REPORT OF THE

WOODLAND EXPANSION ADVISORY GROUP

TO THE CABINET SECRETARY
FOR RURAL AFFAIRS
AND ENVIRONMENT,
RICHARD LOCHHEAD, MSP

June 2012

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The report….

Introduction

What do we want?

- We see a future where creating woodlands is seen as an integral part of sustainable land use and management. We want a more inclusive and diverse approach to creating these woodlands, and for them to be more productive and resilient. We need a more positive attitude to woodland creation, and to take account of the woodlands we already have.
- To help achieve this we propose a **new direction** for woodland creation, and make **24 recommendations**.

Context

Where are we now?

- Planting levels in recent years have been at their lowest level for half a century and, currently, most woodland creation is undertaken with native species.
- There is a deep cultural divide between forestry and farming
- Those who want to plant woodlands feel that 'the system' is not helping them to achieve this.

Analysis and recommendations on the types of land for tree planting

How much woodland?

- 100,000 hectares of new woodland over the period 2012-22, created in ways that meet or exceed modern standards of good practice and deliver multiple benefits - with a review no later than 2020 to set targets for beyond 2022 **(Recommendation 1).**

What type?

- All kinds of tree planting – but with an increased emphasis on producing wood and timber where this makes sense **(Recommendation 2).**

Where?

- On most types of land – but to help reduce conflicts with other land uses, wherever possible woodland creation should complement and integrate with other land-use objectives **(Recommendation 3).**

Analysis and recommendations on practice and process

How to achieve what we want?

- Using better strategic planning processes to facilitate appropriate woodland creation. We would like to see positive engagement with other land use interests at a sub-regional scale, and an enhanced role for Regional Forestry Forums in offering balanced advice **(Recommendations 4, 5)**;
- Improving the grants system to reduce bureaucracy and help applicants to create the right woodlands in the right places **(Recommendations 6-9)**;
- Breaking down cultural barriers between woodland creation and other land uses, especially farming. We suggest how the next SRDP, and a new approach to whole-farm planting, could help integrate woodland with other land uses **(Recommendations 10, 11)**;
- More advice and facilitation for land managers, aimed at helping people to get past the barriers they currently face, and at encouraging collaboration and integration with other land uses **(Recommendations 12-15)**;
- Recognising the synergies with broader action on climate change **(Recommendations 16, 17)**; and the importance of making best use of the woodlands we already have **(Recommendations 18, 19)**.

Who will do it?

- Those who create woodland already, plus others: we particularly identify farmers (including tenants and crofters) and communities as having a valuable role in providing a more diverse range of benefits from woodland creation **(Recommendations 20-23).**

Conclusion

Keeping track

- Our final recommendation **(Recommendation 24)** asks that the Land Use Strategy's reporting structures are used to monitor and report upon progress.

Executive Summary

This report was produced by the Woodland Expansion Advisory Group, chaired by Dr Andrew Barbour. Our remit was to provide advice to the Cabinet Secretary for Rural Affairs and Environment on:

- Which types of land are best for tree planting in Scotland, in the context of other land-based objectives;
- Promoting good practice and local processes in relation to tree planting so as to secure multiple benefits.

Our terms of reference come from the *Land Use Strategy*, but other Government policies are part of the context – in particular the Scottish Government's legally-binding greenhouse gas emissions reductions targets, which are being achieved through a range of policies including the creation of 10,000 hectares of new woodland annually until 2022, but also targets and aspirations for sustainable economic growth, food production, water quality and flood risk management, nature conservation, energy generation, community development and more.

Our report has been informed by evidence gathered from the responses to our Call for Views; by a series of stakeholder meetings around the country; by research and analysis that we have commissioned and collected; and by our collective experience in many areas of land use.

A new direction for woodland creation

We believe that a new direction for woodland creation is needed if we are to achieve the target of 100,000 hectares of woodland by 2022. This new direction sets the scene for all of the recommendations which follow. **We need woodland creation (and support for woodland creation) which is:**

…more integrated; The unprecedented level of woodland expansion during the last 90 years has brought many benefits. Scotland now has an internationally competitive wood processing industry. Millions of people enjoy visiting woods and forests for recreation. But it has not all been positive, with some conflict and much woodland expansion taking place in ways that have tended to reinforce unhelpful barriers between forestry and other land uses, such as agriculture.

Looking ahead, we see a future where woodlands should be an integral part of a pattern of sustainable land use and management. This will mean establishing a variety of woodland types that fit well with existing land uses, respect other objectives for the land, and deliver the range of ecosystem services that future generations will need. They should be designed to integrate with other land uses and environmental needs at a variety of scales, from small woodlands on farms, through to larger woods and forests fitting well into the landscape. This is not just a high ideal. Practical considerations dictate that the majority of woodland

creation will result from land managers deciding to plant trees on their own land, for business reasons or to help achieve their other land use objectives.

…more diverse; Different providers of woodland offer different benefits; an investment forestry owner might make a particularly strong contribution to the national economy, an environmental NGO might specialise in stewardship. To maximise the benefits we need not just multifunctional woodlands but also a variety of providers of woodland, each bringing a different emphasis. We feel that a model which deserves a more significant place in the national mix is the community woodland, owned or leased by local people for manifold community benefit.

…more inclusive; We have deliberated over the terminology: are we talking about woodlands, or forests? Are trees in hedges, orchards, 'agro-forestry' systems, urban parks and montane shrub habitats included? Are we just talking about planting, or also natural regeneration of trees? The answer is that all of these (and more) are included, and all have a part to play in delivering the benefits we want.

…more productive; A distinction is often made between different types of woodland based on whether they are 'productive' (by which people generally mean timber producing – currently around 25-30% of planting), or 'native' (from which economic outputs are not necessarily expected – currently around 70-75% of planting). We think this categorisation can be too simplistic and is resulting in lost opportunities, in particular for timber and woodfuel production from new woodlands of all types. Recognising the old adage that 'a wood that pays is a wood that stays', we would like to see a significantly higher proportion of new woodlands being designed to produce timber or biomass for the benefit of the local and national economy, whilst delivering all the other goods and services that we want from woodlands. We therefore want to encourage multi-purpose management wherever possible. In the same way that we would wish to enhance the recreational and conservation value of new conifer forests, we also wish to ensure that timber production opportunities are not inadvertently missed when planting new woodlands of native species.

…more resilient; Given the long term nature of forestry, it is important to think about future resilience when planning woodland expansion. Climate change projections, pest and disease threats and changing economic conditions are all examples of pressures that may affect the ability of forests to function and provide benefits into the future. This means that it is sensible to try to develop resilient forests. At the same time there are opportunities for woodland creation to help address some of the risks from a changing climate, such as flooding or the need for shade and shelter. Changes in productivity may also be positive for some species through this century, as indeed it may be for agricultural crops.

…more positive; We have been left in no doubt about the strength of feeling there is concerning the frustrating bureaucracy associated with woodland

creation. While recognising the need for consultation mechanisms to prevent or address potential conflict, and the need to audit public spending, we believe that there is a great deal of room for improvement in these processes, which are creating unnecessary barriers to woodland expansion. We believe that the Scottish Government should encourage all its departments and agencies to take a positive approach, aimed at facilitating the creation of new woodlands which benefit Scotland.

…and which takes account of the woodlands we already have. Though not formally part of our remit, we are very aware of the relationship between woodland creation and our existing woodland resource. There is little point in creating new woodlands if we are not actively looking for ways to make good use of what we have already.

Context

In Section 2 we describe the context by looking at historical trends, noting that planting levels in recent years have been at their lowest level for half a century and that, currently, most woodland creation is undertaken with native species. We describe the economic, social and environmental benefits that woodland creation brings to Scotland. We go on to explain how a range of land use objectives influence decisions about which types of land are best for tree planting, and about what types of woodland are created.

Analysis of types of land for tree planting

Section 3 looks in some detail at land quality and land use. We report on work showing that around 46% of Scotland's land is largely unavailable for woodland creation (it is either unsuitable, already wooded or ruled out by policy considerations); and that a further 20% is significantly constrained (in particular because of conservation designations). The remaining one third of Scotland's land has the most potential for woodland creation – much of this is farmland, in particular grazing land, and consists of open ground habitat, some of which is sensitive to tree planting.

We analysed the impact of woodland creation on livestock farming, and this suggests that creating 100,000 hectares of woodland over ten years on such land would, at worst, cause a 2% reduction in livestock numbers. This impact can be further reduced by taking advantage of opportunities for further integration of woodland with farming systems and with deer management.

Analysis of practice and process

In Section 4 we scrutinise the mechanisms that currently support woodland creation, and that ensure that the right woodlands are created in the right places. These include the way that we plan woodland creation strategically; the grants system and associated consultation; how we integrate woodland creation with other land uses; and the advice and facilitation that is available to those wishing

to create woodland. The analysis highlights some of the most significant barriers facing those who wish to create woodland, and suggests ways of tackling them. In this section we also look at how woodlands can play their part in a changing climate and be resilient in an uncertain future, and the role of the woodlands that we already have.

Finally we look at how we can involve a wider range of people in creating woodlands, recognising that by further broadening the base of those involved in woodland creation we are likely to see a wider range of types of woodland being created, to meet a wider range of Land Use Strategy objectives and deliver a wider range of goods and services.

Recommendations

Our analysis forms the basis for our 24 recommendations, which are as follows:

Recommendation 1: Woodland creation target. The focus of the Scottish Government's woodland creation target should be on creating 100,000 hectares of new woodland over the period 2012-2022.

- This should be carried out in ways that meet or exceed modern standards of good practice and deliver multiple benefits.
- There should be a review, initiated no later than 2020, to set targets for beyond 2022.

Recommendation 2: Productive woodlands. Forestry Commission Scotland should work with the wood processing industry to encourage woodland owners and managers to consider opportunities for producing timber and/or wood fuel when creating new woodlands of all types. Measures to achieve this will include grants under the next SRDP, advice and facilitation.

Recommendation 3: Types of land for tree planting. To help reduce conflicts between woodland creation and other land uses, our advice to the Cabinet Secretary is that the following considerations should be taking into account when making decisions about the location of new woodlands:

- The focus of woodland expansion should be away from prime agricultural land, but it should be recognised that there may be important opportunities for small scale tree planting, for example, on field margins, along water courses or to improve the environment in and around towns;
- On other (non-prime) arable land, agriculture is likely to remain the primary land use, although there may be scope for woodland creation on a slightly larger scale. The quality of the land in a local context, and its environmental sensitivity, should be considered;
- Grazing land has significant potential for the creation of high quality and high value woodlands. However, this should be achieved in ways that seek to avoid adverse impacts on local patterns of agriculture and that aim to

complement and enhance the agricultural and environmental value of the remaining unplanted land;

- Protected places have the potential for woodland creation, much of which is likely to be of native species. Here, opportunities should be taken to create woodlands which make a positive contribution to the environmental value of the site and the ecosystem services it provides;
- Land in and around towns, including vacant and derelict land, should be used for tree planting where it can make a cost-effective contribution to remediation and improving the quality of life in urban areas;
- Upland red deer range has the potential for the creation of significant areas of woodland, especially where it can provide shelter to improve deer welfare and make a positive contribution to the environmental value of the land.

Recommendation 4: Sub-regional analysis. Sub-regional analysis of woodland creation constraints and opportunities should be undertaken through a series of pilot projects across Scotland, with a view to rolling out this approach more widely in future. These pilots, led by local authorities working in partnership with appropriate Government bodies, should develop analyses which:

- Provide clarity to applicants and Forest Enterprise Scotland about woodland creation opportunities in the context of other land-based objectives;
- Help reduce delays and uncertainty in the application process, and ensure that applicants know at an early stage what information, surveys and mitigation they will need to provide;
- Can take account of changing circumstances and cumulative impacts;
- Engage with a broad range of land use interests, specifically including agricultural interests, and with existing processes such as river basin and flood risk management planning;
- Provide a potential framework for targeting grants;
- Maintain the clear democratic link, via the Forestry and Woodland Strategy, to the local authority, and via the Land Use Strategy to the Scottish Government.

Recommendation 5: Regional Forestry Forums. Regional Forestry Forums should have an enhanced role in providing Forestry Commission Scotland and local authorities with advice on opportunities for proactive implementation of Forestry and Woodland Strategies and the implications of woodland creation for other land-based objectives. The Forums should retain a balanced composition, but strong efforts should be made to ensure that each Forum has a member able to represent regional agricultural interests.

Recommendation 6: CAP reform. In its negotiations on CAP reform, the Scottish Government should:

- Seek to ensure that Pillar 1 'greening measures' are introduced in ways that encourage tree planting;
- Seek to ensure there is no gap in support to forestry between programming periods. This should include pressing the European Commission to consider bridging arrangements should CAP reform be delayed and exploring possible contingency arrangements at domestic level; and
- Continue to press for the retention of annual payments to compensate for agricultural income foregone on land planted with trees.

Recommendation 7: Grant rates. Rates of grant in the next SRDP should enable applicants to achieve a balance between their own and the area's long-term strategic objectives. Short-term cashflow considerations resulting from grant support should not have a disproportionate impact on proposals. In addition, Forestry Commission Scotland should continue to provide the Planning Grant for Creating Larger Scale Productive Woodlands.

Recommendation 8: SRDP administration. Those designing the new SRDP should ensure that it supports woodland creation and that:

- The improvements to IT systems already underway in RPID improve the application process for forestry applicants;
- SRDP payments are made promptly and that consideration is given to making earlier staged payments to those without access to significant financial reserves;
- An 'applicants' charter' is provided and monitored;
- Unnecessary layers of complexity in the scheme's design are eliminated;
- Applicants are supported by both advice and scheme design to be able more easily to bring together different measures in an integrated way;
- Better information can be collected on the types and locations of woodlands created;
- Woodland models currently used are widened to reflect the other recommendations in this report.

Recommendation 9: Consultation process. To help applicants develop credible proposals for woodland creation, Government bodies should consider:

- How best to ensure that applicants have access to relevant pre-application advice and data about constraints and opportunities;
- How to ensure that requirements for surveys and mitigation are communicated to applicants in a helpful and timely manner;

- How agricultural considerations can be properly represented throughout the consultation process; and
- How to ensure that existing SEARS consultation principles are consistently applied.

Recommendation 10: Integration. The next SRDP should encourage better integration between woodland creation and farming or deer management, including:

- Making use of 'agroforestry' measures in the Rural Development Regulation;
- Supporting woodland creation models which combine grazing and shelter; and
- Ensuring that eligibility criteria permit and encourage the creation of small woodlands, riparian woodlands and hedgerow trees.

Single Farm Payment eligibility criteria for grazed woodland should also be changed to help achieve this, and Forestry Commission Scotland should ensure that suitable technical guidance and support is available.

Recommendation 11: Whole farm planting. As a condition of public support, those (including Forest Enterprise Scotland) proposing to create woodlands on whole farms should be required to consider opportunities for integration with other land uses, for example by retaining better of grades of land in agricultural use, and by designing unplanted areas and fencing in ways that accommodate neighbouring farming systems, moorland management and environmental considerations.

Recommendation 12: Advice. There should be more resources directed towards providing advice and facilitation to optimise the sustainable use of land and, as part of this, to identify opportunities for woodland creation and integrated land use activity.

Recommendation 13: Better policy integration. Woodland expansion considerations should be better integrated with other relevant Government policies and initiatives.

Recommendation 14: Co-ordination and collaboration. Land managers should be encouraged to work together across ownership boundaries to achieve integrated land management objectives. To support this:

- The grants scheme should support effective co-ordination, and
- Facilitation and advisory services should seek to enable co-ordination and collaboration where opportunities are identified.

Recommendation 15: Higher education. Scotland's land-based colleges and other higher education providers should be asked to explore ways in which a more integrated and collaborative approach can be taken to the provision of

forest-related education so that it is an integral part of education on wider land use and land management.

Recommendation 16: Carbon calculator. Forestry Commission Scotland should produce a simple to use 'carbon ready-reckoner' which allows land managers to identify whether – and by how much – woodland creation could help to reduce their land management carbon footprint.

Recommendation 17: Woodland Carbon Code. Forestry Commission Scotland should work with the private sector to promote the Woodland Carbon Code, so that more land managers are aware of the additional resources this can bring to woodland creation, and enhance its attractiveness by facilitating involvement in group schemes where land managers can work together to achieve carbon sequestration.

Recommendation 18: Existing woodland. Forestry Commission Scotland should encourage proposals for woodland creation which are integrated with proposals for woodland management, and which help to improve the condition and make better use of existing woodlands, for example by creating better harvesting access or by connecting woodlands to create forest habitat networks.

Recommendation 19: Woodland removal. Local Authorities should be encouraged to prepare supplementary planning guidance on trees and woodlands which reflects the Scottish Government's Policy on the Control of Woodland Removal; and development management authorities should work closely with Forestry Commission Scotland to ensure that good advice is available regarding the implementation of this policy.

Recommendation 20: Tenant farmers. Landlord and tenant representatives should work together in the context of the Tenant Farming Forum to promote woodland creation, in particular:

- By developing and promoting example joint venture mechanisms that would foster woodland creation while allowing both landlords and tenants to benefit, and
- By investigating opportunities for tenants to work with landlords to create small scale woodlands that enhance the holding and the wider environment.

Recommendation 21: Crofter forestry. Crofting and forestry stakeholders should work together to promote crofter forestry proactively. As a crofting landlord, the Scottish Government should initiate contact with all Grazings Committees on its land to invite them to consider possible crofter forestry activity (either independently or in partnership with the Scottish Government through a joint venture).

Recommendation 22: Community involvement. The Scottish Government should help communities become involved in woodland creation. It should:

- Set up a scheme to lease land for the purposes of creating community woodlands;
- Continue to support and promote schemes such as the National Forest Land Scheme, and
- Encourage communities who become involved in woodland management through the National Forest Land scheme to consider additional woodland creation in the local area.

Recommendation 23: Public involvement. Forestry Commission Scotland should work with Scottish Land & Estates and Confor to promote the Public Engagement in Forestry Toolbox to private forest owners.

Recommendation 24: Monitoring progress. The Scottish Government should report on progress with implementing the recommendations in this report annually, as part of the existing reporting structures for the *Land Use Strategy*. Comment should be provided on whether and how the new direction for woodland creation that we have proposed in this report is influencing public policy.

Contents

1. Introduction

1.1. The task

We were invited, in August 2011, "To provide advice to the Cabinet Secretary on identifying more closely which types of land are best for tree planting in Scotland, in the context of other land-based objectives; and on promoting good practice and local processes in relation to tree planting so as to secure multiple benefits." This brief reflects proposal 7 in the Scottish Government's *Land Use Strategy*[1].

Details of our membership, and further background to these terms of reference, are provided in Annexes 1 and 2 to this report. We have met as a group seven times. In addition we ran a 12 week 'Call for Views' and have held six regional stakeholder meetings throughout Scotland[2].

1.2. The policy context

Our work flows from the Scottish Government's *Land Use Strategy*, with its vision of:

"A Scotland where we fully recognise, understand and value the importance of our land resources, and where our plans and decisions about land use deliver improved and enduring benefits, enhancing the wellbeing of our nation."

We have been guided by this vision, and by the commitments to woodland expansion described in the *Land Use Strategy*, the *Scottish Forestry Strategy (2006)*[3] and the *Rationale for Woodland Expansion (2009)* [4] as well as the raft of other Government policies and wishes for the land using sector and rural areas[5]. These include commitments to support food production, improve water quality and flood risk management, promote renewable energy, conserve the natural and cultural heritage, achieve sustainable deer management, protect soils and empower local communities. At the same time as publishing its *Land Use Strategy*, the Scottish Government published *Low Carbon Scotland*[6], which sets out its policies and proposals for reducing greenhouse gas emissions and includes a policy of increasing woodland creation to 10,000 hectares per year over the next ten years.

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1 http://www.scotland.gov.uk/Publications/2011/03/17091927/0

2 The outputs from these consultation exercises are summarised at http://www.forestry.gov.uk/weag.

3 http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-6aggzw

4 http://www.forestry.gov.uk/forestry/infd-7fweq5

5 Summarised in Woodland Expansion Advisory Group working papers WEAG 3 and WEAG 8 at http://www.forestry.gov.uk/weag.

6 Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022 - http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/lowcarbon/rpp

We know that it can be difficult to reconcile all these different aspirations on a finite area of land. Furthermore, decisions on woodland creation are heavily influenced by public policy and often have an impact for very many years. This means that it is particularly important to consider woodland expansion policies carefully, in the context of a long-term view of future directions for Scotland's land use.

A note on woodland expansion targets

There have been mixed views about the long term aspiration of achieving 25% woodland cover during the second half of the century. Some welcome it as a positive commitment to long-term woodland expansion; others are concerned about the implications for other land uses. Our view is that there is no need to set such long-term targets for woodland expansion and that, without buy-in from all land-use sectors, they can act as a barrier to achieving shorter term goals. Accordingly, our report focuses on the opportunities for, and implications of, creating the 100,000 hectares of woodland over the next 10 years demanded by existing Government policy. We believe that we should leave it to a later review to judge what level of woodland creation is most appropriate beyond this period.

1.3. A new direction for woodland creation

Woodland expansion can only deliver "improved and enduring benefits, enhancing the wellbeing of our nation" if the right types of woodland are created in the right places. To achieve this, we believe that a new direction for woodland creation is needed, which we describe below. This new direction sets the scene for all the recommendations which follow. **We need woodland creation (and support for woodland creation) which is:**

…more integrated; The unprecedented level of woodland expansion during the last 90 years has brought many benefits. Scotland now has an internationally competitive wood processing industry. Millions of people enjoy visiting woods and forests for recreation. But it has not all been positive, with some conflict and much woodland expansion taking place in ways that have tended to reinforce unhelpful barriers between forestry and other land uses, such as agriculture.

Looking ahead, we see a future where woodlands should be an integral part of a pattern of sustainable land use and management. This will mean establishing a variety of woodland types that fit well with existing land uses, respect other objectives for the land, and deliver the range of ecosystem services that future generations will need. They should be designed to integrate with other land uses and environmental needs at a variety of scales, from small woodlands on farms, through to larger woods and forests fitting well into the landscape. This is not just a high ideal. Practical considerations dictate that the majority of woodland creation will result from land managers deciding to plant trees on their own land, for business reasons or to help achieve their other land use objectives.

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[1] In this report we generally use the term 'forest' to refer to larger areas than the terms 'wood' or 'woodland', but without attempting to make any value judgements about their relative desirability.

…more positive; We have been left in no doubt about the strength of feeling there is concerning the frustrating bureaucracy associated with woodland creation. While recognising the need for consultation mechanisms to prevent or address potential conflict, and the need to audit public spending, we believe that there is a great deal of room for improvement in these processes, which are creating unnecessary barriers to woodland expansion. We believe that the Scottish Government should encourage all its departments and agencies to take a positive approach, aimed at facilitating the creation of new woodlands which benefit Scotland.

…and which takes account of the woodlands we already have. Though not formally part of our remit, we are very aware of the relationship between woodland creation and our existing woodland resource. There is little point in creating new woodlands if we are not actively looking for ways to make good use of what we have already.

2. Context

2.1. Historical trends in woodland creation

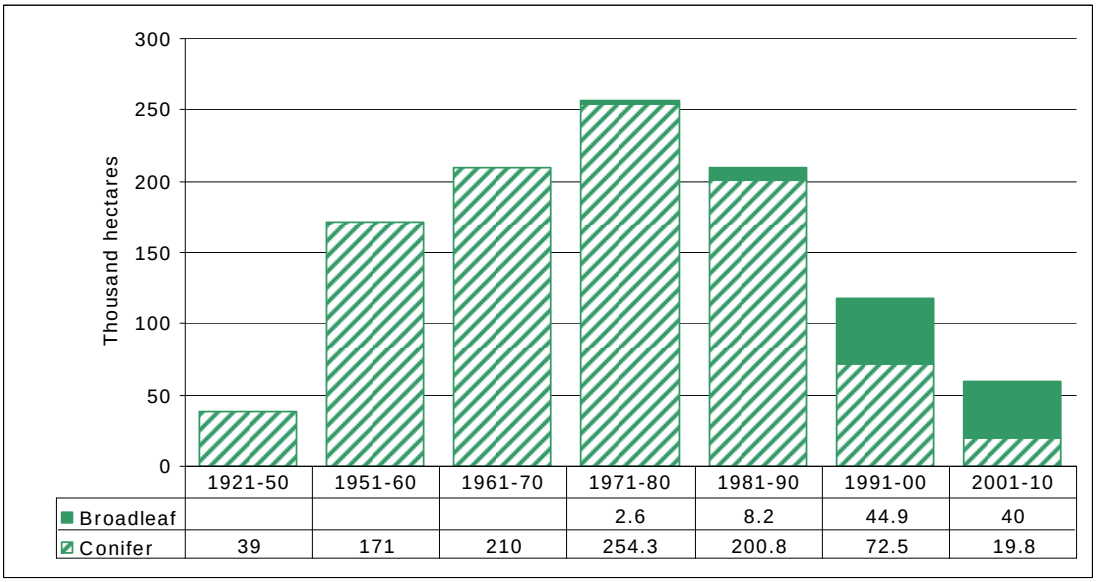
It is thought that until about 1350, Scotland was able to meet all its own timber requirements, but that gradually thereafter the country became increasingly reliant on imports for building, especially in towns. It may have been concerns about timber supply that caused the Scottish Parliament to pass a law in 1503 requiring that:

> "*every Laird plant at last ane aiker of wooded, quhair there is na greate wooddes nor forrestis*"

Later on, the period of 'agricultural improvement' in the eighteenth and nineteenth centuries was characterised by some landowners taking considerable interest in forestry, and planting significant areas – recognising their value for timber, fuel wood and shelter. However, tenants had no rights to timber, helping to create the traditional separation between farming and forestry as two distinct land use sectors within Scotland. Food production remained an imperative, while the bulk of Scotland's timber needs were met through imports. At the beginning of the twentieth century woodland cover was just 5%.

Following the establishment of the Forestry Commission in 1919, Scotland's woodland cover has increased from 5% to 18% of the land area, although this is still only half the average level of woodland cover across the EU.

Figure 1. Average levels of woodland expansion since 1921



	1921-50	1951-60	1961-70	1971-80	1981-90	1991-00	2001-10
Broadleaf				2.6	8.2	44.9	40
Conifer	39	171	210	254.3	200.8	72.5	19.8

Between 1950 and 1990, an average of more than 20,000 hectares of woodland was created every year, the vast majority of which was conifer forest designed for timber production (by 1995 some 82% of Scotland's forests were composed of conifer species). For most of this time, the location of planting was strongly influenced by the need to secure 'clearance' from the then Department of Agriculture and Fisheries, and forests were mainly established on poorer ground, up to about the 500 metre contour. This policy was relaxed at the time of EU-wide food surpluses in the mid-1980s. At about this time the impact of afforestation on conservation and landscape gained more prominence. There was harsh criticism of the environmental impact of 'blanket planting' of monocultures of Sitka spruce. As a result of increased public concern, highlighted by publicity about the Flow Country of Caithness and Sutherland, tax-driven afforestation was brought to an end by the 1988 Budget.

The Woodland Grant Scheme replaced the tax incentives and was aimed at encouraging the creation of a wider range of woodland types to meet a broader range of objectives in addition to timber production. Other policy responses to concerns about 'blanket conifer afforestation' had included a requirement to incorporate at least 5% broadleaves in planting proposals; the development of Indicative Forestry Strategies; and the development of the first set of environmental guidelines (for example on *Forests & Water*, *Nature Conservation* and *Landscape Design*). These guidelines paved the way for the first *UK Forestry Standard* (1998), which required 10%-20% open space as well as 5% broadleaves and at least 5% 'other conifers'. Over this period there was also a gradual evolution of the consultation process relating to woodland expansion; since the mid 1990s details of all proposals have been published on a public register[1], inviting people to comment. Efforts are made to address concerns that are raised, and a formal procedure is required if local authorities or statutory bodies (such as Scottish Natural Heritage (SNH) or the Scottish Environment Protection Agency (SEPA)) sustain an objection to a woodland creation proposal.

The 1988 grant scheme also offered additional incentives for planting 'better land' (i.e. arable or improved grazing). At the same time a Farm Woodland Scheme (later the Farm Woodland Premium Scheme) gave farmers annual payments to encourage them to plant trees. The conversion of farmland to forestry was seen primarily as a way of reducing potential agricultural output, while diversifying the income base of farmers (in the long term) and providing some environmental benefits. In general, the farm woodlands created under these schemes made use of poor or difficult land in order to secure an annual income, provide shelter and deliver landscape and conservation benefits (about 30% of the planting was alongside a water). Timber production was seldom a motive and these grant schemes had little or no impact on the traditional separation between the two land uses[2].

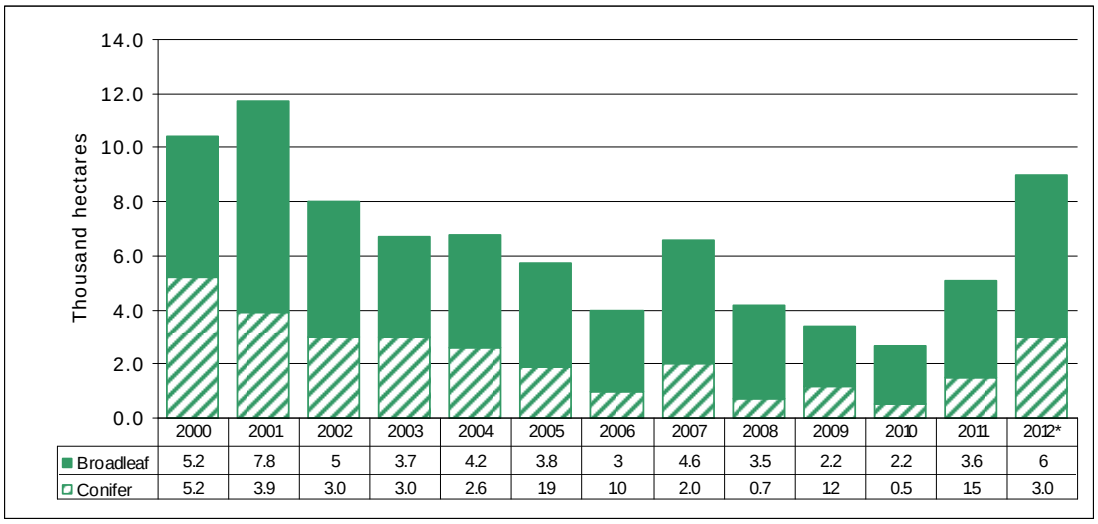
[1] http://www.forestry.gov.uk/forestry/infd-5zglrv

[2] Further detail on this is available in a working paper (WEAG 8a) prepared for the Group by Professor Jeff Maxwell - see http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8meebv.

Although some adjustments were made (including the introduction of geographically targeted challenge funds and locational supplements), these measures remained in place until the Scottish Forestry Grant Scheme was introduced for a brief period between 2003 and 2006. During the 1990s an average of 11,700 hectares of new woodland were created each year, bolstered in the late 1990s by additional support from lottery money for the Millennium Forest for Scotland. The level of planting reached a low point of 2,600 hectares in 2009/10, as a result of delays and other problems associated with the introduction of the Scotland Rural Development Plan. It subsequently rose to 5,100 hectares in 2010/11, and the figure for 2011/12 is 9,000 hectares.

Since the early 1990s, there has been increased support for native woodlands, with the proportion of native woodlands increasing from around zero in the 1970s and 1980s, to a third in the 1990s and over two thirds in the 2000s. In the last 15 years there has been an overall increase of about 4% in the proportion of broadleaves in the resource (up to 22%) and a corresponding decrease in the proportion of conifers (down to 78%)[1].

Figure 2. Average levels of woodland expansion in recent years



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
Broadleaf	5.2	7.8	5	3.7	4.2	3.8	3	4.6	3.5	2.2	2.2	3.6	6
Conifer	5.2	3.9	3.0	3.0	2.6	19	10	2.0	0.7	12	0.5	15	3.0

*Provisional figures

Until the mid-1970s at least half the new planting was undertaken on land acquired for this purpose by the Forestry Commission, but the Commission largely withdrew from this activity through the 1980s and planted only a few hundred hectares in the ten years 1998-2008. More recently, through its 'repositioning programme', Forestry Commission Scotland has used the proceeds from the sale of land and forests that offer little by way of public benefits to acquire land for woodland creation that will deliver significant public benefits. Currently, the aim is that new planting by Forestry Commission Scotland on the national forest estate should contribute about 1,000 hectares per year towards

[1] http://www.forestpolicygroup.org/FPG%20Scotland's%20Forest%20Resource.pdf

the overall Scottish Government target of 10,000 hectares per year. Based on this target, Scottish Ministers have offered a contribution of 100 million trees towards The Climate Group States and Regions Alliance's[1] commitment to plant 1 billion trees by 2015.

2.2. Benefits from woodland creation in Scotland

Scotland now has 1.39 million hectares of woods and forests. These produce crucial raw material for our wood processing industries. They also make an important contribution to reducing Scotland's net greenhouse gas emissions. However, woodland can be much more. At its best, woodland is outstandingly important to people for a variety of reasons, such as its contribution to biodiversity, its aesthetic qualities and delivery of ecosystem services, and its opportunities for developing skills, community capacity, health, recreation and learning. Woodland, perhaps more than any other vegetation type, profoundly influences the environmental quality and cultural identity of a place or a region.

The Scottish Government's *Rationale for Woodland Expansion* categorised the potential benefits of new woodland as:

Helping to tackle greenhouse gas emissions: The Climate Change (Scotland) Act 2009 has set statutory targets to reduce emissions by 42% by 2020 and by at least 80% by 2050. Increasing the rate of woodland creation to an average of 10,000 hectares per year (and minimising woodland loss) has the potential to abate an additional 310 $ktCO_2e$ in 2020, making a valuable contribution to meeting these ambitious emission reduction targets. Meanwhile, the *Farming for a Better Climate* programme, aimed at encouraging farmers to adopt measures that will reduce emissions, could abate 319 $ktCO_2e$ in 2020[2] if the required number of farmers take up these measures.

Restoring lost habitats and adapting to climate change: The historical fragmentation and reduction in area of Scotland's native woodlands has adversely affected overall biodiversity, and the resilience of many species that depend on these ecosystems. Climate change adds a further threat to woodland biodiversity and increases the importance of developing robust habitat networks that will provide large-scale areas of core woodland habitat, and allow woodland species and assemblages to adjust and adapt to changing conditions. Establishing new woodlands of various types, and expanding those that we have, to create functional forest habitat networks will help to safeguard priority species and meet our biodiversity targets. It is essential however that such expansion gives due regard to the need to protect and restore open ground habitats and sites for priority species.

[1] More information is available at www.theclimategroup.org/programs/states-and-regions

[2] see *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022* - http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/lowcarbon/rpp

Delivering ecosystem services: The integral contribution that strategically located woodland can play in the sustainable and cost-effective management of water and soil resources is increasingly being recognised, as is the need to develop more sustainable ways of managing them. Well managed woodland expansion provides opportunities to protect and improve the water environment and deliver the targets set in the river basin management plans. There are a number of options for using woodland to control runoff and reduce soil erosion, diffuse pollution and sediment delivery. The creation and enhancement of woodlands can also help in 'natural flood management'; for example, floodplain woodlands can provide flood risk management benefit by providing a physical obstacle to the movement of water. Woodlands also enhance the storage potential of soils by improving infiltration and increasing water uptake. Flood risk reduction associated with woodlands is probably most effective at the local catchment scale and for small and moderate flood events.

Biodiversity also delivers ecosystem services, for example through soil formation, air quality regulation and the cultural and aesthetic value of certain plants and species.

Underpinning a sustainable forest products industry: The growth and development of the forest products industry is a major success story but this sector is reliant on a sustained supply of suitable quality raw material (including Sitka spruce, which is attractive in terms of its wood properties and appearance[1]). Much of this timber comes from large productive conifer forests, which account for about 1 million hectares of the total forest area; an increasing proportion of this has benefited from 'restructuring' programmes aimed at improving their environmental quality by meeting current design standards. Scotland's forests produced over 7.6 million m^3 of timber in 2010; the sector sustains 13,200 full-time equivalent jobs and generates £460 million per year[2]. Over the past five years processing industries have invested over £250 million in new capacity. Scotland's 65 sawmills produce 1.5 million cubic metres of sawn softwood (or about half of the total UK production, equivalent to over a fifth of total UK sawn softwood consumption). In addition there are three particle board mills and an integrated pulp and paper mill. Although Scottish sawnwood is steadily increasing its penetration of UK markets, the net annual cost for the UK of importing wood-based products is still around £6 billion.

Meanwhile, the use of wood for fuel is increasing, at both industrial and domestic scales. The Scottish Government has a target for 11% of heat to come from renewable sources by 2020, and supports the use of biomass in heat-only or combined heat and power plants, particularly off gas-grid, and to a scale which maximises heat use and local supply[3]. The Renewable Heat Incentive provides

[1] *Wood properties and uses of Sitka spruce in Britain*, Forestry Commission Research Report (2011)
[2] *A valuation of the economic and social contribution of Forestry for People in Scotland* (2008) - http://www.forestry.gov.uk/fr/INFD-6S8CSP
[3] *2020 Routemap for renewable energy in Scotland* - http://www.scotland.gov.uk/Publications/2011/08/04110353/0

financial support for non-domestic renewable heat installations. However, there are serious concerns that UK Government policies on bioenergy may lead to a significant increase in the use of wood for large-scale electricity generation and so jeopardise wood supplies for the existing processing industries which generally deliver greater carbon benefits and higher added value products.

Supporting rural development: Some 44% of forestry and timber processing related businesses are rural-based, with 15% based in areas categorised as remote rural or very remote rural. Woodland establishment and management underpin a range of economic activity in such areas and where rural communities work together actively to increase direct community benefits this can increase community cohesion and capacity. In many areas there is good potential to create new woodlands on farms to support farm diversification.

Providing community benefits: In rural areas, the local economic activity arising from woodlands has a direct benefit on the sustainability of fragile rural communities. Many of the 150 or more community woodland groups around Scotland are actively seeking to increase these direct community benefits. Although there is a perception that community woodlands are all about social and environmental aims, economic motives are also important. Community involvement with local woodlands helps build community cohesion and capacity, which in some cases has led community groups into additional activities like affordable housing or social enterprises.

Crofter forestry can be seen as a variation of the community woodland model, especially where undertaken on common grazings. In 1991, new legislation[1] gave crofters rights to plant and manage trees, both individually on their own crofts, and collectively on common grazings. In the case of the latter, over 200 township grazings committees have taken the opportunity since then to plant trees on their common grazings. Of the 10,000 hectares of new woodland established by crofters under this legislation, some 75% has been on common grazings – and around 2,000 crofters have been involved in these schemes, often on very challenging sites.

Providing urban regeneration benefits: Accessible woodlands, particularly where they are integrated with other forms of green space, help to improve quality of life in urban areas. This is why we want to see new woodland being integrated into urban plans – from flagship schemes for urban regeneration such as the Central Scotland Green Network[2] to local development proposals. The health potential of woodland is becoming increasingly recognised. Woods are beginning to be used for organised health walks, GP referral schemes, and for projects supporting those recovering from mental illness. Woodlands are also being used as focal points for learning and as robust places for outdoor play. The

[1] Crofter Forestry (Scotland) Act 1991

[2] Further details on the Central Scotland Green Network are available at http://www.centralscotlandgreennetwork.org

opportunities for woodlands to contribute to these benefits will grow as new woods are created in and around Scotland's cities, towns and villages.

2.3. The Land Use Strategy

The Scottish Government's *Land Use Strategy* recognises that 'the way that we use Scotland's land resources in the future will be critical to our economic performance, to our environment, to our sense of place and community, and to our quality of life'. It recognises the many different demands on the land (and that these demands are sometimes in conflict). It seeks to shift our thinking away from a sectoral approach to land use – which considers, for example, farming, forestry, conservation and community uses of the land separately – to a much more integrated and strategic approach which aims at:

- Delivering multiple benefits;
- Partnership with nature;
- Linking people with the land.

We very much support this approach. Though each of us on the Advisory Group has our own particular interests in land use, we recognise that different requirements for the land need to work together so as to get the best from our land.

The Land Use Strategy also set out ten 'Principles for Sustainable Land Use' to be used when making plans and taking significant decisions affecting the use of the land. We asked participants at our stakeholder meetings for their views on using these principles to help guide woodland expansion. In general, there appeared to be support for the Land Use Strategy principles, but the following comments were made in relation to a number of them:

- *Opportunities for land use to deliver multiple benefits should be encouraged*: this principle underlines the need for better integration between forestry, farming and other land uses;
- *Regulation should continue to protect essential public interests whilst placing as light a burden on business as is consistent with achieving its purpose. Incentives should be efficient and cost effective*: much needs to be done to realise this principle in practice, especially in relation to incentives under SRDP;
- *Where land is highly suitable for a primary use (for example food production, flood management, water catchment management and carbon storage) this value should be recognised in decision-making*: forestry should be explicitly recognised within this principle as an important primary land use;

- *Land use decisions should be informed by an understanding of the functioning of the ecosystems which they affect in order to maintain the benefits of the ecosystem services which they provide*: the principle is accepted but language of 'ecosystem services' is not always understood by people;
- *Landscape change should be managed positively and sympathetically, considering the implications of change at a scale appropriate to the landscape in question …*: this principle should also embrace the historic landscape (eg archaeological features);
- *Land-use decisions should be informed by an understanding of the opportunities and threats brought about by the changing climate…*: the creation of integrated habitat networks will help priority species adapt to climate change;
- *People should have opportunities to contribute to debates and decisions about land use and management decisions which affect their lives and their future*: this principle is very important, but effective consultation requires skill and resources.

In its section on delivery, the *Land Use Strategy* helpfully identifies the tools that are available for implementing policy objectives. Those relevant to woodland expansion include incentives and regulation, the management of public land, regional and sub-regional plans and strategies, research, and information and advice We touch on all of these areas within this report.

2.4 Interactions with other land-based objectives

If woodland is such a good thing, delivering so many benefits, what is the problem with creating more of it? The problem is that land is a finite resource. Woodland expansion may mean contraction of another land use. And inappropriately located, or poorly designed or managed woodland expansion can conflict with other land uses. In this section, we use a framework of ecosystem services to analyse the range of land use objectives that provide a context for decisions about which types of land are best for tree planting, and which types of woodland we need to create to deliver multiple benefits. We also highlight conflicts with other land use objectives.

We have based our classification of ecosystem services on that used by the UK National Ecosystem Assessment[1], namely:

- Provisioning services: such as fibre, food and fresh water;

[1] http://uknea.unep-wcmc.org/EcosystemAssessmentConcepts/EcosystemServices/tabid/103/Default.aspx

- Regulating and supporting services: such as climate regulation, biodiversity, pollination, disease and pest regulation, regulation of water, air and soil quality, soil formation, nutrient cycling, water cycling;
- Cultural services: such cultural heritage, recreation and tourism, aesthetic experience.

Wood production (a provisioning service)

The wood production objective aims to provide sustainable and predictable supplies of raw material for Scotland's forest product industries. This is essential to provide the confidence needed for future capital investment. As noted in section 2.2 of this report, traditional processors are concerned about increased demand for wood from large-scale electricity generating stations that would consume very significant volumes of domestically produced biomass. The forestry industry is very concerned about potential loss of productive capacity resulting from low levels of conifer planting, combined with the loss of productive area associated with development of wind farms and the environmental improvement of existing forests; it is estimated that about 10,000 - 15,000 hectares of forest has been lost for these reasons over the past 10 years, but work is underway to obtain more accurate figures.

To sustain future investment, the industry would wish to see an increase in productive planting to levels that would sustain production of at least 8.5 million cubic metres of timber per year. Achieving this will depend in part on the management of existing forests (which is outwith our remit) but **we believe that the creation of new conifer woodlands will be a crucial factor in helping to maintain confidence in the wood processing industry. Rates of this kind of planting are miniscule in relation to the Government's stated aims of 6,000 hectares per year[1].** A key point is that wood production can be achieved on much of the poorer quality soils that are common in Scotland and so represents a very significant provisioning opportunity from such land.

Approximately every five years, the Forestry Commission has published a softwood production forecast for the next 25 years. This information is used by the forest industries to help inform investment decisions and was last published in 2006. The new softwood forecast, which is part of the Forestry Commission's National Forest Inventory, is different[2]. For private sector forests it is based on field surveys, making the information more accurate, and will be an estimate of potential future softwood *availability* rather than of *estimated production*. We understand that this new forecast will be published very soon. It is likely to indicate that there could be significant additional volumes available to harvest over the next 25 years, with the increased potential availability being in the private sector. This forecast will define an upper boundary of potential availability and further work will be required to assess timber volumes that are likely to come to market, taking account of such factors as access, harvesting costs, forest

[1] As set out in the *Scottish Government's Rationale for Woodland Expansion*

[2] Further details are available at: http://www.forestry.gov.uk/forestry/INFD-8RBP67

design considerations and forest owners' responses to price signals. Our analysis of timber standing sales has revealed a clear price gradient, with higher prices in the south of Scotland and lower prices in the north[1].

We recognise that there are underdeveloped opportunities for native broadleaf species to contribute to this provisioning service. The biomass market in particular provides opportunities for using a wider range of species than in the past – species which were once viewed as having little or no value and the domestic hardwood processing and furniture sector continues to develop very successfully. There is ongoing work to support hardwood tree breeding.

Provisional figures from the National Forest Inventory (NFI) suggest that the standing volume of hardwoods in Scotland is around 33 million cubic metres[2] and in 2011, hardwood timber production in Scotland was 37 000 green tonnes (FC Statistics). A forecast of potential hardwood availability will be published as part of the NFI in 2013.

Access for harvesting timber is an important practical issue. This includes on-property access to the proposed woodland and off-property connections. Agreed Routes Maps identify those roads which can be used without restriction for timber haulage; various restrictions apply to other routes[3]. Distance to market has an obvious impact on haulage costs, as does a requirement for shipping or barging.

Food production and farming (a provisioning service)

As well as meeting forest-related land use objectives, there is a need to achieve woodland expansion in ways which minimise the potential loss in capacity to produce food. In the years of agricultural surpluses the creation of woodland on agricultural land was encouraged. However, now that global food security is once again recognised as an important issue, and the Government has declared its wish to protect agricultural production capacity, particular concerns have been expressed about the potential of woodland expansion to conflict with food production.

In recent years there has been a policy of focussing woodland creation away from prime agricultural land to prevent the best and most versatile land being converted to woodland. There remains, however, concern about the impact on food production from other grades of agricultural land - particularly livestock production on improved grassland. Quality Meat Scotland (QMS) has explained that the Scottish red meat sector – which relies mostly on grade 3-6 land – generated revenues of around £1.8 billion in 2010 (excluding subsidy payments)

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[1] See working paper WEAG 21 at http://www.forestry.gov.uk/pdf/WEAG21Timberandtransport.pdf/$FILE/WEAG21Timberandtransport.pdf

[2] http://www.forestry.gov.uk/forestry/INFD-8T9KND

[3] Further detail is available on the website of the Timber Transport Forum (http://www.timbertransportforum.org.uk/?pid=1) and details of routes are shown on a map browser (http://maps.forestry.gov.uk/imf/imf.jsp?site=TTAR).

with exports exceeding £100 million. Some 27,000 full-time equivalent jobs are directly involved in farming and primary processing of red meat and the industry has grown strongly in recent years despite the economic downturn. QMS suggested that we should identify ways in which the undoubted environmental and social benefits of woodland expansion could be achieved without having a detrimental impact on the sustainability of the red meat industry.

In order to investigate the impact of woodland creation on livestock production, we commissioned an analysis which used data on stocking densities provided by the James Hutton Institute. These were analysed according to agricultural region and land class[1]. The results suggested that, **based on conservative assumptions, less than 2 per cent of Scotland's total livestock units would be displaced or lost from production through planting 100,000 hectares of improved / rough grazing over the next ten years**, and this impact could be reduced through careful choice of land for planting and effective integration with agricultural operations[2]. For example, well planned woodland for use as shelter belts can help reduce costs associated with winter housing or winter feed in sheep and cattle as a result of reducing energy losses[3], and can provide other benefits such as timber and woodfuel production, carbon sequestration, soil improvement, freshwater protection, biodiversity enhancement and improved landscape, whilst broadly maintaining agricultural productive capacity and helping with fencing/containment. For further analysis of the impact of woodland creation on agriculture and recommendations on this topic, see section 3.

Water (a regulating and supporting service)

The EU Water Framework Directive 2000 seeks to protect, enhance and restore the condition of all water in the natural environment. To help achieve this, River Basin Management Plans identify water bodies that are not at good condition and which could be improved, for example through the planting of riparian woodland or through better forest design. The Flood Risk Management (Scotland) Act introduces a new approach to managing floods, which includes a requirement to consider the use of natural flood management, such as woodlands to reduce flood risk. **There is benefit from integrating plans for woodland creation with the river basin management planning process and the flood risk management planning process.**

Research into the role of forests and woodlands in relation to water is summarised in *Woodland for Water: Woodland measures for meeting Water*

[1] The land classes were 'mixed' (i.e. Macaulay grade 3.2-4.2), 'improved' (i.e. grade 5.1-5.3 and 'rough' (i.e. grade 6.1-7).

[2] See working paper WEAG28 at http://www.forestry.gov.uk/weag

[3] See for example Blaxter K L (1964) The effect of outdoor climate in Scotland on Sheep and Cattle, Vet Rec 76 (50) 1445; and Joyce J P & Blaxter K L (1964) The effect of air movement, air temperature and infrared radiation on the energy requirements of sheep, Brit J Nutr 18 5.

Framework Directive objectives[1]. This provides evidence of the benefits for water and soil of woodland in appropriate locations, which it says are potentially greatest when planting of riparian and floodplain woodland. Such woodlands can help tackle diffuse pollution by reducing the risk of direct contamination on adjacent land and by trapping and retaining nutrients and sediment.

Compared to arable land or managed grassland, woodland provides a semi-permanent land cover that receives only very small (often zero) and infrequent inputs of fertiliser and pesticides, resulting in a relatively minor risk of diffuse pollution. However, the risks to water are dependent on woodland design and management. There are specific life-cycle stages and circumstances where productive management of woodland can pose a risk of diffuse pollution, especially when involving more intensive management practices on sensitive soils. The risks are greatest for conifer forest crops on poorer upland soils, where cultivation, drainage, fertiliser and pesticide applications, road construction and harvesting can lead to increased sediment delivery, turbidity and downstream siltation. The largest risks from forestry are associated with harvesting operations, usually linked to poor practice in timber extraction. Ground damage due to machinery can lead to soil erosion and increased sediment delivery to watercourses. Clear felling also presents a risk of both phosphate and nitrate contamination of watercourses. These problems should be addressed by following the good practice measures set out in The Water Environment (Controlled Activities) (Scotland) Regulations 2011 and the *UK Forestry Standard Guidelines on Forests and Water*[2].

As the climate changes there is likely to be an increase in extremes, with more floods and droughts. Flood risk management can be improved in appropriate locations, through floodplain and riparian woodlands that store and slow peak water flows [3]. The interception of rainfall by woodlands can help with flood risk management too, but can also reduce water flows at times of drought. Though the UK Climate Change Risk Assessment's Scottish report[4] focuses on societal water demand rather than land use as a contributor to low flows, this potential risk should be borne in mind in areas where climate change is likely to lead to drier summers, and water demand exceeds supply. In the future we are likely to see increasing interest in this subject.

There is still concern, especially from south west Scotland, about the impacts on water quality and hence on fish populations of increasing levels of coniferous afforestation in acid sensitive river catchments. The underlying cause of surface water acidification is acid deposition from air-borne pollution but SEPA have advised us that forestry can exacerbate this as tree canopies enhance the

[1] Forest Research Monograph 4, 2011 www.forestry.gov.uk/pdf/FRMG004_Woodland4Water.pdf/$FILE/FRMG004_Woodland4Water.pdf

[2] http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bvgx9

[3] See for example The role of woodland in flood control: a landscape perspective, T.R. Nisbet and H. Thomas, Forest Research 2006.

[4] A Climate Change Risk Assessment for Scotland www.defra.gov.uk/environment/climate/government

scavenging of acid deposition. Because of its underlying geology, Galloway is a 'hot spot' for surface water acidification.

With the decline in general levels of acid deposition and improved forest design, the forest scavenging effect is becoming marginal; nevertheless it will take many years for the existing pollutants 'bound up' in the soils to be released and for soils to re-equilibrate to pre-pollution levels, especially given the low buffering capacity of the geology in Galloway. Long-term monitoring studies[1] indicate that the forested sites are improving at least as fast as the moorland ones, but in certain catchments an increase in forest scavenging (even a small one) resulting from woodland creation could be critical. We understand that the Forestry Commission and SEPA are working with other stakeholders to develop practical guidelines to address this difficult issue and note that it remains important to assess the potential impacts of new planting in acid-sensitive areas.

Carbon sequestration (a regulating and supporting service)

The Climate Change (Scotland) Act 2009 sets targets to reduce Scotland's green house gas emissions by 42% by 2020 and 80% by 2050, compared to the 1990/1995 baseline. This means reducing net emissions from 53 $MtCO_2eq$ (million tonnes of carbon dioxide equivalent) in 2010 to 38.3 $MtCO_2eq$ in 2022. Under 'business as usual', net emissions from agriculture and related land uses (including forestry) will fall from 11.7 $MtCO_2eq$ to 11.5 $MtCO_2eq$. To improve on this, the Scottish Government introduced its woodland creation targets and *Farming for a Better Climate* programme.

CO_2 projections for forestry have been produced by the Centre for Ecology and Hydrology, in conjunction with Forest Research[2]. These show that there have been net CO_2 removals from forestry, which help reduce overall net emissions; these net removals increased to 10.3 $MtCO_2e$ in 2004, but have now fallen back as a result of the decline in new planting since the 1980s. **If woodland creation averages only 4,000 hectares per year, net removals will fall to 6.8 $MtCO_2e$ by 2022; but if the Scottish Government target of 10,000 hectares per year is achieved net removals will only fall to 7.2 $MtCO_2e$[3].**

Combating Climate Change – a role for UK forests (2009), edited by Professor Sir David Read FRS[4], contains a thorough review of research evidence concerning forestry's contribution to climate change mitigation. This report notes that woodland creation offers considerably more scope for carbon sequestration than changes in management practices for existing forests. It also assesses the benefits of using harvested wood products to substitute for building materials (such as concrete and steel) and fossil fuels. The report addresses the

[1] By the UK Acid Waters Monitoring Network - http://awmn.defra.gov.uk/index.php
[2] Centre for Ecology and Hydrology projects reports: http://ecosystemghg.ceh.ac.uk/reports.htm
[3] See technical appendix to *Low Carbon Scotland* - http://www.scotland.gov.uk/Publications/2011/03/10163857/4
[4] http://www.forestry.gov.uk/forestry/infd-7y4gn9

consequences of woodland creation for soil carbon content, noting the significance of soil type and previous land use.

Potential carbon losses are greatest on peat soils and a more detailed assessment of this is reported in *Understanding the GHG implications of forestry on peat soils in Scotland* (2010)[1], which suggests that net green house gas balance from tree planting would probably be negative on deep peats (where tree growth is likely to be poor without substantial site modification). It concluded that restricting new planting to shallower peats (<50 cm deep) with less potential carbon loss, and usually better tree growth conditions, was a sensible precaution. This research advice is reflected in the new *UK Forestry Standard* guideline on avoiding woodland establishment on soils with peat exceeding 50 cms depth.

Soil (a regulating and supporting service)

The Scottish Soil Framework (2009)[2] aims to promote the sustainable management and protection of soils consistent with the economic, social and environmental needs of Scotland. It describes key pressures on soils, relevant policies to combat those threats, and identifies the future focus for soil protection, with key outcomes and actions. The *UK Forestry Standard Guidelines on Forests and Soils*[3] set out requirements and good practice measures that should be observed in order to meet the aims of the *Scottish Soil Framework*. Peatlands represent an important carbon store and one requirement of these Guidelines is that **woodland creation should be avoided on peat exceeding 50 cm depth and on sites that would compromise the hydrology of adjacent bog habitats**.

Biodiversity and the conservation of open ground habitats (a supporting service)

Biodiversity itself contributes to the full range of ecosystem services. Scotland's biodiversity strategy, *Scotland's Biodiversity: It's in Your Hands* (2004)[4], sets out how the government will conserve biodiversity, with the aim of halting biodiversity loss. This strategy is now being reviewed, following the 2010 agreement of new global biodiversity targets by the UN Convention on Biological Diversity and the new EU Biodiversity Strategy. Scotland has adopted an ecosystem approach to biodiversity conservation, with five ecosystem groups responsible for delivery. One of these groups is the Woodland Ecosystem Group, which is helping to deliver an ecosystem approach to biodiversity conservation for woodlands in Scotland by coordinating planning, delivery and reporting of biodiversity action for woodlands, and reviewing priorities for biodiversity action. Ecosystem health targets are being developed to identify the structural and functional attributes of woodland ecosystems needed to maintain biodiversity and

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[1] http://www.forestry.gov.uk/pdf/FCS_forestry_peat_GHG_final_Oct13_2010.pdf/$FILE/FCS_forestry_peat_GHG_final_Oct13_2010.pdf

[2] http://www.scotland.gov.uk/Publications/2009/05/20145602/0

[3] http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bvguk

[4] http://www.scotland.gov.uk/Publications/2004/05/19366/37239

deliver key ecosystem services. The *UK Forestry Standard Guidelines on Biodiversity*[1] explain that the conservation of biodiversity is an essential part of sustainable forest management and defines standards and requirements.

However, many open ground habitats have particular biodiversity value – a value which was not always recognised in the past. As well as representing an important carbon store, peatlands include many of the largest remaining semi-natural habitats in Scotland, hosting nationally and internationally important biodiversity features. While the most important rare priority open habitats are protected through designations, and woodland creation is avoided on peat exceeding 50 cm depth, other large areas of open ground are potentially available for new woodland. This is seen as representing a potential conflict with the conservation of such open ground habitats as upland heath and species-rich grassland. The RSPB[2] rates almost half Scotland as very highly or highly sensitive to afforestation in terms of its impact on open-ground birds. As well as highlighting the potential for tree planting to damage such sites and their associated biodiversity, respondents to our consultation commented on the potential for cumulative impacts of woodland creation and the potential for damage to sites that are not designated or are not of 'priority', but which are nonetheless important for biodiversity.

Deer management (a cultural and provisioning service)

The recently published *Code of Practice on Deer Management*[3] aims to support people who own or manage land on which wild deer occur. It highlights the actions deer managers are encouraged to undertake to meet their responsibilities, which include collaboration with neighbours. It is based upon *Scotland's Wild deer: a national approach* (2008)[4], which identifies key actions needed for sustainable deer management. Those most relevant to woodland creation are: to develop effective ways to address and integrate deer management within an ecosystem-scale approach to landscape and biodiversity; to protect woodlands, bogs and carbon-rich soils in order to enhance carbon storage; to actively manage wild deer to minimise losses to woodland establishment and growth, agriculture and other land-uses; and to develop further the capacity to manage deer in woodlands cost effectively.

In practice, of course, different owners and managers have different objectives for managing deer, which are a common resource and do not respect property boundaries. Where deer management is carried out to facilitate the establishment or protection of woodland, it is resource-intensive. The main options are to fence the deer out of woodland or to undertake on-going deer control to reduce deer populations to levels that are low enough to minimise damage on growing trees. Deer fencing is preferred by many land managers as it

[1] http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bveh4

[2] Fraser, A.M., Evans, R. & Teuten, E. (2011) Bird and Habitat Sensitivity Mapping to provide Locational Guidance for Woodland Expansion in Scotland. RSPB Scotland, Edinburgh. Unpublished.

[3] http://www.snh.gov.uk/land-and-sea/managing-wildlife/managing-deer/code-of-deer-management/

[4] http://www.snh.gov.uk/land-and-sea/managing-wildlife/managing-deer/wdna/

provides greater security of the forest resource, but is expensive and can have negative impacts on woodland grouse, landscape amenity, access and wider biodiversity. Fencing woodlands can also impact on deer welfare by reducing access to shelter. If populations of deer in surrounding areas remain high any subsequent removal of fences can lead to damage of trees and associated ground flora. Deer control by shooting is the main alternative to protect woodland, but this too can be expensive and can negatively impact on the sporting interests of neighbouring properties.

During our consultation, there were a good many comments about conflicts with deer management. Some respondents were concerned about the levels of cull needed for successful woodland establishment and the adverse impacts on neighbouring sporting interests. Others argued that the problem is one of high deer densities on sporting estates which adversely affect neighbouring properties whose interests are to grow trees or food. The Code of Practice on Deer Management is highly relevant as a means of reducing these tensions and is therefore a key initiative in relation to woodland expansion.

All deer managers would agree the importance of, and the need to, ensure that deer have access to appropriate areas of shelter (including woodlands) for welfare reasons. Increasing areas of woodland on red deer range is often the only option to improve shelter opportunities for upland red deer managers and **there is therefore potential to align the interests of upland red deer managers with those who are concerned about the future of the highly fragmented native woodland remnants which often characterise such land.** Fencing, with all its problems, is therefore a key issue – and often the only practical means of maintaining viable deer herds whilst expanding the woodland cover. Further relevant analysis and recommendations can be found in Section 4.

Cultural heritage and historic environment (a cultural service)

The Scottish Government's key outcomes for the historic environment are that it is cared for, protected and enhanced for the benefit of our own and future generations; that there is increased public appreciation and enjoyment of the historic environment amongst all the people of Scotland and visitors; and that the historic environment's importance as a key asset in Scotland's economic, social and cultural success is recognised and skilfully harnessed. Scotland's woodlands contain an important part of the nation's cultural heritage and woodland managers under the *UK Forestry Standard Guidelines on Forestry and the Historic Environment*[1], woodland managers are expected to identify and protect heritage features, taking due account of cultural, historic and designed landscapes when drawing up management plans. Grant support is available to encourage active management to secure and enhance the condition of heritage features for future generations and to provide good interpretation. Further details are set out in Forestry Commission Scotland publications on *Scotland's Woodlands and the Historic Environment, Identifying the Historic Environment in Scotland's*

[1] http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bvf2g

Woodlands and Forests and on *Conserving and managing trees and woodlands in Scotland's designed landscapes*[1].

Nevertheless, a number of respondents to our consultation exercise raised concerns that in upland areas there are many unidentified archaeological and landscape features and that, in the past, surveys carried out ahead of planting have been limited. There was a view that such surveys should become standard practice. These respondents highlighted the importance of archaeology features, the potential for planting to cause damage to the historic environment and the concurrent need to be clear what heritage is important.

Recreation (a cultural service)

As explained in the *Land Use Strategy*, opportunities for outdoor recreation, in and around towns or in the wider countryside, is vital to social and individual health and well-being. The importance of providing recreation opportunities and public access to land is highlighted in the Principles for Sustainable Land Use. Woods and forests have in important part to play, especially on the national forest estate (managed by Forestry Commission Scotland) and in woodlands that are owned or managed by or for local communities. Other owners are not necessarily so proactive in encouraging access, but in general there is little difficulty in managing woodlands in ways that comply with the *Scottish Outdoor Access Code*[2]. The recreation value of forests depends partly on their location – they have an especially positive role in and around towns – and partly on the range of associated facilities and attractions, for walking, picnicking and cycling. In addition, there are more specialised forms of woodland-based recreation, such as sport shooting[3]. One area of difficulty, however, is the management of recreation on operational sites and we understand that Forestry Commission Scotland is currently developing revised guidance on this.

Landscape (a cultural service)

The European Landscape Convention describes landscape as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. This implies that all landscapes are important, whether officially recognised through formal designations or not. Forests and woodlands are important visual elements in the landscape that change over time. They have great potential to enhance and enrich the environment and make a significant contribution to landscape quality – but if poorly designed they can have negative impacts. Very often they are the dominant element in the landscape. **Impacts upon landscapes need to be given due weight in land-use decision-making** and standards for forests and woodlands are set out in the *UK Forestry Standard Guidelines on Forests and Landscape*[4]

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[1] http://www.forestry.gov.uk/forestry/infd-5xfmdu

[2] http://www.outdooraccess-scotland.com/

[3] *The creation of small woods on farms* (published by Forestry Commission Scotland) includes guidance on designing woodland for game coverts: see http://www.forestry.gov.uk/swof

[4] http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8bvf7a

Community development (a cultural service)

One of the objectives of the *Land Use Strategy* is for urban and rural communities to be better connected to the land, with more people enjoying the land and positively influencing land use. There is a spectrum of opportunities for woodlands to help achieve this – from public engagement over such matters as forest design and recreation facilities, through partnership projects, to full community ownership or management supporting local identity and community development. A key strength of locally owned or managed woodlands is their potential for local relevance and connectedness, resulting in a rich mix of social benefits and opportunities for linking people with the land. In practice, community woodlands groups tend either to own or lease well-established woodlands or enter partnership agreements with owners to manage them, often improving the quality of multi-objective management significantly. **This emphasis on existing woods is not because of a lack of interest in creating new woodland, but the difficulty of acquiring or leasing land itself for planting.**

The demand for planting land is certainly there; precedents such as the Millennium Forest for Scotland have demonstrated a keen response if funds are available to top up existing grants. The problem is that land is expensive and few owners are amenable to the transfer of their assets into community hands. While there are examples of community groups (such as the Borders Forest Trust) raising funds from voluntary donations to buy land for planting, recent experience has highlighted the difficulty of doing this in the face of often tight deadlines for submitting bids.

On the other hand, we have heard strongly voiced **concerns from some people that too much forestry in an area can have a detrimental impact on communities and could upset the local balance of agriculture**; reducing output and having a knock on impact through reductions in feed for local stock, jobs for hauliers, other jobs in agriculture and local businesses relying on agriculture. Indeed, fears have been expressed that too much forestry could precipitate a spiral of decline in the local agricultural sector. The decline in recent times in agricultural activity in many parts of Scotland (which has not been linked to woodland expansion) has made the agricultural community very sensitive to this type of issue[1].

Furthermore, there are fears about detrimental impact on communities where any loss of jobs could lead to depopulation and the loss of critical infrastructure such as schools. **A number of respondents highlighted the perceived social and community impact of forestry expansion, especially where whole farms are planted.** For example, Scottish Borders Council told us that the recent

[1] Farming's Retreat from the Hills . SAC Rural Policy Centre see: http://www.sac.ac.uk/mainrep/pdfs/retreatreport.pdf; also Thomson, S., 2011, Response from the hills: Business as usual or a turning point? An update of 'Retreat from the Hills' SAC Rural Policy Centre, see: http://www.sac.ac.uk/mainrep/pdfs/responsefromthehills.pdf

approval of three whole farm commercial forestry expansion schemes in close proximity to each other in the Ettrick valley in the Scottish Borders had provoked a strong adverse reaction in the local community because of the perceived negative impact on the agricultural economy and wider community. This message was reinforced at our meeting in Newtown St Boswells, and also reflected in other parts of the country.

A related issue was concern about timber transport. Despite the work of the Timber Transport Forum (referred to earlier in this section), the regional Timber Transport Groups and investment in infrastructure through the Strategic Timber Transport Fund (worth £3 million per year), it is clear that problems remain where local communities are disturbed by timber lorry movements.

Cumulative impacts

There is already rigorous site-by-site consideration of individual proposals for woodland creation. This aims to ensure that new woodland creation not only meets the standards laid out in the *UK Forestry Standard* and associated Environmental Guidelines, but also fits with the strategic plans for woodland set out in the local Indicative Forestry Strategy or Forestry and Woodland Strategy. However, there is concern that a series of individual proposals, each deemed to be appropriate on its own, can have a cumulative impact that is in conflict with other land uses and interests. This is particularly the case with agriculture, fisheries and conservation. We consider this important matter further in section 3.4, on taking a strategic approach to woodland creation.

2.4. Biophysical challenges

We are also acutely conscious of a number of biophysical challenges facing woodland expansion. In particular, there is the immediate challenge posed by the increasing numbers of pests and diseases and the longer-term challenge of climate change. These are not unrelated, as climate change is likely to create the conditions for even more pest and disease activity.

Pests and diseases

The recent increase in pests and disease outbreaks has been attributed in large part to the expansion of international trade in plants and plant products. We understand, for example, that the trade in nursery plants for parks and gardens represents a major risk pathway. Meanwhile, climate change may mean that some native pests and certain recently introduced pests may be more likely to expand their range or become more damaging. Major tree pest and disease threats already present in Scotland include:

- Dothistroma needle blight (DNB), formerly known as red band needle blight. In Britain this is caused by the *Dothistroma septosporum* fungus and can lead to significant loss of timber yield, and sometimes mortality, in (mainly) pine trees. Initially the main host was Corsican pine, but lodgepole pine and Scots

pine have been increasingly affected in recent years and this disease looks highly likely to affect the nature of pine woodlands and how they are managed, including our Caledonian pinewoods, especially in the north and east of Scotland.

- *Phytophthora ramorum*. This is a fungus-like organism which attacks many trees and plants (including rhododendron and viburnum). Few trees in the UK were affected until 2009, but it has now caused serious damage to larch in south west England, Wales and Northern Ireland. It was first confirmed on larch in Scotland in late 2010. By the end of 2011, there were confirmed outbreaks on larch in the Craignish peninsula, Mull, Islay, Galloway and north Cowal totalling about 70 hectares. Initial indications from the spring helicopter surveillance in 2012 suggest a major extension of the disease in Galloway and several new outbreak sites, of a smaller scale, in Argyll.

- Other pest issues include: the Pine tree lappet moth (*Dendrolimus pini*), other *Phytopthoras* (such as *P. austrocedrae* on juniper, *P. lateralis* on Lawson's cypress, *P. pseudosyringae* on Nothofagus and *P. alni* on alder); the great spruce bark beetle (*Dendroctonus micans*); and already established pests such as the Pine beauty moth, green spruce aphid, and large pine weevil.

There is a complex regulatory environment, both at the EU and UK level. Forestry Commission Scotland works closely with other parts of the Forestry Commission and with the Scottish Government to carry out the necessary surveillance and deal with woodland outbreaks. **Looking ahead, there is clearly a need to consider how best to build-in resilience to pests and diseases when creating and managing woodlands.** Some work has already been done on identifying alternative species[1], and there is an urgent need for this to be progressed, together with site-type recognition through the Ecological Site Classification, to increase the robustness of forests. Giving clear advice relevant to the establishment of new woodlands is thus a major task in any woodland expansion programme.

Climate change

The UK 2012 Climate Change Risk Assessment (CCRA)[2] includes specific reports for Scotland, and for forestry and other sectors. Relevant key findings for Scotland include:

- drier summers may reduce water availability, affecting both the natural environment and public water supplies;

[1] See http://www.forestry.gov.uk/fr/INFD-8CVD6H. In addition Scott Wilson has prepared a publication for FC Scotland on *Using alternative conifer species for productive forestry in Scotland* (2011) and FC Scotland has published a Practice Guide on *Achieving diversity in Scotland's forest landscapes* (2012).

[2] http://www.defra.gov.uk/environment/climate/government/risk-assessment/

- changes in soil conditions and other aspects of the natural environment may affect biodiversity and the ability of many native Scottish species to thrive;
- changes in climate may result in loss of species and changes in migration patterns;
- changes in coastal evolution caused by more frequent extreme weather and by rising sea levels may impact coastal communities and habitats across Scotland;
- warmer conditions may lead to an increase in forest productivity and in yields of key agricultural crops, although there is a potential for increased threats due to new or more widespread pests and diseases;
- increased coastal and inland flooding may affect people, property, infrastructure, natural habitats and a range of animal and plant species.

For the forestry sector in Scotland, the key risks and opportunities for woodlands from climate change appear to be increased problems of windthrow and drought, wildfire, pests and diseases, perhaps tempered by increases in productivity in tree species that are matched to the new conditions. **Species choice is likely to be an increasingly important subject and there may also be major changes in wider woodland biodiversity**. In addition, it is important to consider the potential role of woodlands in relation to such cross-cutting matters as flood risk management and slope stability. We understand that these matters are currently under careful consideration as part of the process of developing the new Scottish Government Climate Change Adaptation Programme.

3. Analysis and recommendations on the types of land for tree planting

The first part of our remit was to provide advice on which types of land are best for tree planting in Scotland, in the context of other land-based objectives. To do this we also need to consider how much more woodland, and of what type, Scotland needs.

3.1. How much woodland, and of what type?

In section 2 we have described the significant contribution that woodland creation can make to Scotland – to its economy, its environment, and its people. We have also highlighted some of the potential conflicts between further woodland creation and other land-based objectives, and we consider later how some of these conflicts can be avoided or at least reduced.

Woodland creation targets

The Scottish Government has committed to creating 10,000 hectares of new woodland per year for the period 2012-2022 as part of its commitment to reducing net greenhouse gas emissions – that is to say, a total of 100,000 hectares of woodland creation over that period (taking Scotland to around 19% woodland cover). This woodland creation will make an appreciable contribution to the overall programme of emissions reductions.

Our consideration of land-use objectives in section 2 highlights the importance of observing good practice as set out in the *UK Forestry Standard* and associated Environmental Guidelines. Later we make a number of recommendations aimed at mitigating the conflicts we have identified. **The analyses we have commissioned suggest that 100,000 hectares should be available for woodland expansion. Accordingly, we are content to support this target subject to implementation of the subsequent recommendations.** However, the Scottish Government will need to decide on the contribution of woodland creation towards its net greenhouse gas emission reduction targets for the land use sector in the period of 2022-27. **Therefore a review, initiated no later than 2020, should inform planting targets for the period beyond 2022**. We firmly believe that this is a more constructive way to identify the size and nature of future woodland expansion targets than using long term aspirational figures which are perceived as being a threat to existing land uses.

Recommendation 1: Woodland creation target.

The focus of the Scottish Government's woodland creation target should be on creating 100,000 hectares of new woodland over the period 2012-2022.

- **This should be carried out in ways that meet or exceed modern standards of good practice and deliver multiple benefits.**
- **There should be a review, initiated no later than 2020, to set targets for beyond 2022.**

What we want from woodlands

The forestry sector has pioneered multi-purpose land use as it has sought to increase the environmental and social value of well-designed productive forests, and this we strongly support. However, those establishing woodlands primarily for environmental or social benefits have had little encouragement to enhance the potential for economic return from those woodlands.

We believe that it is important to encourage genuine multi-purpose management wherever possible. Woods designed primarily for shelter, or to create a habitat, or to provide recreation, can often be designed in such a way that they can also contribute to the farm business or the local economy. In support of this we should **avoid prescriptive targets that distinguish between 'productive' and 'native' woodlands, and should aim to avoid stigmatising certain woodlands as 'non-productive'.** Instead, we should seek to ensure that all managers, not just those creating predominantly conifer forests, think about opportunities for future timber and wood fuel production. This is simply a matter of encouraging and supporting suitable planting densities and species choice. Forestry Commission Scotland needs to consider how best to deliver this, but it is likely to require adjustments to the woodland creation models within the SRDP.

This aspiration is entirely compatible with broader Government aims for woodland, such as the *UK Biodiversity Action Plan* which seeks the creation of around 4,000 hectares of specific types of new native woodlands in Scotland per year – some of which have the potential for timber and woodfuel production. It will also support the Government's move to a low carbon economy where using wood for construction and as a fuel are seen as key supporting measures[1]. This is why we have emphasised the need for a greater proportion of new woodlands to be designed to produce timber or biomass. The new timber production forecast should be used to assess the need for woodland creation in relation to the long-term requirements of the wood processing industry for long term

[1] See Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022 - http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/lowcarbon/rpp

sustainability of production and to ensure that we optimise the production potential of existing woodlands.

Recommendation 2: Productive woodlands.

Forestry Commission Scotland should work with the wood processing industry to encourage woodland owners and managers to consider opportunities for producing timber and/or wood fuel when creating new woodlands of all types. Measures to achieve this will include grants under the next SRDP, advice and facilitation.

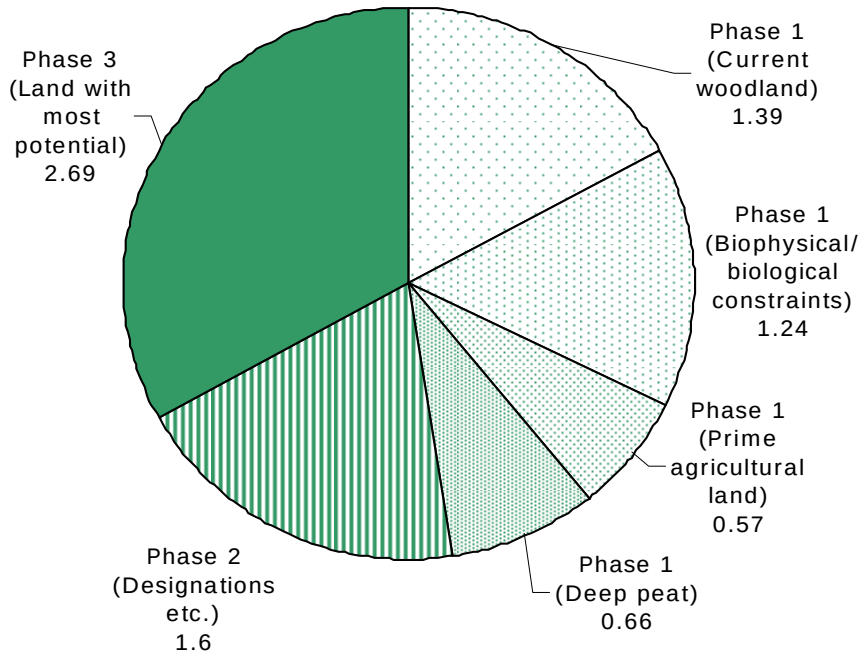
3.2. Types of land for tree planting

Land potentially available for woodland expansion

To help us understand the potential for woodland expansion in Scotland, we asked the James Hutton Institute and Forest Research to determine the impact of various technical and policy-led constraints on the availability of land for woodland expansion. They did this by identifying and describing the land in a three-phased approach:

- Phase 1: land that is predominantly not available for woodland expansion;
- Phase 2: land that is affected by national designations and policies which impose varying degrees of constraint on woodland expansion; and
- Phase 3: land that is not included in the first two categories and which is therefore most likely to have potential for woodland expansion.

Figure 3: Summary of the three-phased categorisation of land potentially available for woodland expansion (figures are million hectares, and there are some overlaps within phase 1 areas)



Phase 1: Land that is predominantly not available for woodland expansion

This category included land which is already wooded; land with biological and physical constraints; and prime agricultural land[1] and contiguous areas of peat over 0.5 metres deep (which are both subject to policies restricting woodland establishment). When combined and overlaps are accounted for, approximately 3.59 million hectares (46% of Scotland) fall into this category where there are very limited opportunities for woodland expansion. The only opportunities for woodland expansion on this land are likely to be small in scale – for example small woods on farms, hedgerow trees, riparian woodlands, urban woodlands and small community woodlands or orchards.

Phase 2: Land that is affected by national designations and policies which impose varying degrees of constraint on woodland expansion

The remaining areas of Scotland were considered with respect to national and international conservation designations, catchments at risk of acidification and heritage sites. These impose varying degrees of constraint on woodland expansion.

When overlaps between designated sites are accounted for, a total of almost 1.6 million hectares (20% of Scotland) is either nationally designated or is subject to other policies which impose constraints on woodland expansion. However, we recognise that there are some opportunities for expansion in these areas, for example in National Scenic Areas and Special Protection Areas. Most woodland establishment that might occur in this constrained area is likely to be native woodland which is carefully designed and sited to fit with existing valued conservation and landscape features.

Phase 3: Land not included in the first two categories and which is therefore most likely to have potential for woodland expansion

The consultants then characterised the remaining 2.69 million hectares (representing 34% of Scotland) according to its agricultural capability, its suitability for different types of woodland, priority habitats and smaller areas of deep peat. The key findings were:

- Almost 1 million hectares comprises Land Capability for Agriculture classes 3.2 – 4, suited to mixed agriculture
- Approximately 650,000 hectares comprises Land Capability for Agriculture class 5 and is suited to grassland production
- Approximately 1 million hectares comprises Land Capability for Agriculture class 6 and is suited only to rough grazing.

[1] Prime agricultural land is defined using the Macaulay Land Use Institute Land Classification for Agriculture as grades 1, 2 and 3.1.

- Virtually the whole area is, in biophysical terms, very suitable or suitable for native woodlands. 85% of the total Phase 3 area (and two-thirds of the rough grazing) is biophysically suited to productive conifer forests;
- Up to a maximum of 1 million hectares of the area UUmay be a UK BAP priority habitat type, the most prevalent being upland and lowland heath;
- It is estimated that 320,000 hectares comprises peat more than 0.5 metres deep.

Some of these categories overlap. The consultants also examined the agricultural use of this land, noting that use and capability are not necessarily the same. The results, for the land that is in agricultural use, were that 209,000 hectares is arable (including vegetables); 829,000 hectares is improved grassland and 1,207,000 hectares is rough grazing. This totals 2.2 million hectares, or 83% of Phase 3 land.

A separate analysis revealed that around 19% of phase 3 land is upland red deer range.

RSPB Scotland had undertaken their own analysis[1] giving an indication of the sensitivity to woodland expansion of 11 bird species which are, or may be, sensitive to the presence of woodland (e.g. upland/farmland waders, corncrake, golden eagle). This suggests that, within phase 3 areas, 1% of this area is very highly sensitive (afforestation may adversely impact on sensitive bird species), 33% is highly sensitive (adverse impact unless proposals can demonstrate a critical assessment of impacts, and how design, location and scale can overcome or avoid these), and 44% is of medium sensitivity (where afforestation proposals can show appropriate consideration through sensitive design, location and scale, there may be little or no impact on sensitive species and habitats).

Urban and post-industrial land

The work by the James Hutton Institute and Forest Research took a broad approach looking at large-scale constraints and opportunities. In addition, we have considered the opportunities for creating woods on Scotland's 10,000 hectares of vacant and derelict land[2], which is mostly located in the central belt. The majority of this land is in private ownership, but about 30% is in public or mixed public/private ownership. Since 2005, Forestry Commission Scotland has run a Woods In and Around Towns (WIAT) Programme[3] that encourages woodland creation on vacant and derelict land, as well as other areas within 1km of settlements of 2000 people or more. This programme is supported with specific forestry grants that to some extent reflect the higher costs of woodland

[1] Fraser, A.M., Evans, R. & Teuten, E. (2011) Bird and Habitat Sensitivity Mapping to provide Locational Guidance for Woodland Expansion in Scotland. RSPB Scotland, Edinburgh. Unpublished.
2 'Vacant land' is land that is unused for the purposes for which it is held and is viewed as an appropriate site for development. This land must either have had prior development on it or preparatory work has taken place in anticipation of future development. 'Derelict land' is land so damaged by development that it is incapable of development for beneficial use without rehabilitation.
[3] See http://www.forestry.gov.uk/forestry/infd-5w2nfz

establishment. However, only 5 hectares of woodland has been created on vacant and derelict sites since 2005, while the total area of new WIAT woodland has been over 1500 hectares. This is partly because costs can be very high: for example, the average cost per hectare for sites in the Newlands Programme in North West England was around £30,000. Another barrier is the potential 'hope' value associated with development attached to sites by their owners and the fear that 'temporary' greening of sites will rule out future development.

The creation of the Central Scotland Green Network (CSGN) Development Fund has led to renewed interest in the issue. There are also current Forest Enterprise Scotland projects, aimed at bringing more vacant and derelict land into WIAT on local authority-owned sites in the Glasgow area at Cuningar Loop (35 hectares) and Bothwell Park (49 hectares). In addition, the Scottish Government is currently developing proposals for a Vacant and Derelict Land Fund from 2012-13.

The WIAT programme has evolved to include a stronger emphasis on the role of urban woods in delivering environmental and economic benefits which complement the social benefits that remain its core focus. The economic benefits identified in the most recent phase include biomass production and the role of well-designed urban woodlands in enhancing the landscape quality of post-industrial areas.

Availability in the context of other land-based objectives

Given the range of potential conflicts identified in section 2.4, we consider below the suitability of different types of land for tree planting. We recognise that there will always be exceptions to these general considerations. **Bold type** indicates key considerations that have been incorporated into the recommendation that follows.

Arable land

Arable land is the most versatile land type and makes up less than 10% of the agricultural land in Scotland. Its value in food production is considered paramount and the presumption against planting of prime agricultural land is widely accepted. We agree that **the focus of woodland expansion should be away from prime agricultural land (defined by the Macaulay Land Use Institute Land Classification for Agriculture as grades 1, 2 and 3.1), but also recognise that there may be opportunities for small scale tree planting, for example, on field margins, along water courses or to improve the environment in and around towns.** Examples include the addition of trees and hedges to field margins to provide shelter, reinforce boundaries and improve the landscape; riparian woodland to protect water courses from spray drift or trampling; or strategically placed woodlands to provide environmental improvement, sporting cover or recreation in and around towns.

On other (non-prime) arable land, agriculture is likely to remain the primary land use, although there may be scope for woodland creation on a slightly larger scale. The quality of the land in a local context, and its environmental sensitivity, should be considered. For example, relatively small areas of poorer arable land may be essential components of farming systems in less favoured areas and, where this is the case, agriculture is likely remain the primary land use.

Grazing land

On much of Scotland's grazing land, we would expect livestock production to remain the primary land use. The role of this land is often crucial in maintaining livestock production for the red meat industry and for the local rural economy.

As noted in section 2.4, we commissioned an analysis of the potential impact of woodland creation on livestock production[1]. This analysis suggests that, at worst, around 2 per cent of Scotland's total livestock units would be displaced or lost from production through planting 100,000 hectares of improved or rough grazing land in Phase 3 areas over the next ten years. However, it is important that this is planned in ways that seek to avoid adverse impacts on agriculture, for example by ensuring that the remaining grazing areas around new woodlands can be managed in conjunction with each other or with adjacent land, or by addressing the impacts on the viability of livestock production in the wider area.

This potential impact can be further reduced by taking opportunities to design new woodlands in ways that benefit the farm business, as described in section 2.4. For example, well planned woodland for use as shelter belts can help reduce costs associated with winter housing or winter feed in sheep and cattle. In addition, it can provide other benefits such as timber and woodfuel production, carbon sequestration, soil improvement, freshwater protection, biodiversity enhancement and improved landscape, whilst broadly maintaining agricultural productive capacity. We also believe that there are opportunities to make use of woodlands on open hill land to complement grazing systems, perhaps through collaboration between neighbours. There is scope to plant more trees on land currently dominated by bracken. We also consider that there are opportunities to create new pastoral woodlands where grazing and growing trees are combined either in the short term (sometimes called agroforestry systems) or in the longer term on the same land parcel. On-farm facilitation and advice will be helpful in promoting such approaches to woodland expansion, and we return to these themes later in the report.

While there are undoubtedly opportunities to find land for woodland creation that is unstocked, we recognise that some of this land may have high biodiversity value and woodland creation will not necessarily always be desirable. And while there may be potential to move livestock that is displaced by woodland onto other

[1] See WEAG28 at http://www.forestry.gov.uk/weag

land for foraging, there would be concerns if such intensification had negative environmental consequences.

Though we conclude that **grazing land has significant potential for the creation of high quality and high value woodlands, this should be achieved in ways that seek to avoid adverse impacts on local patterns of agriculture and that aim to complement and enhance the agricultural and environmental value of the remaining unplanted land.**

Protected places

As noted in section 3.1 above, a significant area of land is affected by international designations within the EU Natura network and national designations (such as Sites of Special Scientific Interest and National Scenic Areas) which constrain woodland expansion. In general, there are no absolute constraints on woodland expansion within these protected places, but there is a need to make a judgement of the likely benefits in relation to potential impacts. There are likely to be more difficulties for larger proposals (or those leading to significant cumulative impact); for proposals offering little in terms of ecosystem services; and for proposals that have a negative direct or indirect impact on the purpose of the designation (or underlying policy). These constraints are likely to lead to capacity and design limitations for new woodland, especially for large non-native conifer forests.

However, new woodlands in these areas can also be regarded as an opportunity. We believe that **protected places have the potential for woodland creation, much of which is likely to be of native species. Here, opportunities should be taken to create woodlands which make a positive contribution to the environmental value of the site and the ecosystem services it provides.** These opportunities might include the development of ecological networks, shelter for livestock and deer, small scale production of woodfuel and timber, improved flood risk management and other riparian benefits.

Urban and post-industrial land

As described above woodland creation in and around towns and on vacant and derelict is not always a simple option and will not deliver large areas of new woodland. However, where feasible it can play an important role in making places more appealing to live in and to work in, as well as providing important opportunities for people to live more active and healthy lifestyles. We believe therefore that **land in and around towns, including vacant and derelict land, should be used for tree planting where it can make a cost-effective contribution to remediation and improving the quality of life in urban areas.**

Deer range

A fifth of the phase 3 land is upland red deer range and well-designed woodland could bring a range of benefits. In particular, most deer managers would agree the importance of ensuring that deer have access to sufficient shelter (including

woodlands) for the welfare of the animals at an individual and population level. This is particularly important in the wetter west of the country, and could become more important as the climate changes. We believe that **deer range has the potential for the creation of significant areas of woodland, especially where it can provide shelter to improve welfare and make a positive contribution to the environmental value of the site.** Much of this woodland will consequently be at variable density and include plenty of open space. Getting local deer management groups to implement management plans which include woodland creation is vital to ensure that woodland creation is carried out collaboratively, to the mutual benefit of neighbouring land managers[1], but there are capacity issues to be addressed here.

Recommendation 3: Types of land for tree planting

To help reduce conflicts between woodland creation and other land uses, our advice to the Cabinet Secretary is that the following considerations should be taking into account when making decisions about the location of new woodlands:

- **The focus of woodland expansion should be away from prime agricultural land, but it should be recognised that there may be important opportunities for small scale tree planting, for example, on field margins, along water courses or to improve the environment in and around towns;**
- **On other (non-prime) arable land, agriculture is likely to remain the primary land use, although there may be scope for woodland creation on a slightly larger scale. The quality of the land in a local context, and its environmental sensitivity, should be considered;**
- **Grazing land has significant potential for the creation of high quality and high value woodlands. However, this should be achieved in ways that seek to avoid adverse impacts on local patterns of agriculture and that aim to complement and enhance the agricultural and environmental value of the remaining unplanted land**
- **Protected places have the potential for woodland creation, much of which is likely to be of native species. Here, opportunities should be taken to create woodlands which make a positive contribution to the environmental value of the site and the ecosystem services it provides;**

[1] See paper WEAG38 at www.forestry.gov.uk/weag

- **Land in and around towns, including vacant and derelict land, should be used for tree planting where it can make a cost-effective contribution to remediation and improving the quality of life in urban areas;**

- **Upland red deer range has the potential for the creation of significant areas of woodland, especially where it can provide shelter to improve deer welfare and make a positive contribution to the environmental value of the land.**

4. Analysis and recommendations on practice and process

The second part of our remit was to provide advice on promoting good practice and local processes in relation to tree planting so as to secure multiple benefits. We were left in no doubt about the strength of feeling that there is among those involved about this subject. Many of those who are trying to create woodland (particularly those who are planting conifers for timber production) feel that 'the system' is stacked against them and is standing in the way of them delivering the Government's aspirations. Other land users and managers – in particular farmers and some local communities – can feel that woodland creation poses a threat by displacing other land uses which they value.

It is essential that we make changes to practice and process that will help achieve woodland creation targets, while generating in the broader land use and land management community some of the consensus that we have been able to achieve during our discussions as a Group.

4.1. A strategic approach to woodland creation

Current strategic planning processes

We believe that it is important to have a strategic planning framework to promote woodland expansion and reduce the scope for conflict. *The Right Tree in the Right Place – Planning for Forestry and Woodlands* (2010)[1] provides guidance to planning authorities on preparing Forestry and Woodland Strategies to guide woodland creation. This updates earlier guidance on preparing Indicative Forestry Strategies (IFS).

IFS were first introduced in the late 1980s to provide a simple 'traffic light' system to guide forestry expansion. Land across the local authority Structure Plan area was divided into preferred, potential and sensitive categories. This was refined in 1999[2], with the following definitions:

- Preferred – offers greatest scope for woodland creation
- Potential – considerable potential, but at least one significant sensitivity, requiring careful consideration in design of schemes
- Sensitive – where there is a combination of factors "including areas of exceptional natural and cultural heritage and areas with high structural value to the local agricultural economy". Limited scope for forestry expansion, unless of a scale and character that can be accommodated, or enhance features of interest.

[1] http://www.forestry.gov.uk/forestry/infd-7unjy3#planning

[2] Scottish Office Development Department Circular 9/1999

This 1999 guidance also advocated a mosaic of rural land uses, including farm woodlands, stating that prime agricultural land should remain in agricultural production (apart from relatively small scale planting such as shelter belts and riparian planting). It also referred to the Agriculture Department maps showing Specially Identified Areas of Hill Land important for maintaining fragile local agricultural communities, and highlighted the importance of better quality in-bye land for hill farming in these areas.

Despite this evolution over the past 25 years, these Strategies have not always been able to prevent localised land use conflicts (in particular between woodland creation and agriculture), nor have they always provided sufficient reassurance to consultees (particularly those with environmental concerns). In order to provide an opportunity to consider potential conflicts there can be a lengthy consultation process for individual woodland creation proposals, and applicants are put off by the time taken for consultation, the costs (especially where environmental impact assessment is required) and the uncertainty of the outcome.

Ideally, forestry strategies should provide a vehicle for overcoming this barrier, with 'preferred' status giving a 'green light' for planting. In practice, this can be difficult as (for example) archaeological sites can only be identified through an on the ground survey. We heard about the success of earlier challenge funds and locational supplements that had targeted preferred areas, but recognise that these are no longer possible under current EU rules. There is a need for government bodies to take a positive approach which facilitates opportunities for woodland creation, rather than a negative approach which places barriers in the way of appropriate proposals. **We would like to see processes which provide greater certainty to applicants as to whether their proposals will be successful or not; speed up the application process; are able to deal with the cumulative impact of woodland creation proposals; provide for the engagement of all relevant stakeholders; and remain relevant over time**.

A new approach to strategic planning

One problem with Forestry and Woodland Strategies or IFS is that they typically cover whole local authority areas or National Parks and cannot give an applicant much certainty as to whether an individual proposal for woodland creation will be acceptable. In all cases the full approvals procedure (involving consultation with statutory consultees and publication on the public register) is required, even if a proposal is within a 'preferred' area for forestry. We would like to see an approach which gives greater certainty and encouragement to applicants, both through greater clarity in plans and strategies, and through better advice to applicants about how these plans and strategies apply to their proposals for woodland creation.

Certain interests have not engaged well in the development of regional Forestry and Woodland Strategies and the large area covered by these Strategies does not

encourage meaningful engagement. This has been particularly notable with regard to the agricultural sector.

Another limitation of the Forestry and Woodland Strategies is that they are generally only updated every five years or so – and do not necessarily reflect the dynamics of land use change during this time. An area that is 'preferred' for forestry at the outset may become more sensitive if it attracts a large number of schemes. The problem is the effect of cumulative applications. We would like to see an approach where indications of suitability can keep up with changing circumstances on the ground – but which remains predictable enough to give applicants the certainty they need.

In Dumfries and Galloway, the local authority is seeking to address this in their new Woodland Strategy by exploring an approach which would also provide assessments at a sub-regional level indicating, for example, that:

> *" In this catchment which is noted for its mixed land use and extensive high value open ground habitat, expansion of the woodland type 'large scale productive conifer' will be considered appropriate in locations identified by the regional map, but only until the extent of such woodlands within the catchment extends to the order of 30%. Once this figure has been achieved, further expansion will not be preferred"*

The approach introduces a consideration of such issues as: impact on other land use; most appropriate targeting of woodland creation resources; and impacts of a cumulative nature. In this way, it retains a strategic focus, and thus avoids being overly prescriptive and detailed on a site by site basis.

Similar approaches have been thought about elsewhere. The 2003 Loch Lomond and Trossachs National Park Local Woodland and Forestry Framework breaks the Park down into nine 'action areas', identifying key issues and providing textual descriptions of the recommended approach and emphasis for woodland creation and improvement. Cairngorms National Park Authority is currently examining woodland expansion scenarios which would contribute to the Park Forest and Woodland Framework; it is testing a range of criteria for targeting woodland expansion that will be both productively viable and will improve forest habitat networks. The scenarios will not provide a spatial plan for woodland expansion, but may be used as a guide to suggest potential beneficial and viable locations.

Meanwhile, in Caithness and Sutherland, SNH, Forestry Commission Scotland and The Highland Council are developing a pilot approach to support the planning of woodland expansion, testing the idea of dividing the wider area into smaller planning units based on the landscape character types to help resolve issues about 'where, what and how much' woodland expansion (The Highland Council has also adopted a similar two-tier approach in relation to its Coastal Development Strategy and Aquaculture Framework Plans).

Finally, opportunity mapping was identified by Forest Research (2011) as having considerable potential for identifying where woodland creation should be targeted in the landscape to help meet the objectives of the Water Framework Directive[1]. A GIS based mapping methodology has been successfully developed by Forest Research and applied to a case study involving the Bassenthwaite Lake catchment on the River Derwent in Northwest England in order to demonstrate how this approach works, and the approach is now being applied to the River Tay in Scotland.

We support the idea of complementing the regional Forestry and Woodland Strategies with sub-regional analysis, and therefore propose that this approach is piloted more widely, with a view to finding out whether it can indeed help to get more of the right woodland created in the right places – for that is the test of success. The provision of land use data through Scotland's Environment Web[2] will help to ensure that appropriate data is available to inform this analysis, but additional information from Government departments is likely to be needed.

The analysis that we propose should be carried out at a scale which is smaller than the region, but large enough for meaningful strategic land use decision making and should use boundaries which facilitate analysis of existing relevant data sets. We would envisage these areas being defined according to local need – in relation to areas where there is a particular issue or opportunity that they can help to address.

Notwithstanding their direct linkage to the Forestry and Woodland Strategy, such sub-regional analyses should look to the Land Use Strategy as providing national context – the idea being to move, in the long term, towards national coverage to address the full range of relevant land use issues in each area. The Land Use Strategy review in 2016 could provide a helpful point at which to evaluate these pilots.

Recommendation 4: Sub-regional analysis.

Sub-regional analysis of woodland creation constraints and opportunities should be undertaken through a series of pilot projects across Scotland, with a view to rolling out this approach more widely in future. These pilots, led by local authorities working in partnership with appropriate Government bodies, should develop analyses which:

- **Provide clarity to applicants and Forest Enterprise Scotland about woodland creation opportunities and constraints in the context of other land-based objectives;**

[1] See for example http://www.forestry.gov.uk/fr/INFD-7T9JRD

[2] http://www.environment.scotland.gov.uk/

- **Help reduce delays and uncertainty in the application process, and ensure that applicants know at an early stage what information, surveys and mitigation they will need to provide;**
- **Can take account of changing circumstances and cumulative impacts;**
- **Engage with a broad range of land use interests, specifically including agricultural interests, and with existing processes such as river basin and flood risk management planning;**
- **Provide a potential framework for targeting grants;**
- **Maintain the clear democratic link, via the Forestry and Woodland Strategy, to the local authority, and via the Land Use Strategy to the Scottish Government.**

Broader engagement in strategy development

Though Forestry and Woodland Strategies are led by local authorities with broad input from stakeholders, and *The Right Tree in the Right Place*[1] suggests that Forestry and Woodland Strategies should be informed by a wide range of different spatial plans[2], we have found that not all relevant interests are fully involved – **in particular, agricultural interests are poorly represented** but there may be other significant omissions, such as deer interests.

Although there are no regional 'agricultural strategies', it is essential that Forestry and Woodland Strategies take full account of the implications of woodland expansion for productive capacity in the agricultural sector. In part this can be addressed nationally (based on our recommended considerations regarding the location of new woodlands and the type of analysis carried out for us by the James Hutton Institute). In addition there is a need to look at locally important issues, such as whether land is of strategic agricultural importance within the region, and the implications for employment, supporting industries (e.g. farm merchants, markets, transport, veterinary services) and social cohesion. Another important consideration would be the extent to which any potential loss of agricultural output might be offset by the adoption of different approaches to agricultural/forestry integration.

[1] http://www.forestry.gov.uk/pdf/fcfc129.pdf/$FILE/fcfc129.pdf

[2] Including River Basin Management Plans; Flood Risk Management Plans; Biodiversity Action Plans & Habitat Network Plans; Green Network Plans & Open Space Strategies; Local Forestry Frameworks, Forest District Strategic Plans & Forest Design Plans; National Scenic Area Management Strategies; Core Path Plans; Economic Development Plans; Community Plans and Single Outcome Agreements; Spatial Strategies for Wind Energy; Mineral Plans & Waste Management Plans (where forestry is potentially a significant afteruse for sites); and Transport Plans/Strategies (where timber transport is a significant issue locally).

We consider that Forestry Commission Scotland and local authorities need access to good, balanced advice, not only as they develop Forestry and Woodland Strategies but also as they carry out sub-regional analysis. **We suggest that the five Regional Forestry Forums (see Annex 5 for details) could play a key role in ensuring that there is credible input from the breadth of land use sectors**. These forums advise the Commission on forestry policy and practice. Each forum has 12–15 members representing the economic, environmental and social aspects of sustainable development. However, at present agricultural interests are not represented on all Regional Forestry Forums, and we consider it important that this is remedied, for example by asking NFU Scotland to suggest potential members, where there is no current agricultural representation. Thus, **the Forums would be in effect moving towards being integrated land use forums, albeit with a woodland focus**.

To ensure that advice from the Forums is based on good evidence, they should have ready access to up-to-date information about trends in farming practice (based on annual Agricultural Census data) as well as other relevant social, economic and environmental data.

Recommendation 5: Regional Forestry Forums.

Regional Forestry Forums should have an enhanced role in providing Forestry Commission Scotland and local authorities with advice on opportunities for proactive implementation of Forestry and Woodland Strategies and the implications of woodland creation for other land-based objectives. The Forums should retain a balanced composition, but strong efforts should be made to ensure that each Forum has a member able to represent regional agricultural interests.

4.2. Making the grants system work for woodland creation

Time and again we have been told about the bureaucracy and complications associated with applying for grants to create woodlands. Though many applicants have successfully negotiated the system, people told us that the complex grant application process is acting as a disincentive to those considering creating woodlands, particularly those seeking support to integrate woodland with wider land management. We commissioned a short study on the barriers to woodland creation which drew together information from existing literature and from a number of informal interviews[1] and this, again, reinforced the view that the bureaucracy associated with the grant scheme was a significant barrier.

Much, but not all, of this bureaucracy is caused by stringent European auditing rules and some have suggested that we would be better off providing forestry grants domestically. The domestic route is not, however, an easy option. EU State Aids approval would still be required and a domestic scheme would not benefit from EU co-financing. Our working assumption is therefore that forestry support measures will continue to be delivered through the Common Agricultural Policy and that the focus must lie in reducing bureaucracy and streamlining the system. We recognise that there is a great deal of work going on in the Scottish Government at the moment – our recommendations are relevant to, and should be taken into account by this work. The other part of the grants system that is causing concern is the consultation process, which we also address in this section.

CAP reform

The present process of CAP reform will of course have an impact on the ability to meet our woodland expansion targets after 2014 because there are measures proposed in both Pillar 1 and Pillar 2 that are directly relevant to woodland creation and which will have indirect effects.

With regard to the provision of direct support to farmers under Pillar 1, the proposed greening measures could provide an important mechanism to deliver a slightly more integrated approach. While we recognise that there is still a long way to go in the negotiations and that the final greening measures are still far from clear, Ecological Focus Areas could have a useful part to play in encouraging the establishment of small farm woodlands and we would urge the Scottish Government to seek to **ensure that newly afforested land remains eligible** under this measure.

Core forestry funding is, however, provided under the Pillar 2 Rural Development Regulation and there are some critical issues that arise at the EU level that need Scottish Government action. In particular, there are concerns over the difficulty

[1] Barriers to woodland expansion, by Bob Stubbs. Available (as WEAG paper 15 a) at : http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8phmauas

of reaching agreement on the CAP proposals and that delays in finalising the regulations will lead to a gap in rural development funding (which does not have a legal basis for rolling over on an annual basis). We urge that **there should be no gap between the end of the current SRDP period (December 2013) and the next scheme,** to avoid a repeat of the hiatus in woodland creation that resulted from the gap between the end of the Scottish Forestry Grants Scheme and the introduction of SRDP grants. Given the distinct possibility of a delayed CAP agreement and gap between rural development programmes, we urge the Government to consider now possible contingency arrangements for any interim period.

The draft regulations also include some alterations to the current regime which could act as a barrier to woodland creation in Scotland, notably the removal of the ability to compensate farmers for agricultural income foregone when the agricultural land is planted. While we accept that this proposal could make sense in theory, in practice it would drastically reduce the level of woodland creation. While the draft regulations do include a proposal to allow payment of support for establishment and maintenance for an extended period, **we believe that the removal of income foregone payments (Farmland Premium) would negatively influence those farmers thinking of planting woodlands** and that the Scottish Government should seek its reinstatement.

Once the new regulations have been agreed it will be crucial that the Scottish Government does not inadvertently implement EU rules (such as eligible tree densities for direct support eligibility) in ways that perpetuate the bureaucratic barriers between the different land uses.

Recommendation 6: CAP reform.

In its negotiations on CAP reform, the Scottish Government should:

- **Seek to ensure that Pillar 1 'greening measures' are introduced in ways that encourage tree planting;**
- **Seek to ensure there is no gap in support to forestry between programming periods. This should include pressing the European Commission to consider bridging arrangements should CAP reform be delayed and exploring possible contingency arrangements at domestic level; and**
- **Continue to press for the retention of annual payments to compensate for agricultural income foregone on land planted with trees.**

Targeting the grants

Once the European regulations are agreed it is for the Scottish Government to design a rural development programme that will deliver on the ground and a critical element of this will be the structure of the grants available and the associated payments rates. The grants supporting woodland creation are currently not well aligned to the Scottish Government's aspirations (our recommendations on woodland type are included in section 3.2). The range of woodland types that can be supported is relatively narrow and the definitions of woodland are very prescriptive – which prevents the creative and imaginative use of tree planting in an integrated approach to sustainable land use.

Furthermore the current rates favour[1] (in the nomenclature of the scheme) native woodlands over productive woodlands to the point where, anecdotally, we are hearing about applicants who have changed their plans (from creating conifer woodlands for timber production to creating native woodlands) once they have 'done the sums' and recognised the cash flow advantages in terms of grant income from the native woodland planting model. While we have no wish to discourage the creation of any type of woodlands, we think such distortions may overshadow longer term considerations of owners and work against delivering well-considered regional and sub-regional strategic objectives for woodland (see section 3.4). Short-term cash flow considerations should not distort the principle of the 'right tree in the right place'.

Forestry Commission Scotland has attempted to rectify this distortion in the current programme by limiting the land area upon which farmland premium can be claimed under native woodland schemes. In addition, for 2012 only, FCS introduced a new Planning Grant for Creating Productive Woodlands. This was felt by the forestry sector to be a constructive move, and we support the continuation of this grant.

Such mechanisms, while necessary in the short-term, are blunt instruments and could equally lead to good schemes to provide native woodland habitats not going ahead. The emphasis has to be on the 'right tree in the right place' and we see a stronger role here for Woodland Officers and advisers working with applicants early in the process to ensure that balanced schemes come forward, rather than schemes designed to exploit the system.

[1] Grant rates reflect the average or standard costs of establishment – but the size of the scheme, the method of deer protection, the spacing and choice of species etc. can influence the actual cost. Large native woodland schemes tend to be the most likely to benefit from the bluntness of a standard cost approach.

Recommendation 7: Grant rates.

Rates of grant in the next SRDP should enable applicants to achieve a balance between their own and the area's long-term strategic objectives. Short-term cashflow considerations resulting from grant support should not have a disproportionate impact on proposals. In addition, Forestry Commission Scotland should continue to provide the Planning Grant for Creating Larger Scale Productive Woodlands.

The SRDP administration process

A rural development programme that delivers on the ground will also have to work efficiently for everyone involved. At present, the SRDP administration process itself is perceived as overly bureaucratic, leading to unnecessary complexity, delays in approval and late payments. We are aware that there have already been reviews of SRDP processes[1] and forestry grants, and some improvements have already been made – and we know that much is being done to plan a better grant scheme in the next SRDP period. It is vital that the Government continues to look for ways to streamline to make schemes more accessible and user-friendly for applicants.

The current administrative process has highlighted many issues that can become blockages. Some of these are imposed by EU rules, others are self-imposed and can be changed. Under the new SRDP:

- There needs to be a user-focused interface between applicants and the grant regime backed up by improved administrative/IT systems. In particular, unnecessary layers of complexity (eg. 'regional priorities') should be removed;
- A focus on making timely payments to mitigate cash flow problems (which can be particularly serious for applicants, such as community bodies, grazing committees and others without access to significant financial reserves);
- A recognition that cash flow problems can also be eased by (for example) making earlier staged payments in respect of fencing in advance of planting;
- A clearer commitment to applicants through an Applicants Charter which sets out what applicants for forestry grants should be entitled to expect from the system when they submit proposals that meet required standards;

[1] For example, reviews have been carried out by Peter Cook (http://www.scotland.gov.uk/Topics/farmingrural/SRDP/SRDPReviews/FirstStageReview) and by George McRobbie http://www.confor.org.uk/Upload/Documents/24_ConForSRDPReviewReport161208.pdf

- A more straightforward 'way in' to the grants options, with greater scope for applicants to bring together different measures (such as woodland creation and bracken clearance) in an integrated way, as was the case with the previous ESA scheme. Although there is no wish to lose the benefits that the continual assessment of forestry projects has brought and which has effectively prevented integrated land management applications to the current scheme, it is vital if farmers are to be encouraged into planting trees that different activities can be brought together into one proposal. Such an ability will facilitate the successful 'presentation' of woodland options by agencies trying to stimulate woodland creation on farms;
- Improved capture of spatial information linked to the types of woodlands created, so that it is easier to monitor land use change. This is vital for a dynamic consideration of land use change;
- Widened or redesigned woodland models to reflect the desire to see a greater range of woodland types and to reflect our wish to broaden the range of outputs from new woodlands, in particular timber from 'native' woodlands.
- Better support for those coming forward with proposals. We have heard how the delivery of forestry support through the SRDP has altered the role of Woodland Officers. The perception is that currently, because of the nature of the delivery system, they are focused on managing the process rather than working with potential applicants to try and ensure that the best proposals come to fruition.

Recommendation 8: SRDP administration.

Those designing the new SRDP should ensure that it supports woodland creation and that:

- **The improvements to IT systems already underway in RPID improve the application process for forestry applicants;**
- **SRDP payments are made promptly and that consideration is given to making earlier staged payments to those without access to significant financial reserves;**
- **An 'applicants' charter' is provided and monitored;**
- **Unnecessary layers of complexity in the scheme's design are eliminated;**
- **Applicants are supported by both advice and scheme design to be able more easily to bring together different measures in an integrated way;**
- **Better information can be collected on the types and locations of woodlands created;**

- **Woodland models currently used are widened to reflect the other recommendations in this report.**

Consultation associated with the grants scheme

A major concern, particularly from the forestry sector, is the consultation process associated with the grants scheme. While we all accept that it is important to get the right trees in the right place, applicants are finding that this process takes a very long time and results in delays and risks which in some cases jeopardise appropriate woodland creation. Sub-regional analysis (see section 4.1) should help to provide greater certainty for applicants and more reassurance for consultees that the impacts on all affected stakeholders have been taken into account. However, we recognise that such analysis will take time, is subject to the successful conclusions of pilot projects and will not necessarily happen everywhere. We will therefore need to make use of existing mechanisms in the interim.

Though some applications are so large and of such potential impact that they go through the formal Environmental Impact Assessment (EIA) process[67], the majority of proposals go through the process shown below. On the right hand side we highlight our suggestions for improvement. Key to this whole process is the willingness of consultees to participate in the pre-application scoping phase and to respect the established timescales for responding to consultation following formal application.

Current consultation process	***Areas for improvement***
1: Applicant uses online Forestry Commission Scotland (FCS) Land Information Search to identify potential constraints on planting. Applicant contacts FCS Conservancy and provides an indication of woodland creation proposals – but there is no guidance about what an applicant needs to provide.	*FCS should advise applicants on what information consultees need about the proposals at this stage for them to be able to provide useful and substantial feedback.* *Once sub-regional analysis is available, indicative proposals should reflect this information.*
2: Conservator advises applicant of key issues to address and asks applicant to discuss their proposals with relevant consultees. FCS can only comment on the information that has been provided by the applicant – and this information	*Conservator should include agricultural considerations in the list of key issues to address.* *The Area Office staff of the Scottish Government's Rural Payments and*

[67] Since 2007, six woodland creation schemes (out of a total of 1410) have been subject to the EIA consent process.

is sometimes not very detailed. Statutory consultees include Scottish Natural Heritage, Scottish Environment Protection Agency. Non-statutory consultees, such as RSPB, sometimes provide advice at this stage. If key environmental issues are quantified, and mitigations satisfactorily addressed, this usually obviates the need for a formal Environmental Impact Assessment (EIA).	*Inspections Division should be included as a consultee, as it already is for the conversion of permanent pasture to arable land and as was once the case for forestry proposals.* *Non-statutory consultees including National Farmers Union Scotland, the National Sheep Association or other relevant farming bodies could help applicants understand the implications of their proposals.*
3: Applicant engages in pre-application scoping discussions with relevant consultees. Anecdotal evidence suggests that some consultees choose not to engage at this stage, waiting instead for the formal consultation stage to make their views known.	*Government bodies should play a supportive role at this stage, engaging fully with the discussion and providing clear information on relevant constraints and opportunities to help the applicant make a fully informed application.*
4: Formal application made	
5: Conservator screens the application for EIA and consults formally on the application, asking for the advice of statutory consultees and the public via public register. At this stage consultees can raise issues that they have not already raised, or formalise their earlier response.	*In addition to input from existing statutory consultees,the Area Office staff of the Scottish Government's Rural Payments and Inspections Division should act as a statutory consultee with regard to the agricultural impacts of the proposal.* *No consultee should raise issues at this stage which could reasonably have been raised at the pre-application stage. SEARS consultation principles are applied by all[68].*
6: Conservator decides whether to accept or reject the application (or ask for amendments). The advice that has been provided by the statutory consultees[69] is critical in this decision	

[68] http://www.sears.scotland.gov.uk/pdf/sears_consultation_principles.pdf

[69] Normally a satisfactory proposal can be agreed - but in the last analysis statutory consultees can sustain an objection to the proposal. This would trigger a reference to the Regional Advisory Committee whose members would be drawn from the local Regional Forestry Forum. If the objection cannot be resolved through this process the application would be referred to the Minister before approval. See Annex 6.5 for further details.

Recommendation 9: Consultation process.

To help applicants develop credible proposals for woodland creation, Government and other public bodies should consider:

- **How best to ensure that applicants have access to relevant pre-application advice and data about constraints and opportunities;**
- **How to ensure that requirements for surveys and mitigation are communicated to applicants in a helpful and timely manner;**
- **How agricultural considerations can be properly represented throughout the consultation process; and**
- **How to ensure that existing SEARS consultation principles are consistently applied.**

4.3. Achieving better integration

We have heard that many land managers do not see how woodland creation could helpfully integrate with their other land use objectives – in particular with farming where many see woodland creation as something which can only displace agricultural production. The evidence that we have gathered leads us to believe that in most cases woodland creation can be designed to complement other land uses, and tree planting can support and enhance many other land-based objectives.

The cultural divide between forestry and other land use interests is a barrier to integration, but it is not something we can break down overnight. Our report looks at measures which we hope will help to start this process.

Integration with farming and deer management

We saw the greatest opportunities for integration being with farming and with open range deer management, and so we commissioned a short review of approaches to the future expansion of tree cover on farmland and deer range, based on a literature review and discussion with technical experts[70].

This review confirmed that Scotland has a good record of innovation and high quality practice in the fields of both agricultural improvement and forestry expansion, but that these have often been seen as separate land uses. Traditional forms of wood-pasture management (which are still practised elsewhere in Europe) have long since died out, and farm forestry has focussed mainly on shelterbelts and game cover. We are suggesting that **adoption of a wider range of farm forestry systems in Scotland could offer a range of benefits**.

Opportunities range from intimate mixtures of trees with agricultural use, to more traditional models of woodlands in amongst farmland in the landscape. The review noted that the following 'farm forestry' models have potential in Scotland:

- small farm woodlands and shelterbelts;
- hedgerows with standard trees;
- riparian and floodplain woodland;
- productive farm woods (with grazing generally excluded);
- short rotation coppice;
- short rotation forestry;

[70] Approaches to the future expansion of tree cover on farmland and deer-range in Scotland, by Dr Scott Wilson. Available (as working paper WEAG 15 b) at : http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-8phmauas

- productive farm woods (with grazing admitted once trees were successfully established);
- 'silvopastoral agroforestry'[71]; and
- farm forestry small-holdings, forest crofts and forest gardens (including orchard systems).

A summary of these options, and associated costs, benefits and risks, is set out Annex 6.4, together with an attempt to map these woodland types against different land types and different grant models currently available under the SRDP. It is clear that the current support arrangements make it difficult for managers wanting to adopt some of the potential options, and there is scope for considering use of the EU Rural Development Regulation 'agroforestry' measure in the next SRDP. At the same time, efforts should be made to do away with rules (e.g. on trees per hectare and minimum areas) which constrain imaginative approaches to integration.

However, we recognise the difficulties in integrating grazing and woodland management. Foresters and ecologists for instance have tended to view the habit of farmers of grazing animals within woodlands as a problem due to regeneration difficulties. And farmers are aware of the potential problems of gathering and flystrike for animals 'lost' in plantations. Recent efforts have been made to change this through the Woodland Grazing Toolbox[72] (aimed at using grazing animals for conservation benefits within woodlands). But we feel that **there is scope for creating woodlands where grazing is planned as a management objective**, either from the point of establishment (ie. silvopastoral agroforestry which, due to the risks is probably suited for smaller sites and only initially for sheep grazing) or at a later stage (ie. new pastoral woodlands, where initially sheep are introduced once the trees are safe). Such models offer the varied benefits of woodland without a long term loss of agricultural productivity. To this end, flexibility with any income foregone payments would be very helpful, coupled to a review of tree density criteria for Single Farm Payment eligibility[73]. Due to the relative lack of experience of this in Scotland, we would advise FCS to summarise experience from research and practice elsewhere on this approach so as to ensure suitable technical guidance and support both within SRDP and any facilitation service.

In relation to deer range, the review highlighted the fact that the upland deer-range in Scotland occupies an extensive land area, some of which could be suitable for woodland expansion for a combination of benefits including deer welfare/ shelter, sporting, landscape, amenity, biodiversity enhancement,

[71] By which we mean combining trees with forage and livestock production.

[72] http://www.forestry.gov.uk/woodlandgrazingtoolbox

[73] Paragraph 4.10 of the Scottish Government's *Single Farm Payment Scheme Notes for Guidance* states that grazed woodland with more than 50 trees per hectare can only be considered eligible for Single Farm Payments if there has been a history of acceptable grazing practice and grazing is not damaging the ecological value of the site.

watershed protection, woodfuel production and possibly timber. Key challenges include exposed climate, infertile soils, deer browsing pressure and poor management access. As with larger new pastoral woodlands for agriculture, woodlands planned for deer shelter would need plenty of open space (above the 20% current allowance), although there is no need to necessarily have low tree density throughout individual stands within a woodland. Thus within such woodlands there will still be opportunities for timber production where access allows.

Recommendation 10: Integration.

The next SRDP should encourage better integration between woodland creation and farming or deer management, including:

- **Making use of 'agroforestry' measures in the Rural Development Regulation;**
- **Supporting woodland creation models which combine grazing and shelter; and**
- **Ensuring that eligibility criteria permit and encourage the creation of small woodlands, riparian woodlands and hedgerow trees.**

Single Farm Payment eligibility criteria for grazed woodland should also be changed to help achieve this; and Forestry Commission Scotland should ensure that suitable technical guidance and support is available.

Whole farm planting

The conversion of whole farms (or large parts of farms) to woodland has, in recent years, become a major point of contention between the farming and forestry sectors, and many stakeholders told us about their concerns for the viability of local agricultural economies and the communities that depend on them when too many whole farms were planted in one area. We cannot afford to rely only on consensual measures to address this issue – and it does need to be addressed if the debate is to be moved on.

It would not be appropriate to dictate to an owner on principle that they cannot plant their whole farm with woodland, if this is what they choose to do. However, public money should seek to deliver greatest public benefit and this includes having regard for the consequences to local agriculture. We believe that the pre-application scoping discussion and consultation on woodland creation proposals should address agricultural concerns, as described in section 4.2. We propose that, during these processes, **applicants should be asked to consider whether there are opportunities to integrate their proposals with agriculture to make the best use of all the land**, and the considerations should apply to Forest Enterprise Scotland.

The following considerations would be relevant:

- Can the better grades of agricultural land on the holding be retained in agricultural use, either as a viable unit on its own, or through sale or lease to neighbours?
- Has the planting been designed so that unplanted areas connect into farm management systems where necessary, maintaining linkages between, for example, low ground and unplanted hill?
- Has fencing been designed in a way that does not blight the use of neighbouring land?

There are many ways of taking these considerations into account, and Starter Farms that are being developed by Forest Enterprise Scotland on the National Forest Estate are a good example of the sort of multi-purpose unit that could be developed. However, we recognise that in no point in these considerations should private owners be forced into legal contracts with third parties and these considerations only relate to the application of public money in the support of planting trees.

Recommendation 11: Whole farm planting.

As a condition of public support, those (including Forest Enterprise Scotland) proposing to create woodlands on whole farms should be required to consider opportunities for integration with other land uses, for example by retaining better of grades of land in agricultural use, and by designing unplanted areas and fencing in ways that accommodate neighbouring farming systems, moorland management and environmental considerations.

4.4. Providing advice and support for woodland creation

The importance of advice and facilitation

In stakeholder meetings and through our consultation exercise, we were told of projects and initiatives around the country which are helping to catalyse woodland creation. One example is the work being carried out by the Argyll and Bute Agricultural Forum to help neighbouring farmers to work together to realise opportunities – including woodland creation. The common thread through such initiatives was advice and facilitation. In recent years some of the sources of advice that were available have disappeared, for example Forestry Commission woodland officers are now predominantly administering the grants and the Farming and Wildlife Advisory Group has folded. The advisors who are still advising tend to be very focussed on one particular land use – for example most Scottish Agricultural College advisers focus on farming, while forestry consultants focus only on forestry.

We regard advice and facilitation as absolutely crucial to achieving woodland expansion and feel that public support for advisory services has fallen too far. **We would like to see high quality advice available at every stage of the process of considering opportunities for woodland creation – advice which would promote woodland creation as part of sustainable, integrated land use, and facilitation and support which helps land managers to actually achieve woodland creation as part of their land management business**. This should be supported through making use of, for example, demonstration farms and visits, and should be linked to related programmes such as the *Farming for a Better Climate* initiative, the river basin management planning process and to flood risk management planning.

Recommendation 12: Advice.

There should be more resources directed towards providing advice and facilitation to optimise the sustainable use of land and, as part of this, to identify opportunities for woodland creation and integrated land use activity.

It is also important for land managers that they operate within a coherent policy environment, with consistent and mutually reinforcing Government initiatives. This is, of course, one of the aims of the Land Use Strategy; but we believe that there is room for better integration. It would be useful, for example, if there were more explicit links with the *Farming for a Better Climate* initiative, the development of renewable energy policies relating to the use of biomass and implementation of such EU legislation as the Water

Framework Directive and the Birds and Habitats Directives and associated Natura 2000 network of designated sites. It will also be important to consider woodland expansion when Government is reviewing the newly introduced Code of Practice for Deer Management.

Recommendation 13: Better policy integration.

Woodland expansion considerations should be better integrated with other relevant Government policies and initiatives.

Co-ordination and collaboration

We have heard a good deal about the benefits of achieving greater impact at scale, by co-ordinating activity and promoting collaborative schemes between neighbouring land managers. In principle, **co-ordination and collaboration make good sense – providing an optimal solution in land use terms and allowing, for example, the creation of larger blocks of woodland than would be possible for each individual landowner**. However, the barrier here is the inherent challenge of securing the necessary agreements and co-ordinating grants applications. Initiatives such as the Grampian RingLink which is using a machinery ring to co-ordinate woodland management and expansion on farms seem to us to be an approach worth supporting.

The example of deer management is an area where co-ordination could support woodland creation (see also the discussion in section 2.4). There has long been a recognition that effective collaborative planning is required to manage the red deer resource, and the recent passage of the Wildlife and Natural Environment (Scotland) Act 2011 and the resulting *Code of Practice on Deer Management* has helped to reinforce the requirement for effective planning. The vehicle for such collaboration is generally the local Deer Management Group (of which there are 55, covering approx 3.5 million hectares of the upland red deer range). Deer Management Groups need to be advised on the benefits of alternative woodland creation models and need the backing of grants and facilitation to encourage effective co-ordination and collaboration and implementation of management plans which involve appropriate woodland creation.

Recommendation 14: Co-ordination and collaboration.

Land managers should be encouraged to work together across ownership boundaries to achieve integrated land management objectives. To support this:

- **The grants scheme should support effective co-ordination; and**

- **Facilitation and advisory services should seek to enable co-ordination and collaboration where opportunities are identified.**

The role of education and training

There is a shortage of professional expertise in integrated land and estate management with the technical competence in agriculture, forestry and environmental/natural heritage management. Education for land use and management needs to take account of this requirement, to provide advisors, facilitators and managers relevant to 21st century needs.

Most education and training is currently provided in a 'siloed' way – where forestry and farming are treated as completely separate subjects. Education and training play an important role in framing attitudes to land management, so in the light of the proposed merger of land-based colleges in Scotland, we encourage the development of an integrated curriculum which can support the delivery of this Group's vision.

Recommendation 15: Higher education.

Scotland's land-based colleges and other higher education providers should be asked to explore ways in which a more integrated and collaborative approach can be taken to the provision of forest-related education so that it is an integral part of education on wider land use and land management.

4.5. Ensuring that woodlands play their part in a changing climate

Carbon as a reason to create woodland

As is widely recognised, the growth of woodlands sequesters carbon and can therefore help us reduce net greenhouse gas emissions, and we have already referred to Professor Read's report on *Combating Climate Change – a role for UK forests* (2009) in section 2.4. The important contribution that woodland creation can make to greenhouse gas emissions reduction was also recognised when the target of creating 10,000 hectares of new woodland per year was included in *Low Carbon Scotland*[74].

We believe that this new and compelling rationale for woodland creation should be used more effectively to influence those who could create woodland. This could be by encouraging land managers to use woodland creation to balance their own carbon budget (as promoted through the *Farming for a Better Climate* Initiative). There is already a great deal of work going on to calculate the carbon implications of individual land uses – and we would like to see this work brought together to allow land managers to weigh up the implications of land use change to woodland.

Additional resources for woodland creation are already being generated through schemes such as the Woodland Carbon Code which help land managers to sell carbon into emerging carbon markets, and we believe that there scope to make this scheme more attractive to individual land managers. In all of this work we must ensure rigorous accounting so that carbon benefits are not double-counted under separate schemes.

Recommendation 16: Carbon calculator.

Forestry Commission Scotland should produce a simple to use 'carbon ready-reckoner' which allows land managers to identify whether – and by how much – woodland creation could help to reduce their land management carbon footprint.

[74] *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022* - http://www.scotland.gov.uk/Topics/Environment/climatechange/scotlands-action/lowcarbon/rpp

Recommendation 17: Woodland Carbon Code.

Forestry Commission Scotland should work with the private sector to promote the Woodland Carbon Code, so that more land managers are aware of the additional resources this can bring to woodland creation, and enhance its attractiveness by facilitating involvement in group schemes where land managers can work together to achieve carbon sequestration.

Securing resilience

Section 2.4 explained how woodlands will be affected by a changing climate and by increases in pests and diseases and highlights the need to create woodlands now that will be resilient to future conditions. Forest managers need advice on choosing appropriate species and management approaches, and support to make these choices. **We would expect advisory services and grant schemes to reflect the need for advice and support, and to take into account the potential risks to woodland establishment.** At the same time, it is essential that this is based upon, and disseminates the results of, high quality research into how best to design woodlands that will be resilient to the environmental, economic and social changes that lie ahead.

There are significant opportunities for woodland creation to contribute to climate change adaptation objectives in other sectors, in particular flood risk management and slope stability. We understand that the Scottish Government Climate Change Adaptation Programme, which is under development, is considering such opportunities.

4.6. Making the most of the woodlands that we already have

We recognise that owners' attitudes to the woodlands which they already have, and the management of them, is likely to have a powerful influence over willingness to create new woodlands. After all, if some owners perceive that they get little value out of their woodlands, why would they want to plant more in the future?

We firmly believe that woodlands in general are a valuable resource and only by continually enhancing them for the benefit of people and wildlife, and by ensuring that owners derive tangible benefits from them, do we send a strong and consistent message in support of further woodland creation efforts. (We note of course that there is a case for choosing low impact or no management in some areas).

While proposals for improving the management of existing woodlands are beyond our remit **we take this opportunity to highlight that woodland creation and woodland management can and should work together in support of one another**.

Recommendation 18: Existing woodland.

Forestry Commission Scotland should encourage proposals for woodland creation which are integrated with proposals for woodland management, and which help to improve the condition and make better use of existing woodlands, for example by creating better harvesting access or by connecting woodlands to create forest habitat networks.

Reducing woodland loss

At the same time as we are creating woodlands we are losing them – often on a large scale due to development, and as land is appropriately restored to open ground habitats. As mentioned in section 2.4, it is estimated that about 10,000 - 15,000 hectares of forest has been lost over the past 10 years due to the restoration of open ground habitats and for windfarms. In many cases the woodland lost to windfarms was productive conifer forest with potential for carbon sequestration as well as timber production.

Loss of woodlands will undermine the benefits of woodland creation. The *Scottish Government's Policy on the Control of Woodland Removal* [75], introduced in 2009, is helping to reduce losses, but we urge all Government bodies and local

[75] http://www.forestry.gov.uk/forestry/infd-7hyhwe

authorities to work together more effectively to ensure that development control decisions recognise the value of woodland and minimise or prevent its loss.

Recommendation 19: Woodland removal.

Local Authorities should be encouraged to prepare supplementary planning guidance on trees and woodlands which reflects the Scottish Government's Policy on the Control of Woodland Removal; and development management authorities should work closely with Forestry Commission Scotland to ensure that good advice is available regarding the implementation of this policy.

4.7. Involving a wider range of people in woodland creation

There are many individuals and groups who have an interest in planting trees. We recognise the important distinction between those who acquire land to plant it, and those who already own or manage the land. Those who acquire land include external investors and community or voluntary groups. They are constrained both by the availability of cash for land acquisition, and by the size of the land market. It is estimated that in Scotland only about 10,000 – 15,000 hectares of farmland comes onto the market each year (and most of this is bought by farmers for farming).

While traditional estates have a long tradition of forestry, there is no real 'forestry culture' within much of the farming community, whose primary interest is in food production, and who therefore wish to avoid the loss of productive agricultural land. Taken together with the complexity of the grant application process and concerns over the skills required for successful woodland establishment and management, there is a reluctance to plant trees – even where a good financial case can be made. This problem is well-illustrated by the fact that there has been little uptake of a pilot scheme whereby Forestry Commission Scotland offered to lease land from farmers for establishment of productive woodland to help 'de-risk' the process.

We believe that by further broadening the base of those involved in woodland creation we are likely to see a wider range of types of woodland being created, to meet a wider range of Land Use Strategy objectives and deliver a wider range of goods and services. We have already made a series of recommendations which will help with to engage, in particular, farmers in woodland creation, but recognise that there are others who need particular support.

Engaging tenants and crofters

It can be difficult for tenants to create woodland; woodland is often perceived to be the landlord's business. About 1.6 million hectares of agricultural land is tenanted. The relationships between tenants and landlords are highly regulated and there are on-going discussions about the legislation taking place within the Tenant Farming Forum. Under Agricultural Holdings legislation[76] tenant farmers on secure tenancies can plant trees if they obtain their landlord's permission to change the land use. In practice it seems likely that it would only be on larger, extensively managed tenanted units where there might be opportunities for larger scale plantings, benefiting both parties. The development of standardised joint venture templates may help to facilitate this. Such joint venture arrangements

[76] Section 42, Agricultural Holdings (Scotland) Act 2003; section 51 deals with compensation when the lease comes to an end.

may also be relevant to the creation of smaller woodlands which would appear to offer a more likely opportunity on tenanted units.

Opportunities for woodland creation are probably greater on crofting land. We have outlined some of the benefits and achievements of crofter forestry in section 2.2. Unfortunately, however, for various reasons progress has faltered in recent years, although there remains further potential for crofter forestry. This would potentially focus on the expansion of existing native woodlands and the creation of smaller woods on more sheltered and accessible sites capable of producing fuel wood or timber. We have heard that motivations for becoming involved in crofter forestry include the use of land no longer needed for sheep, income generation, environmental improvement and social considerations (creating an asset for the next generation). Further potential lies in joint ventures. Whilst previously woodland establishment by crofters on common grazings could only be carried out by the grazings committee (which we are disappointed to hear are not universally operational), further legislation introduced in 2007 provides an opportunity for crofters and landowners to undertake joint forestry ventures on common grazings. This opportunity could be particularly useful in situations where the landowner is the Scottish Government (which owns a considerable area of croft land) and could offer proactive support and encouragement in the development of joint woodland expansion schemes.

Recommendation 20: Tenant farmers.

Landlord and tenant representatives should work together in the context of the Tenant Farming Forum to promote woodland creation, in particular:

- **By developing and promoting example joint venture mechanisms that would foster woodland creation while allowing both landlords and tenants to benefit, and**
- **By investigating opportunities for tenants to work with landlords to create small scale woodlands that enhance the holding and the wider environment.**

Recommendation 21: Crofter forestry.

Crofting and forestry stakeholders should work together to promote crofter forestry proactively. As a crofting landlord, the Scottish Government should initiate contact with all Grazings Committees on its land to invite them to consider possible crofter forestry activity (either independently or in partnership with the Scottish Government through a joint venture).

Community woodlands

There is a widespread perception that community woodlands are all about social and environmental aims, but this is too simplistic: economic motives also feature strongly, indeed increasingly. More and more, this sector can claim to deliver the richest returns in terms of public good for the public pound with an array of environmental and social gains (including proven health benefits, outdoor learning and volunteering) combined with their (mainly local) economic contribution. The resulting package is usually central to the realisation of ambitions of increased community resilience, helping to develop social capital.

We need to open up woodland creation opportunities much more widely to communities; increasing the degree to which communities are informed about, and potentially involved in, woodland creation and management close to them; and reducing the barriers that communities face if they want to create woodland.

As we noted earlier, most community woodland group activity focuses currently on management of existing woodlands – encouraged by such schemes as the National Forest Land Scheme (whereby they can acquire forest land from Forestry Commission Scotland). Communities who wish to create and manage community woodlands often lack the finance to acquire land and the necessary skills to create and manage woodlands. We do not know how much woodland is created by communities but the amount is certainly very small, and if communities are to contribute to woodland expansion they will need support to do so. Schemes such as LEADER already exist to help build community capacity, and we suggest that woodland expansion could be achieved through encouraging existing community structures (such as Development Trusts, Community Councils, Village Halls, etc) to enter agreements with neighbouring owners of land to establish community woodlands on mutually beneficial terms. The current Forestry Commission Scotland land leasing scheme currently aimed at the farming community presents a model which could be copied for new community woodland creation, albeit undertaken with different scale criteria and delivery characteristics.

Recommendation 22: Community involvement.

The Scottish Government should help communities become involved in woodland creation. It should:

- **Set up a scheme to lease land for the purposes of creating community woodlands;**
- **Continue to support and promote schemes such as the National Forest Land Scheme,**
- **Encourage communities who become involved in woodland management through the National Forest Land scheme to consider additional woodland creation in the local area.**

Engaging the wider community

Despite the fact that the Land Use Strategy would like to see more people connected to the land, in the responses to the consultation and in the stakeholder meetings it was made clear to us that some people feel that they have little connection to the forestry and woodlands close to them and that they would like greater input to woodland management decisions. There are processes to engage neighbours and interested stakeholders in forest planning and in relation to major operations both on the national forest estate and in private forests through compliance with formal procedures on the national forest estate and independent certification operating under UK Woodland Assurance Standard.

The Forestry Commission has developed a 'toolbox'[77] to assist forest and woodland managers when preparing for public engagement, recognising that people and their needs vary from place to place. The toolbox helps make best use of the public involvement process so that decisions are taken which deliver the range of benefits needed by people and are consistent with sustainable forest management. Such processes can help foster stronger links with communities and private woodland owners and managers whose woods are not certified should be encouraged to undertake similar engagement, helping to promote better understanding of woodland management and the wider forestry sector.

Recommendation 23: Public involvement.

Forestry Commission Scotland should work with Scottish Land & Estates and Confor to promote the Public Engagement in Forestry Toolbox to private forest owners.

[77] http://www.forestry.gov.uk/forestry/infd-5xmds8

5. Conclusion

We commend this report to the Cabinet Secretary for Rural Affairs and Environment and wish him and his officials well in implementing our recommendations, and in achieving a new direction for woodland creation in Scotland. In support of this, we make one final recommendation:

Recommendation 24: Monitoring progress.

The Scottish Government should report on progress with implementing the recommendations in this report annually, as part of the existing reporting structures for the *Land Use Strategy*. Comment should be provided on whether and how the new direction for woodland creation that we have proposed in this report is influencing public policy.

6. Annexes

6.1. Members

The group was chaired by **Dr Andrew Barbour** who farms in Perthshire and is a woodland adviser to Atholl Estates.

The members of the Advisory Group were:

Mark Aitken: Scottish Environment Protection Agency.

David Barnes: Scottish Government Rural and Environment Directorate.

Susan Davies: Scottish Natural Heritage.

Stuart Goodall: CONFOR

Jonnie Hall: National Farmers Union of Scotland.

Hamish Macleod: Director BSW and Chair of FC Scotland's National Committee.

Professor Jeff Maxwell: Former Director of Macaulay Land Use Research Institute and recent Chair of Tenant Farming Forum.

Angus McCall: Scottish Tenant Farmers' Association.

Bob McIntosh: Director, Forestry Commission Scotland.

George McRobbie: UPM Tilhill.

Dr Andrew Midgley: Scottish Land and Estates.

Nigel Miller: National Farmers Union of Scotland.

George Milne: National Sheep Association.

Jo O'Hara: Scottish Government Rural and Environment Directorate.

Simon Pepper: SNH Board member and former director WWF.

Ian Ross: Highland Council and Chair of Planning, Environment and Development Committee. Mr Ross also chaired the Forests for People Advisory Panel.

Vicki Swales: RSPB Scotland.

In addition, **Bill Ritchie** attended meetings from January 2012 onwards as a representative of the Scottish Crofting Federation.

Jo Ellis, Forestry Commission Scotland, was Secretary.

6.2. Terms of reference

1. The task of the Group was:

"To provide advice to the Cabinet Secretary, by June 2012, on identifying more closely which types of land are best for tree planting in Scotland, in the context of other land-based objectives; and on promoting good practice and local processes in relation to tree planting so as to secure multiple benefits."

2. Ministers have asked that in formulating its advice, the Group should:

(a) consider the Scottish Government's *Rationale for Woodland Expansion*, and the competing pressures on land potentially available for tree planting, including food production, energy generation, biodiversity and heritage conservation, and development

(b) consider the need to implement the Scottish Government's commitments to tree planting set out in *Low Carbon Scotland: Meeting the Emissions Reduction Targets 2010-2022* (the Report on Proposals and Policies for reducing greenhouse gas emissions to meet Scotland's statutory targets), and

(c) take into account the Objectives and Principles set out in the Scottish Government's *Land Use Strategy*.

3. In planning its work, the Group will need to consider how best to collect evidence, based on available research and the views of interested stakeholders.

6.3. Consultation reports and papers

We have placed our summary of responses to the call for views, our report of the outcomes rom regional meetings, the various analyses we have commissioned and a number of other working papers on the Woodland Expansion Advisory Group section of the Forestry Commission website at **www.forestry.gov.uk/weag**. All of these papers contributed to the formulation of our conclusions, but we refer directly to the following papers in this report:

Meeting 2

- WEAG 6: Findings of technical work looking at constraints on woodland expansion.
- WEAG 8a: History of support for woodland development in agriculture and forestry/farming integration
- WEAG 8f: Further background briefing

Meeting 3

- WEAG 15a: Barriers to woodland expansion
- WEAG 15b: Integrating woodlands with farming and deer management
- WEAG 15f: Further analysis of the land potentially available for woodland establishment.

Meeting 4

- WEAG 24: Summary of responses to Call for Views

Meeting 5

- WEAG 28: Stocking rate analysis
- WEAG 29: Summary of views from stakeholder workshops

Meeting 6

- WEAG 38: Deer management and woodland expansion.

6.4. 'Farm forestry' models

The following table sets out our analysis of the costs, benefits and risks of potential types of farm forestry/woodland

Cost of establishment and grants	Impact on other grants	Potential benefits for farm business	Forestry outputs	Broader benefits of system (ie ecosystem services)	Carbon Benefits [i]	Agricultural implications	Risks[ii]
Type 1a: Small farm woodlands and shelterbelts. (0.25 – 2 ha; at least 15 m wide)							
Costs generally in line with SRDP, but relatively high cost of small scale schemes may make these woods less attractive. Rural Priorities or Land Managers Options	Option to retain SFP or to get Farmland Premium (but not both). May lose opportunity for agri-environment payments.	Shelter Sporting income from rough shooting Biodiversity Fuelwood Better use of land not in productive use eg bracken, Amenity & landscape	Fuelwood[iii] Possible potential for quality hardwoods Traditional timber markets	Forest habitat network & connectivity Enhanced Landscape & amenity	High .	Potential loss of productive land Increased unit costs Possible implications for future CAP payments Cost of application (time & money)	Lack of commitment to ongoing management. Lack of skills
Type 1b.Hedgerows with trees. Linear, with standard trees every 10 metres or so							
Costs generally in line with SRDP; but hedgerow Rural Priorities option (which is currently suspended) does not require standard trees and only encourages them at 200 metre.	No impact - helps meet GAEC compliance	Shelter Combats soil erosion Helps optimise fencing options	Possible high value hardwoods, but only if well managed	As 1a	Very Low	Potentially reduces field size & farm operational efficiency for machinery Ongoing maintenance costs Cost of application	Lack of maintenance Lack of skills

Cost of establishment and grants	Impact on other grants	Potential benefits for farm business	Forestry outputs	Broader benefits of system (ie ecosystem services)	Carbon Benefits [i]	Agricultural implications	Risks[ii]
Type 2: Riparian and floodplain woodland. At least 0.25 ha and 15 m wide							
Costs generally in line with SRDP, but unit costs of (eg) fencing may be higher. Rural Priorities or Land Managers Options	As 1a	As 1a Diffuse pollution mitigation. Soil stability Flood mitigation through better land use	As 1 a	As 1a Flood damage mitigation Water quality improvement Fisheries	Moderate	As 1a & 1b	As 1a
Type 3a. Productive farm woods (grazing generally excluded) At least 2 ha							
Costs generally in line with SRDP. Rural Priorities.	As 1a	Shelter. Sporting (including deer) Diversification Better use of marginal agricultural land	Fuelwood Possible potenti for quality hardwoods Traditional timber markets Possible commercial recreation	As 1 a	Very High	As 1a	As 1 a Poor access for timber harvesting

Cost of establishment and grants	Impact on other grants	Potential benefits for farm business	Forestry outputs	Broader benefits of system (ie ecosystem services)	Carbon Benefits [i]	Agricultural implications	Risks[ii]
Type 3b Short Rotation Coppice Up to 10000 stems/ha of fast-growing willow (or other suitable broadleaves) densely grown on agricultural land and harvested for biomass on a rotational basis every 3 to 4 years							
Higher than standard forestry establishment, reflecting higher stocking densities. Support for establishment available under SRDP (Rural Priorities) but at a lower proportion of standard costs compared to other woodland creation models and only up to a maximum of £1000 /ha	As 1a	Diversification Sporting	Biomass	As 1 a, but to a lesser extent	Moderate/High	As 1 a Loss of arable land Significant impact on field drainage systems for future return to agricultural use	Future biomass demand Specialist harvesting required
Type 3c Short rotation forestry Up to 10000 stems/ha of productive species to optimise biomass volume production over a shorter rotation							
Higher than standard forestry establishment, reflecting higher stocking densities. Rural Priorities or Land Managers Options	As 1a	As 1a, but more intensive approach to utilisation	Biomass	As 1 a, but to a lesser extent Potential for coppice and associated habitat benefits	Very High	As 1a	Dependant on future biomass demand SRF is probably more viable than SRC

Cost of establishment and grants	Impact on other grants	Potential benefits for farm business	Forestry outputs	Broader benefits of system (ie ecosystem services)	Carbon Benefits [i]	Agricultural implications	Risks[ii]
Type 4. Productive farm woods with grazing As 3a above but with grazing re-admitted within the first 30 years							
Costs as 3a, but with additional costs to facilitate woodland grazing eg pruning. No Farmland Premium available due to proposed use of grazing	Loss of Farmland Premium (but SFP could be claimed)	As 3a, but also with grazing	As 3 a	As 3a but with much more scope for integrating farming & forestry	As 3a.	As 1a	As 1a Tree damage Need for very careful management
Type 5 Silvopastoral agroforestry Wide-spaced trees established at minimum of 400 stems/ha, individually protected with grazing in between. Aim to manage tree canopy to have minimal impact on grass sward productivity. Field scale trial in place on James Hutton Institute farm at Glen Saugh, Aberdeenshire							
Costs significantly higher than conventional woodland creation. Indicative cost of £10/tree to plant and protect initial stocking of up to 500/ha (reduced to about 200 over say 15 yrs); also costs of pruning for timber quality and other maintenance. No support available under SRDP, although allowable under EU Rural Development Regulation.	Loss of SFP if more than 50 trees per hectare.	Shelter Animal welfare eg lambing Maintains grass sward productivity	Fuelwood Possible higher grade timber if managed correctly	As 1 a Integrated approach	Low .	Requires ongoing maintenance Costs of establishment Current impact on farm support entitlements	As 1 a Complex Tree damage from livestock and wind High maintenance required

Cost of establishment and grants	Impact on other grants	Potential benefits for farm business	Forestry outputs	Broader benefits of system (ie ecosystem services)	Carbon Benefits [i]	Agricultural implications	Risks[ii]
Type 6. Farm forestry small-holdings, forest crofts and forest gardens (including orchard systems) Small parcels of land/crofts/allotments (say <15ha) managed for a degree of self-sufficiency by interested individuals. Demand around large towns and settlements likely but also interest in forest crofts in rural areas							
Individual trees might be established at around £5 to £10 per tree with maintenance to full establishment. Orchards likely to cost as much again per tree to establish. Generally no support available under SRDP (except for eg trees in historic landscapes). Some small scale grants for orchards (eg in Central Scotland Green Network)	N/a	Diversification (fruit etc) Organic potential Education of non-farming public in land management	Fuelwood Possible higher grade timber if managed correctly	• Integration • Education • Diversification • Food & timber miles reduction • Niche use of better land for food	Very Low	• Loss of economies of scale	As 31 Complexity Land availability

[i] Total carbon sequestration over 100 years (including thinning) has been estimated on the following scale: over 1000 tCO2- very high; 750-1000 tC02 - high; 350-750 tCO2 - moderate; 100-350t CO2 - low; under 100t CO2 - very low. No account has been taken of carbon stored in harvested wood products, or substitution for other building materials or fossil fuels.

[ii] Significant risks of each model, which could range from physical ones such as establishment failure through to risks associated with committing land to trees and the impact this could have on future grant entitlements

[iii] Fuelwood and biomass are essentially the same thing ie woody material to be burned for energy production however for the purposes of this table fuelwood is wood used for domestic heat whilst biomass is wood used for larger-scale commercial heat or Combined Heat & Power (CHP) production

Assessment of potential by SRDP woodland creation model and by Farm Type

FCS Woodland Creation Planting Model	Agroforestry Woodland type	Arable	Mixed	Intensive Livestock		Extensive Livestock	Crofts	Small-holdings
				Beef/Dairy	Sheep			
Currently available under SRDP								
Low cost conifers	*3a, 3c*	—	—	—	—	✳✳	✳✳	—
High cost conifers	*1a, 3a, 4*	—	✳	—	—	✳✳	✳✳	—
Productive broadleaves	*1a, 2, 3a, 4*	✳	✳✳	✳	✳	—	—	✳
Native Woodland	*1a, 2, 3c, 4*	✳	✳	✳	✳	✳✳	✳✳	✳
Natural Regeneration Native Woodland	*1a, 2*	—	—	—	—	✳✳	✳✳	—
Mixed	*1a, 3a, 4*	✳	✳✳	✳	✳	✳✳	✳✳	✳
Northern & Western Isles	*1a, 2, 3a, 3c, 4*	—	—	—	—	✳✳	✳✳	✳
Central Scotland Mixed	*1a, 3a, 3c, 4*	✳	✳✳	✳	✳	✳✳	—	✳

Other potential Woodland Creation models not available under SRDP								
Silvo-pastoral	1a, 2, 5	—	✳	—	✳ ✳	✳ ✳	✳	✳
Farm Woodland: Grazing Permitted	1a, 2, 3e, 4	—	✳	—	✳ ✳	✳ ✳	✳ ✳	—
Hedgerows	1b, 6	✳ ✳	✳	✳	✳	—	—	✳
Small-holdings	1a, 4, 6	—	—	—	—	—	✳ ✳	✳ ✳

✳ ✳ Highly suitable
✳ Suitable
— Not currently promoted

6.5. Advisory bodies to Forestry Commission Scotland

Forestry Commission Scotland (FCS) has established five **Regional Forestry Forums** (in Central Scotland, Grampian, the Highland and the Islands, Perth and Argyll and South Scotland) to advise on forestry policy and practice in their areas. Each forum has 12–15 members, representing the economic, environmental and social aspects of sustainable development. Their term of office is for three years and both FCS and Forest Enterprise Scotland have a seat on each forum.

The roles of the regional forums are:

- to advise on regional implementation of the Scottish Forestry Strategy and provide a regional perspective on the Strategy's future development;
- to develop close relationships with the forest industries regional cluster groups;
- to promote the principle of local forestry frameworks, indicative forestry strategies, and other woodland strategies; their development and implementation;
- to advise FCS on the suitability of frameworks and strategies which are in preparation;
- to advise Forest Enterprise Scotland on Forest District Strategic Plans; and
- Where possible, provide linkages with Community Planning Partnerships.

Meeting three times a year, each regional forum establishes its own priorities and sets up working groups to take forward specific issues.

FCS is also supported by the statutory **Regional Advisory Committee** (RAC) whose role is to adjudicate on disputed applications for grants or felling licenses and in disputes by statutory bodies arising from Forest Enterprise Scotland design plans. This committee meets when required (though has not met for several years) and when called, the members would be drawn from the Regional Forestry Forums.

In addition, the **Scottish Forestry Forum** (SFF) meets about once a year to discuss matters of wider interest across Scotland. It has a remit to:

- to promote discussion about how to maximise the social, economic and environmental benefits of forestry in Scotland;
- to consider how Scottish forestry can best contribute to the wider rural development agenda in Scotland; and
- to ensure that progress is made in delivering the Scottish Forestry Strategy.

For more information, see http://www.forestry.gov.uk/forestry/infd-7upd3g.