a significant increase in the workforce in Piedmont. However these are untrained and lack experience (Franco Gottero)

7.6 Natural Disasters

The coppice industry in Italy is affected by fire which is not generally an issue in broadleaved woodland in England, although arson attacks to firewood stacks can be an issue. Windthrow can be significant in both countries with flooding a particular issue in South East England recently, making extraction impossible on heavy ground for months.

7.7 Pests and diseases

Chestnut blight (*Cryphonectria parasitica*) has been present in Italy since the late 1930s and found in Central England in 2011³⁰. It would have been interesting to explore the impact of this pathogen on the chestnut coppice industry (if only as a warning).

7.7.1 Deer control

Deer, particularly roe (*Capreolus capreolus*), are seriously damaging potential for coppice regrowth. They are also eating bark in the winter (figure 7.1), although they seem to prefer pine/fir for brashing). Deer have been protected for the last twenty years and are now becoming a real problem (figure 7.2) but no hunting of any kind is permitted in national or regionally owned forests. However it is, under permit, in those woods owned by the communes with the shooting season June to September (Lamberto Santini). The population is surveyed and the cull number negotiated between the region and the Hunters Association; tags are issued as permits to shoot, with age and gender of quarry determined.

In England deer can be culled, with the season depending on species, by a trained stalker and if the landowner has given permission. No shooting is permitted at night and hunting with dogs is banned; this is also the case in Italy. There are no rabbits (*Oryctolagus cuniculus*) in Italy but mountain hares (*Lepus timidus*) are present.



Figure 7.1 Deer damage to bark



Figure 7.2 Deer damage to regrowth



A deer enclosure next to an area treated with deterrents, including ox blood, was observed in Ricine. It is being carried out by the University and results are not yet available.

7.7.2 Chinese gall wasp

This was introduced to the Piedmont area on imported scions intended to reinvigorate the nut production industry. This is now causing serious problems with observable reduction in foliation, growth rate and yield, as well as failure of both nut

³⁰ See <http://www.forestry.gov.uk/chestnutblight>

and honey production. The causative organism is *Dryocosmus kuriphilus* (see figures 7.3 and 7.4). Although biological control, using *Torymus sinensis*, has been introduced it is expected to take ten years to become effective (Battisti et al 2014; Quacchia et al 2008). This is not present in England

	
<p>Figure 7.3 Chinese gall wasp on leaf</p>	<p>Figure 7.4 Chinese gall wasp on bud</p>

7.8 Housing and security

Neither of these issues was considered significant by anyone questioned in Italy, although Marco di Gallo reported low levels of firewood theft. It was suggested that the relatively stable rural population meant there was a good chance of observation and most workers lived in the countryside (Antonio Ventre; Enrico Marchi). In contrast rural housing costs, particularly in the affluent South East of England, mean that many rural workers have to live in towns so have problems with parking, particularly for large vehicles, and lack storage for product or equipment. Theft is not uncommon and it is risky to leave things in the wood. This can increase insurance costs and have a real impact on business viability.

8 Main findings

There are both similarities and differences in the chestnut industries in northern Italy and south east England. The nature of the resource, the tradition (intergenerational involvement of family groups) and policy emphasis on biomass and woodfuel is found in both countries.

Differences noted include:

- The term ‘coppice’ is used more flexibly in Italy than England and includes scrub clearance, multi-stemmed trees cut on rotation and singled stools.
- There was no evidence of any policy or specific status given to ancient woodlands in Italy
- The state forestry agenda is far greater in Italy than England as demonstrated by the commitment of resources

- The role of NGOs and stakeholder organisations involved in woodland ownership and management is greater in England than Italy.
- The extent to which natural and cultural heritage considerations affect policy and operational aspects of coppice management seemed significantly greater in England
- There is greater awareness of the economic reality of woodfuel in Italy with small local installations receiving greater grant aid and feed in tariff as it is accepted that large ones will access chips as a global commodity with less potential for local benefit
- The traditional industry in Italy is adopting machinery, particularly alpine extraction techniques for use on slopes, but is still mostly cutting by hand. However the main mechanical cutting is for clearance where regrowth of coppice is not required; in England mechanisation is most common for thinning operations.
- Chip is a viable product, particularly when coppice is overstood and contains a high proportion of dead material. The moisture content is lower and so less of a quality issue than in England
- Chestnut is not split in Italy although this is the basis of the value added production in England
- There is little singling and no multiple age coppice management in England

9 Suggestions for Further Research

This STSM permitted limited access to chestnut workers so the original aim of comparing the situation, particularly regarding barriers to development in these two important centres of the chestnut coppice industry was not achieved. The preliminary findings presented here require more in depth research. Suggestions follow:

- Use the same focus group approach to carrying out group Training Needs Assessment, a participatory approach to identifying challenges and opportunities for businesses
- design a specific questionnaire, taking elements from previous surveys conducted in each country and targeting the workers in the chestnut industry
- explore the potential to apply an A-NT approach to identify potential risks and foci for development in the coppice industries in both countries.
- Little information was sourced during this STSM regarding biodiversity and the correlation (if any between) European Protected Species, designations such as SAC and coppice management. It would be interesting to investigate this further.
- Carry out a more detailed literature search to determine whether cleft material has ever been used in Italy and if not why this is the case.

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