



Royal Agricultural College  
**Funding Woodland Management  
in South East England  
through Wood and Timber Sales**

Final Report  
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for  
**Regional Forestry Framework  
Steering Group**

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## **Executive Summary**

### **Introduction.**

1. It is estimated that 30% of the South East of England's woodlands are undermanaged and vulnerable to damage and decline. Anecdotal evidence suggests that the poor state of the timber markets is an important factor in this lack of management. This study was undertaken by the Royal Agricultural College, Cirencester for the South East Regional Forestry Framework Steering Group, with the overall aim to assess the impact and influence of timber markets on woodland management activities.
2. The link between timber prices and woodland management activities was explored, the current timber prices and in turn the economics of woodland management were assessed and the factors affecting timber prices and the outlook for the region were forecasted, and in turn potential opportunities for the regional parties to promote best-case scenarios were identified.

### **The Resource.**

3. The region is the most densely wooded in England, with an estimated total of 270,084ha, equivalent to approximately 14% woodland cover. The woodlands are composed of predominantly broadleaved species in particular, oak, ash, beech and birch. The predominant conifer species is pine.
4. There are many small woodlands in the region – woodlands under 10ha constitute nearly 90% of all individual woodlands but account for less than 20% of the woodland area. The larger woodlands constitute the main production areas.
5. Private ownership accounts for nearly 70% of the woodland area. These owners include estate owners, farmers, investors as well as 'lifestyle' farmers and 'residential' owners (who have woodlands as an extension of their garden). The Forestry Commission manages 13% and the remainder is owned by other 'non-private owners' including Local Authorities, the Woodland Trust, and the Wildlife Trust. Woodland ownership and in turn woodland objectives are diverse and have an important influence upon the type and extent of woodland activities.
6. The region is the most populated and it also contains woodlands of high biodiversity and landscape value. In turn the value of non-timber uses including recreation, tourism, sporting activity, nature conservation, education and healthy living are potentially considerable. These non-timber benefits generate considerably greater income for the region than through timber sales. However it is believed that only a small fraction of the non-timber income directly benefits woodland owners.

### **Timber Prices and the Economics of Woodland Management.**

7. Timber prices are historically very low – prices have fallen by at least 30% over the last 6 years.



8. First thinnings are likely to result in a cost operation for all but the larger and activity managed woodlands. Subsequent thinnings and clear felling have the scope to provide modest returns for the larger woodlands. For the smaller woodlands (under 10 ha), it is estimated that virtually all thinning operations are likely to result in a loss, and often the net income from the clear felling will not cover the subsequent restocking costs.
9. Changes in timber prices have most significant impact on the returns available from the larger woodlands and in turn the type and extent of woodland operations undertaken. For example an increase of 10% in timber prices would enable thinning operations in most larger woodlands to at least break-even. An increase of at least 50% in timber prices would be required for most small woodlands to have a chance of breaking-even.
10. The current poor timber prices and in turn the low or negative returns resulting from harvesting activities have resulted in these operations being delayed. This has also had a knock-on effect on restocking and subsequent maintenance. Furthermore the lack of assured work has caused a number of contractors/woodland managers to seek other forms of employment outside the forest sector.
11. Previous studies have estimated that the annual timber production for the region is 1 million m<sup>3</sup> and the value of this timber production is £20 million. Whilst important for the forest sector in terms of woodland activity, and in turn employment (direct and indirect), the economic contribution to the region as a whole is relatively minimal.

### **The Outlook for the Region's Timber Market and Prices.**

12. Timber prices have fallen significantly in recent years and there are few signs of any price improvements. Timber and wood products are subject to the global free market and British grown produce must compete in terms of price, quality and service with imported timber.
13. The most important factors that affect world prices are supply and demand, as well as the costs of production and prices of substitute markets for wood. The increased availability of cheap supplies of timber from countries such as the Baltic states, together with the relative strength of sterling against those countries, have all contributed to exerting a downward pressure on timber prices. Increased competition from these countries (particularly the lower value chipboard and pulp markets) is expected to continue.
14. The costs of timber production and the subsequent processing in the region (as well as the UK as a whole), are likely to remain uncompetitive with other parts of the world in the foreseeable future.
15. The revenue from low value timber products are thus not expected to cover the production and transport costs for most woodlands (unless local/niche markets can be created/expanded). Furthermore it is not possible at the regional or national level to affect the global market. The imposition of trade barriers to make home produced timber more competitive is unrealistic.



## **Factors other than timber prices that impact on woodland management.**

16. Previous studies have identified a range of factors other than timber prices that affect the decision to manage and have resulted in woodlands being left unmanaged. These factors are categorised in this study as uneconomic, lack of knowledge, lack of interest, administration and environmental constraints.
17. The economics of woodland management in particular are cited as an important motivator, however the economics of woodland management are affected by more than timber prices. The availability and extent of grant aid, as well as the contribution from non-timber benefits in particular sporting are important. For the public sector and some of the 'lifestyle owners' the availability of outside funding is a particularly important factor.

## **Conclusions and Recommendations.**

18. The production of wood has been the main reason for the continued existence of woodland over the centuries and for most of the last century was the prime reason for afforestation. Whilst objectives for creation and management of woodlands are now much more diverse and indeed motivated primarily by non-timber objectives, timber production, albeit a secondary objective, still has an important influence. The absence of profitable outlets will inevitably impact on the type and extent of woodland management activities undertaken.
19. The strength of the link between timber prices and woodland management is influenced by a range of factors in particular the ownership of the woodland, their management objectives, size and type of woodlands and their scope to provide timber. The link between timber prices and woodland management is most significant in the private sector particularly for estate and farm woodlands. For publicly owned woodlands and other private woodlands the link is less strong. The availability of outside funding and non-timber objectives are likely to be greater motivators for initiating woodland management activities.
20. There is no one solution to improve the timber market prospects for the region. Rather a portfolio of measures are required. Potential opportunities for the regional partners to promote best-case scenarios are identified as follows:
  - Target resources including Forestry Commission Woodland Officers' time, and grant aid to woodlands over 2ha. The proposed changes to the Woodland Grant Scheme provide opportunities to further target grant aid.
  - Encourage and promote the development of local markets – wood fuel was seen as the most promising potential market, and its development would also satisfy a range of other policy objectives. The encouragement of greater use of locally grown timber with government bodies taking the lead where practical is also proposed.



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## **1 Introduction**

### **1.1 Background**

This study has been commissioned for the South East Regional Forestry Framework Steering Group, comprising partners within regional government and the woodland sectors.

Social and environmental, as well as economic benefits are delivered through active management of woodlands. However a large proportion of woodlands in the region are unmanaged. In recognition of these benefits, the government's forestry policy has been to encourage sustainable management of woodlands. Anecdotal evidence suggests that the poor state of the timber market is an important factor in the low level of management activity in the South East England Government Region (hereafter referred to as the region). This region comprises Berkshire, Buckinghamshire, Oxfordshire, Surrey, Hampshire, Isle of Wight, West Sussex, East Sussex and Kent.

### **1.2 Project aims**

The overall aim of the project is to assess the impacts and influence of timber markets on woodland management. This assessment is required to inform the Steering Group and to aid in the production of a forestry framework for the region. In order to achieve this aim, the following objectives are set:

- 1) The extent to which the timber markets are currently supporting the management of woodland in the region.
- 2) The impact that changes in timber markets would have on the management of woodland.
- 3) Changes in the market for the region's timber and how regional partners can promote best-case scenarios

### **1.3 Research Approach and Structure of Report**

#### **1.3.1 Methodology**

The assessment is predominantly reliant upon a review of published and unpublished data sources. Additionally, these data are supplemented and extended by a survey of key informants.

A targeted regional survey was undertaken of 7 individuals within relevant public/representative sectors operating nationally and within the region. This sector included individuals with a total of 150 years combined experience of woodland management in the region, mainly concerned with broadleaved woodlands in the range of 2-10 ha, but with some variation about this norm. A further 5 private forest managers and contractors were targeted (termed hereafter as the private sector) operating within the region (see Appendix 1). A letter/email was sent out prior to contact by telephone (see Appendix 2). Each respondent was interviewed using the questionnaire included in Appendix 3. The questionnaire was initially piloted, and designed to address forest resource, management and timber market factors to compliment and extend existing census and other data.



The same questionnaire was purposively used for both the public/representative sector and the private sector. However it was realized that some elements would be more suited to one or other of the sectors. For example costs of operations etc were predominantly supplied by the private sector.

### **1.3.2 Structure of report**

The approach to this report is based upon the appropriate integration of data sources within each of the chapters. The division of chapters within the report is as follows:

- Chapter 1: **Introduction** including background to the nature and need for the study, the projects aims and objectives and outline of research approach including survey methodology.
- Chapter 2: Outlines the **Forest Resource** in the region
- Chapter 3: Outlines the **Woodland Management – Objectives and Ownership** including ownership data and social, economic and environmental context.
- Chapter 4: Details the **Links between Timber Prices and Woodland Management**, including costing and sales data
- Chapter 5: Outlines **The Outlook for the Region's Timber Markets and Prices** with a review of the factors affecting timber prices, as well expected trends and developments over the next 20 years.
- Chapter 6: Explores the **Factors other than timber prices that impact on woodland management**, including an investigation of reasons why woodlands are unmanaged, and factors to encourage woodland management.
- Chapter 7: In the final **Conclusions and Recommendations** chapter, the key issues are drawn together upon which the recommendations are based
- Chapter 8: **References.**



## **2 The Forest Resource**

The principal source of information on the woodland and forest resource in the region is data collected by the Forestry Commission through the National Inventory of Woodland and Trees (Forestry Commission 2002).

### **2.1 Extent of woodland cover**

Whilst great variation in woodland cover exists between the different counties, the region is the most densely wooded in England with an estimated total of 270,084 ha, equivalent to an average woodland area of approximately 14%. This is nearly twice the English average of 8.4% (Forestry Commission 2002). The region has had a tradition of high woodland cover, compared with other parts of England – for example in 1890, the woodland cover comprised over 10% in the Region, nearly twice the English average of just over 5%.

### **2.2 Species Composition**

Species composition not only impacts upon the timber markets and in turn the economic value of the timber, but also the non-timber benefits of the region. Whilst a great variation occurs between counties and individual woods, taking the region as a whole, the woodlands are dominated by broadleaved species (55.2%) compared with conifers (13.1%). The balance comprises mixed woodland (15.6%), coppice/coppice-w-standards (6.3%) and felled/open space 9.8%. The percentage of broadleaved species has increased over the last 20 years. Indeed the Forest Enterprise is taking the option where appropriate on certain sensitive sites to revert to broadleaved species (with a tendency for native species) where the opportunities arise. The private sector is similarly encouraged by the way of higher grant incentives for restocking with broadleaved trees – higher rates of grants for broadleaves are also proposed in the 'English Woodland Grant Scheme'.

The predominant broadleaved species in the regions are oak, ash, beech and birch. Whilst good timber prices can potentially be achieved for good quality oak timber, prices for beech and birch are particularly low. The predominant conifer species is pine, comprising nearly 60% of the regions conifer species. Prices for pine are currently lower than for other conifers.

### **2.3 Woodland Size**

There are nearly 23,000 woodlands under 2ha in size, constituting 66% of all individual woods. Although very numerous, these small woods constitute only 4% of the total woodland cover in the region, amounting to 9,886 ha. In consequence, they are insignificant from the perspective of timber production but are very important in defining the landscape, biodiversity and social character of the region. Woodlands over 10 ha in size whilst constituting only 10% of all individual woodlands accounts for over 80% of the woodland area.



## **2.4 Age class distribution**

The age profile of both conifer and broadleaved woodland is fairly balanced, with the greatest amount of planting being undertaken in the 1960<sup>s</sup> and 1970<sup>s</sup> as was the case for England as a whole. Over the last 30 years, broadleaved species have represented the main area of planting, particularly within the private sector.



### **3 Woodland Management - Objectives and Ownership**

There is no published data available on the detailed management activities and condition of the woodlands in the region or the country as a whole. Whilst estimates can be made, based on the number of woodlands that have management plans with the Forestry Commission or other forms of recognised management or care, the condition of the woodlands, and the extent of the management and the motivation for that management is not known with any certainty. What is clear, however, is that a number of woodlands, particularly the smaller woodlands have been unmanaged for many years. The unsatisfactory state of small woodlands has been documented in previous national and regional studies including the Small Woods on Farms (Countryside Commission 1982), New Markets for Old Woods (Betts & Claridge 1994) and the Gwent Small Woodland Project Report (Zehetmayr 1984).

These under managed woodlands, though often of great past or present importance as landscape features or wildlife habitats are deteriorating in these respects because of neglect; though some are used for game shooting, the majority produce few recreational benefits. Most of them are yielding no timber, firewood or other resources and are contributing nothing to employment or income in the countryside.

The nature and distribution of ownership will impact on the management objectives, and in turn upon the type and extent of management undertaken. For the purposes of this study, two main categories of owners have been identified, and detailed further in Section 3.1.

#### **3.1 Categories of ownership**

##### **3.1.1 Private Owners**

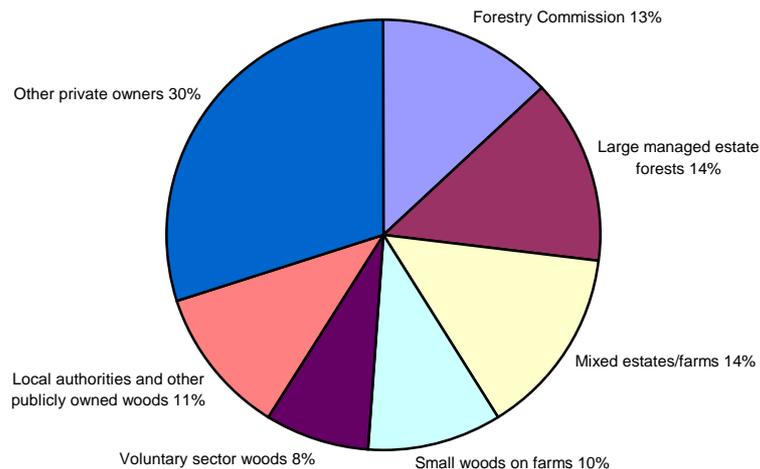
Private ownership includes mixed estates, farms, small woods on farms, large managed estate forests, as well as a range of other private owners many of whom own woodlands around private residences. Private ownership accounts for nearly 70% of the woodland area in the region (see Figure 3.1). Furthermore the majority of the smaller woodlands are within private ownership. These woodland owners have a diverse range of objectives. The production of timber, for owners of small woods in particular, tends to be a low priority objective, with sporting, conservation, shelter and landscape being considered more important objectives. In some cases owners have no management objectives at all. Whilst most of the large managed estate forests are in a management scheme with the Forestry Commission and are being actively managed, many of the remaining woods in private ownership which cover 50% of the region are under managed/neglected (Forestry Commission 2003). Only 25% of these woods are believed to be within a Forestry Commission management scheme – many of these which are not within such a scheme are believed to be neglected. It is estimated that 30% of the regions woods are neglected and vulnerable to damage and decline – virtually all of these are within this private ownership.

Financial incentives (grants and fiscal), and the returns from the woodland (both timber and non-timber) are generally cited as important factors influencing the management, large managed estate forests, as well as woods on farms and estates. For the 'other private owners' these aspects are often less important – many of these owners will have bought woods as extension to their garden, or for their own private amenity. They may think of them in the same way they think of their home or garden. This general status is



supported within the study undertaken of land management by so called 'lifestyle' farmers (Ward & Manley 2001).

Figure 3.1: Ownership of Woodlands in the South East (Forestry Commission 2003)



### 3.1.2 Non-Private Owners

The Forestry Commission own and manage 13% of regional woodlands, with the remainder (19%) being owned by local authorities, other public bodies (such as the Defence Estates) and the voluntary sector, such as the National Trust, Woodland Trust and Wildlife Trusts (see Figure 1). A high percentage of these woodlands (70%+) are believed to be in some form of beneficial management. Timber prices and Forestry Commission grant funding have limited impact on the management objectives and activity – indeed these bodies tend to find outside funding more important in allowing them to carry out the desired management operations.

## 3.2 Social, Economic and Environmental Context

A number of other factors are addressed briefly in the following sections:

### 3.2.1 Demography

The region is the most populated area of the country, and in turn the recreation and tourism benefits of the region's woodlands are potentially considerable. Some of the most widely recognised benefits of woodlands are recreation provision which comprise leisure, health and lifestyle. As well as the non-market benefits that such recreation provides, these activities generate considerably greater income for the region than timber sales. Whilst it is beyond the scope of this report to quantify these economics benefits, other studies in less populated regions have estimated these benefits at more than 15 times the value of the timber resource. However, whilst making a valuable contribution to



the region, only a very small fraction of the 'expenditure' on recreation and tourism directly benefits woodland owners and managers.

### **3.2.2 Property Prices**

House prices in the region are (despite significant regional variations) on average the highest in the country (outside London). Woodlands are central to the character of the area, and often cited as major attractions by house owners who live in the area. Whilst quantifying these non-market values of woodlands is problematical, as well as being subjective and hypothetical – what is clear is that these non-market values are considerable – various studies have suggested that they are considerably greater than the recreation and tourism values let alone the timber income!

### **3.2.3 Biodiversity and Landscape Value**

The biodiversity value of the woodlands in the region is very high. They include a third of the country's most important woods for wildlife ie those designated as Sites of Special Scientific Interest, National Nature Reserves and/or Natura 2000 sites. Approximately 40% of the regions woodlands are designated as Ancient and semi-natural woodland, and in addition a high proportion of woodland is of high landscape value recognised within the region's Areas of Outstanding Natural Beauty.



## 4 The Links Between Timber Prices and Woodland Management

### 4.1 Introduction

Previous studies do suggest that timber prices and in turn the 'economics' of woodland management have an impact on the extent and type of management activities – particularly for a number of private owners, although not all. Thus an assessment of the income and expenditure arising from the management and harvesting of woodlands within the region has been undertaken to establish the positive and negative returns generated from various management operations. The main management operations considered for this study are thinning and felling as they are the two operations that are most likely to result in the production of saleable timber, and thus in turn most influenced by timber prices. Whilst other operations such as ride maintenance, scrub maintenance, and coppice are important woodland management operations, the production of saleable timber tends to be negligible. Thus the impact of timber prices on these 'other operations' are explored in the survey as detailed in Chapter 6. The key elements of woodland management expenditure are detailed in Section 4.2.

Trees can either be sold standing, at stump, roadside or delivered to the end user (i.e. the wood processing industries). Prices for standing timber are extremely variable. The main factors which affect value is species, tree size, quality, quantity being sold, cost of harvesting and access and proximity to timber markets. To forecast the revenue from the sale of timber (in effect the price for standing timber), it is necessary to know firstly the likely markets for the timber to be felled and the prices offered.

Prices remain depressed and continuously fluctuate, being influenced by supply and demand, world prices and exchange rates. This is further detailed in Chapter 5.

### 4.2 Expenditure arising from the management of woodlands

#### 4.2.1 *Costs of thinning and felling*

There is a lack of published data providing reliable estimates of the costs of thinning and felling. Personal experience and the private sector within the survey provided regional data to validate published costings.

There are three main components of harvesting (for both thinning and felling). These are felling, converting and extracting. These operations however, are usually undertaken in one combined phase (i.e. completed to roadside, ready for transporting to the timber market/end user. These combined costs are indicated in Table 4.1.



Table 4.1: Indications of combined costs of Harvesting

	Harvesting Cost to Roadside £/tonne
First Thinning	14 – 25
Subsequent thinnings	12 – 25
Clear felling	9 – 20

Costs of harvesting are dependent on terrain, average tree size, access and distance to roadside, scale of working, and the choice of contractor.

The harvesting costs for the larger woods are likely to be at the lower end of this scale. This is due to the economics of scale, the scope for the use of mechanised harvesting and the likelihood of good access. Conversely, the harvesting costs for smaller woodlands (particularly broadleaved) are likely to be at the upper end of this scale – these higher costs can be attributed to ‘settling-in’ charges, low unit production, access difficulties and a lack of throughput to achieve any economy measures. Thus the difference in harvesting costs in a large well roaded Forestry Commission owned woodland is likely to be significantly cheaper than for a small farm woodland – thus any ‘standardised forestry costings’ (particularly for thinning and felling) need to be treated with caution. Furthermore a number of woodland managers and contractors did not appear to be fully conversant with costs of thinning and felling on a per unit basis.

Preliminary investigations also indicated that labour costs (as is the case with other employment sectors), are higher in the region than any other region, and thus in turn impacting upon the harvesting costs. This is believed to be due to a number of factors, including higher living costs and hence exerting greater need and pressure to derive greater income, a shortage of good skilled labour (forest contractors have diversified into tree surgery and landscape gardening etc, as significantly greater income was potentially achievable from this sector). The increasing costs of complying with health and safety requirements, and insurance costs were cited as other reasons for increased costs (though these issues are of course relevant to all regions).

#### **4.2.2 Haulage/Transporting costs**

The cost of haulage, including loading and unloading is dependent upon distances to the markets. Obviously the greater the distance the higher the haulage cost. Traditionally much of the timber grown in the region had either been sawn locally or exported to adjacent regions for sawing or secondary processing. However, many of these sawmills have closed down over the last 10 – 20 years. There are no longer any processing plants (i.e. board or chipboard etc) in the region. Hence the haulage costs are likely to be high – much of the low value timber (in particular conifer and broadleaved small-roundwood timber) is being hauled to the Welsh Borders and West Midlands due to the absence of local markets. An indication of costs of haulage is given in Table 4.2.



Table 4.2: Indications of Costs of Haulage

Transport Distance	Transport Cost £/tonne
'Local' Markets (10 – 50 kilometres)	6 - 7
'Non – Local' Markets	12 - 13

The total cost of supplying the timber to the market/end-user, therefore includes both the harvesting costs and the transport costs. These combined harvesting and haulage costs are set out in Table 4.3 below.

Table 4.3: Combine Harvesting and Haulage Costs

'Harvesting Operation'	Total Costs £/tonne
First thinning	20 – 38
Subsequent thinnings	18 – 38
Clear felling	15 - 33

#### 4.2.3 Other costs

Additional and other costs may also need to be considered, for example the costs of supervision and advisory services. Only owners of larger areas of woodlands (500 ha plus) are likely to be able to employ a full-time woodland manager – this of course is a cost in itself. Other owners are likely to need and/or benefit from assistance from an adviser/consultant. Most advisers/consultants will charge at least £30/hour. In addition to assistance with the marketing and sale of timber, for some private owners, there will be initial fees and costs incurred in the preparation, submission and consultation for a Woodland Grant Scheme (WGS) application or felling licence. However, the new proposed woodland management planning and/or woodland assessment grants have the scope to defray some of these costs.

Other elements that may incur costs include:

- VAT. The implications of VAT to owners who are not registered, whereby all costs are subject to 17.5% tax.
- Restocking. Where felling has been carried out there will generally be a requirement to restock that area (under the current felling regulations). The costs of restocking are likely to be in the region of £1000 - £2500 (depending on the species planted, stock density, site conditions and preparations and the presence of pests, such as rabbits and deer and the need to protect against these pests). The current re-stocking grants of £325/ha for conifers and £525 /ha will reduce these costs to £500 - £2000/ha.

The proposed changes to the restocking grants which are based on a percentage of costs, rather than the current fixed grant will help offset a greater portion of the restocking costs, particularly for the smaller (and in turn more expensive areas), that are being restocked with broadleaves. Thus those owners restocking small areas of broadleaved trees will benefit from these changes – where large areas are being felled and restocked with conifers, the owners may in fact be worse off.



On planted Ancient Woodland Sites, it is unlikely that any grant aid will be available for restocking with conifers.

- Miscellaneous. Costs of additional work to accommodate specific site limitations such as conservation interests, overhead wayleaves, rights of way and health and safety restrictions.

### **4.3 Timber Markets and Prices**

The principal timber markets for timber are from the timber-processing sector. This sector is built around four main forest product sectors: sawmilling, paper and board, wood based panels and other wood including fencing and garden furniture. The prices paid by these processing industries will depend on the diameter, quality and species of the roundwood, which in turn will influence the product that it can be converted to. Notwithstanding the above, there are essential differences between the coniferous and broadleaved timber markets. These are thus individually reviewed to provide an explanation and basis for the timber markets and in turn the prices being achieved.

#### **4.3.1 Coniferous timber**

The small diameter roundwood timber (i.e. timber with a diameter of between 7 – 14cm) is generally sold to the pulp and chipboard markets, whereas pine and larch tend to be sold only to the wood-based panel industries, in particular chipboard. Prices for both pulp and chipboard are currently very depressed. Whilst a range of prices are quoted, depending on the quantities of timber sold, method of sale etc, the survey of woodland managers and contractors indicated that prices delivered to the timber processors are approximately £16 – 20/t for pulp and £15 – 18/t for chipboard.

The larger roundwood timber (i.e. timber with a diameter of no less than 14cm) is sold as fencing bars and sawlogs. Prices for these products are also currently depressed with prices of £30 - £35/m<sup>3</sup> being offered for both fencing bars and sawlogs. There are of course variations amongst species – Douglas Fir may achieve up to £50/m<sup>3</sup> whereas pine is likely to be only £30/m<sup>3</sup>. These indicative prices also ignore niche markets and the potential for added value.

Thus those trees with a diameter at breast height (dbh) of 14cm or less (i.e. trees removed at first and second thinnings) can only be sold into the small roundwood timber markets. Those trees with a dbh in excess of 14cm will comprise both small roundwood timber and large roundwood timber – the larger the trees the greater the proportion of large roundwood timber and in turn the greater the price receivable. The assortment tables contained within the Forestry Commission's Forest Mensuration Handbook can be used to determine the percentage of small and large roundwood for different size classes. However, these assortment tables are more applicable to individual woods – thus for the purposes of this report, the percentage of small roundwood and large roundwood has been estimated based on a first thinnings, subsequent thinnings and clearfelling.

#### **4.3.2 Broadleaved timber**

The specifications for small roundwood timber for broadleaved timber is open to debate, but is reported to include timber with a diameter of between 7 – 25cm (Hart 1991, Lewis 2003). The main markets for this timber are hardwood pulp and firewood. The delivered prices for hardwood pulp are in the region of £25 – 28/tonne, however the nearest market outlet is St Regis Paper Co Ltd in South Wales. Firewood represents an important local market, with delivered prices of £60 – 90/tonne. However there are significant time and costs involved in converting timber to firewood and its subsequent delivery. 'Roadside'



prices for firewood have been quoted at £18 – 20/tonne – it is these prices that have been used for the economic estimates below.

The larger roundwood (i.e. timber with a diameter of no less than 25cm) is sold as fencing bars and sawlogs. A very wide range of prices is achieved for this category of timber – markets and in turn prices are very dependent on quality and species. Good quality oak, for example, may achieve up to £300/m<sup>3</sup> whereas beech may only achieve £30 – 40/m<sup>3</sup>.

#### **4.3.3 Methods of sale**

Knowledge of the timber markets, the buyers as well as method of sale will impact on the prices achievable. For those with less experience and knowledge of the markets, they will tend to use an adviser and/or sell by negotiation/private treaty to a timber merchant. Sale by tender or auction and/or direct to the end user provider provides an opportunity to optimise prices, but requires a good knowledge of timber markets and buyers, as well as a potentially more time consuming and costly way of selling the timber.

#### **4.3.4 Current timber prices**

An increasing number of buyers will claim only to purchase timber from certified woodlands (ie certified to internationally recognised standards of sustainability, such as the UK Woodland Assurance Standard). Most woodlands within private ownership are not yet certified. Currently any potential premium for timber from certified sources is negligible and the process of achieving certification is generally viewed as another cost. It is however expected by many in the industry that markets for non-certified timber will decline in the future. There is a very close analogy with recent experiences in the agricultural sector and the range of farm assurance schemes. Initially these schemes raised an interest in the promotion and provision of a premium for the producer, but the reality has been perceived as essentially allowing only for continued access to markets.

The main timber markets, and the delivered prices are set out in Table 4.4. The main variation in prices received is for the larger roundwood. A very wide range of prices is achieved for hardwood timber – which is very species dependent. Species such as oak are achieving high prices, whereas species such as beech are achieving low prices. The prices ignore local/niche markets.

Table 4.4: The main timber markets and delivered prices

Conifers	Delivered Price £	Broadleaves	Delivered Price £
'Small roundwood' (7 – 14cm dia)		'Small roundwood' (7 – 14cm dia)	
Pulp	16 – 20/t	Pulp	25 – 28/t
Chipboard	16 – 18/t	Firewood	18 – 20/t*
Larger roundwood (14 cm + dia)		Larger roundwood (14 cm + dia)	
Fencing	30 - 35/m <sup>3</sup>	Fencing	45 - 100/m <sup>3</sup>
Sawlog	30 - 35/m <sup>3</sup>	Sawlog	30 – 300/m <sup>3</sup>

\* roadside



#### 4.4 Calculating the net income from timber production

From the sale of timber (i.e. the price delivered to the end user), it is necessary to deduct the costs of harvesting and haulage. Each wood is distinct, thus only a general overview of revenue and expenditure can be given for the whole region. Taking these factors into account, alongside expected markets and prices for the timber, the net income for the large managed woodlands (defined for the purposes of this study as woodlands over 10 ha) and small less well managed woodlands have been estimated. The figures and results are presented in Tables 4.5 and 4.6. In estimating the net incomes a number of assumptions have had to be made, for example unit costs. These are detailed in Appendix 4.

Table 4.5: Expenditure versus Income  
Large scale (10ha) and managed

Timber Operation	Unit Cost (Income) £ per tonne				
	Harvest Cost (roadside)	Haulage	Total	Sale Price	Net Income £
<b>First thin</b>					
Conifer	14	12	27	22	-5
Broadleaved	18	12	30	20	-2
<b>Subsequent thinning</b>					
Conifer	13	12	25	25	0
Broadleaved	17	12	29	40	11
<b>Clear fell</b>					
Pine	10	12	22	28	6
Other conifer	10	12	22	35	13
Oak	12	12	24	75	51
Other broadleaves	12	12	24	40	16



Table 4.6: Expenditure versus Income  
Small-scale – 10ha and unmanaged)

Timber Operation	Unit Cost (Income) £ per tonne				
	Harvest Cost (roadside)	Haulage	Total	Sale Price	Net Income £
<b>First thin</b>					
Conifer	20	12	32	20	(12)
Broadleaved	25	12	37	25	(12)
<b>Subsequent thinning</b>					
Conifer	15	12	27	25	(2)
Broadleaved	20	12	32	25	(7)
<b>Clear fell</b>					
Pine	13	12	25	28	3
Other conifer	13	12	25	30	5
Oak	15	12	27	45	18
Other broadleaves	15	12	27	28	1

The following results are indicated:

For large scale woodlands

- First thinning – These struggle to break-even particularly with conifers. However most owners/agents/managers claim to break-even/small profit. This is likely to be due to higher prices achieved through the fencing market.
- Subsequent thinning – These provide a small return. Generally the closer to maturity the higher the return.
- Clear felling – These achieve the greatest returns, but note that forecasted returns for pine would barely cover the restocking costs.

For small scale woodlands

- All thinnings result in a loss
- The cost of thinning may exceed income by up to £12/tonne
- The 'net income' from clear felling will often not cover the subsequent restocking costs.

#### 4.5 Sensitivity/Changes in timber prices and harvesting costs

Fluctuations in timber prices or harvesting costs (which are likely over the next 12 months and almost certainly over the next 20 years) will have a significant effect on the overall income or costs of the felling operation. For example, the costs of harvesting and transport to produce timber derived from a second conifer thinning may amount to say £25/t as indicated in Table 4.5. If the current timber price receivable is estimated to be £25 - £28/tonne (say £26/t), then the 'profit'/return to the owner is £1/tonne. If timber prices increase by say 10% the returns to the owner (all other things being equal) are £3.60/tonne – an increase of 360%. Conversely, a reduction in timber prices by 10% will result in a loss. Taking this one step further, if we assume that 50 tonnes of timber/ha are removed at each thinning, the income receivable to the owner (based on the current



return of £1/tonne) is £50/ha. Increase timber prices by 10% the returns to the owner increase to £180/ha; decrease prices by 10% the operation results in a loss of £80/ha. For a 100 ha woodland, these 'returns' are magnified a hundred times, and thus have significant financial implications for many private owners. For small woodlands, (under 10 ha), the financial implications will be less significant. For example with a 2 ha woodland the potential cost of the advice (formulating a management plan and gaining relevant permissions etc), is likely to outweigh the costs and/or returns from the sale of timber!

The lack of local markets has already been highlighted. The existence of 'local markets' would significantly reduce transport distances and in turn costs – it has been estimated that haulage costs to 'local markets' would be approximately £6 – £7/tonne rather than £12 - £13/tonne to markets outside the region – a potential saving of £6/tonne. This £6/tonne is potentially a very significant saving for the owners of larger woodlands as indicated above, when looking at changes to timber prices. Assuming this full £6/tonne saving was passed onto woodland owners, all thinning and harvesting operations in the larger woodlands would be able to break-even. In reality there would clearly be considerable diversity of costs of managing these larger woodlands (eg some will still have poor access, steep poorly drained sites etc) – notwithstanding that most thinning and felling operations should at least break-even. However, for the smaller woodlands (less than 10 ha), the £6/tonne saving would be less significant. Whilst it would help alleviate the costs of management, first thinning and probably early subsequent thinnings would still result in a loss.

The current poor timber prices has meant that even for the large and actively managed woodlands, it is difficult to do little more than break-even on most thinning operations – indeed many of these larger woodland owners are struggling to break-even. As a result, timber harvesting and other operations are frequently being delayed, in the hope that markets will improve. This has had a knock-on effect on restocking and subsequent maintenance. This lack of assured work has caused many contractors/woodland managers to seek other forms of employment outside the forestry industry – it is unlikely that many will return if/when timber prices improve and harvesting operations increase.

The production of wood has been the main reason for the continued existence of woodland over the centuries, and for most of the last century was the prime rationale for afforestation. If there is no incentive to produce timber, the type and extent of woodland management will certainly change, and in turn the character and composition of those woodlands. There may be a strong argument therefore to concentrate support and resources on the larger woodlands, which are much more sensitive to changes in timber prices and operation costs. Not only do these woodlands dominate the region by woodland area, but also they are the principal source of timber production.

#### **4.6 The economic contribution of timber production to the region**

Whilst it is beyond the scope of this report to assess the economic contribution of timber production to the region, it was considered helpful to include some indicative estimates to put its significance into context. Previous studies have estimated that the annual timber production for the region is approximately one million cubic metres and the value of this timber production has been estimated at £20 million. The economic contribution to the region as a whole is relatively minimal.



In terms of net income produced, the contribution is even less. If we assume the average standing price is say £5/cubic metre (the current average standing price for conifers from Forestry Commission woodlands in 2002 was only £7.45/cubic metre), the income generated for the owners in the region is just £5 million. On a per hectare basis, this equates to an average of less than £20/ha. However the expenditure required to derive this income is however more significant. If we assume that the average harvesting costs to extract the timber to roadside are £15/cubic metre, the total expenditure amounts to £15 million. This excludes the cost of employing the forest managers /consultants management time, haulage as well as labour in sawmills and machinery dealers etc. Previous studies have estimated that there are currently 220 people employed in forestry.

Using these estimates, the loss of expenditure and in turn jobs can be forecasted, as result of declining timber prices and in turn timber production. For example, a recent study for the region estimated that there is over 200,000 tonnes of timber, for which there is no viable market. This is equivalent to 20% of the region's annual forecasted timber production, which in turn is equivalent to a timber production value of £4 million/year and 440 jobs based on the above figure. Clearly this is an over-simplification, as for example such woodland workers operate across regions, and thus such estimates need to be treated with caution. What is clear though, is that whilst the economic and employment contribution to the region as a whole is low, the impact of a further decline in timber production will have a significant impact upon many private woodland owners, and in turn upon forestry employment.



## **5 The outlook for the region's timber markets and prices.**

### **5.1 Introduction**

Timber and wood products are subject to the global free market and British grown produce must compete in terms of price, quality and service with imported timber. Imports currently account for over 80% of UK consumption. World timber prices have fallen by 30% since 1996, and in turn prices receivable by UK timber producers have in turn fallen by at least 30%, particularly coniferous timber. The globalisation of the timber markets, the increased availability of cheap supplies of timber from countries such as the Baltic states, together with the relative strength of sterling against these other countries, have all contributed to exerting down pressure on timber prices. Furthermore improved technology, and environmental pressures have resulted in increasing amounts of paper being derived from recycled paper rather than 'wood fibre'.

### **5.2 Factors affecting timber prices and the outlook for the region**

The most important factors that affect world timber prices are supply and demand, as well as the costs of production and the price of substitute materials to wood. The predominant influence on UK timber prices is imported timber prices, which are in turn influenced by exchange rates. These factors and their interaction are complex. For the purposes of this study, and to aid understanding, each of these factors has been considered in turn and an assessment of the trends and their impact on prices over the next 20 years has been made, rather than attempting to make predictions using a range of assumptions and complex models.

#### **5.2.1 Supply and demand for timber**

The available supplies of timber is forecasted to increase in both the region and the UK as a whole over the next 20 years, due to the expansion of the forest area created by planting in the 1960s and 1970s. European timber reserves are also increasing. Demand for forest products is also forecasted to increase. However this increased demand cannot be directly translated in to increased demand for the timber itself. Indeed various studies have cited that demand for low quality timber has dropped resulting from incentives being provided for recycled fibre in the pulp paper and board industries. These factors exert a downward pressure on prices and the trend for prices for low quality timber (eg small roundwood), based on current assumptions is downward.

High quality timber both broadleaved and coniferous, is most likely to be in demand. Indeed, there are increasing constraints being placed on the tropical hardwood production for environmental reasons. This trend is likely to continue. Such constraints on supply could help increase prices. However silvicultural systems and woodland management practices aimed at the production of high quality timber is a long-term venture, starting with the establishment of the crops. Therefore the benefits from any measures to address this issue would take a long period of time to be fully realised (in excess of 20 years).

#### **5.2.2 Costs of production**

Locally produced wood has to compete with imports into the UK, principally Scandinavian and Baltic countries. The high production and transport costs in Britain and in particular this region, outweigh those of many parts of the world. Indeed by way of illustration, there are already examples of local estate sawmills importing their timber from Latvia



rather than from the estate itself. Some of these sawmills are going one step further and importing their timber already sawn – their margin is in adding value by assembling this sawn timber in to products such as garden furniture.

Furthermore the enlargement of the European Union will see sustained competition from Central European sources. Most of the global timber product companies have already invested in these countries, attracted by the available supplies of timber, the cheaper labour costs and the financial incentives to encourage investment. There has already been a rapid increase in the amount of timber imported by Latvia in to the UK. Increased pressure from Russia and the Baltic states is expected to continue (UPM 2002). These factors mean that both the costs of timber production and the subsequent processing of that timber in the region (as well as the UK as a whole) are likely to remain uncompetitive, without intervention, with other parts of the world in the foreseeable future.

### **5.2.3 Substitute materials to wood**

The potential to consume more wood products exists. It is globally being actively promoted as a sustainable and alternative product to steel, concrete and other materials that rely on finite resources or are heavily dependent on energy (UPM 2002). Countries such as USA and Germany consume greater quantities of timber (particularly sawn timber) than the UK. There is thus potential to increase the usage of timber both in the UK and the region, by further promoting the sustainable and other benefits of wood. However there is a risk that the increasing demand resulting from growth in consumption will be met by yet more imports and that in turn any potential benefits to UK timber prices will largely be lost.

### **5.2.4 Exchange rates**

The predominant influence on UK timber prices is imported timber. There has been a very strong correlation between UK timber prices and imported timber prices. Thus the prices that the timber producers receive are very dependent on exchange rates. The pound has been relatively strong against the main countries from which the UK imports timber (i.e. Finland, Latvia, Sweden, and Canada). Exchange rates fluctuate continually and therefore it is difficult to make any predictions as to how the pound will perform against these currencies in the future. However if the UK does decide to adopt the Euro, this should help to provide stability and may help to increase prices in the UK.

### **5.2.5 Other Factors**

There are a number of other factors that are also currently adding to the costs of management and/or limiting timber prices in the region. These are summarised as follows:

#### **Damage by pests.**

The high population of deer and grey squirrels result in further reductions in value due to browsing and bark stripping damage and/or increase establishment and management costs. The most vulnerable species are broadleaved – the majority species in the region.

#### **Skills base**

A diminishing skills base in woodland management, harvesting and haulage. There has been a decline in the number of experienced woodland workers and contractors – some have moved away from the region, others have diversified their skills (e.g. tree surgery and landscape gardening) or sought employment outside the forest sector altogether. It is also reported that the industry is failing to attract sufficient young people, with a resultant increase in the average age of the workforce, as indicated from both sectors of the survey. The region faces particularly acute problems due to the high cost of living, and the current very poor timber markets are increasing the problem. Similar parallels can be seen in the agricultural industry.



### **Transport costs**

The lack of existing local markets in the region particularly for low value timber has been highlighted. Thus the transport costs associated with the delivery of wood to distant markets means the region is at a competitive disadvantage with wood grown closer to those markets.

### **5.2.6 Conclusions**

The revenue from the low value timber products (e.g. small roundwood from first and second thinnings) are therefore not expected to cover the production and transport costs for most woodlands (unless local/niche markets can be created/expanded). It is not possible at the regional or national level, to affect the global timber market. The imposition of trade barriers to make home produced timber more competitive is unrealistic with the growing pressure on developed nations to move towards fairer trade policies.

## **5.3 Market Opportunities in the region**

Consumer behaviour, fashions and product development and in turn market opportunities and policy initiatives are continually changing. Notwithstanding that, a number of market opportunities have been highlighted in various studies. These main opportunities and in turn their expected impact on the region are assessed below.

### **5.3.1 Development of a wood fuel/energy market.**

The desirability of having local markets has already been highlighted. Indeed a study assessing the feasibility of re-establishing a viable bulk industrial outlet for small diameter roundwood in the region was recently undertaken and concluded that the viability was questionable (Clegg 1998). This included the supply for wood fuel, however most of the effort at that time was targeted at the development of large power stations, encouraged by the Non Fossil Fuel obligation (NFFO) funding, which started in 1989. This offered a guaranteed premium market enablement mechanism for the supply of electricity from non-fossil fuel energy sources in England and Wales. NFFO has now expired, and many of these projects have had limited success. There are however much more positive results from smaller scale installations, either wood fired boilers or combined heat and power plants (CHP). The consensus in many regions (and likely to be the case for the South-East) appears to be in favour of the development of widespread small-scale operations, rather than further power stations relying on wood fuel. Indeed various initiatives have been set up in different parts of the country including the South East Wood Fuel Networking Group to promote and support such development.

Despite apparent optimism by many in the industry, it should be remembered that energy costs from wood fuel needs to be competitive with other sources of energy. Furthermore purchasers of wood fuel are unlikely to be willing to pay prices significantly above those offered by competing markets. Thus a wood fuel market is unlikely to develop unless further promotion and incentives are provided for consumers of fossil fuels to convert to wood fuel, as well as encouraging planning authorities and property developers to consider wood fuel systems.

To date, financial aid has been targeted towards establishing specialist energy crops such as short rotation willow coppice, rather than sourcing the timber from existing woodlands. It would therefore seem desirable to devote more resources towards utilizing this existing but unexploited wood resource, rather than attempting to create new 'energy plantations'! Encouraging local authorities, schools, hospitals and businesses (where appropriate) to use wood as a source of heating (as is already happening) is an important



start. However, the capital cost of wood fuel boilers tend to be significantly higher than other conventional boilers. It also needs to be cost-effective against fossil fuels. Grants to help offset the capital costs would help provide such a stimulus (as has been the case in countries such as Sweden and Austria). Taxes on fossil fuel energy, (as in the case in Sweden with a VAT rate of 25%) would further help promote wood fuel. It is acknowledged that fossil fuel taxes would need to be a national policy, and thus not possible to implement within the region in isolation.

### **5.3.2 *Developing/promoting niche markets and added value.***

There are already examples of timber producers exploiting niche markets and adding value. Examples include firewood, kindling, charcoal and hurdles. There is also scope to add value, through converting timber in the round, through estate sawmills and mobile sawmills and supplying that converted timber to local architects and builders etc. Similar initiatives have also been developed within the agricultural industry. Pump prime funding, together with help and advice has enabled a number of farmers to exploit these markets opportunities successfully. However most farmers have not. Niche markets, are by their very nature, 'small' markets and can be easily swamped/flooded by cheap imports both from other UK regions as well as abroad. Therefore whilst providing opportunities for a few, (particularly the more entrepreneurial), their impact at regional level is expected to be limited.

Notwithstanding the above, development of niche markets and adding value is to be encouraged and clearly funding and advice will help stimulate such enterprise. However any such support needs to be carefully targeted to ensure best use of money. For example estate sawmills allow the estate owner to add value to his timber – but many of these sawmills have closed down over the last 15 years (due to lack of economic viability, need for significant new investment etc.). Financial support to continue existing practises may have just prolonged the inevitable. Many of those that have survived now import their timber from abroad, often already sawn – their 'margin' comes from reselling these products and/or assembling them into higher value products such as picnic tables, potato boxes, fence panels etc. However, whilst of little benefit to timber producers, they do make a contribution to the rural economy.

### **5.3.3 *Carbon Credits and Sequestration Projects***

Woodlands play a significant role in moderating the flux of greenhouse gases, particularly carbon dioxide, between the land and the atmosphere. The concept of trading carbon credits is gaining momentum. The UK Emissions Trading Scheme (ETS) is the world's first economy-wide Greenhouse Gas (GHG) trading system. Launched two years ago with an auction of incentives worth £215 million, it resulted in 35 organisations voluntarily taking on legally binding obligations to reduce their carbon emissions by 14 million tonnes over five years. However government policy focuses on emission reductions, rather than carbon sequestration. Furthermore, carbon sequestration projects are currently not included at present in the official UK ETS, (although there are a number of voluntary schemes, which include planting)

Notwithstanding the above, there is recognition that carbon sequestration projects can provide environmental and other benefits. Raising awareness of the roles that woodlands can play and encouraging appropriate woodland management practices should be supported. It would also be appropriate to keep any potential sequestration projects under review – there may be opportunities to link them in to the wider ETS.

Other countries have innovative ideas. For example in the Australian state of Victoria, the plantations for Greenhouse (P4G) initiative offers financial assistance to landowners and investors in the establishment of long rotation, high quality sawlog plantations. Funding is offered to landowners, (with higher incentives when public benefits are



included for example bio-diversity protection). In return the State Government retains 20% of the carbon rights for 30 years while the landowner owns all the timber products

#### **5.3.4 Forest Certification.**

Forest Certification has been slow to impact. However market interest in certification is increasing and in time negative differentials for uncertified supplies is expected to gather momentum in the future. Whilst this may pose a threat to owners of uncertified woodlands, it does provide an opportunity for price differentiation from imports from countries where certification is not widely practised. The impact on prices is still difficult to predict.

Notwithstanding the above, the number of woodland owners in the private sector that have certified their woodlands to date is limited. Support, both advisory and financial will help address this issue.

#### **5.3.5 Promoting marketing links and local markets**

Several reports cited previously, have identified the need for stronger links between timber producers and the end-users (e.g. timber processors). Various initiatives have either been tried or under review. To date these initiatives have achieved limited success. Furthermore, those woodland managers and contractors experienced in timber marketing did not appear to see the need for greater resources to be devoted to this issue.

Increasing awareness of the availability and desirability of using local wood and in turn improved consumption is possible to achieve. Furthermore the environmental implications of long distance transport are only just starting to be considered in the wider sustainable debate and in time such debates may result in greater support for local timber. Guidelines on sustainable procurement of timber and the desirability of using local timber for all government organisations, including local authorities would certainly be an important step. However a number of barriers will also need to be overcome. Limited use of local wood is not only due to cheaper imports, but also lack of consistency in quality and supply. As for niche markets, such initiatives are only likely to benefit a limited number of timber producers – mainly the more entrepreneurial.



## 6 Factors other than timber prices that impact on woodland management

Previous studies cited in Chapter 3 have indicated that the nature and distribution of ownership will impact on the management objectives and in turn upon the type and extent of management undertaken. Previous studies have also identified a range of factors other than just timber prices that affect the decision to manage and have resulted in woodlands being left unmanaged.

These factors are categorised in this study as: uneconomic, lack of knowledge, lack of interest, administration, and environmental constraints. These were used to explore experience and perceptions from key individuals in the survey as outlined in Section 1.3, and the responses have been included where appropriate.

### 6.1 The reasons why woodlands are unmanaged

#### 6.1.1 *Management is uneconomic*

Small woodlands, in particular have been uneconomic to manage (for many years). The cost of management exceeds the revenue that can be derived from the sale of timber. The reasons for this are as follows:-

- The size of the woodlands – work in small woodlands tends to lead to higher ‘harvesting’ and management costs, whilst lower prices are received from the timber sales, due to increased markets, costs and/or reduced demand for small quantities of timber.
- Low quality timber – unmanaged woodlands tend to contain higher percentage of low grade timber due to lack of management. For example, the timber is overcrowded, woodlands tend to be ‘spindly’ and thus, the only markets that exist, are low value markets, such as pulp and chipboard. ‘Gaps’ or neglected woodlands may be colonised by unproductive species (from the timber aspect), such as blackthorn and birch.
- Access – access to many woodlands (particularly smaller woodlands) is limited/poor (e.g. the woodlands are covered in wet areas and/or considerable distances from routes to facilitate timber collection and sales). These factors clearly increase the operational costs, and in turn reduces any proceeds available from the sale of the timber.

The reduction in timber prices over recent years will clearly increase the number of woodlands that are uneconomic to manage. Recent reports have also made the link between economic difficulties facing woodland owners, and the extent of woodland management actively. For example, the Forestry Strategic Economic Study for the South West England region reported that traditional forestry activities have declined – maintenance and harvesting operations (i.e. thinning and felling in particular) have reduced over the last 5 years due to economic difficulties. This is mainly attributed to the result of declining timber prices.

Nevertheless, both the public/representative and private sector parts of the survey in this study illustrate that the lack of economic incentive is not reported as a consistent barrier to undertaking woodland management, although clearly it is a problem for some owners. Generally thinnings are reported as having decreased or stopped. Where thinning is being undertaken, this is often to meet environmental and amenity objectives, and protecting the long term value of the timber. Ride management has increased, especially in conjunction with Woodland Grant Scheme support.



### **6.1.2 Lack of Knowledge**

Neglect has arisen from the fact that many of the woodland owners, particularly the 'other private owners' and 'small' woods on farms have little or no woodland knowledge and skills. They are often unaware of the potential 'value' (be it timber, landscape, habitat etc) of their woodland and how this potential should best be developed. Most are reluctant to pay for advice, and many are not aware of what advice exists. Although a wide range of organisations can provide advice (a few free of charge, but most subject to a charge) there appears to still be a shortage of advice specially aimed at the needs of these private owners.

It is acknowledged, from the public/representative sector within the survey, that there is a lack of knowledge amongst some private woodland owners which would contribute to management not being undertaken. However, it is also indicated that most owners are happy to take advice. It may be a specific issue with new 'lifestyle' owners, and the importance here is to connect with a knowledgeable agent or similar.

### **6.1.3 Environmental constraints**

Both sectors within the survey reported wide variations with this aspect. For some it is not an important barrier to undertaking woodland management. For others there is concern. One example cited was that in undertaking management and involving "conservationists", ie English Nature, legislative restrictions will be imposed on woodland.

There may be particular legitimacy in the concerns and request for a 'light touch' needed from the various agencies involved, and that a better understanding is needed to integrate the respective merits and pressures of, for example, biodiversity, archaeology, landscape and access.

### **6.1.4 Social reasons**

#### **Lack of Interest.**

Previous studies have identified that woodland is commonly subsidiary to the main business enterprise (e.g. farming) and thus is considered too small-scale to warrant the time and effort to exploit the resource.

Both sectors of the survey reported that generally lack of interest in itself is not a reason for management not being undertaken. However there are some owners that would not be interested in managing their woodlands. They are not looking for external advice or the disturbance that management operations would involve.

#### **Administration needs**

The administrative elements will include for example both the grant process, compliance with forestry legislation as well as health and safety issues.

There is some variation on this aspect from both sectors of the survey. Generally not a problem reported by the private sector, but equally they would like to see simplification of grant process. It is reported from public/representative sectors that the administration aspects are a 'perceptual' turn off for some, but it is also clear that these aspects are increasing. It is also indicated that owners are not always fully aware of Health and Safety aspects. If they were, and adhered to them, then these could be a potential barrier to undertaking management operations

#### **Risk of Criticism**



A number of woodlands owners (particularly lifestyle owners) are not confident about managing their own woodlands and are also concerned about possible criticism from local people.

### **Inappropriate Management**

Lifestyle owners in particular may see their woodlands as an extension of their garden, and thus may wish to manage them as such – such management may have a detrimental impact on the timber and environmental value of the wood. Examples may include mowing of ground flora and the introduction of non-native species.

### **Contractors**

The low availability of contractors is an issue cited within the survey of public/representative sectors. It is indicated that this availability may be linked to increasing costs of public liability insurance which impact particularly on the self-employed and small businesses,

It is also cited within this survey that some owners are unsure or nervous with the use of contractors, and the issues of responsibilities of liability and insurance are unclear.

## **6.2 Cost Scenarios**

Developing further from the review on the reasons for non-management of woodlands and incorporation of relevant survey data, a number of broad cost scenarios and management activity were explored within the survey.

### **Scenario 1: Costs are involved initially, with either little prospect of future income in the immediate or medium term**

Many owners, particularly in the public sector, are currently undertaking management under these conditions. However many others, mainly in the private sector, are doing minimal management in order to protect the long term value of their asset. Management activity would increase with some financial incentive to act as a 'sweetener'.

### **Scenario 2: Minimal or no expense**

Generally management will be undertaken by the range of types of owners, including the 'lifestyle' owners. For example, the Forestry Commission's Woodland Improvement Grant (WIG) Challenge funding (which in some circumstances offers 100% of costs on competitive tendering basis) was reported as a valuable measure to encourage management.

### **Scenario 3: Immediate income**

Certainly where income can be immediately earned there is a consistent likelihood that management will be undertaken. Some farmers for example are looking to diversify their core businesses, and would look to their woodlands to generate income as long as this would not involve heavy investment.

## **6.3 Encouragement of woodland management in the region**

The reasons for non-management and various scenarios as detailed in Section 6.1 and 6.2 were developed further in the survey. Key issues that are relevant to encouraging woodland activity are summarised using the identified themes of timber price, grants and free advice.



### **6.3.1 Timber prices**

An underlying problem with management costs is the lack of income and viability of the low grade timber such as thinnings. Most respondents reported that an increase in timber prices would encourage greater management activity. The amount that timber prices would need to be increased by varied. However there is a general consensus that timber prices would need to increase to a level whereby operations at least break even.

It is also appreciated that there have been initiatives surrounding the whole issue of local markets for timber products. Some frustration is evident from respondents in that such initiatives are “talk but no action”. Certainly outlets for a much higher proportion of low grade timber are required. There is some reported hope attached to wood fuel opportunities. Transport costs are a significant element of these potential opportunities and such local outlets would ideally need and be able to be serviced using agricultural machinery. As an added suggestion, reported within the private sector survey, would be the desirability to reduce haulage costs by about £6.00/tonne to allow for management of large woods to break even.

Although concerns have been raised in respect of the disparity between the grant support available to the forestry industry in comparison to the farming industry (assumption is made that there tends to be an amalgamation of agricultural support and agri-environment payments), there was no support for artificially supporting timber prices.

### **6.3.2 Grants**

Generally the existing package of grants are recognized for their benefits. Payment levels are not always seen to be enough, and a stability of the schemes over the next 10 years would be beneficial. Each of the existing grants were considered in turn as follows:

#### **Woodland Improvement Grant (WIG)**

First and second thinnings for conifers currently result in a loss for many woodland owners. The WIG has been an important catalyst in stimulating such activities. This grant is currently based on 50% of agreed costs and restricted to certain woodlands. The WIG has also been instrumental in encouraging owners to undertake ride creation, fencing woodlands against livestock, removing invasive vegetation etc. as well as coppicing. These measures benefit the habitat and amenity value of woodland and should also be supported by the WIG.

#### **Annual Management Grant (AMG)**

The AMG was seen as an important grant by owners of larger woodland to at least provide some annual income to defray some of the general management and maintenance costs.

#### **Restocking Grant**

Due to the current low timber prices, the proceeds from the sale of timber may barely cover the costs of restocking particularly the smaller woodlands, containing a low percentage of good quality timber. A percentage of the total cost (rather than a fixed grant currently available) should benefit those landowners, particularly those restocking with broadleaves. Greater support for restocking such woodlands was supported.

However, it should be noted that a change from a fixed rate to percentage of costs will increase the time involved by both the Forestry Commission and the woodland manager - particularly those managing a large forest estate, where they may be restocking multiple areas in any one year.



### **Other Grants for Existing Woodlands**

The costs of certification were seen as another piece of bureaucracy and another expense, with little or no benefits in return. Longer term, markets for non-certified timber are expected to diminish. It might therefore be considered desirable for financial assistance to promote a form of a plan preparation grant which will be an integral part of the certification process.

### **New grant initiatives**

Potential areas for new grant initiatives were also considered, and these included a number of diverse suggestions including:

- Support for end-user eg advice and purchase of commercial wood burners to stimulate and sustain market for low grade timber
- Support wood fuel initiatives. Costing models are currently based on very low timber prices.
- Support management for quality timber, including the 'unglamorous' aspects of management including eg pruning.
- Support a simple process for payment of environmental surveys
- Support production of management plans up to UKWAS standard

### **6.3.3 Free Advice**

There are clear indications from the range of respondents from the public/representative sector of the survey, that the advice available and given by the Woodland Officers of the Forestry Commission is held in high regard for its integrity and impartiality. Indeed the value for some owners in accepting grant aid is the more readily available access to this integral advice. Such owners gain an actual or perceived 'direct line' with the Forestry Commission. However some concern has been expressed that the private advice sector may be unfairly disadvantaged.

Free advice can be effective at stimulating interest and is useful across all ownership types. A suggestion put forward from the public/representative sector is that all woodlands should have access to initial free advice. Thereafter woodlands under 10 ha would be considered to have a balance of private/public interests, and would qualify for continued free advice. Woodlands over 10 ha and over would be expected to look to the private sector. The need for free advice was not endorsed by the private sector, however generally their experience is with owners of large woodlands.

### **6.3.4 Other**

There was clear indication that reintroduction of Schedule D taxation would encourage more management for owners of larger woodlands. Schedule D would allow such owners to offset woodland expenditure (eg uneconomic thinning, restocking and maintenance) against other estate income, as is currently the case for small woods forming part of a farming business.

The rationale for this suggestion from the private sector within the survey is to encourage the larger timber producers to undertake these important but often loss making operations. Whilst clearly the former Schedule D tax concessions attracted significant criticism outside the forest industry, this new proposal is only requesting that woodland expenditure be offset against other 'estate' income thus limiting any potential abuse. Furthermore the top rate of tax is now significantly lower than in the period when it previously existed



## 7 Conclusions and Recommendations

The production of wood has been the main reason for the continued existence of woodland over the centuries and for most of the last century was the prime reason for afforestation. Whilst objectives for creation and management of woodlands are now much more diverse and indeed may be motivated primarily by non-timber objectives, timber production, albeit now often a secondary objective, still has an important influence on the management activities undertaken within woodlands. The absence of 'profitable market outlets' will inevitably impact on the extent and type of woodland management activities undertaken.

### 7.1 The link between timber prices and woodland management.

The link between timber prices and the extent and type of woodland management activities is evident. The survey of key informants from the public/representative and private sectors, as well as other regional studies have suggested that timber harvesting is frequently being delayed as a result of the current low timber prices. This has a knock-on effect on restocking and subsequent maintenance. Furthermore, hope that prospects will improve has so far encouraged many owners to at least carry out essential operations (in particular thinning) to protect and enhance future timber values. If their 'hope factor' disappears, due to a perceived belief that timber prices are likely to remain depressed for the foreseeable future, then many owners may be inclined to further reduce or cease altogether these operations.

The strength of this link between timber prices and woodland management is however influenced by a range of factors, in particular the ownership of the woodlands, their management objectives, size and type of the woodlands and their scope to provide timber.

#### 7.1.1 Woodland ownership

The link between timber prices and woodland management is most significant in the private sector, particularly for estate woodlands and farm woodlands. The returns from the woodland are generally cited as important factors influencing management activities. However these returns are not solely dictated by timber production. They are also influenced by non-timber activities such as sporting (eg pheasant shooting and deer stalking) and financial incentives such as grant and tax concessions. For example grants have been instrumental in the encouragement of owners to undertake ride creation and coppicing.

However this sector of ownership only accounts for 40% by area of the regions woodlands. For the remaining 60% of the woodlands in the region, which are equally divided between 'other private' and public ownership (eg Forestry Commission, local authorities, public and charitable organisations etc), the link is less strong. The availability of "outside" funding tends to be more important than the 'economics' of woodland management in allowing them to carry out the management activities that they want to carry out. Furthermore the 'other private owners' are more likely to be motivated by the 'added value' (in terms of amenity and other non-timber benefits) than the proceeds from timber sales. Increasing awareness of the management options, as well as advice on how to undertake these management operations, is thus believed to be a more important factor.



### **7.1.2 Woodland size and type**

The production of timber and in turn prices tends to be a less important factor for small woodlands than larger woodlands. Non-timber issues such as sporting, landscape and habitat management often primarily dictate the main motives for managing smaller woodlands. There are nearly 23,000 woodlands under 2 ha in size, comprising 66% of all individual woodlands. The majority of these smaller woodlands are broadleaved. Although very numerous, these woodlands account for only 4% of the total woodland cover in the region. In consequence, they are insignificant from the perspective of timber production, but important in defining the landscape, biodiversity and character of the region. Woodlands over 10 ha in size, whilst comprising 10% of all individual woodlands, account for over 80% of the total woodland cover in the region. The region's main production is from these larger woodlands and it is these woodlands which are most influenced by timber prices.

## **7.2 The current timber prices and the economics of woodland management**

The result of the current low timber prices and lack of local markets means that first thinnings on all but the large woods, with good site conditions and infrastructure are unlikely to break even. Subsequent thinnings and clear felling still have the scope to break even or provide a small profit for many of the larger woodlands. The smaller woodlands struggle to break even on most operations, and in many cases the costs will significantly exceed the proceeds derivable from the sale of timber.

Relatively small increases in timber prices and / or reduction in costs will allow most larger woodland to break even and/or derive a small income. However the smaller woodlands will generally remain unprofitable, unless there is a significant increase in prices (at least 50%). Furthermore these small woodlands account for only a fraction of the regions timber production. There is thus a strong argument to concentrate efforts on those larger woodlands that are currently managed but suffering economic difficulties with a resultant decline in the timber and non-timber benefits provided.

## **7.3 The outlook for timber prices and impacts on woodland management**

Timber prices have fallen dramatically in recent years and there are few signs of any price improvements. Timber and wood products are subject to the global free market and UK grown timber and products must compete in terms of price, quality and service. The increased availability of cheap supplies of timber from countries such as the Baltic states, together with the relative strength of sterling against these countries have all contributed to exerting downward pressure on timber prices. Increased competition from these countries is expected to continue. Furthermore the costs of timber production and the subsequent processing in the region (as well as the UK as a whole) are likely to remain uncompetitive (without intervention) with other parts of the world in the foreseeable future. Signs of price improvements in the future are limited. The downward pressure on prices for low quality timber is expected to be greater than for higher quality timber. Improved technology and environmental pressures have resulted in increasing amounts of paper being sourced from recycled material rather than low value timber. In contrast, high quality timber is more likely to be in demand. The implications of such price changes are that if low value timber prices decline still further, it will be uneconomic for most woodlands to break even on first thinning. Many woodlands currently struggle to break even, and a reduction of another 10% in price would result in first thinning for all but the largest and well roaded woodlands making a loss. An increase in timber prices for higher



value timber would clearly benefit later thinnings and clear fellings. The impact would be greatest on the larger woodlands as the smaller woodlands tend to be less actively managed and contain lesser quantities of higher value timber.

## **7.4 The region and its influence on future timber prices**

The revenue from low value timber products (eg small roundwood from first and second thinnings) is not expected to cover the production and transport costs for most woodland. It is not possible at the regional or national level to affect global timber markets. The imposition of trade barriers to make home produced timber more competitive is unrealistic with growing pressure on developed nations to move towards free trade policies. Notwithstanding this, various potential market opportunities exist which may provide increased returns to some woodland owners. These include:

- Encouragement of the development of a wood fuel market to create a new outlet for low value timber products. Whilst the full reduction in timber haulage costs of having a local market is unlikely to be passed on to woodland owners, having an additional market outlet should at least help to stabilise prices.
- Encouragement of the development of local markets and added value products. The development of local niche markets and added value products will provide opportunities for a few, particularly for the entrepreneurial. However their impact at regional level as a whole will be more limited.
- Encouragement of government organisations and other local businesses to use locally sourced timber, has the scope to help reduce the competition from cheap imports

## **7.5 Other factors affecting woodland management**

There are a range of factors other than timber prices which affect the decision to manage woodland. Firstly, the economics of woodland management are also influenced by financial incentives (both grants and tax concessions), as well as non-timber income, in particular sporting. These factors may make an important contribution to overall income and in turn to the type and extent of woodland management undertaken. Similar parallels can be drawn with the agricultural industry. Secondly, woodlands are owned by a diverse range of owners, who in turn have a diverse range of objectives. Factors such as environmental constraints and lack of knowledge may be limiting or dictating the type and extent of management undertaken. Improvement in timber prices will not address these issues. Thus encouragement of greater woodland management activities requires a portfolio of measures including appropriately targeted grants, provision of appropriate and targeted advice, and increased awareness of the timber and non-timber benefits of woodland management.

## **7.6 Recommendations**

### **7.6.1 Allocation of resources**

Larger woodlands (over 10 ha.) comprise 80% of the regional woodland area and yet only 10% by number. Most of these woodlands have an approved woodland management plan and are considered to be managed. By contrast the smaller woodlands (less than 10 ha.) comprise just 20% of the area and nearly 90% by number. Most of these small woodlands do not have a management plan and are unmanaged/undermanaged. Furthermore many of these small woodlands (nearly 80%) are in fact under 2 ha and only comprise 4% of the total woodland area. Many of these smaller woodlands particularly those under 2 ha are never going to be economic to manage, nor will they produce any meaningful timber. However, these small woodlands have considerable non-timber



benefits (albeit "unmarketable") in particular their contribution to the character and landscape of the region.

The region is already relatively heavily wooded. It is thus proposed that limited resources should be better targeted to sustainable management of existing woods, rather than the creation of new woods. It is recognised that financial support as well as timber prices impact on woodland management. Grant support and its targeting can be an important and effective means of stimulating woodland management activities, and these are addressed as follows:

#### **Grant aid and advice**

The motives for management, the need for financial assistance, advice and support will clearly differ between larger and small woodlands particularly those under 2 ha.

It is therefore proposed that Forestry Commission resources (advisory and grant aid) should be limited to woodlands over 2 ha. Woodlands under 2 ha should be included as proposed within the Higher Level Environmental Stewardship. There is a parallel with the existing and generally satisfactory systems within Tir Gofal in Wales. Free advice (delivered by a dedicated employed woodland officer) should be available to all these woodland owners, including those not eligible for funding under the proposed Environmental Stewardship scheme.

It is acknowledged that ownership may be made of many smaller woodlands, and that distinguishing woods by virtue of size has limitations, but there are distinct advantages in terms of reduced administration.

#### **7.6.2 Other financial incentives**

The reintroduction of Schedule D taxation would encourage more management for owners of larger woodlands. If grant aid cannot be increased and/or widened in scope, then the re-introduction of a modernised Schedule D would assist in maintaining and/or increasing woodland management in the region. We recognise the broader concerns and constraints that impact upon this issue.

#### **7.6.3 Development / Promotion of local markets**

The need for a local market and in turn a reduction of haulage costs was recognized by many respondents to the survey, and is an issue raised in other regional studies. Alternative local markets for low grade timber (for both conifers and broadleaves) so that thinning (particularly first and second thinnings) can at least break even was seen as important for stimulating greater woodland management activity and ensuring the long term survival of many woodlands. Options are addressed as follows:

#### **Wood fuel**

Wood fuel is seen as the promising potential market. To date, an overwhelming majority of the emphasis on fuel has been focused on electricity production rather than heating. Financial aid has been specifically targeted towards purpose grown energy crops such as short rotation coppice.

It is therefore recommended that capital grants to encourage the installation of wood fuel burners is extended. Whilst such support is expected to help develop the wood fuel industry and provide a local market to producers of low quality timber, the full reduction in timber haulage costs is unlikely to be directly passed on to the timber producer – market forces are likely to prevail, and thus prices offered are not likely to greatly exceed that being offered by rival markets. Stipulating as a condition of any grant funding that the timber must be derived locally (as is the case for the DEFRA Energy Crops Scheme) will however help eliminate the risk of any competing imported timber.



**Local markets and added value**

Whilst there are individual success stories, and thus in turn potential opportunities for timber producers and entrepreneurs, their markets are by their very nature small markets. Local markets can easily be flooded by imports.

It is therefore recommended to encourage greater use of locally grown timber with government bodies taking the lead where practical.



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## Appendix 1 Respondents

### Representative Organisations / Contractors

	Number of respondents
Forestry Commission	3
Small Woods Association	1
CLA / FATA	1
Woodland Trust	1
County Council	1
Contractors / agents	5



## Appendix 2 Letter

Dear .....

We are undertaking a study into the relationship of timber markets and woodland management for the Regional Forestry Framework Steering Group, a partnership involving regional government, woodland owners and the Forestry Commission. In brief, the principal objectives of this research are to assess the extent to which timber markets are currently supporting the management of woodland in the region, and to assess the impact that changes in timber markets would have on management of woodland.

As part of this study, we are undertaking a targeted survey of key individuals within relevant organisations operating nationally and within the region. It is to this end that I am asking if you are willing to participate in this research. If you are agreeable I would like to interview you on the telephone. This should last about 10 minutes. Please be assured that no interviewees will be identified in the results of the research and that individuals' details will not be passed to a third party under any circumstances.

Myself or David Lewis will be ringing you within the next week hopefully to undertake the interview or to arrange an alternative and suitable time. If you have any immediate queries please contact me directly on 01285 652531 x2261.

Yours sincerely

**Will Manley**  
**Project Director**



## Appendix 3 Questionnaire

### KEY INFORMANT SURVEY:

#### 1. BACKGROUND

1. Name:
- 2a Company:
- 3a Position within Business/company:
- 3b Number of years experience with business/company:
- 3c Number of years experience with woodland/forestry management in the SE Region:  
*(Surrey, E Sussex, W. Sussex, Kent, Oxfordshire, Buckinghamshire, Berkshire, Hampshire)*

#### 2. THE FOREST RESOURCE

General estimates only:

4. What are the Woodland Types ie conifer / broadleaf / mixed) that you manage:
5. Size of woodland blocks:  
<2 ha  
2 - 10  
10 +
6. What are the main management objectives:

#### 3. MANAGEMENT

7. What have been the primary woodland management activities over last 5 yrs:  
Thinning  
Felling  
Other (eg rides)
8. What were the main motives for this management:
9. Have woodland management operations increased/decreased over last 5 years.  
Which ones and Why  
Thinning  
Felling  
Other (eg rides)
10. Are there any woodland type(s) that are currently not being managed or are undermanaged:  
Reasons:
11. What are the main (if any) non-timber activities that are carried out in the woodlands (eg sporting, recreation etc..)



12. Are 'your' woodlands under the WGS or other scheme?  
 YES / NO  
 If No, why not?

**4. COSTS OF OPERATIONS:**

(Range of costs tonne or m3)	Comment
13a Costs to roadside	
13b Costs of thinning	
13c Costs of Felling	
13d Haulage costs	
13e What type of thinning (in terms of woodland type/age/site) is: 1.profitable 2.at cost 3.results in a loss	

**5. SALE OF TIMBER**

14. How is timber sold? (standing or roadside):  
 15. Are contractors used in the process? (if sold at roadside):  
 16. Who is the timber sold to:  
 Timber Merchant  
 End User  
 Estate sawmill/own use  
 Other

17. Sale price per tonne @ roadside (*or standing if relevant*):

Timber sales	Pulp	chipboard	fencing	sawlog	Pine sawlog	Firewood (est. %)	other
Softwood:						xxxxxx	



Hardwood		xxxxxxx		Xxxxx x	xxxxxxx		
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**6. MAIN BARRIERS**

18. What do you consider are the main barriers to undertaking woodland management in the SE:

Reason	Comment
Uneconomic	
Lack of knowledge	
Lack of Interest	
Administrative requirements	
Environmental constraints (explain)	
Other	

19. Scenarios



<p>Would owners consider managing their woods if:</p> <ol style="list-style-type: none"><li>1. It involved some expense and there was little prospect of any future income over the next 10 yrs</li><li>1. It cost something initially but earned income over the longer term</li><li>2. Involved minimal /no expense</li><li>3. Income can be immediately earned from the wood</li><li>4. Just not interested – and why?</li></ol>	
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## 7. ENCOURAGEMENT OF WOODLAND MANAGEMENT

20. What measures do you consider would encourage greater woodland management activity:

Measures		Comments
20a Improvement of timber prices	If so, how much do timber prices need to be increased? What sectors of timber(eg sawlogs, small roundwood, firewood)	
	What should be done to increase prices:  Increase knowledge of timber market/outlets/prices.....  Encourage new local markets.....  Support prices.....  Other.....	
20b Increase Grants	Existing grants: AMG, WIG, Restocking grant,	
	New Grants: What?	
20c Free Advice	Type and extent of advice/help needed	
	Type of owner that would benefit	
	Woodland type that would benefit	
20d Other Measures	Other measures that you suggest	

## 8. ANY OTHER COMMENTS:

WJM/ FC/contractor/quest/2003



## Appendix 4: Unit costs and prices

### Assumptions made:-

#### First thin

- 80% small roundwood	@ £20/t
- 20% fencing	@ £30/t
Total average price	@ £22/t

#### Subsequent thin

50% small roundwood	@ £20/t
50% fencing	@ £30/t
Total average price	@ £25/t

#### Clear felling

Pine – 20% small roundwood	@ £20/t
80% fencing/sawlog	@ £30/t
Total average price	@ £28/t
Other conifers	@ £35/t

### Broadleaves (large –scale and managed)

#### First thin

100% small roundwood	@ £28/t
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#### Subsequent thin

75% small roundwood	@ 28/t
25% fencing	@ £75/t (oak)
Total average price	@ £40/t
Other broadleaves	@ £35/t

#### Clear fell

Oak	@ £75/t
Other broadleaves	@ £40/t

### Broadleaves (small – scale and undermanaged)

First thin and subsequent thins @ £25/tonne

Clearfell

Quality of timber	Percentage	Oak Delivered price	Total	Other Broadleaves Delivered price	Total
Good (sawlog)	15%	100	15	50	7.5
Moderate (fencing)	20%	75	75	30	7.5
Firewood/pulp	50%	25	12.50	25	12.5
Unusable	10%	-	-	-	
Total	100%		45		28

Funding Woodland Management through Wood and Timber Sales

