COMBATING CLIMATE CHANGE IN GODALMING:

THE CASE FOR USING LOCAL WOOD FUEL

Greening Godalming

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Greening Godalming is a local community group campaigning to make Godalming a greener town by helping people reduce their carbon footprint.

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Figure 1. *Woodland on weald clay near Godalming. The woodland has a typical woodland structure, consisting of scattered standards of oak over an understory of neglected coppice, mainly hazel. Photo: Alan Hamilton*

Summary

This is a study of wood fuel and Godalming. Its purposes are to determine the potential to increase the amount of wood fuel used in Godalming as a measure to combat climate change and what actions, if any, Greening Godalming should take to help achieve this potential. Greening Godalming is a community group campaigning to make Godalming a greener town by helping people reduce their carbon footprints.

A conclusion of this study is that Godalming can indeed contribute to combating climate change by increasing its use of wood fuel, provided that the wood fuel used replaces fossil fuel, is obtained in sustainable ways and the carbon costs of managing the trees and extracting, transporting and processing the wood fuel are not excessive. Godalming lies in the most wooded county and most wooded borough in the UK, as well as at the heart of the wider western end of the Surrey Hills Areas of Outstanding Natural Beauty (AONB) which is about 40 percent wooded. Although once actively managed for productive purposes, many woodlands in Surrey have been largely neglected for more than 50 years. There are also abundant tree resources available in gardens and parks potentially able to contribute more to wood fuel production than is currently the case.

There are several types of wood fuel used in the Godalming area. Some require large-scale operations, as with wood chips and wood pellets. For Greening Godalming, the focus for further action should be on firewood and charcoal. Firewood is the type of wood fuel most appropriate for heating average-sizes homes in Godalming. It is bulky, so tends to be produced relatively close to its places of use. Charcoal is unique among types of wood fuel used in Godalming in that most currently comes from overseas with largely unknown environmental consequences from the Godalming perspective. Increasing the use of local firewood and charcoal should offer opportunities for more local employment.

It is proposed that Greening Godalming produce an on-line directory of local woodland and wood fuel services for Godalming. It is suggested that this cover the linked issues of information on wood fuel (especially local suppliers of firewood and charcoal), woodland management and educational opportunities for the public in woodland affairs. Education is included because of a need, as became apparent during the course of the present study, for greater understanding among sections of the public of the ecological and economic roles of trees. Although some people resent any tree being felled locally, the active management of trees can actually be good for wildlife, while the UK should increase its internal production of wood products. The UK is presently the fourth largest importer of wood products globally with no certainty about the availability of future supplies.

Much information relevant to the proposed directory is already on websites created by Surrey Hills Area of Outstanding Natural Beauty (AONB) and a related organisation, Surrey Hills Enterprises. There is no reason to duplicate information already available in the proposed directory. The managers of Surrey Hills AONB are keen to see a greater use of woodlands in their area, at the same time maintaining the character of this beautiful wooded landscape, while Surrey Hills Enterprises is seeking to promote localism in patterns of local purchasing.

Acknowledgements

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Sean Harrison, Woodland Adviser, Surrey Hills Area of Outstanding Natural Beauty.
Will Rolls, Biomass Energy Centre, Forestry Commission.

Websites consulted

Many websites were consulted. The following are among the most useful on the topic:

www.biomassenergycentre.org.uk/ (Biomass Energy Centre (Forestry Commission).
www.woodheatsolutions.eu/ (Forestry Commission and partners).
www.surreyhillswoodfuel.org.uk/ (Surrey Hills Area of Outstanding Natural Beauty).

Publications consulted

Surrey Woodland Working Group (2000) *What Woodland Owners Want - an attitude survey*. Unpublished report.
Waverley Borough Council (1987) *A Survey of Woodland in Waverley*. Unpublished report.

1. The Climate Case for Using Local Wood Fuel in Godalming

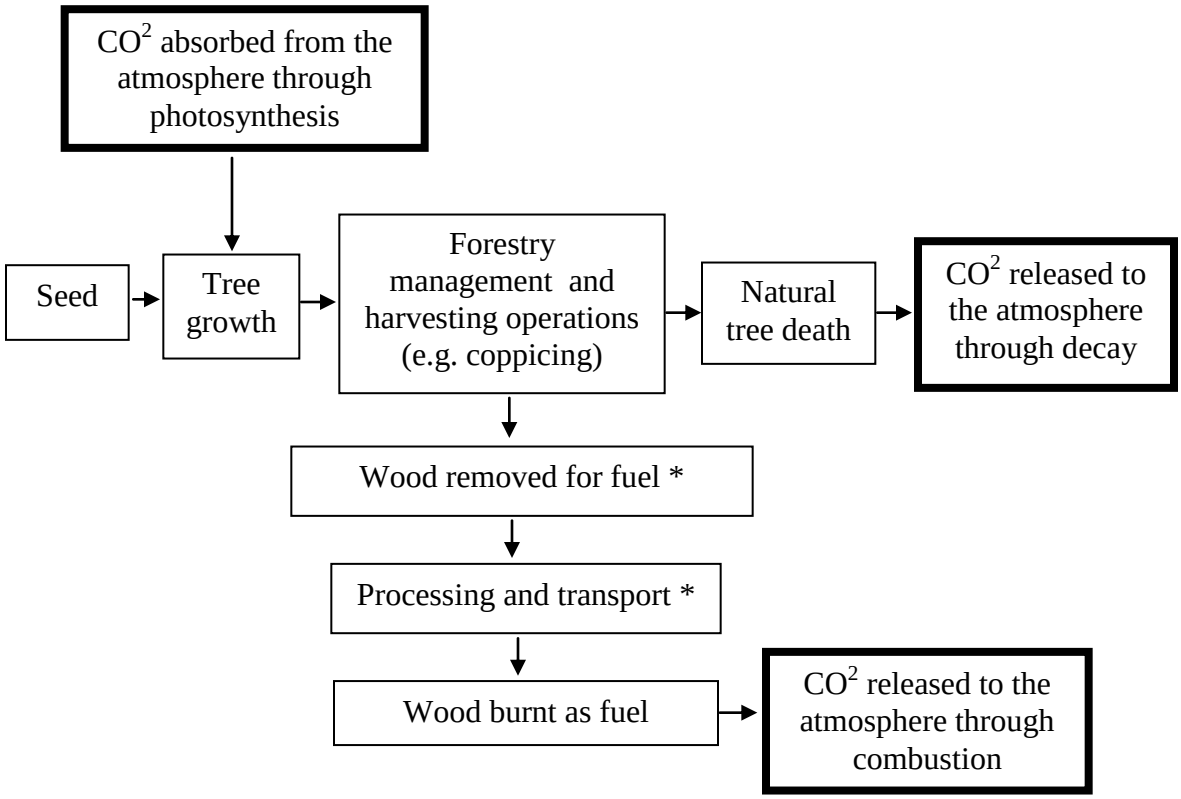

Figure 2. *Carbon dioxide and wood fuel. If woodland is sustainably managed, then the amount of carbon dioxide used for tree growth equals the amount lost through natural death and decay, plus the amount released through the burning of wood fuel.*

* *Processes that may involve the use of fossil fuel.*

Using wood rather than fossil fuel can help combat climate change. This is because trees absorb carbon dioxide from the atmosphere as they grow and return it to the atmosphere when they die and decay or their wood is burnt as fuel (Figure 2). There is no net increase of carbon dioxide in the atmosphere, contrasting with the case of burning fossil fuel. Increasing carbon dioxide in the atmosphere is a major cause of climate change.

The necessary conditions for low-carbon use are that the wood used is replaced by wood re-growth and that the use of fossil carbon as an energy source in the various processes involved (felling, transport, etc) is not excessive.

There is no absolute 'approved' distance recognised from the point of extraction to the point of use for wood fuel, which will anyway vary with the type of wood fuel and method of transport. However, for firewood and Godalming, ten miles can be considered good, five better. Less stringency is required with wood pellets and charcoal, which are relatively energy-intensive or lightweight forms of fuel. Wood chips are also energy-intensive, but bulky, so can be considered intermediate in terms of an 'allowable' transport distance.

2. Other Advantages of an Increased Use of Local Wood Fuel in Godalming

Using local wood fuel should increase **community resilience** against environmental and social shocks, as are predicted to increase with climate change. This is because the community has more potential for control over sources of energy originating locally than those coming from further away. Prospects for **local employment** should increase, provided that the emphasis is on small-scale operations, as is appropriate especially for firewood and charcoal. **Conservationists are supportive** of active management of woodlands in Surrey, provided that this follows good practice (anyway, a condition for the granting of Felling Licences by the Forestry Commission).

Using greater quantities of local wood fuel will make a small contribution to **decreasing the UK's import bill for wood and wood products**. The UK imports 81 per cent of the wood and wood products (notably paper and wood pulp) which it uses, making the country the third largest net importer of forest products in the world. The annual import cost is £6.8 billion (2010), one of the largest categories of national imports.

Making greater productive use of local woodlands will **enhance national security in energy and wood supplies**. Trees, along with natural resources such as fertile soils and water supplies, are among the most basic natural aspects that a country possesses. They need to be safeguarded for the long-term national good. In Britain, it was the shock of the First World War that led to the founding of the Forestry Commission in 1919 to secure strategic supplies of wood products. Although the Forestry Commission has been quite successful in this endeavour (woodland cover increasing from 5% in 1919 to 12.7% today), the UK is still grossly under-wooded by European standards (woodland cover for Europe as a whole 45%; EU 37%; France 29%; Germany 32%). A very long-term planning horizon is necessary for properly managing tree resources, hence the need for a national body such as the Forestry Commission.

Raising the economic value of Surrey's woods, as could result from an expansion of the wood fuel sector, should provide a **strengthened argument for preserving woodlands**. It can be envisaged that there will be increasing pressure to convert some woodlands to other uses, for instance to provide sites for new houses to accommodate the much increased population predicted for southeast England. Both Surrey County Council and Waverley Borough Council express a keen interest in maintaining the wooded characters

of their areas. Encouraging greater economic use of the woodlands should help them achieve these goals.

Maintaining woodlands in specific parts of the local landscape will help to **maintain water supplies and regulate flooding**. This is because the fate of water falling as rain on woodlands can differ greatly from that where there are other types of land surface, such as bare agriculture fields or built-up areas. In general, the presence of woodlands will help to reduce rapid water run-off, recharge aquifers, maintain baseline flows in rivers and reduce flooding. Major changes in rainfall patterns are predicted for southeast England with climate change, including a greater frequency of extreme climatic events. The presence of woodlands will help to mitigate unpleasant or disastrous consequences.

Ethical consumerism depends on the existence of a credible connection between producers and consumers, as the accreditation schemes of the Forest Stewardship Council (FSC) (for environmental responsibility) and Fairtrade (for social responsibility) seek to ensure. In principle, it is easier for consumers to check for themselves the environmental or social effects of their patterns of consumption if the products they buy are obtained from local sources.

3. Types of Wood Fuel

FIREWOOD. The simplest way to use wood fuel is as logs in open fires. However, this is wasteful from the point of view of energy capture – 80% of the heat produced goes up the chimney and only 20% is used for heating. It is much better to use a modern log-burning stove, when 70-75% of the heat produced can be usefully captured (Figure 3). Fitting a log-burning stove is the obvious way of using locally available wood fuel for an average-sized house in Godalming. An open fireplace can be a major cause of heat loss in a room, so even having an unused wood stove (blocking the chimney) can considerably reduce heat loss. Another option, especially for a larger house with an outbuilding, is to fit a firewood boiler. Firewood boilers can be designed to be filled up once daily. A single load of wood is then left to burn to completion, the heat produced being passed to an energy store, such as a large well insulated tank of water, to be utilised over a longer period.

WOOD PELLETS are usually made from sawdust, compressed and shaped to form pellets of the required size. Wood pellets have a low water content (10%), which gives them high thermal efficiency (90%). Wood pellet stoves are quite bulky and best suited to larger buildings or houses with a utility room or equivalent or to two or more neighbouring houses sharing heat from a single energy source. A wood pellet boiler is installed at St James Primary School in Elstead. A local manufacturer of wood pellets is Harvest Wood Product at Tilford (now part of LC Energy). A larger operation is run by Verdo Renewables at Andover.

WOOD CHIPS require bulky hoppers and boilers and hence are only suitable for heating larger buildings. Wood chip boilers are currently installed at Godalming Leisure Centre, Surrey Sports Park (Guildford) and Birtley House (Bramley), with further installations

planned by Wey Valley Wood Fuel Energy Cooperative. A local wood chip producer is LC Energy, headquartered at Albury. Since its founding in 2007, LC Energy has developed about 7 wood collecting centres around London, each intended to receive wood and supply fuel within a radius of about 25 miles. LC Energy has a contract to supply a new wood chip energy centre at Heathrow Airport to provide heat for the terminals (because of the scale, this will require obtaining wood from a wider radius than 25 miles). LC Energy mostly uses softwoods, but also off-cuts from sawmills and wood obtained from road maintenance operations by Glendale, contracting for Surrey County Council.

Figure 3. *Firewood stove.*

CHARCOAL is made by burning wood in an oxygen-deficient atmosphere. Charcoal, which is used in Godalming for barbeques, is exceptional among types of wood fuel used in Godalming in that most comes from abroad. Globally, it is known that charcoal production can be a major cause of deforestation. There seems to be considerable potential for an expansion in local charcoal production around Godalming following the principles of sustainable forestry.

BIOMASS (as used in power stations). There is only one woodfuel power station in the Godalming region, at Slough (Scottish and Southern Energy plc). About 300,000 tonnes of woody biomass are used annually, the material burnt including 'waste wood', such as old pallets and wood chips. The power station receives some arisings ('garden waste') from tree surgeons in Godalming, but will not accept arisings that are too 'green' (with a high content of leaves, twigs, etc).

4. Using Firewood in the Home

The main issue concerning the efficient use of logs as fuel is **dryness** (see Section 6). Logs supplied by merchants can vary in dryness, so householders are advised to check the moisture content of logs and, if necessary, stack them to dry before use. Wood moisture meters can be purchased for about £15. Wood piles should be raised above the ground (for instance by stacking logs on old pallets), covered (for instance by a tarpaulin) and open on the sides to allow free passage of air.

A secondary issue with logs is **wood density**. Denser woods, such as oak and hornbeam, will burn for longer (per unit volume) than less dense woods, such as willow and poplar. Hardwoods are generally considered superior to softwoods, because the latter carry an enhanced risk of causing **tarring in chimneys** and the **blackening of windows on stoves** (confusingly, the terms hardwoods and softwoods are not related to wood hardness, but rather to whether the wood is from a conifer, such as pine, or a tree belonging to the flowering plants, such as oak). Some type of wood, such as pine, cypress and sweet chestnut, **spit when burnt**, but this is not considered a problem with closed stoves.

A very large number of **tree species** are potentially available in Godalming for use as firewood, given the many types grown in gardens. Regarding woodlands, the most readily available species of excellent firewood quality are oak, sweet chestnut, hazel and ash. Birch is also good, but burns fast. Ash is sometimes regarded as the very best of all, because it is a fast growing tree with fairly dense wood of naturally low moisture content. The oaks include two native species (pedunculate and sessile oaks) and the invasive Turkey oak (a damaging invasive species – see Section 7). An expansion of firewood use in Godalming could usefully include special targeting of Turkey oak, adding an extra environmental gain.

Details of purchasing and fitting firewood stoves or boilers are not covered here. Intending purchasers need to ensure that they have adequate flues and ventilation.

Firewood stoves can be used either as independent units or incorporate water jackets to heat water to supply hot water and/or for central heating. Professional advice should be sought. It is generally much easier to incorporate wood stoves having water-heating abilities into new builds than retrofitting, which can be costly and disruptive.

5. Sources of Wood Fuel in and around Godalming

WOODLANDS. Godalming's county, Surrey, is the most wooded in the UK (22.4% woodland covered) and Godalming's borough, Waverley, is the most wooded in Surrey (33.6% woodland covered). Godalming is situated in the heart of the widest (western) part of the Surrey Hills Area of Outstanding Natural Beauty, which, together with its peripheral Area of Great Landscape Value, is 40% woodland covered.

Most woodlands around Godalming (about 75 per cent) consist of **small parcels of broadleaved trees** within farmland. A sample survey of woodlands carried out in the Chiddingfold and Dunsfold area for Waverley Borough Council in 1987 found the commonest woodland types (in terms of area covered) were, 'acid pedunculate oak', 'lowland pedunculate oak', 'lowland sessile oak', 'valley alder woods', 'sessile oak-hornbeam' and 'hazel-birch'. Clay is a common soil type in this sample area. If the survey had taken place in a sandy area (also common around Godalming), then somewhat different woodland types would have been found.

There are two main structural types of broad-leaved woodlands around Godalming, both reflections of present or (more usually) past management practices. These are coppice-with-standards and block coppice. **Coppice-with-standards** consists of large well-spaced trees (known as standards – typically oak) spread over an understory of smaller trees (typically hazel). **Block coppice** around Godalming typically consists of plantations of sweet chestnut with few other types of trees. These structural types of woodland reflect traditional management systems, involving rotational cutting of hazel at 6-8 year intervals and sweet chestnut every 15-20 years. The standard trees present in coppice-with-standards have traditionally been managed on much longer time cycles.

P**lantations of conifers**, such as Scots pine, Douglas fir and larch, are commonly planted around Godalming, sometimes as patches within broadleaved woodland or as plantations on former heathland sites. These conifer plantations were probably originally planted mainly with timber production in mind. A survey in 2000 showed that many woodland owners having both broadleaved and coniferous woodlands within their holdings express more interest in the management of the former (survey carried out by the Surrey Woodland Working Group using Bramley Parish as a sample area).

HEATHLAND of the type found in the Godalming area (lowland heath on mineral soil) is regarded by many naturalists as a conservation priority, being a rare type of vegetation in Britain containing distinctive species. The maximum value for wildlife will often be achieved by managing areas of heathland as mosaics of different types of sub-habitat, including short heath (closely grazed or recently burnt), tall heath with scattered bushes

(such as gorse, providing perching sites for the Dartford warbler, a local speciality) and occasional trees (perching sites for raptors). Heathland in the Godalming area was developed historically from primeval woodland through tree clearance, and then followed by farming, burning and livestock grazing, all helping to retain an open habitat.

Today, traditional management of heathland in the Godalming area has largely been lost and managers of heathlands must take active measures to prevent the encroachment of trees (mainly birch and pine); also sometimes to clear pines where these have been planted on former heathland sites. The clearing of invading trees and also the management of established woodlands on potential heathland sites can offer significant opportunities for the production of wood fuel. In its role as manager of Frensham Common, The Flashes and part of Blackheath (three areas of heathland once planted with conifers), Waverley Borough Council has employed contractors to cut trees. Some of the resulting wood has been taken by LC Energy for the production of wood chips or sent to Slough Power Station. Smaller quantities have passed to firewood merchants or for the production of wood pellets.

The maintenance of **ROAD VERGES** requires substantial tree cutting in the Godalming context. The responsible agent is Surrey County Council, which employs Glendale as a contractor. Some wood cut in road clearing operations is burnt on site or left as habitat piles, but now LC Energy has started to take wood cut by Glendale to make wood chips.

The management of **GARDENS** in Godalming often involves a significant amount of tree cutting. Tree Preservation Orders protect communally valued trees from felling. Gardeners can dispose of the resulting 'garden waste' at no direct cost to themselves either by putting it in bags to be taken away by a company contracted by Waverley Borough Council (Veolia Environmental Services) or by taking it to a recycling depot managed by Surrey County Council (such as the Witley Community Recycling Centre). 'Garden waste' collected by Waverley Borough and Surrey County Councils is composted.

There are 2000 **TREE SURGEONS** (arboriculturalists) in Surrey, producing a large volume of arisings (cut material resulting from their operations). Clients of tree surgeons include many private garden owners, as well as Waverley Borough Council. Tree surgeons dispose of arisings in several ways, depending in part on the storage and processing facilities that they have available. Some produce firewood. Many feed arisings into wood chippers mounted on trailers. The resulting chips are bulky, tend to have high contents of leaves, twigs and water and are unsuitable for use in wood chip boilers. Some of this 'green waste' is taken for composting or to Slough Power Station, though the latter will not accept arisings if too green. Reportedly, there is considerable dissatisfaction among tree surgeons about facilities for the disposal of arisings, perhaps presenting a potential stimulus for the development of wood hubs (see Section 9).

TIMBER YARDS produce sawdust and off-cuts. Sawdust can potentially be used for the manufacture of wood pellets. Off-cuts can provide firewood and material for charcoal.

RECYCLED WOOD (‘contaminated’ wood) is wood deposited at council recycling centres. It cannot be used for burning in open fires, stoves or boilers because of the harmful chemicals that it may contain (e.g. paint or plastic coatings). Potential methods of disposal are landfill or burning in incinerators that are Waste Incineration Compliant (WIC).

6. The Wood Fuel Supply and Processing Chain

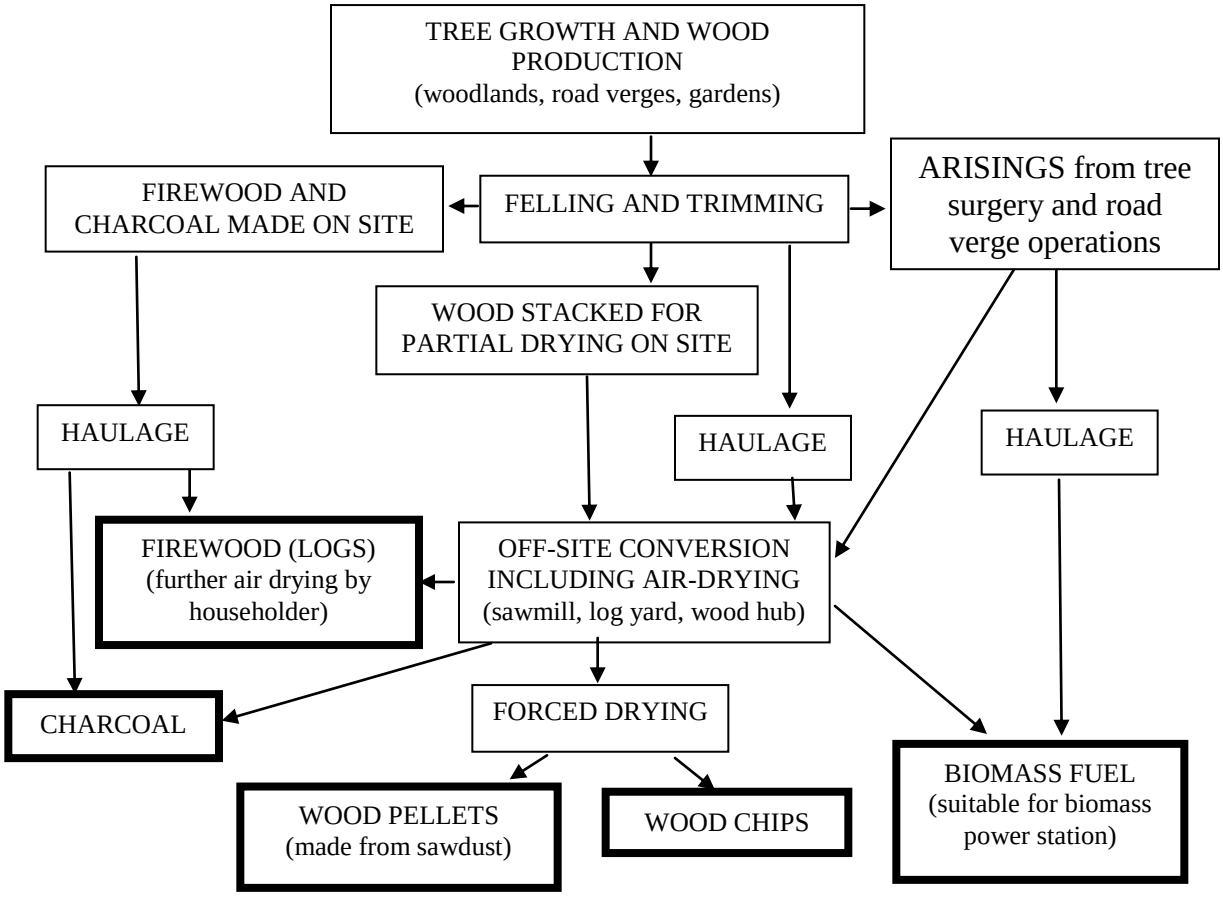

Figure 4. *The wood fuel supply and processing chain. The diagram excludes other products arising from tree cutting, such as timber and compost (potentially made from arisings).*

Wood fuel can come from trees that have died naturally, from branches broken off trees, from trees that have been felled for this or other purposes and from recycled wood from households or industry (Figure 4). If a woodland is large, then a large forestry contractor equipped with heavy machinery may be engaged. Such contractors are not local

companies and do not offer the added benefit of local employment. Most woodlands around Godalming are small and unsuitable for such companies, but are suitable for modestly-sized forestry contractors operating locally. Some of these smaller contractors offer a comprehensive service; including management advice, help with obtaining permissions and grants from the Forestry Commission, the carrying out of practical operations in the woods, wood haulage and processing to final products.

Tree felling and trimming in woodlands and gardens is typically undertaken with chainsaws, with the further vertical splitting of trunks and branches with wood-splitting tools. Logs for burning and charcoal may be manufactured on-site, but otherwise the wood must be reduced to manageable length (typically 3 m) and hauled to wood yards, sawmills or other centres for further processing. It is preferable to split logs soon after felling, as splitting is easier on wet wood.

Figure 5. *Wood shed.*

Wood fuel must be dry (seasoned) for efficient use. Sometimes wood is stacked for partial drying near the point of felling for a year or so prior to transport, but full drying requires shelter from rain and damp soil, as well as adequate ventilation. Two years is

typically long enough for adequate drying, reducing the moisture content from 55% to 30-35% (1 year) and finally to 20-25% (2 years). However, the moisture content of fresh wood varies considerably. Some species, such as ash, have a naturally low wood moisture content, while others, such as poplar, are naturally high. Therefore, the length of time required for drying varies. The production of wood pellets and wood chips requires forced drying to reduce the final water content to about 10% (wood fuel can be used for this drying process).

7. Wood Fuel and Sustainable Woodland Management

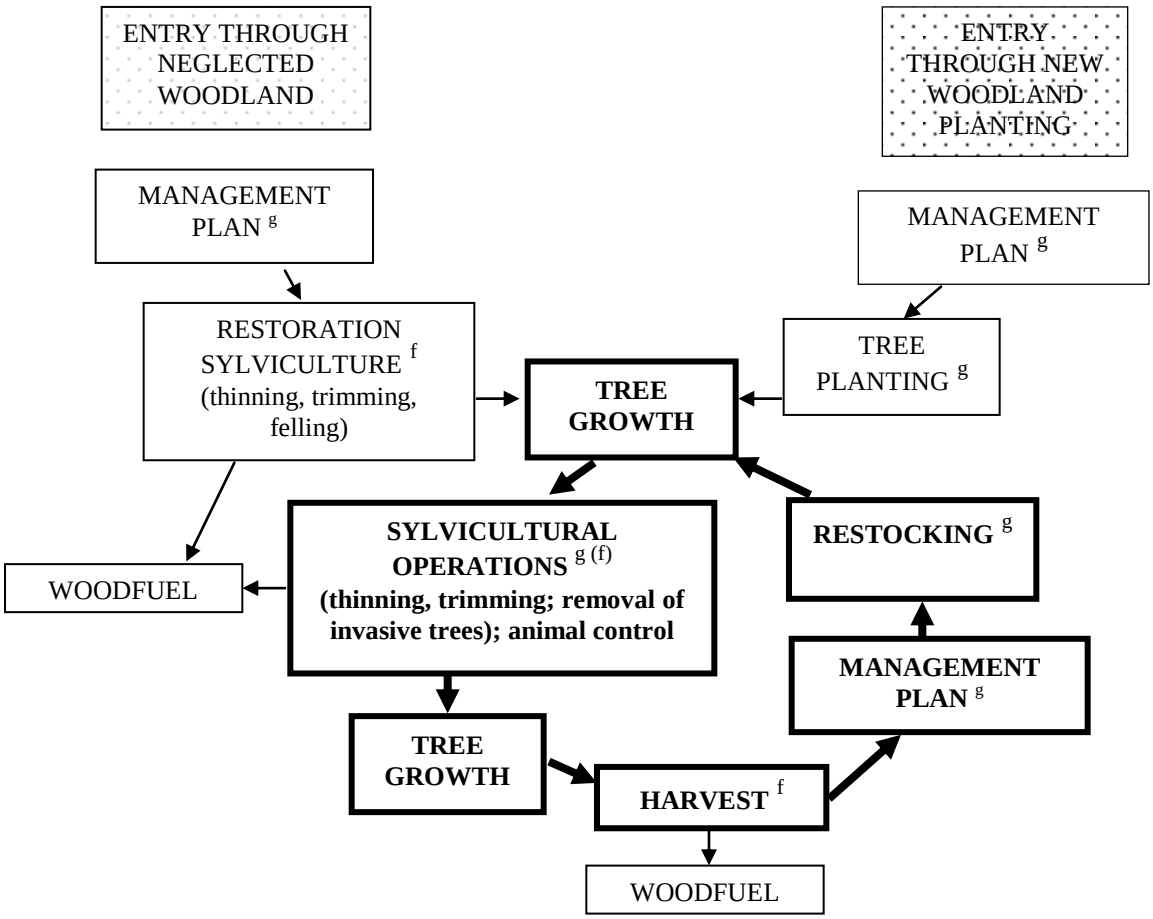

Figure 6. *Sustainable woodland management (represented by the circle of processes in bold type). The sustainable management cycle can be entered through new planting or through the restoration of neglected woodland. The system is controlled and encouraged through the issuing of Felling Licences and grants by the Forestry Commission ('g' on the figure indicates that a grant may be available; 'f' indicates that a Felling Licence is required).*

Local woodlands supplying wood fuel to Godalming must be managed in sustainable ways if such use is to contribute to combating climate change. The most basic requirement is for the wood harvested for fuel to be replaced by the growth of new wood by the trees, balancing out carbon emissions to the atmosphere through combustion with carbon uptake from the atmosphere through photosynthesis. See Annex 2 for further comments on sustainability additional to those mentioned below.

Woodlands are often divided into smaller areas (departments and coups) for the purposes of management. If a woodland is to be managed in an ecologically sustainable way, then each department or coup requires management according to a certain **cycle of processes**, as shown in Figure 3. These processes include: preparation of a Management Plan, restocking with saplings where necessary, leaving the trees to grow, carrying out (as required) various operations to facilitate tree growth (these might include controlling destructive animals, thinning and trimming the trees, and removing invasive species) and finally felling. Felling creates gaps in the canopy, allowing in light and stimulating new growth by young trees and coppiced stumps. Young trees in Surrey can require protection from browsing deer, squirrels and rabbits (sometimes achieved in amenity planting through enclosing the stems in plastic sheaths). Figure 3 additionally shows the management paths to be followed in the case of **new woodland plantings** or to **restore neglected woodland** to a productive state.

The various stages in the process can be carried out by owners themselves or be contracted to outside parties. **Woodland contractors** can offer a complete service or be involved in only parts of the process. The many small woodlands present within farmland around Godalming are unsuitable for exploitation by larger contractors, but can be suitable for smaller, locally-based, businesses operating lighter machinery and not so tied to the economics of large scale. The **Forestry Commission** is charged with carrying out government policy with respect to woodlands, achieved through a **system of permissions, grants and provision of advice.** If felling on anything but the smallest scale is contemplated, then owners must have **Management Plans** in place to be signed off by the Forestry Commission. A **Felling Licence** is not required if less than 5 cubic metres is felled in a calendar quarter (not more than 2 cubic metres of this may be sold).

There is a consensus among naturalists that active management of woodlands in Surrey for productive purposes can be **good for wildlife**. This is because, if properly done, management can lead to a mosaic of habitats suitable for a wide range of species adapted to different stages of woodland development. For instance, the nightingale, an iconic species, is adapted to the earlier scrubby stages of coppice regrowth, while another, the dormouse, prefers older coppice. There are certain features of woodlands that are particularly valuable for wildlife, such as old trees containing hollows (habitats for bats and many other species). The retention of **ancient woodlands** is encouraged for the many species of plants, animals and fungi that they contain.

The harvesting of wood fuel removes nutrients and organic matter from woodland, preventing their addition to the soil. Loss of nutrients from a woodland can be minimized

if smaller branches (brash) are left on the ground to decay naturally and through leaving small piles of logs as habitats for fungi and animals (which may include reptiles, amphibian and stag beetles – a local speciality).

It is predicted that the incidence of **pests and diseases** attacking trees will increase with climate change. The most recent problem is ash dieback, which has the potential to kill most ash trees in the UK. The most damaging **invasive tree species** around Godalming is probably Turkey oak, because it has an associated parasitic wasp that can attack the acorns of native oaks causing sterility. As with pests and diseases, an increasing incidence of invasive species is predicted with climate change.

All these threats call for more, not less, attention to careful forest management and hence to a revitalisation of woodland management skills. Woodland owners also need to take account of **climate change** in planning how their woods are managed. The growing conditions for trees around Godalming will not be the same in the future as they are today. The Forestry Commission is already undertaking research on using more southerly seed sources of indigenous species of trees for new plantings, as they could be better adapted for the future climate.

8. Woodland Owners and Current Woodland Management

The total forest area in Waverley Borough is 11,600 ha, of which 7.3% is in public ownership under the Forestry Commission and the remaining 92.7% in other hands. Most of the latter belong to private owners, but there are also substantial areas owned or managed by government bodies or by charities, notably Surrey County Council, Waverley Borough Council, the Ministry of Defense, the Forestry Commission, the National Trust and Surrey Wildlife Trust. Ownership structures can be complex, for instance with hunting rights separate from (and taking precedence over) woodland ownership. It is impossible to identify the owners of private woodlands from publically available sources, unless the woodlands have been sold in very recent years when the registration of the properties will have been required.

It is obvious from the physical structures of many woodlands around Godalming that they were once managed for productive purposes and that active management has fallen into abeyance. It has been estimated that around 70% of woodlands in Surrey are today essentially unmanaged. Active management often ceased 50-100 years ago according to informed sources. The result is that many woodlands are in poor shape either for the supply of forest products or, indeed, to be of much benefit for wildlife. Various explanations have been advanced for why so many woodland owners in Surrey have been disengaged from the active management of their woodlands (Annex 1). The contrast with some of our neighboring countries in Europe is striking. For example, woodlands are much more actively managed in France and Germany than in the UK with knowledge of traditional woodland management practices remaining well embedded within rural communities.

The Surrey Woodland Working Group carried out an attitude survey of woodland owners in 2000, based on the sample parish of Bramley. Among the findings were that many woodland owners lacked much knowledge of forest management (from the perspective of professional foresters) and that a sizeable number of owners seemed open to advice, especially if this took the form of provision of information combined with a personal approach. However, there remained a substantial number of owners who could not be identified or reached (especially those that were not resident locally) or who appeared immune to arguments raised for improving the management of their woodlands.

9. Analysis: Next Steps for Greening Godalming

The starting point for Greening Godalming is our concern to take action to combat climate change, an over-riding global environmental problem. Increasing the use of sustainably-produced wood fuel by the Godalming community, substituting for fossil fuel, will make some contribution towards reducing emissions of carbon dioxide, a principal driver of climate change. While this in itself will only make a small contribution, it is an action particularly appropriate for Godalming to take and many small such small steps taken by many communities around the world will have significant impact.

Actions (or inactions) taken for the environment carry uncertainties and risks. Fortunately, forestry policies and regulations applying to the management and use of woodlands in the UK are excellent, guarding against unsuitable exploitation or undue damage to wildlife (Annex 4). We are not aware of serious abuses of forestry regulations in our area at the present time.

Greening Godalming is not itself well placed to become more involved directly in the promotion of larger-scale industrial uses of wood fuel, for instance relating to the production of wood chips or wood pellets. Promoting the increased use of locally produced firewood and charcoal is another matter, more institutionally appropriate for Greening Godalming. The burning of firewood in stoves is the most obvious way to use wood fuel for most households in Godalming, while charcoal is unique among types of wood fuel locally available in being sourced mainly from other countries with poorly known environmental consequences. Firewood, in contrast to wood chips or pellets, is bulky and especially suitable for smaller-scale production and marketing. It is more likely to be harvested close to the point of use than other types of wood fuel. Increasing the levels of use of local firewood and charcoal should be beneficial for local employment.

It is proposed that Greening Godalming publish this report to show our reasoning and launch a directory of local services for Godalming covering the linked issues of local providers of wood fuel (especially firewood and charcoal), woodland management and opportunities for the public to learn more about woodland affairs.

Gardens in Godalming probably have significant potential for greater production of firewood, an issue that Greening Godalming may tackle later. One way of encouraging a

closer link between garden maintenance and firewood use might be through developing the concept of the wood hub for Godalming. The basic idea of a wood hub is as an intermediary between wood producers (such as garden owners and tree surgeons) and wood users (such as owners of wood-burning stoves).

There are people outside Godalming whose experiences could be useful for developing a wood hub system for Godalming. Wood hubs of one type or another are already run by LC Energy (manufacture of wood chips), by Lantern (UK) Ltd at Radlip (North London) and in Kent (Bertie's Wood Fuel), Banstead, Odiham and Wimbledon. Various organisations in the area are reported to have an actual or potential interest in developing wood hubs, such as Transition Haslemere, Chiddgreen (Chiddingfold), Surrey Wildlife Trust (at a site near Norbury Park, Dorking) and Wey Valley Wood Fuel Energy Cooperative.

Annex 1: Woodlands and Wood Fuel Use: a Long-term Perspective

Wood has undoubtedly formed the main fuel used in the place where Godalming now stands since time immemorial, from the time when trees first appeared in the landscape after the end of the last ice age (8000 BC) until very recently. Godalming lies on the edge of the weald, an area of sandy and clay soils in south-east England. Wealden soils are hard to cultivate and, in consequence, much of the weald remained thickly wooded until the 18th Century. The weald was the site of the first Industrial Revolution in England (1560-1640 AD), exploiting trees to make charcoal for iron smelting. Only when coal came into widespread use did this industry move elsewhere.

Agricultural improvements, such as crop rotation, liming and manuring, started to make cultivation of the weald's soils easier from about 1700, causing some decline in the area of woodland and more enclosure of agricultural land. The popularity of hunting among landowners grew, with woodlands increasingly being managed for 'game' such as pheasants. Over the years, such developments have eroded the traditional rights of ordinary people to woodland produce, such as firewood. Even so, wood must have remained virtually the only source of fuel used in Godalming until the arrival of the railway (1849).

The railway provided much easier access to the countryside for Londoners. Wealthy people started to acquire large houses in and around Godalming and the growth of suburbia had begun. As the 19th Century progressed, the countryside came increasingly to be seen as a place for rest and spiritual refreshment, away from the grime and harassment of the city. New attitudes towards nature developed and, with them, movements to protect the countryside and conserve its plants and animals, as witnessed by the creation of the National Trust (1895), the founding of nature reserves (from 1949), the Green Belt Act (1938) and the establishment of the Surrey Hills Area of Outstanding National Beauty (1958).

The Forestry Commission was founded in 1919 as a response to problems in the supply of wood, as became evident during the First World War (1914-1918). The remit of the Forestry Commission was to create a strategic reserve of timber for the country, an endeavour in which it has had some success with the total area of woodland increasing from 5% (in the British Isles) in 1919 to 12.7% (in the UK) today. Up to 1990 the main emphasis was on planting softwoods, such as Sitka spruce, pines and Douglas fir, for volume production of timber. 'Scientific' methods of forestry were introduced, involving the use of growth tables, recommended spacings for the planting of saplings, thinning regimes and optimal times of felling. Traditional forestry practices tended to be despised by professional foresters, contributing to their decline.

Then, in about 1990, there was a transformation in attitudes within the Forestry Commission, leading to a commitment to multi-purpose forestry. The purposes of forestry within the UK officially came to be seen as diverse, including not only production of timber and other forest products, but also provision of recreation and employment, the protection of soil and water, and the conservation of biodiversity. Combating climate change through encouraging the growth of trees and sequestration of carbon is now one of the aims of the Forestry Commission. The concept of multi-purpose forestry is now enshrined in a UK Forestry Standard, providing a set of guidelines for foresters to follow in deciding on how to manage woodlands. The Forestry Commission recognizes that different emphases in the objectives of forestry are appropriate for different parts of the country, with the **woodlands of Surrey being seen as of particular value for the production of wood fuel.**

Achieving improvements in the management of woodlands faces challenges rooted in history. An estimated 70 per cent of woodlands in Surrey is not effectively managed either for the production of forest products or for wildlife. Why is this? A number of contributory factors can be listed, such as the reduction in access to forest produce by ordinary villagers, a decline in knowledge of how to manage woodlands within the community and the increased availability and ease of use of fossils fuels. Deep-seated cultural factors are also at play. Historically, why should there be such a distancing of many people from economic engagement with their local woodlands, while in some of our neighbouring European countries a forestry culture remains alive and active at village-level? In countries like Germany, Austria and Denmark, using wood fuel for heating purposes has been considered normal for many years, while here in the UK the cultural attitude has developed of seeing natural gas and other forms of fossil fuel as normal and wood only as an 'alternative'.

Annex 2. Sustainable Woodland Management: Additional Issues

Sustainability with respect of woodland management is a complex concept. However, as with other practical professions (for instance plumbing or medicine), the achievement of a high standard in forestry is an art **dependent on the existence of caring knowledgeable experts**. Excellent regulations (as exist for forestry in the UK) help, but in themselves are sufficient.

The **scale of operations** is an issue. The production of wood chips and wood pellets tends to require volume supplies of wood, feeding capacious processing plants through tree cutting over extensive areas. Such operations cannot effectively be monitored by individual local communities. They require vigilance on the part of the owners of the industries themselves and the Forestry Commission to ensure ecological sustainability. The situation with firewood is somewhat different, because this is a bulky material, most likely (though not necessarily) sourced locally and generally obtained through small-scale operations.

Except on a small scale where other drivers may operate, the management of woodlands for wood fuel production needs to be **economically viable**. It is widely reported that the costs of felling and haulage, especially on sites difficult to access, is often higher than the returns from selling the produce. However, the economics of managing small woodlands in Surrey could be changing. The price of firewood in Godalming is reported to be rising, perhaps related to a big increase in the number of firewood stoves bought during very recent years (no figures for Godalming have been found, but, for the UK as a whole, 500,000 firewood stoves have been bought during the last 6 years). Many private woodland owners could help themselves economically if they organise themselves into local cooperatives for the engagement of woodland contractors.

Annex 3. Organisations Relevant to Production of Local Wood Fuel for Godalming

Actio$_2$n Surrey is a partnership community project that provides free, impartial advice to homeowners to help reduce energy in the home or install renewable technology. Actio$_2$n Surrey provides free home energy audits and maintains a low carbon demonstration house (Oak Tree House), which has been transformed from an ordinary 3-bedroom property into one of the only fully functional low carbon retrofit show homes in the south of England. Book online to visit the show house. www.actionsurrey.org

Cranleigh and South Eastern Agricultural Society has a showground at Cranleigh, on which they maintain a 4-hectare woodland (Fishpond Copse) demonstrating techniques of woodland management. A pamphlet is available.

The **Forestry Commission** is the government department responsible for forestry in Great Britain. Since about 1990, the Forestry Commission has pursued multi-purpose forestry (as detailed in a United Kingdom Forestry Standard), meaning that woodlands are viewed as serving multiple roles, among them sustainable supply of forest products (including wood fuel), employment, public recreation, conservation of wildlife and provision of ecosystem services (including protection of soil and water, and carbon sequestration to help combat climate change). The Forestry Commission has two divisions, Forest Enterprises, which manages the commission's own forests, and Forest Services, which administers grants and regulations for non-Forestry Commission woods,

and also offers advice to woodland owners. The Biomass Energy Centre under the Forestry Commission maintains a very informative: www.biomassenergy.centre.org.uk

Merrist Wood College offers a course in arboriculture (tree surgery). www.merristwood.ac.uk/Home.aspx

Natural England, the statutory authority responsible for conservation of the natural environment, owns Thursley Common National Nature Reserve, a heathland area in which invasion of encroaching trees (mainly birch and pine) must be kept under control. www.naturalengland.org.uk

The **National Trust** owns substantial areas of woodland in the Godalming area, including Witley and Milford Commons and River Wey and Godalming Navigations. Winkworth Arboretum contains a rich collection of tree species from around the world, as well as a patch of coppiced sweet chestnut. The National Trust offers volunteering opportunities. www.nationaltrust.org.uk

Plumpton College (East Sussex) offers forestry courses. www.plumpton.ac.uk

Sevenoaks Energy Academy (Kent) offers a short course on wood stoves for plumbers. http://sevenoaksenergy.com

The **Surrey Hills Area of Outstanding Natural Beauty** (AONB) and an adjacent Area of Great Landscape Value (AGLV) cover about a third of Surrey, with Godalming centrally situated in the wider western section. The central aim of the AONB is to conserve and enhance the natural beauty of the countryside, achieved through planning controls and practical countryside management. Woodlands cover 40% of the Surrey Hills AONB and adjacent AGLV. Working closely with the Forestry Commission, Surrey Hills AONB is trying to enhance woodland management for multiple objectives, including greater production of wood fuel. Surrey Hills AONB employs a Woodland Advisor to identify areas of ancient woodland and advise woodland owners on how to improve management of their woodlands. Surrey Hills AONB maintains a very informative website on wood fuel: www.surreyhillswoodfuel.org.uk

Surrey Hills Enterprises, a Community-Interest Company associated with Surrey Hills Area of Outstanding Natural Beauty (AONB), seeks to promote local productive businesses in the Surrey Hills AONB and peripheral AGLV under the slogan ‘Surrey Hills Love Local’. Surplus profits will be returned to help fund Surrey Hills AONB. Surrey Hills Enterprises has recently started an on-line directory of relevant local businesses, including those concerned with woodland management and the supply and use of local wood fuel. www.surreyhillsenterprises.co.uk

The **Surrey Hills Wood Fuel Group** is a not-for-profit organisation established to promote the production and use of wood fuel in and around the Surrey Hills AONB. www.surreyhillswoodfuel.org.uk

Surrey Wildlife Trust owns quite substantial areas of woodland in Surrey itself and manages a further 1300 ha on behalf of Surrey County Council. The trust is very keen to encourage the management of suitable woodlands for wood fuel, provided that this is undertaken sensitively in relation to biodiversity and other woodland values. Surrey Wildlife Trust offers volunteering opportunities. www.surreywildlifetrust.org

Surrey Woodland Working Group is a group contributing to Surrey County Council's Countryside Strategy. Its members are drawn from Surrey County Council, the Forestry Commission, Waverley Borough Council, Surrey Wildlife Trust, Surrey Tree Officers Group, Timber Growers Association, Forestry Contracting Association, Association of Professional Foresters, Country Landowners Association and Natural England. Among the aims of the group are to encourage people to adopt wood fuel as their primary method of heating and use the wood fuel now being produced locally.

The **Sussex and Surrey Coppice Group** promotes the production of wood fuel from coppice and the development of associated skills. www.coppicegroup.wordpress.com

The **Sylva Foundation** offers a free service for woodland owners, forestry businesses and wood users. The foundation's aim is to help communities achieve improved management of their woodlands in an ecologically responsible way. The foundation offers help to woodland owners in the preparation of woodland management plans and applications for grants to the Forestry Commission. www.sylva.org.uk/myforest

Waverley Borough Council, responsible for the borough in which Godalming stands, has a policy (adopted 1984) which states its interest in wishing to see existing trees and woodlands in the borough retained, so as to maintain the present wooded character of the borough. Waverley Borough Council is a substantial landowner in its own right and responsible for the management of some other properties. It manages about 1000 ha of countryside sites (mostly woodland) and about 250 ha of park and open spaces. Three-quarters of the area of countryside estate for which it is responsible is at three sites, namely Blackheath Forest (east of Godalming), Frensham Common and The Flashes (near Frensham Common). The last two properties are leased from the National Trust. A restrained budget means that Waverley Borough Council spends a substantial part of its resources on legally required health and safety issues, mostly dealing with single or groups of trees deemed hazardous to the public. It costs money for Waverley Borough Council to employ contractors to fell trees, cut them up and remove wood from the properties it manages, even taking into account returns from wood fuel. Waverleigh Borough Council offers volunteering opportunities.
www.waverley.gov.uk/info/200029/countryside

Wey Valley Wood Fuel Energy Cooperative is a new community organisation (2012) set up as a co-operative to fund the installation and operation of renewable heat technology in community building such as leisure centres, residential care homes, hospital and schools. The group's main focus is on wood fuel, as one of its aims is to promote the use of a local, sustainable wood fuel supply. The intention is eventually to become involved in the whole supply chain, working back from the end-users.

Annex 4. Some Relevant Regulations, Grants and Accreditation Schemes

This is a summary. Readers should consult official sources to ensure legal accuracy.

Woodlands

There is a presumption in government policy that woodlands will not be converted to other types of land use unless there are compelling reasons in the public interest to do so. Proposals for developments that involve woodland clearance, for instance to build housing, require **planning permission**. An **environmental impact assessment** will normally also be required. Overall, the laws and grants relating to woodlands are consistent with encouraging the preservation and expansion of woodlands, and their improved management for multiple purposes, including as sources of wood fuel. Guidelines for the management of woodlands are detailed in a **UK Forestry Standard**.

The Forestry Commission offers 6 types of grant for the creation or care of woodlands. Those acquiring a grant must comply with forestry regulations, the UK Forestry Standard and associated Forestry Commission guidance. The grants are: **Woodland Planning Grant**, for aiding the production of management plans for properties with over 3 hectares of woodland; **Woodland Assessment Grant**, to support information gathering that improves management decisions; **Woodland Regeneration Grant**, designed to support the re-establishment of trees (especially in broadleaved woodland) when felling has taken place; **Woodland Management Grant**, to support basic management activities; **Woodland Creation Grant**, to support the creation of new woodlands; and **Woodland Improvement Grant**, for capital projects which sustain and increase public benefits in woodland (e.g. for helping conserve valuable woodland types or species, or combat invasive species).

As an example of procedures, the **Woodland Management Grant** is a 5-year grant for woodlands of over 0.25 hectares that aims to encourage low key, sustainable woodland practice. Applicants for grants must have their **woodlands certified** to the UK Woodland Assurance Standard (UKWAS) or have an **approved management plan** in place. In either case, the aim is to achieve balanced management including restoration (if needed). Depending on the woodland, balanced management may include production of some woodland produce (which could include fuel wood), conservation of biodiversity, control of invasive species and access for the public.

Felling Trees

A **Felling Licence** from the Forestry Commission is needed to fell trees in woodlands, unless a woodland is covered by a Forestry Commission English Woodland Grant Scheme (which imposes restrictions on tree felling) or the volume of harvested trees is less than 5 cubic meters in a calendar quarter (not more than 2 cubic meters to be sold).

Restocking is required after felling. A Felling License is not required for thinning (stems 10 cm or less in diameter), cutting coppice (stems 15 cm or less in diameter) or felling trees in gardens, churchyards or orchards. If felling is contemplated in a **designated conservation area**, then consultation with the relevant bodies, such as Natural England, will or may be required. The Forestry Commission is anxious to conserve sites of ancient semi-natural woodland, that is woodland that has stood on a site since at least 1600 AD and consists largely of self-sown trees and shrubs.

In the case of Waverley Borough (Godalming's borough), there is a **Tree Preservation Order** which requires permission to be obtained from the council before anything is done to damage the health or appearance of larger trees (over 4 m high with a spread of over 4 m and diameter over 300 mm) or trees which are listed in a **Register of Significant Trees**. The idea behind **Tree Preservation Orders** is to preserve trees in gardens or elsewhere that are considered important in the landscape. Felling without permission can incur a substantial fine.

Tall trees in gardens, especially Leyland cypress, can annoy neighbours because of shading. Compulsory felling may be possible through application of the **Anti-Social Behaviour Act** (2003).

Smoke Control Areas

Smoke Control Areas are designated parts of the UK where it is an offence to emit smoke from a chimney or to use unauthorised types of fuel. Waverley has no such areas.

Renewable Heat Incentive

The government supports a **Renewable Heat Initiative** (launched 2011) for energy production from renewable sources, such as wood fuel. Payments are guaranteed for 20 years and index-linked. Currently the scheme only applies to industrial users, but a **Domestic Renewable Heat Incentive** is being considered for possible introduction in 2013. Details are awaited. It is possible that the Domestic Renewable Heat Incentive may not apply to fuelwood stoves.

Accreditation

The **Forest Stewardship Council** (FSC) is a not-for-profit organization dedicated to the promotion of sustainable forest management. FSC has an accreditation scheme, the use of the FSC logo indicating that a product on sale has originated from a sustainably managed source. http://ic.fsc.org/

HETAS is the official body recognised by the government to approve biomass and solid fuel domestic heating appliances, fuels and services including the registration of competent installers and servicing businesses. www.hetas.co.uk/

Woodsure in the UK's woodfuel quality assurance standard. www.woodsure.co.uk/