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Piloting the Measurement of Social and Environmental Returns from Woodland Creation

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EXECUTIVE SUMMARY

Project aim and scope

URS – in partnership with EnviroMarket – was commissioned by the Forestry Commission to undertake a project to develop and pilot a framework for quantifying and reporting the social and environmental impacts of creating new woodlands, with a particular emphasis on business/corporate use. The terms of reference identify that investments in forest can deliver a wide range of social and environmental outputs, with a growing body of evidence being developed on approaches to valuing them. Effective reporting is identified as an important step towards developing payments for ecosystem services.

The specific objectives were to:

- Select woodland creation projects for analysis;
- Identify relevant social and environmental impacts of woodland creation;
- Conduct a review of environmental and social reporting frameworks that are used in the UK and elsewhere in order to identify relevant indicators and approaches;
- Use a mix of site assessments and secondary data to assess the suitability of selected indicators and approaches for measuring the social and environmental impacts of the woodlands;
- Propose a set of indicators and an approach to utilising them that can to be used in future for assessing the benefits derived from woodland creation, which will work for businesses and will be sufficiently robust; and
- Provide recommendations on:
    - How the approach developed to measuring benefits might be used by relevant stakeholders;
    - How the approach to measuring woodland benefits could be further refined and developed in future; and
    - The challenges and opportunities related to improving the reporting of social and environmental benefits from woodland creation.

The terms of reference stated that the pilot would be used to inform the future development of the Woodland Carbon Code and that, though it should focus on woodland creation, it should be transferable to woodland management projects. The scope of impacts should include both non-timber impacts and life cycle impacts.

Approach taken

The approach combined desk-top research and market research to understand the requirements for a corporate reporting tool, as well as literature review, desk-based tool development and visits to selected woodlands to develop a pilot tool. The pilot tool comprises an Excel-based reporting framework with a set of scored metrics to assess the social and environmental returns of woodland creation projects.

A literature review considered existing corporate responsibility and sustainability reporting frameworks, sector-specific guidance, corporate reporting and other indicator sets, as well as specialist literature on woodlands and forestry and ecosystem services. A review of the public claims made by companies in corporate communications, particularly on their websites was also undertaken. The purpose of the review was to understand the types of claims corporates make about their investment in woodlands, to identify general guidance on approaches to reporting benefits, types of environmental and social benefits associated with woodlands, existing indicators and different approaches to demonstrating reliability. The findings informed the development of the pilot tool.

Suitable woodland creation projects on which preliminary assessments could be conducted were selected from the Woodland Carbon Code registry[1]. A final shortlist of three projects was agreed, that between them offered a mix of urban and remote locations, a mix of productive timber and native woodland types, a diversity of investors and public profile.

Two prototype reporting frameworks were developed, both in the form of Excel-based interactive tools, and each with the four broad reporting categories of Wildlife, Community, Water and Carbon. One framework focused specifically on 'net impacts' and required collection of baseline information in order to provide robust assessment of outcomes. The other framework focused on 'outputs and outcomes', making use of proxy indicators of potential impacts of woodland creation, and with no requirement for a baseline to be established.

The 'outputs and outcome' framework was 'road-tested' with businesses via a series of interviews. The market research sought to develop a better understanding of the benefits of most interest to business, current approaches to measuring and reporting and their views on the proposed framework's strengths and weaknesses. This was support by desk research into the requirements of leading reporting frameworks, as well as a review of existing corporate reporting and communications.

The framework was then further refined on the basis of the feedback from the interviews with businesses. It was tested via site visits at the selected sites, namely Coshogle I, part of the Buccleuch Estates, Upton Court Jubilee Park, Slough and Cwm Fagor, Monmouthshire. Woodland managers were asked for feedback on the pilot tool in terms of the practicality of its design, the proposed questions and their attitude towards potential use of the tool.

A draft final version of the pilot tool was developed to incorporate the learning from the preceding research. Feedback from peer reviewers and the project steering group was used to further refine the pilot tool and draw conclusions regarding the research objectives.

Discussion

The research has been a learning journey to develop a tool that responds to the research aims, within emerging policy areas, including payment for ecosystem services, and disparate initiatives, both specific to woodland creation and management, as well as to harmonisation of natural capital valuation and approaches and to the measurement, reporting and communications of corporate investment, including in natural capital.

The pilot tool successfully brings to life the variety of environmental and social benefits achieved through new woodland creation, with a relatively simple set of scored metrics that, under four main areas, namely wildlife, community, climate and water. It enables businesses to score 'points' for the benefits offered by their investment, generating a 'balanced scorecard' style visual and narrative summary of the benefits. This is intended to provide an attractive means to build and present a business case to support woodland creation and to report on the benefits that an investment achieves.

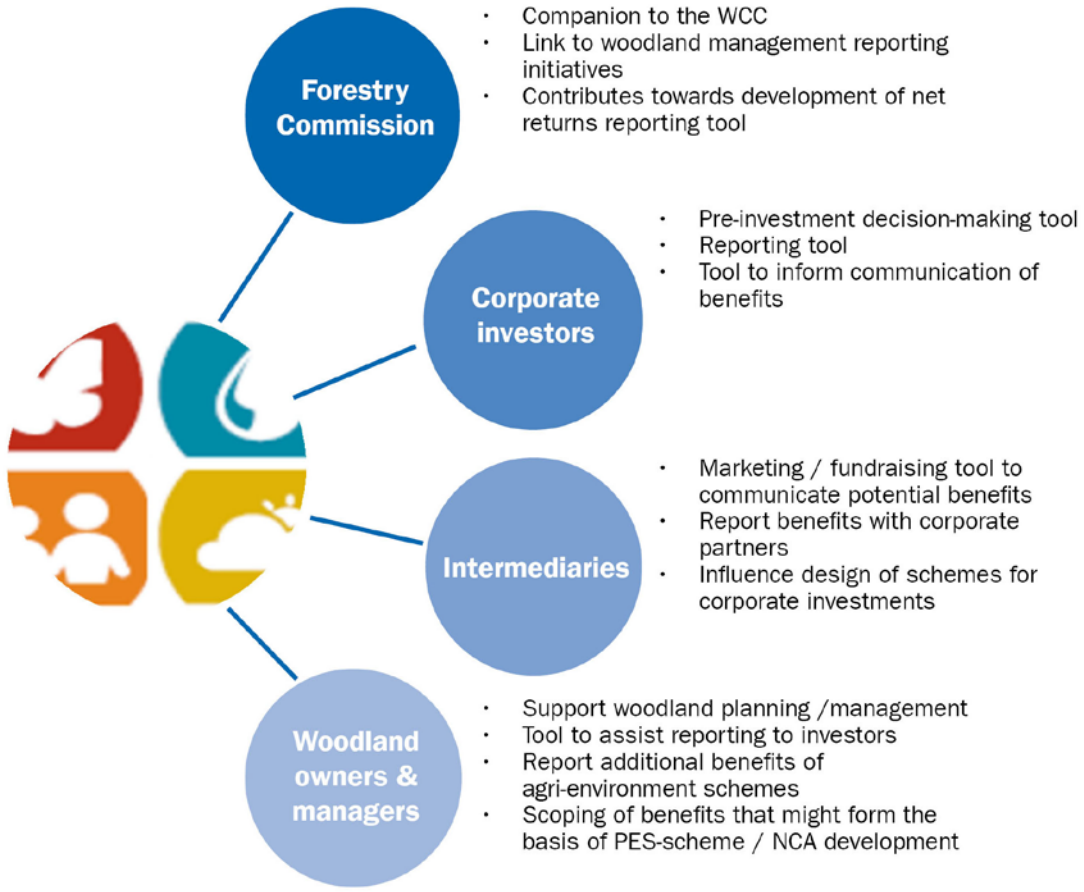
The balanced scorecard could be reproduced in corporate reporting and communications, such as customer-facing webpages, so that corporates could communicate a greater range of benefits than is currently the case. There remains the need for further corporate feedback on how the outputs could be used in reporting and communications.

The pilot tool offers flexibility for more committed corporates to voluntarily monitor and report verifiable quantitative evidence to demonstrate the reliability of their claims. The pilot tool design also provides flexibility for it to be adapted in the future to include reporting of other outputs, for example to give greater emphasis to the timber production.

A range of potential users and uses of the pilot tool have been identified, as illustrated in Figure 1. The planned further testing of this tool by Grown in Britain should support further understanding of corporate and intermediary views regarding the potential value of the pilot tool.

[1] Forestry Commission - UK Woodland Carbon Code Registry: Public View [online] available at: http://www.forestry.gov.uk/forestry/infd-997cdg

Figure 1: Identified potential uses of the pilot tool



The pilot tool can be used alongside the Woodland Carbon Code for investors to report on the benefits additional to the carbon captured for certified projects. But it also has potential wider applicability than the WCC, to encourage corporate investment in new woodland, potentially through its use by intermediaries to communicate and market the benefits of new woodland. It also has potential for use by corporates as a decision-making tool to guide their investment choices, based on a more integrated understanding of the social, environmental and economic returns offered by investment in new woodland.

The pilot tool uses indicators that are compatible with existing forestry sector standards and guidance, based on available scientific evidence, whilst scores for 'transparent' reporting are used as a cost-effective means to support confidence in the tool's outputs. The pilot tool includes metrics that reflect impacts, or benefits, that are compatible with different types of ecosystem services. It has been designed to respond to a range of practical concerns of stakeholders concerning the costs and practicalities of adoption.

The proposed tool, in its present version, does not involve the establishment of a baseline and use of absolute measures, which would be required to fully satisfy the principles of leading corporate reporting approaches to demonstrate the net additional returns from investment. By refining understanding of which benefits, outputs and outcomes are relevant for a range of new woodland creation projects, it does move forward understanding of what measurable metrics would be appropriate. This can be used in future work to move towards a reporting tool that more fully responds to the needs of impact investors and for payments for ecosystem services, including establishment of a baseline and absolute metrics.

It would be valuable in the future to identify a combination of metrics that enable comparison across sectors as well as woodland sector-specific metrics. Whilst some suitable widely-agreed metrics exist, for example, to report carbon capture in trees, identification of suitable metrics for other benefits, such as for flood alleviation and biodiversity benefits would require engagement with wider research, including initiatives such as the Scottish Forest Alliance's

work on biodiversity metrics[2].This would enable major corporates to report the returns from woodland investment in combination with other forms of investment, which is an increasing emphasis for leading reporting frameworks. This pilot tool provides a basis for greater comparability between woodland creation projects, but has not grappled with identification of measures that could also be used in other sectors.

The research and pilot tool development included a number of challenges. The pilot tool has limitations, some of which can be addressed in future iterations and through related further development. The challenges encountered included:

- A degree of 'reporting fatigue' evident amongst corporates approached. Desk research regarding corporate reporting and communications and corporate-led initiatives helped to reduce the significance of this effect;
- Wider barriers to investment in woodland creation in the UK influenced intermediary stakeholder attitudes to the tool, who expressed concerns that the tool could impose additional costs to new woodland creation;
- There is a plethora of both cross-sectoral and sector-specific indicators but many are not appropriate to the timeframe, nature, scale or variety of contexts for new woodland projects, or are insufficiently developed as reliable metric;
- Further work, outside the scope of this project, is required to fully consider how the tool can be made compatible with natural capital accounting and payment for ecosystem services; this would require an approach that included establishment of a baseline and identification of absolute metrics for different social and environmental benefits;
- Time and resource constraints limited the ability to fully address all the research questions and suggestions from the project steering group and other interested parties; including to accommodate suggested changes to the tool structure.

Conclusions

The pilot reporting framework themes address the woodland benefits identified as of most importance by businesses, including climate change, water quality and flood alleviation, economic contribution to local communities, recreational value and the protection and enhancement of biodiversity, with the carbon capture benefits the most strongly identified impact of interest for corporates' response to climate change.

Businesses already report on corporate sustainability and on corporate responsibility through a range of initiatives, such as the London Benchmarking Group and the IIRC, with associated principles for reporting value creation. Businesses communicate the benefits of investment in wider corporate communications, such as to inform customers about the numbers of trees planted, sometimes converted into the amount of carbon dioxide removed from the atmosphere, and less frequently, description of the range of wider potential benefits for people and the environment. The Scottish Forest Alliance provides an important example of development of biodiversity KPIs specific to woodland creation suitable for impact reporting, with BP as the key investor.

However, in general, in both sustainability reporting and corporate responsibility reporting, the measurement of, and reporting on, impact is at an early stage, particularly for sector-specific investment. The pilot tool in its current form does not satisfy all the requirements of good corporate reporting requirements for assessing materiality, including for payment for ecosystem services schemes. Further work is required to address the opportunities for making the pilot tool and its outputs compatible with corporate standards and good practice for reporting, as well as for use in wider corporate communications.

Woodland owners and managers as well as other intermediaries for investment in woodlands express concerns that the costs borne by them to satisfy the requirements of existing certification schemes (such as FSC) can discourage their adoption. The pilot tool has been

[2] Smith, M., Cowie, N., Atkinson, S. & Harve, G. (2010) Long term biodiversity planning and monitoring of new native woodlands' Presenting author Mike Smith, Chair SFA Biodiversity Working Group, Scottish Forest Alliance.

designed to minimise this burden. There remains work though to convince intermediaries that the tool could actually support them in attracting corporate interest in new woodland creation.

The further testing of this tool by Grown in Britain will enable further clarification of the potential value of the pilot tool, including its potential use by intermediaries, including charities committed to tree planting, as a marketing tool and tool to aid decision-making by illustrating to potential investors the benefits of new woodland creation, as well as for corporates to measure and report the benefits of their investment.

The research moves forward understanding on the specific benefits of new woodland creation that can be measured at different stages in a woodland's development. This can be used in future work to move towards an approach that more fully responds to the needs of impact investors and for payments for ecosystem services, including establishment of a baseline and absolute metrics, in place of score-based metrics. As part of this, it would be valuable to identify a combination of metrics that enable comparison across sectors as well as some woodland-specific metrics. This would enable major corporates to report the returns from woodland investment in combination with other forms of investment.

Recommendations and next steps

A number of recommendations and next steps are suggested:

- Engage further with corporate investors and intermediaries, such as Grown in Britain members, to decide on the future identity and uses of the pilot tool. This should include consideration of whether the Forestry Commission should retain control, with guidance developed to support its use as a nationally-recognised tool, or whether it should be made available for corporates and intermediaries to adopt and tailor to their own needs. This should include testing with voluntary organisations committed to woodland planting, to test its potential value as a tool to support their efforts to raise money for their woodland planting plans.
- Promote the pilot tool as a potential companion to the Woodland Carbon Code, which may help to encourage investors to seek certification with the code. But keep it as a distinct tool, not as part of the code, which is a standard requiring verification.
- Further engagement with corporates, including through practical trialling of the pilot tool, should be undertaken to explore its strengths and limitations to enable corporate reporting and communications of the social and environmental returns from investment in new woodlands. This should also include consideration of how far it can also be used for reporting the benefits of existing woodland management.

Develop a process for testing of the pilot tool and a potential investor pool

- Consider the development of a set of 'completed case studies' which demonstrate the application of the pilot tool. Given the considerable *pro-bono* input to date by various parties involved with the pilot site visits, it is recommended that woodland managers be compensated for any further time required to prepare these case studies. These case studies and completed assessments would enable testing of the pilot tool. The case studies could also be used to promote the pilot tool for wider uptake.
- Consider creating a project pipeline, potentially identified from the Woodland Carbon Code register, and use the pilot tool to profile a range of woodland creation opportunities. By identifying interested parties who have signed up to the Grown in Britain initiative, particularly those who are also members of the London Benchmarking Group (LBG), seek to engage with these organisations to create an investor pool to consider investment in identified new woodland opportunities.

Scope and life of tool

- Seek further feedback from corporate investors and intermediaries regarding the scope of the tool, including its use across multiple sites or investment in tree planting across a portfolio of sites; the lifespan of the tool; the inclusion of 'transparency' as part of the scoring system; the inclusion of 'timber production' as a distinct theme of the tool

Development and harmonisation in line with the wider natural capital valuation agenda

- Further research is recommended to consider how the research to date, including elements of the pilot tool, can inform the development of an impact-based tool for use in natural capital valuation, PES scheme development, and reporting that more fully satisfies the needs of impact investors.
- Link any further research with existing national and international initiatives regarding harmonisation of natural capital valuation within the public and business sectors, for example by Defra, the IFC and the Natural Capital Coalition[3].
- Such research should draw on existing initiatives to develop sector-specific metrics or similar work, such as the Scottish Forest Alliance's work to develop scientific measures for reporting biodiversity benefits of new woodland creation, and initiatives concerning flood and water quality benefits of new woodland creation.

Tool structure

In planning next steps to develop an operational tool based on the pilot tool, we would recommend:

- Consider the development of a web-based tool, based on the final Excel version, whilst also retaining an Excel version that can be used off-line for some purposes;
- Develop a slim-line PDF guide to the tool, which uses web links to wider guidance, as well as other aids, such as 'pop-up' boxes to improve the user experience.
- Further explore different alternative approaches to scoring 'Community' benefits, including wellbeing and health-focused metric development, approaches which attempt to monetise social benefits or approaches which report the 'distance travelled', in terms of the qualitative difference made to a beneficiary as a result of a particular initiative.
- Seek further feedback from intermediaries and potential corporate users on the basis of the pilot tool regarding the benefits and limitations of the use of a scoring-based tool in relation to the tool's application for different purposes.

[3] Project: Developing And Testing A Harmonised Framework For Valuing Natural Capital In Business & Investor Decision Making http://www.teebforbusiness.org/how/natural-capital-protocol.html [Accessed 15/01/2013]

1 INTRODUCTION

1.1.1 URS – in partnership with EnviroMarket – were commissioned by the Forestry Commission to undertake a pilot project to determine how the social and environmental benefits from woodland creation in Britain can be measured for corporate reporting.

1.1.2 This draft report documents the outcomes of the project and sets out draft conclusions and recommendations to the Forestry Commission. It has been prepared for the consideration of the Forestry Commission and the project steering group. The specific objectives were to:

- Select woodland creation projects for analysis;
- Identify relevant social and environmental impacts;
- Conduct a review of environmental and social reporting frameworks that are used in the UK and elsewhere
- Use a mix of site assessments and secondary data to assess the social and environmental impacts of the woodlands;
- Propose a set of metrics and/or indicators to be used in future for this type of assessment, and which will work for businesses and be sufficiently robust; and,
- Provide recommendations to improve the reporting of social and environmental benefits from woodland creation.

1.1.3 Ultimately, the pilot is expected to inform the future development of the Woodland Carbon Code (WCC), a voluntary forest carbon standard set up by the Forestry Commission, and to promote forestry investments in Britain. The outputs of the project are also intended to support the work of the Grown in Britain initiative which is seeking to increase investment in forestry in Britain.

1.1.4 The principal intended use of the pilot reporting framework is to enable corporate reporting on the environmental and social returns from investment in woodlands in a way that can be integrated with wider corporate reporting to shareholders, customers and other interested parties. The tool would also potentially be employed by landowners wishing to market to corporate investors the potential environmental and social returns offered by investment in new woodland creation projects on their land. During the study, it was also identified as a potentially useful planning tool for informing woodland management decisions to maximise the achievable environmental and social returns from new woodland creation.

1.1.5 The intended users of the tool are corporate reporting staff and woodland managers or intermediaries who prepare Woodland Carbon Code applications on behalf of woodland owners. It is envisaged that woodland managers and intermediaries, with relevant expertise, would complete the assessment. Corporate reporting staff, without expertise in woodland management, might also be responsible for completing the assessment, using information provided by woodland owners or managers. Corporate reporting staff would use the completed assessment in their reporting.

1.2 Background

1.2.1 Since 2007 the trend of increasing woodland cover has stalled and gross planting rates have fallen from 5,000 ha per year ten years ago to 2,600 ha in 2012 / 13.[4][5]. In recognition of the public value of woodlands, recent Government policy has sought to reverse this downward trend through measures to increase the extent of woodland cover in England and to bring more woodland into active management.

1.2.2 In order to achieve these aims, there is a need to encourage investment in new woodland creation as well as in active management of existing woodlands.

1.2.3 Until recently, investors have been restricted in the type of investments they can make in British forests. They were restricted to direct purchase of land (either with existing woodland or

[4] Smith, S., Crabtree, R., Glynn, M., Quick, T., Quine, C and Rowcroft, P. (2012) Evidence on Woodland Economy, Woodland Creation and Woodland Management in England. Final Report to the Independent Panel on Forestry. URS, London.
[5] Forestry Statistics, 2009

with the intention of creating woodland) and purchasing shares in timber companies. More recently, a range of novel ways of investing money in woodland management and creation have started to emerge. These include payment for ecosystem services (PES), the voluntary carbon market, biodiversity offsetting, forest bonds and collective forest funds.

1.2.4 Investments in woodlands and forestry deliver a wide range of social and environmental outputs, including recreation, carbon sequestration, flood regulation, biodiversity, health and well-being and community engagement. A substantial body of evidence has developed to value these types of outputs (e.g. Willis et al. 2003[6]; Eftec, 2010; Valatin and Starling, 2010[7]).

1.2.5 Corporate reporting of social and environmental impacts of business activities and investments is a growing practice. Businesses currently report mainly for corporate and social responsibility purposes, showing either how they are mitigating any negative impacts on the environment or, increasingly, how they are delivering net environmental gains. Regulatory requirements are also increasing, in terms of materiality. The opportunity for cost savings, awareness and ability to manage risk are also identified drivers for corporate reporting. Leading corporate reporting approaches are increasingly focused on the need for harmonising of reporting across sectors and the ability to report in a balanced way on the different material factors that contribute to added value. The LBG, IIRC and Defra's guidance on environmental reporting all identify sets of principles for corporate reporting, including principles of relevance, reliability, conciseness, completeness, transparency and comparability.

1.2.6 Previous work for the Forestry Commission by EnviroMarket (2011) concluded that creating a way of assessing and reporting social and environmental impacts would support the marketing of woodland to potential investors – individuals, corporations, foundations – and could be used to support different types of investment activity.

1.2.7 EnviroMarket differentiated types of investors according to their different interests or motivations for investment in forestry. This understanding is a necessary prerequisite for developing impact assessment and reporting frameworks that will serve the interests of potential investors.

1.2.8 The development of suitable metrics and indicators will enable reporting to be both robust and practical and is also an important step in developing payments for ecosystem services (PES).

1.2.9 There has been growing interest in the development of general and sector-specific tools for reporting different forms of 'natural capital' and for measuring the returns on investment in natural capital, including for corporate reporting purposes.

1.2.10 This study is intended to contribute towards the development of a sector-specific tool for new woodland creation, which draws on the wider range of approaches developed to date whilst responding to the needs of businesses and other stakeholders involved in new woodland creation.

1.3 Structure of the report

1.3.1 The remainder of this report is structured as follows:

- **Chapter 2:** Sets out the research methodology, providing a brief overview of each stage in the process;
- **Chapter 3:** Presents the key findings from the desk-based review of existing reporting frameworks and indicators;
- **Chapter 4:** Presents the outputs of the initial development of a pilot reporting framework development, including the development of two alternative reporting frameworks;

[6] Eftec (2010). *The Economic Contribution of the Public Forest Estate in England*. Report for Forestry Commission England, January 2010 [online] available at http://www.forestry.gov.uk/pdf/eng-pfe-econmicresearch-final.pdf/$FILE/eng-pfe-econmicresearch-final.pdf (accessed 14/01/2014).

[7] Valatin, G. and Starling, J. (2010) Valuation of ecosystem services provided by UK woodlands. UK NEA Economic Analysis Report [online] available at http://uknea.unepwcmc.org/LinkClick.aspx?fileticket=TxLTiDHKool%3d&tabid=82&bcsi_scan_AB11CAA0E2721250=p1pTv+EWGuBcmWq160bb6ljJmOljAAAAfzKEGw==&bcsi_scan_filename=LinkClick.aspx (accessed 14/01/2014).

- **Chapter 5:** Summarises feedback from investment and sustainability professionals on the proposed reporting framework;
- **Chapter 6:** Reports on the visits to selected woodland creation projects, including results from the initial pilot tool, and summarises the lessons learnt
- **Chapter 7:** Presents and explains in detail the proposed pilot tool. drawing on the inputs from previous stages in the research project;
- **Chapter 8:** Presents a discussion of the project findings, including some of the challenges involved in undertaking the project
- **Chapter 9:** Sets out key conclusions and recommendations for future work, as well as suggested next steps.

2 RESEARCH METHODOLOGY – AN OVERVIEW

2.1.1 The aim of this project was to develop and pilot a framework for quantifying and reporting the social and environmental impacts of woodland creation, drawing on existing environmental and social reporting frameworks and including a set of metrics or indicators suitable for use by businesses in their corporate reporting.

2.1.2 Key questions which this project sought to answer included:

- What are the social and environmental impacts of creating new woodlands?
- What approach to reporting is most suitable in terms of being both sufficiently robust whilst simultaneously meeting the needs of business practice?
- What indicators are most appropriate and to what extent do these need to be quantifiable measures?

2.1.3 This chapter provides an overview of the steps followed to address these questions and to develop the proposed reporting framework.

2.2 Select woodland creation projects for analysis

2.2.1 Prior to the inception meeting with the Forestry Commission Project Officer, projects that are registered with the Forestry Commission and listed on the Register of UK Woodland Carbon Projects as working towards, or that have already have been certified as meeting the requirements of the Woodland Carbon Code (WCC), were reviewed in order to produce a shortlist of possible woodland creation projects for analysis. This preliminary assessment was based on publicly available information, and considered the perceived environmental and social purpose of each project.

2.2.2 Selection criteria included:

- having a mix of project types;
- having a mix of developer types; and
- having at least one project focused on creation of native woodland for biodiversity or other environmental reasons, and at least one focused on commercial woodland for timber production.

2.2.3 The shortlist was then further refined on the basis of:

- location (urban / remote);
- productive timber / natural forest;
- diversity of investors and public profile; and
- specialist input from the Forestry Commission.

2.2.4 This resulted in the selection of three pilot sites.

Drumlanrig, Buccleuch Estates, Scotland

2.2.5 Buccleuch Estates comprises 11 separate woodland sites, and incorporates a diverse portfolio of projects and investors. The Buccleuch woodlands are primarily timber oriented, and are mostly situated in a remote area of southwest Scotland, although the estate also manages woodlands in Northamptonshire. For the purposes of this study three woodlands at Drumlanrig, in Dumfries and Galloway, were visited. The tool was piloted at Coshogle 1. This site is used for native hardwood timber production, but also aims to enhance biodiversity and habitat linkage, and has a high landscape value.

Cwm Fagor, Monmouthshire

2.2.6 Cwm Fagor is a rural site in Monmouthshire, owned since 2008 by Thorlux Lighting. The company is establishing woodland on the site as part of a carbon sequestration project. The woodland will initially incorporate up to 25% conifers, but the company intends to transition to native broadleaf woodland in the long term for broader environmental benefits.

Upton Court Jubilee Wood, Slough

2.2.7 Upton Court Jubilee Wood is a 5.8ha peri-urban project developed by Slough Borough Council in an existing large park on the outskirts of Slough, alongside the M4 motorway. The project aims to provide social benefits, such as recreation, health and education, as well as contributing to enhanced biodiversity and climate change mitigation. The site features in the Council's annual reporting.

2.2.8 The site selection process is described in more detail in Chapter 6.

2.3 Identify social and environmental impacts to be assessed

2.3.1 An initial set of social and environmental impacts of woodland creation were identified, drawing on a review of relevant existing corporate reporting methods, existing woodland and forestry related indicator sets, and other relevant academic and grey literature. This included the WCC Plus template developed by Mark Broadmeadow, and the requirements of the UK Forestry Standard (UKFS).

2.3.2 In line with the steering group's emphasis on the need for simplicity, four broad category headings were identified under which more specific indicators were identified and grouped. These were:

- Wildlife;
- Community;
- Water; and
- Climate.

2.4 Review environmental and social reporting frameworks and indicators

2.4.1 A more detailed desk-based review of existing environmental reporting frameworks and indicators was used to identify existing environmental and social metrics and indicators for corporate reporting of the social and environmental benefits of new woodland creation.

2.4.2 This review considered:

- existing standards (e.g. UKFS);
- existing tools (e.g. Woodland Star Rating);
- existing frameworks (e.g. Carbon Disclosure Project);
- existing corporate social responsibility (CSR) reporting methods (e.g. The Crown Estates)
- Corporate reporting standards (e.g. Defra's Measuring and reporting environmental impacts: guidance for businesses); and
- existing sector-relevant indicator sets (UK Indicators of Sustainable Forestry).

2.4.3 This process led to identification of a wide range of indicators to consider under each of the broad category headings, which would feed into the development of the framework. This information, including identified potential indicators, was recorded in a spreadsheet-style proforma, included here in Appendix A, and discussed in more detail at section 2.4.

2.5 Develop a preliminary set of indicators and reporting frameworks

2.5.1 The findings from this review of existing frameworks informed the desk-based development of an initial pilot tool, based around the four broad category headings of Wildlife, Community, Water and Climate. Two forms of draft framework emerged.

'Impact' focused framework

2.5.2 This framework was identified as a way of measuring the social and environmental value-added that could be reliably attributed to investment in new woodland. The framework also emphasised reporting benefits in terms of different types of ecosystem services, so providing a potential basis for the emergence of Payment for Ecosystem Service (PES) schemes. It was

developed drawing on the model of ESIVI (Ecosystem Services Identification, Valuation and Integration), a URS proprietary tool for identifying, assessing and mitigating impacts and dependencies of infrastructure or other projects on ecosystem services. The idea was to modify and simplify this tool to identify and measure the contributions of woodland creation projects.

2.5.3 This approach involved establishing a baseline and monitoring change, and is supported by an evidence base including both mandatory and additional information to enable the robust establishment of the social and environmental benefits of new woodland creation projects.

2.5.4 A prototype model was developed to support the collection of appropriate evidence, and to enable impacts to be robustly identified and measured. However, feedback on the needs of corporate businesses, based on views captured during interviews with corporate representatives, led to a conclusion that the resource-intensive demands of such an approach would not currently be attractive to a broad range of corporate investors. However, future work may wish to explore corporate attitudes to a more 'impact' focused framework in more depth.

2.5.5 These lessons fed into the development of a less resource-intensive framework based on the measurement of outputs and outcomes.

'Output and outcome' focused framework

2.5.6 This framework combined the preceding framework's emphasis on achieving trustworthy reporting of the value-added benefits of creation (e.g. using the ESIVI influenced flexible evidence base), with a strong emphasis on reporting and presentational simplicity, as exemplified by the Woodland Star Rating[8]. The idea was to develop a two-tiered framework allowing for differing levels of transparency of reporting whilst simplifying the level of resourcing required for reporting. It would include questions on short-term options and long-term monitoring and would specify potential sources of evidence, but it would not be mandatory to collect or publish them.

Framework development

These frameworks were developed in the form of Excel-based interactive tools, with drop-down menus for a range of alternative responses to indicator 'questions'. Both versions used a series of 'tabs', so that reporting was organised in relation to the four broad reporting categories of Wildlife, Community, Water and Climate. However, due to time constraints, the two early prototype tools were not fully developed for each of these categories, and the more flexible 'output and outcome' framework was taken forward as it was agreed that it was better suited to the needs of businesses and wider stakeholders. The process of developing the framework is discussed in detail in Chapter 3.1.1.

2.6 Market research with businesses

2.6.1 The pilot 'output and outcome' reporting framework was road-tested with businesses before field-testing with woodland managers at pilot woodland sites. This was to check that the prototype tool taken to pilot sites would be in line with corporate requirements. With a single round of field-testing within the scope of the project, there was no further opportunity to retest a revised tool in the field, should corporate feedback prove generally unsupportive of the proposed form and approach.

2.6.2 The market research took the form of a series of interviews with heads of sustainability or other senior corporate reporting staff at businesses with a known interest in woodland creation, either as buyers of woodland products and ecosystem services, or as direct investors in woodland creation.

2.6.3 A shortlist of prospective candidates for corporate interviews to road-test the emerging reporting framework tool was developed based on the following criteria, with specific suggestions also provided by the FC project manager:

- companies that use a lot of wood;
- companies that have significant land holdings;

[8] Sylva Foundation – myForest: Woodland Star Rating [online] at http://sylva.org.uk/myforest

- blue chip companies that have a significant brand value and have the resources and interest to be involved in market research; and
- corporates that are leading the way in impact reporting.

2.6.4 At the time of arranging interviews, interviewees were sent a draft version of the framework, and an explanatory note. Semi-structured interviews were conducted by telephone or in person. The interviews were based around four key questions:

- Which benefits / impacts of woodland creation are most relevant / important to your organisation and why?
- How do you currently measure and report these impacts to key stakeholders?
- How practical / desirable is direct engagement with woodland projects / managers to gather and track data? What other options could / should be considered?
- In the context of your organisation what are the possible strengths and weaknesses of the proposed framework for enhanced corporate reporting around woodland creation a) now, and b) in the future?

2.6.5 Corporate feedback informed the onward development of a CSR-orientated tool based around a set of scored metrics, which was then tested at the selected woodland pilot sites. The findings from the corporate research are presented in Chapter 5, whilst a summary of the market research conducted, is presented in Appendix C.

2.7 Further tool and indicator development

2.7.1 An additional stage of tool development was undertaken to enable further consideration of how to make best use of the wide variety of potential metrics, reporting frameworks and other relevant existing tools and sources of information. This was conducted in parallel to, and following, the corporate market research. It drew on the findings of the corporate feedback. This stage of tool development was undertaken prior to the pilot site visits, so that the same tool version could be tested with each pilot site. Tool development then continued following the site visits.

2.7.2 The process of developing the framework is described in more detail in Chapter 3.1.1. The final pilot reporting tool is included as an Excel spreadsheet alongside this report, with Chapter 7 providing a guide to its functions.

2.8 Field test the proposed reporting tool at pilot woodlands with woodland owners and managers

2.8.1 A prototype version of the tool was tested with woodland owners, managers and interested third parties at the three selected sites in Scotland, Monmouthshire and Slough.

2.8.2 The site visits were undertaken by the URS project manager and an additional member of the team, who had led the development of the prototype reporting tool. The timetable of the site visits is shown in Table 2-1. Laura Jones, appointed as FC project advisor and peer reviewer, attended the site visits at Cwm Fagor and Upton Court Jubilee Wood.

2.8.3 Each site visit comprised a:

- Visit to the woodland site by car and a walk around each site with the woodland manager or representative answering questions about the site. Each site visit lasted between twenty minutes and one and a half hours;
- Follow-up meeting with the woodland site manager to complete the site assessment using the pilot tool and to ask wider questions using the semi-structured interview pro-forma included in Appendix C.

2.8.4 A pilot site debrief conference call was conducted with Laura Jones following the completion of all three visits.

Table 2-1: Site visits

	Drumlanrig	Cwm Fagor	Upton Court Jubilee Wood
Location (grid reference)	Coshogle 1: NS852053 Riverbank: NX864981 Gallows Knowe: NX883994	ST465995	SU984784
Met with:	James Hepburne Scott, Group Scheme Manager, Forest Carbon Jim Colchester, Group Forest Manager, Buccleugh Estates	Julian Burchby, Pryor and Rickett Silviculture Matthew Jones, Thorlux Lighting	Bruce Hicks, Slough Borough Council
Date:	14th November 2013	19th November 2013	20th November 2013

2.8.5 The findings from the pilot site visits informed the further refinement of the indicator set and pilot reporting framework. The site visits and feedback from them are discussed in detail in Chapter 6.

2.9 Finalisation of the pilot reporting framework and indicator set following stakeholder feedback

2.9.1 The findings from the pilot site visits and corporate feedback were discussed by the project team in an internal workshop and were also discussed with the FC project manager. The documented comments were used to produce a finalised pilot reporting framework. This was a desk-based process which also included reference back to the literature review and the follow-up of further suggestions of relevant evidence from the FC steering group and project managers, as well as from corporate investors and pilot site stakeholders. Decisions on prioritisation of comments to address were made in discussion with the FC project manager. The process of revising and finalising the framework is discussed in detail in Chapter 7.

2.10 Draft report

2.10.1 A draft report was been prepared for consideration by the project steering group and peer reviewers, as well as other interested parties, including Grown in Britain; Sylva Foundation; Forest Trends; Woodland Trust and Gold Standard.

2.11 Final report

2.11.1 This final report has incorporated feedback and comments from the Steering Group.

3 DESK REVIEW OF EXISTING REPORTING FRAMEWORKS AND INDICATORS

3.1.1 The review of relevant literature encompassed a broad range of documents, including existing standards, tools and reporting methods as well as guidance material and academic and grey literature, and fed into the development of both the draft framework and the proposed indicators. The literature review also included consideration of how businesses communicate the benefits of their investment in woodland creation to customers and other stakeholders, for example on their websites. Appendix A lists the documents reviewed and sets out the detailed findings of the literature review.

3.1.2 This chapter of the report concentrates on the literature that informed the framework and selection of indicators, highlights key documents that were particularly useful in developing the approach, and summarises lessons learned that informed the framework and its development.

3.2 Existing standards

Key documents

3.2.1 The UK Forestry Standard (UKFS), developed by the Forestry Commission (FC), is the reference standard for sustainable forest management in the UK. The process of developing the pilot tool has taken into account the need to ensure its compatibility with UKFS requirements and guidelines provided under the seven subject areas of biodiversity, climate change, historic environment, landscape, people, soil and water.

3.2.2 The UK Woodland Assurance Standard (UKWAS) is an independent certification standard for verifying sustainable woodland management, based on the requirements of the UKFS and covering a broad array of woodland aspects. As a certification standard, rather than a scheme, it does not specify particular indicators. It requires that environmental benefits are demonstrated using qualitative reporting and field studies, and that community benefits are evidenced through consultation with relevant stakeholders and documentation of assets.

3.2.3 The Woodland Carbon Code (WCC) is a voluntary standard for woodland creation projects in the UK, which aims to measure the impact of new woodland in terms of carbon sequestration. Its requirements for validation include both mandatory forms of evidence and optional additional evidence that can be provided for greater clarity. Validation must take place within the first five years of the project start date, and at periods of ten years or less thereafter. The WCC website contains a range of advice and guidance material, and a publically accessible registry of all registered UK carbon projects.

3.2.4 The Gold Standard, established in 2003 by the World Wide Fund for Nature (WWF) and developed by a group of NGOs, is a global certification standard for carbon offset projects which aims to ensure that renewable energy, energy efficiency, waste management and land use & forest carbon offset projects actually reduce carbon emissions and provide benefits to the local population. Gold Standard projects must adhere to a stringent and transparent set of criteria, and the certification process uniquely requires the involvement of local stakeholders and NGOs. It provides a non-sector specific example of validation as an approach to avoid green-wash.

Implications for the Pilot Tool

3.2.5 The UKFS and UKWAS were crucial to the identification of impacts, routes to impacts, and indicators of progress as they set out current industry thinking on what forests in the UK should be achieving in terms of social and environmental benefits. UKFS guidelines were used as a starting point when developing impacts and routes, and have provided a number of the indicators used in the framework. The WCC highlighted the importance of clear and transparent online communication, including an online registry and links to a range of guidance documents.

3.3 Existing tools

Key documents

3.3.1 The Woodland Star Rating, a self-assessment scheme developed by the Sylva Foundation, is based on the UKFS and aims to raise awareness of the standard, encourage sustainable

woodland management, and promote greater understanding of good woodland stewardship among the general public. The rating system is designed to be applicable to all managed woodlands[9], and requires only minimal evidence - woodland owners are asked simply to indicate whether an action is implemented fully, planned, or not addressed, and there is no independent verification in place. Woodlands are awarded gold, silver or bronze stars based on performance.

3.3.2 The Woodland Potential Calculator is a GIS tool developed by Mark Broadmeadow for Natural England and the FC that reports the woodland potential in landscape character areas (LCAs) in England. It can be used as a desk-based reference by a woodland manager to identify whether a planned new woodland is located in a suitable area to support various aims addressed in the proposed tool, such as improved water quality, or local economic benefits. GIS layers provide information on soil type, water supply and water quality, land use, farming information and habitat types for LCAs, and it identifies existing forestry businesses, woodfuel boilers and types of existing woodland.

3.3.3 Ecosystem Services Identification, Valuation, and Integration (ESIVI) is a URS decision support tool designed to enable users to flexibly integrate ecosystem services assessments into Environmental and Social Impact Assessments (ESIAs) as well as to produce standalone assessments using a rigorous and transparent framework. It uses a mix of qualitative and quantitative inputs and scoring metrics to guide users through the three key stages of an ecosystem services assessment: scoping, impact assessment, and mitigation.

Implications for the Pilot Tool

3.3.4 ESIVI was the basis for the initial 'impact' focused framework, which aimed to achieve a more robust and independently verifiable measure of impact compared to an established baseline than the subsequent 'output and outcome' focused framework.

3.3.5 The Woodland Star Rating approach proved a useful model following the decision to develop a tool using the concept of a voluntary self-assessment approach aimed at increasing engagement rather than providing scientifically-verifiable assurance. Its light-touch approach and user-friendly online interface influenced the development of the framework, and its scoring system provided the basis for the 'symbols' awarded under the four broad headings of Wildlife, Water, Community, and Climate.

3.3.6 The Woodland Potential Calculator provided a good example of a tool designed to highlight areas where woodland creation would be most beneficial, and demonstrated how such a tool can be designed to meet the needs of woodland managers.

3.4 Existing frameworks and CSR reporting methods

Key documents

3.4.1 The Carbon Disclosure Project (CDP) Forest Program asks corporates to complete a Forests Information Request for their work relevant to five 'forest risk commodities' - timber, palm oil, cattle products, soy and biofuels. Corporates complete a questionnaire hosted on an Online Response System, responses are scored and each company receives a feedback report detailing their strengths and weaknesses. Response data is published on the CDP website and included in an annual report.

3.4.2 Sportswear company PUMA developed its Environmental Profit and Loss Accounting system to measure and monitor the footprint of the company's operations and suppliers. It assigns a monetary value to environmental impacts and reports impact benefits in Euros and per cent by environmental indicator, business line, and global region. In this approach to reporting, environmental and social costs are measured solely in monetary terms.

3.4.3 The London Benchmarking Group (LBG) is an international standard for measuring corporate community investment and is used by around 300 companies around the world. Its report 'Making a Difference' describes its 'whole programme approach' to measuring the results of corporate community investment. This approach avoids a numeric scale, and aims instead to

[9] It should be noted that the Woodland Star Rating is focused on the management of existing woodlands, rather than on woodland creation

develop a consistent way of measuring the outputs and impacts of community investment projects using a 'distance travelled'[10] approach to capture 'depth' of impact for community beneficiaries.

3.4.4 The Global Reporting Initiative (GRI) is an example of a sustainability reporting approach that offers a two-tier approach, with either a core reporting of essential elements or a comprehensive option, with additional disclosure of defined areas of an organisations' strategy and management. The GRI identifies principles for report quality that include balance, comparability, accuracy, timeliness, clarity and reliability.

3.4.5 The International Integrated Reporting Council (IIRC), a global coalition of regulators, investors, companies, standard setters, the accounting profession and NGOs, promotes 'cohesive and efficient' corporate reporting. It places an emphasis on reporting the range of material factors that influence the ability of organisations to create value and the interdependencies between them. Its set of guiding principles also include: conciseness; reliability; completeness; consistency and comparability.

Implications for the Pilot Tool

3.4.6 There is precedent for the option of two-tier reporting to meet the needs of different organisations, as illustrated by the GRI.

3.4.7 Common requirements of reporting standards are the importance of conciseness, balance or completeness, comparability, accuracy, reliability.

3.4.8 There is not consistency amongst existing corporate reporting standards as to the absolute necessity of quantitative, rather than qualitative reporting. The IIRC, GRI and PUMA approaches differ in their approaches towards the use of qualitative information.

3.4.9 The Online Response System used by the CDP had some influence on the development of the framework, while the differing approaches to establishing non-quantifiable measures illustrated by the PUMA and LBG systems shaped the way we aimed to capture community impacts, in particular using easily identifiable and measurable output and outcome indicators. The LBG approach was helpful in developing thinking about how the tool could use indicators that would potentially be compatible with wider corporate reporting frameworks.

3.5 Existing sets of indicators

Key documents

3.5.1 The 2002 and 2010 Sustainable Forestry indicators, published by the FC, include a wide range of indicators covering the environmental, social and economic impacts of forestry. The 2002 document includes over 40 indicators grouped under six themes: woodland, biodiversity, condition of forest and environment, timber and other forest products, people and forests, and economic aspects. The 2010 indicators cover forest resources and carbon, maintenance of forest ecosystem health and vitality, productive functions of forests (wood and non-wood), biological diversity in forest ecosystems, protective functions in forest management, and socio-economic functions and conditions.

3.5.2 The Impact Reporting and Investment Standards (IRIS) is a set of tried and tested performance metrics that a business can use to develop their own framework of performance metrics, in relation to their objectives and different areas of investment, to measure and report their social, environmental and financial performance. It offers a combination of cross-sector metrics and sector-specific metrics, including for forestry. This facilitates comparisons of impact data across investments. The standards are also designed to allow business to develop their own quantitative and qualitative metrics, which can be used in combination with established IRIS metrics.

Implications for the Pilot Tool

3.5.3 The 2010 Sustainable Forest Management indicators were very useful in setting out what is currently being monitored by the FC in UK woodlands, while the 2002 iteration provided a

[10] A distance travelled approach refers to an assessment of the difference made to a beneficiary as a result of a particular type of project. For example, a behaviour / attitude change may be brought about in a beneficiary as the result of an action.

broader base of indicators to draw from. Indicators included condition of forest and environment, and timber and other forest products.

3.5.4 There is scope for a set of metrics that combines both more widely adopted established metrics and sector-specific metrics to meet the purpose of the tool. Woodland creation is a sub-sector niche that is likely to require specific measures to capture some of the unique benefits of new woodland creation. An approach that combined inter-sectoral metrics and specific metrics would enable a corporation to report the returns of investment in woodland creation in combination with their investment in other sectors to enable concise reporting.

3.6 Guidance documents and academic and grey literature

3.6.1 In addition to the above existing indicator sets, we drew indicators from existing standards, tools and frameworks, from guidance documents, and academic and grey literature.

Key documents

3.6.2 Defra's (2013) 'Environmental Reporting Guidelines' include an explanation of the rationale for adoption of such approaches by businesses, emphasising reduced costs, better understanding of risks, reputation benefits from demonstrating leadership, and enabling the links between environmental and social performance to be emphasised. The guidance identifies useful external sources of indicators.

3.6.3 Defra identifies the following principles for collecting and reporting on environmental impacts:

- Relevant - to environmental impacts and decision-making needs of users
- Quantitative – measurable KPIs, with accompanying narrative;
- Accuracy – reduce uncertainties where practical; sufficient accuracy to enable users to make decisions with reasonable confidence about the trustworthiness of reported information;
- Completeness - disclose and justify any exclusions;
- Consistent – use consistent methodologies; document any changes in reporting methodology;
- Comparable – use accepted KPI,s not own invented versions, to aid benchmarking and external judgement against peers;
- Transparent – address all relevant issues in factual and coherent manner. Keep records of assumptions, calculations and methodologies used.

3.6.4 Defra's best practice guide on Payments for Ecosystem Services[11] identifies a set of principles that should underpin any PES scheme. Of particular relevance to the development of a tool to support the creation of an effective PES scheme for the ecosystem services provided by new woodland creation, is the need to establish the baseline position. This is to establish the likely future provision of the relevant ecosystem services in the absence of the PES scheme, and, in turn, to allow for accurate monitoring to indicate the level of additionality delivered by a PES scheme.

3.6.5 Natural England's Higher Level Stewardship: Farm Environmental Plan (FEP) Manual provides guidance for farmers completing a FEP as part of the process of applying for Higher Level Stewardship. It includes requirements and assessment criteria relating to 'features' grouped under the following headings: arable; coastal; field boundaries; grassland; heathland and moorland; historic environment and landscape; limestone pavement; natural resource protection; scrub, bracken and other tall vegetation; species; trees, wood pasture, parkland, woodland and orchards; and wetland.

3.6.6 The Green Flag award scheme for parks and green open spaces was identified during the pilot site visits as a possible source of relevant indicators for community benefits. Its publication 'Raising the Standard: The Green Flag Award Guidance Material' includes

[11] Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, C. and White, C. (2013). Payments for Ecosystem Services: A Best Practice Guide. Defra, London.

indicators for: good and safe access; good signage; equal access for all members of the community; knowledge of user community and levels and patterns of use; evidence of community involvement in management and/or developments and results achieved; and appropriate levels of provision of recreational facilities for all sectors of the community.

3.6.7 Opportunity Mapping for Woodland Creation to Meet the Objectives of the Water Framework Directive, a 2009 report prepared for Natural England and the Forestry Commission, provides a methodology to identify where woodland creation should be targeted in the landscape to help meet the objectives of the Water Framework Directive, and facilitate better integration of woodland creation into wider land management practices (especially agriculture) to benefit the freshwater environment.

Implication for the Pilot Tool

3.6.8 Defra guidance on environmental reporting reflects corporate reporting requirements. For the pilot tool to support PES schemes, it would need to include the establishment of a baseline against which additionality benefits could be demonstrated.

3.6.9 The FEP manual provides indicators specific to woodland condition assessment for both native semi-natural and mixed woodlands, and was helpful in identifying indicators of habitat condition. The Opportunity Mapping report does not define specific indicators, but was also helpful in informing our development of indicators to capture the benefits of woodlands for water quality. The Green Flag award guidance material provided an additional source of indicators for the Community section of the framework.

3.7 Corporate communications

3.7.1 Corporates investing in new woodland creation communicate this to shareholders, customers and other stakeholders via a range of means of communications, including on their websites, in annual reports and in sustainability reports. They also produce press releases to encourage reporting in the press of their contributions to woodland creation, where they have supported charities.

3.7.2 United Utilities, an LBG member, in its 2012 Corporate Responsibility report, includes both key statistics and narrative reporting in terms of their services to customers, community involvement, environmental benefits, and benefits for stakeholders and for employees.

3.7.3 BP, the key investor in the Scottish Forest Alliance, does not specifically refer to this in its 2012 Sustainability Report. Its North Sea region webpage, under a section 'Supporting our communities', includes a paragraph describing the purpose of the alliance, reports numbers of trees planted and hectares of land revived to date. It is followed with a weblink to the Alliance website. The Scottish Forest Alliance website[12] is a comprehensive source of information. On its front page, captions identify in non-technical English the benefits of the initiative, for example, that it is 'creating a resource for local communities, beautiful places alive with wildlife for all to enjoy and a living laboratory for research' and that the new woodlands support jobs.

3.7.4 Reckitt Benckiser's Trees for Change programme report focuses on the expected offset emissions reductions achieved through tree planting in Canada, using a methodology that is in line with the Intergovernmental Panel on Climate Change's Good Practice Guidance for Land Use, Land-Use Change and Forestry (LULUCF) projects. This programme is reported on the RB global website, on national RB product webpages (and partner Facebook pages)[13] as a 'project to offset the greenhouse gas emissions from our manufacturing operations', reporting on the number of trees planted over a stated time period.

3.7.5 The Woodland Trust's corporate partners take a range of approaches to how they present the social and economic returns from their contributions to new woodland creation. On the Woodland Trust's website, corporate partner profiles include mention of how their support to plant trees has helped to 'lock up carbon' as well as to create specific new woodlands and has involved their employees volunteering to plant trees. On its own website, Eurocamp[14]

[12] http://www.scottishforestalliance.org.uk/who-we-are
[13] See http://www.rb.com/our-responsibility/trees, http://www.woolite.us/save-energy-and-water.php and https://www.facebook.com/media/set/?set=a.10151103775662965.436389.147435047964&type=3
[14] http://www.eurocamp.co.uk/about/caring-for-the-environment.html

encourages holidaymakers to consider a donation to plant trees as way to reduce carbon emissions associated with their booking. Press articles report on Disney Store staff donating time to plant trees as part of the creation of a 'Magical Wood' within Heartwood[15]. Highland Spring's website[16] communicates that they planted trees on their own land in Ochil Hills, Perthshire towards 'doubling native tree cover by 2050'. Their 'partners' webpage identifies that The Woodland Trust's work to create new woodland provides benefits of increased native woodlands to improve public enjoyment of the natural environment, health benefits for people by encouraging them to be active outdoors, as well as to protect wildlife habitats, reduce flood risk, and help combat climate change.

Lessons learned

3.7.6 Businesses communicate the benefits of their investment in new woodlands in a range of ways. Top level reporting focuses on carbon captured, hectares of woodlands planted and numbers of trees planted. A simple 'social' measure reported is employee time volunteered to plant trees. On their websites, communications about the wider social and environmental benefits vary, with the Scottish Forest Alliance website and the Woodland Trust corporate partner websites providing examples of reporting the 'ecosystem services' provided by new woodlands, such as climate change adaptation, flood prevention, healthy lives, though without making highly quantified directly attributable claims. The Scottish Forest Alliance's strong scientific emphasis means it is more strongly placed to make future stronger claims about directly attributable benefits.

3.8 Summary

3.8.1 This desk review demonstrated that:

- There is a very broad and rapidly developing range of relevant standards, tools and reporting frameworks which are potentially relevant to the aims of this project.
- The range of corporate means of communicating benefits are also relevant, both formal corporate sustainability reports and other forms of corporate communications (here, we have only considered web-based communications, including online versions of published reports). Measurable metrics of numbers or hectares of trees planted, carbon capture and volunteer days are most used, but communications also identify less easily measurable intended benefits.
- There is a vast range of forestry indicators that relate to the selected broad categories of monitoring, making it challenging to choose a narrow set that will be flexible enough to account for the possible range of woodland creation settings and types of woodland.
- As a voluntary independent standard for woodland management, the UKWAS provides a possible sector-specific model approach for verification. The UKFS and UKWAS provide recognised sector-specific indicator sets for woodlands in the UK, with which the framework should demonstrate compatibility.
- Ecosystems services based tools, such as ESIVI, offer a model for making the tool compatible with this emerging way of recognising ecosystems services. However, the Woodland Star Rating offers an alternative non-specialist model which can be easily understood both by specialist woodland managers, corporate reporting staff and wider lay audiences.
- Corporate reporting methods vary according to corporate priorities. As a niche and likely small scale, low-return sector, the 'results' of woodland creation specific reporting will need to be capable of being transferable to, or consistent with, wider corporate reporting.
- Outside existing woodland specific indicator sets, corporate reporting, and reporting from other related sectors (e.g. Green Flag for parks and open spaces), offer more generic measures of community involvement and other social benefits.

[15] See http://www.hrmagazine.co.uk/hro/news/1017555/uk-disney-store-staff-plant-500-trees-employers-collaboration-woodland-trust and http://www.hertsad.co.uk/news/mickey_mouse_helps_out_with_tree_planting_at_heartwood_forest_sandridge_1_294978 [Accessed 20/02/2014] for externally generated PR

[16] http://www.highlandspringgroup.com/press-and-media/group-news/article/highland-spring-supports-woodland-trust-by-planting-a-tree-for-every-employee/

3.8.2 The desk review guided the pilot reporting framework's development in a range of ways. Whilst it is presented here as a distinct 'step' in a linear process, it was in practice revisited, with reference back to the literature review and reference to newly identified materials throughout the tool's development.

4 PILOT REPORTING FRAMEWORK DEVELOPMENT

4.1 Overview and background

4.1.1 The initial development of the pilot reporting framework included consideration of two main alternative frameworks. This early development of the reporting framework responded both to the considerations of the project steering group and subsequent discussions amongst the team, including drawing on understanding from EnviroMarket's study for the Forestry Commission concerning impact investment in woodland creation.

4.1.2 Relevant considerations identified at the inception meeting:

Meeting the needs for corporate sustainability reporting (CSR)

- Corporate sustainability reporting (CSR) is the main intended use for this tool, but the output may also address the needs of 'impact' investors
- With the Woodland Carbon Code already in place, the output should be a broader stand-alone product
- Framework needs to promote comparability and standardisation of reporting, but may need to be adapted to needs of different investor types. Corporate priorities need to be reflected in the reporting tool
- Quantifiable metrics should be used where possible, in response to CSR professionals' need for a tool that is dependable, simple and clear. However, some quantifiable metrics may require supporting narrative
- To meet the needs of CSR, the project output needs to enable simple top-line corporate reporting, achieved via 'tiers' of reporting, with underlying metrics making it meaningful and robust
- Framework should balance ease of use by corporates with need to be robust or transparent - 'not green-wash'
- Consider a 'top down' approach to tool development, starting from a corporate reporting perspective of what is wanted, as a possible counter to the proposed more 'bottom up' approach of analysing existing models

Other considerations for reporting framework development

- There is growing interest in a wider meta-standard for ecosystem reporting across a range of sectors, with the emerging Payment for Ecosystems Services agenda, and also the 'Grown in Britain' initiative. This project is a 'starter for 10' within the woodland sector, that is likely to inform further development and needs to be able to fit within this wider agenda.
- It would be desirable to have a narrow set of categories (Climate, Wildlife, Water, Community), potentially requiring some indicators to be combined or grouped. But it is also desirable to consider the inclusion of range of possible measures, such as education, health, landscape, and job creation;
- It would be desirable that the framework is capable of recognising both the direct benefits of the woodland itself and its wider 'strategic contribution', such as its contribution to the objectives of a broader Nature Improvement Area in which the woodland is situated; Rural Development Programme for England, Nature Improvement Areas, and Water Framework Directive objectives.

4.1.3 Follow-up internal discussion towards the development of alternative frameworks focused on:

- The desirability of making a tool that was compatible with ecosystem reporting approaches;
- Questions of balancing 'robustness' or 'transparency' against the desire for a tool that offers flexibility, enables top line reporting and is simple and clear and does not create overly onerous demands; and

- The differences between the priorities, experience and capacity of impact investors and corporate investors. Corporate investors will be interested in the extent to which woodland creation has improved the underlying / relative environmental and social performance of the business (e.g. in order to report broadly on their CSR commitments). They are most likely to be interested in a framework tool that reports outcomes or outputs, given the relatively lower resource intensity of such assessments. By contrast, impact investors and some leading corporates interested in demonstrating a 'net positive' impact (e.g. where positive impacts are clearly attributed to their actions and investments) would want to see a standardised and more robust methodology that includes the identification of a baseline.

4.2 Alternative reporting framework approaches tested

4.2.1 As noted in Section 2.5, two alternative reporting frameworks were initially developed:

- An 'impact' based framework; and
- An 'output & outcome' focused framework

4.2.2 Each of the initial frameworks developed is presented in turn below, with a brief discussion of the advantages and disadvantages of each approach.

4.3 'Impact' based framework

4.3.1 As noted in Section 2.5 above, this framework emphases achieving robustness through identification of an initial baseline to enable reporting of 'net positive' impact of woodland creation.

4.3.2 The framework also sought to be compatible with ecosystem approaches. Its development was based on Ecosystems Services Identification Valuation Integration (ESIVI) – a URS tool developed to assess the impacts and dependencies of projects on ecosystem services and identify opportunities to mitigate these. For the purposes of this project, the idea was to modify and simplify the tool in order to identify and value the positive benefits of new woodland creation projects.

Involves:

- Establishing ecosystem services (ESS) baseline conditions and monitoring change
- Collating an evidence base using both mandatory and additional information

Key advantages

- Impact more firmly established

Key disadvantages

- Greater complexity
- More resource intensive
- Harder to 'score'
- Requires more specific evidence

Draft framework development

4.3.3 The framework was developed using established categories of ecosystem services, which would allow it to capture all of the potential benefits and trade-offs associated with woodland creation.

4.3.4 The framework was relatively simple in appearance. The sheet itself was designed primarily as a checklist, with the supporting information held in a separate, more detailed report. This allowed for flexibility as the guidance behind the checklist could be as detailed as necessary, incorporating both minimum standards and best practice. For example, guidance could be provided to include both the 'must have' indicators for each category and information on how companies could go beyond this minimum requirement, and could enable a mixed data approach by offering advice on when a quantitative approach would be essential, and when

and how qualitative methods could help. Guidance could also point to other tools and related guidance as a means of gathering evidence.

4.3.5 This framework broke down the assessment into two stages. The baseline stage seeks to establish the existing supply of ecosystem services and how these are used by beneficiaries, whilst the impact stage examines how a particular project would change the provision of these ESS, including delivery of additional ESS, what effect this may have on ESS beneficiaries (existing and as a result of woodland creation), and the significance and timescale of any impact. This two-stage approach would give companies an idea of the most important impacts, and allow them to present evidence to support their claims in a structured way. Verification of results would be through the input of an expert in a particular field (e.g. flood risk).

Figure 2 - Draft impact based framework

Benefit: Reduced flood risk

Baseline			Changes to date				Future changes			
Is there a **shortage** in this benefit?			**Steps that have been taken** in order to increase provision of this benefit from the woodland	**Benefits** that have been **obtained**			**Future steps that will be taken** in order to increase provision of this benefit from the woodland	**Benefits** that have will be **obtained** *(from future actions and actions already taken)*		
Locally	*Regionally*	*Nationally*		*Locally*	*Regionally*	*Nationally*		*Locally*	*Regionally*	*Nationally*
Medium	Low	No	Moderate intervention	High	Low	N/a	Low intervention	High	Low	N/a
Evidence for shortage in the benefit			**Evidence** of interventions	**Evidence** for benefits obtained			**Evidence** that future interventions will take place	**Evidence** supporting benefit predictions		
Locally	*Regionally*	*Nationally*		*Locally*	*Regionally*	*Nationally*		*Locally*	*Regionally*	*Nationally*
Minimum & additional	Minimum & additional	N/a	Minimum & additional	Minimum & additional	Minimum evidence	N/a	Minimum evidence	Minimum & additional	Minimum & additional	N/a
<Insert summary of findings>			<Insert summary of findings>	<Insert summary of findings>			<Insert summary of findings>	<Insert summary of findings>		
<Insert list of sources>			<Insert list of sources>	<Insert list of sources>			<Insert list of sources>	<Insert list of sources>		
Verification of score for benefit shortage			**Verification** of score for steps taken	**Verification** of benefits obtained			**Verification** of score for steps taken	**Verification** of future benefits obtained *(monitoring)*		
One expert (minimum)			One expert (minimum)	Two experts			Two experts	One expert (minimum)		
<Insert expert details>			<Insert expert details>	<Insert expert details>			<Insert expert details>	<Insert expert details>		
<Insert expert testimony>			<Insert expert testimony>	<Insert expert testimony>			<Insert expert testimony>	<Insert expert testimony>		

This tool was not developed further as initial feedback from corporates and from EnviroMarket, based on the impact investment project, suggested that this approach would not be suited to the needs of most corporates due to its more onerous requirements and greater complexity.

4.3.6 This feedback was further reinforced by feedback from pilot site visits. Stakeholders including Forest Carbon had strong reservations about the potential costs of reporting frameworks requiring either time consuming collation of existing evidence or field survey work to establish a baseline.

Lessons learned from corporate feedback regarding this tool informed the development of an alternative 'outcome and output' based framework.

4.4 'Outcome and output' based framework

4.4.1 As outlined in Section 2.5 above, this framework was developed based on the draft 'Impact Framework' in terms of robustness and the 'Woodland Star Rating in terms of simplicity. The idea was to develop a 'two tiered' framework which would allow for differing degrees of transparency whilst reducing data requirements.

Involves:

- Questions on short term options and longer term monitoring
- Sources of evidence specified, but optional to collect or publish them

Key advantages:

- Less resource intensive
- Less complexity
- Easier to 'score'

- Meets needs of diverse audience
- Requires less specific evidence

Key disadvantages

- Less robust

Draft framework development

4.4.2 The 'two-tiered approach' was developed to allow sufficient flexibility to meet the needs of a variety of respondents. Respondents who have just created their woodland would be able to score points for their short term actions. It would encourage them to consider putting in place monitoring. Businesses who wish to more accurately measure and report the value-added benefits, can invest in monitoring. Respondents interested in a transparent assessment would score points by providing evidence which could be uploaded to a website for public scrutiny.

4.4.3 This approach builds on established UKFS requirements, and is tiered both in terms of timescale or phases, and in terms of scoring. As well as including optional robustness measures, the framework enables respondents to consider both immediate (output) and longer term (outcome) measures.

Figure 3 - Initial questions developed – Community category

Questions

Community Requirement	Short term options		Longer term monitoring	
1. Create and manage a woodland that provides safe, inclusive access for all members of society, including hard to reach groups.	Q1. Are Public Rights of Way (PRoW) and permissive footpaths across the woodland maintained?	Q2. Are facilities provided for visitors to the woodland, including visitors with disabilities?	Q.3 What % of the woodland is accessible to the public?	Q.4 On average, how many people visit the woodland anually?
	Yes (Score 10 Social)	Yes (Score 10 Social)	51-90% (Score 20 Social)	50 - 99 people (Score 20 Community)
	Management plan uploaded (Score 15 Robustness)	No evidence uploaded (Score 0 Robustness)	Site access maps uploaded (Score 35 Robustness)	No evidence uploaded (Score 0 Robustness)

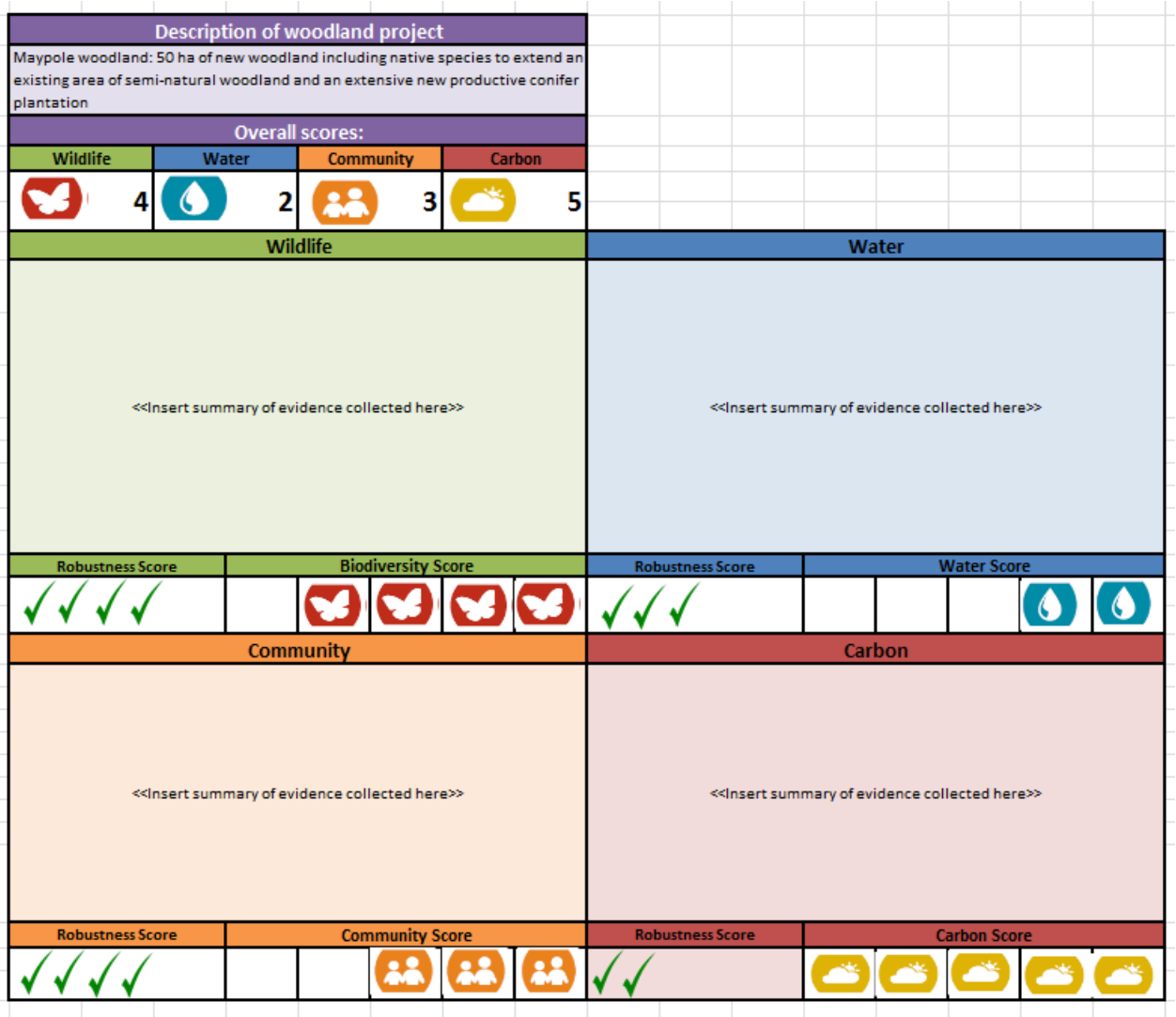
Community Requirement	Short term options		Longer term monitoring	
2. Create and manage a woodland that provides local communities with an opportunity to build relationships, develop community identity, and contribute to the development of forestry proposals in their areas.	Q1. Have the aims of the forestry proposals and their potential impacts been communicated clearly to local communities?	Q2. Have the aims of the forestry proposals and their potential impacts been communicated clearly to local communities? Via e.g. village meeting; leaflet; website or social media; information board	Q.3 Is public engagement mechanism maintained and regularly updated? [e.g. newsletter; social media; regular on-site 'meet the manager' events?	Q.4 Are local stakeholders involved in decisions about woodland management or new facilities?
	<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Community Requirement	Short term options		Longer term monitoring	
3. Create and manage a woodland that provides jobs, supports the local economy, and offers opportunities for local people to develop their skills and learn about the natural environment.	Q1. Has the woodland involved volunteers in planting or other creation activities?	Q2. Has the woodland creation engaged with schools or other groups for education and learning activities?	Q.3 How many days are volunteered on site annually?	Q.4 On average, how many school pupils and other visitors use the woodland for educational purposes annually?
	<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

4.5 Reporting

4.5.1 Both versions of the draft reporting framework would provide a score for each of the four categories of Community, Water, Wildlife and Climate, and a space for relevant collected evidence to be summarised. Images, such as those used in the example in Figure 3[17], can be used to symbolize the score awarded in each category. Providing space to summarise evidence alongside the score can allow respondents to show how they earned their score. This can be particularly helpful for respondents with particular ambitions or areas of interest. This draft reporting format drew on the WCC Plus template drawn up by Mark Broadmeadow of the Forestry Commission.

Figure 4 - Draft reporting format



4.6 Conclusion on choice of alternative tools

4.6.1 It was agreed by the Forestry Commission project manager to concentrate efforts on further development of the 'output and outcome' version of the pilot tool. This choice was informed by understanding from the EnviroMarket research on the wider appetite for a less onerous approach amongst a large proportion of businesses. This decision was also made to enable efforts to be concentrated on more fully developing a testable tool to take to pilot sites.

[17] These symbols were drawn from the UKFS, where they are used to illustrate the Wildlife, Water, Community and Climate categories of the standard.

5 CORPORATE FEEDBACK ON INITIAL PILOT REPORTING FRAMEWORK

5.1.1 Corporations, investors and banks could potentially use the pilot tool for their own corporate reporting activities, for example in reporting non-carbon impacts of woodland activity, or in assessing the performance of prospective woodland related investment opportunities.

5.1.2 This section summarises the feedback received from market research with investment and sustainability professionals from leading businesses.

5.2 Corporate Feedback

Which benefits / impacts of woodland creation and management are most relevant / important to your organisation and why?

5.2.1 Church Commissioners own woodland assets in the UK, and productive plantations in the Scottish Borders and Dumfries and Galloway. Although guided by general standards set out in the Church of England Ethical Investment Advisory Group (EIAG), the primary investment focus is on achieving target financial returns. However the EIAG is shortly to embark on a climate change programme and on this basis it was felt that carbon capture would be the most relevant non-financial impact over the short to medium term.

5.2.2 Aviva Investors identified climate change as their most pressing corporate responsibility priority.

5.2.3 The Green Investment Bank operates with a double bottom line, targeting significant green impact alongside market rate financial returns. The bank's use of Woodland Carbon Units as part of its own CR strategy has been driven by the credibility of the Woodland Carbon Code process. It was felt that the pilot tool was potentially well aligned with the five green purposes that determine GIB investment strategy:

- Reduction of greenhouse gas
- Advancement of efficiency in use of natural resources
- Protection or enhancement of the natural environment
- Protection or enhancement of biodiversity
- Promotion of environmental sustainability

5.2.4 The GIB is one of a small group of financial organisations that has set out to measure the impact of its investment activity, rather than outcomes. It undertakes Green Impact Appraisals on prospective investments, establishing baseline and project carbon emissions in order to establish positive carbon impact. Although the bank does not currently fund woodland directly, it does fund projects that could impact or include woodland, for example, renewable heat installations.

5.2.5 The Crown Estate felt that all of the benefits / impacts included in the pilot tool were relevant and important. They suggested the inclusion of 'uniqueness' to capture the differentiated benefits of individual woodlands. The Crown Estate's recent Total Contribution Report[18] included forestry-related case studies at Glenlivet and Windsor. The impacts at Glenlivet were captured by measuring economic impacts on local communities, recreational value, and the social value of carbon captured, using UK Treasury estimates[19].

5.2.6 For UPM the primary impact of interest is carbon capture, although other areas are recognised as relevant. UPM is involved in a WWF-led initiative called New Generation Plantations which is working to champion and promote forest plantations that maintain ecosystem integrity, protect high conservation values and are developed through effective stakeholder participation, while contributing to economic growth and employment. A discussion on suitable key performance indicators (KPI) for this reporting progress is underway, but at an early stage.

[18] The Crown Estate (2012) Our Contribution: A report on The Crown Estate's Total Contribution to the UUK [online] available at: http://www.thecrownestate.co.uk/media/403519/total-contribution-report.pdf

[19] HM Treasury - HMT Green Book: supplementary guidance [online] available at: https://www.gov.uk/government/collections/the-green-book-supplementary-guidance

5.2.7 Kingfisher felt that all indicators were appropriate, but suggested we also consider timber production, and potentially eco-tourism.

5.2.8 Waitrose emphasised the need to keep a clear focus on the objectives under each area, and that targeted impacts should concur with the SMART principle[20].

5.2.9 United Utilities' (UU) involvement in woodlands is primarily for hydrological reasons, principally in the form of planting and managing woodland in catchment areas to improve water quality and reduce the risk of downstream flooding. The group is actively exploring the potential for triple bottom line reporting. UU acknowledged the benefit of having authoritative guidance on woodland in this area and expressed particular interest in social indicators, highlighting UU recreational sites such as the Macclesfield Forest that are open to public, and home to wildlife including red deer and many species of wildfowl.

5.2.10 Both Toyota and Stagecoach reported that their purchases of Woodland Carbon Units were 'one-offs' related to employee engagement programmes rather than part of wider company strategy. In both instances the locality of the woodland, linked to climate change, wildlife and community were relevant factors for the individual who made the buying decision.

How do you currently measure and report impacts to key stakeholders?

5.2.11 The Church Commissioners are a Principles for Responsible Investment (PRI)[21] signatory and member of the Church Investors Group (CIG). The EIAG produces an Annual Review, outlining its activities during the year, but these largely relate to strategic matters such as voting and engagement. At present the only non-financial aspects of the forestry that is reported is its FSC-certified status.

5.2.12 The Green Investment Bank is mandated by the government to report its green impact, making it necessary to understand detail such as project baselines, and work is on-going to develop their reporting methodologies in this area.

5.2.13 The Crown Estate is contributing to the development of the International Integrated Reporting Framework, and produced its first Total Economic Contribution Report in 2011/12. They are actively looking to build understanding in this area; particularly concerning the establishment of baselines to enable evaluation of impact in areas such as forestry.

5.2.14 UPM are members of the GRI, report under the CDP Carbon and Water Programmes, and are actively engaged with the World Business Council for Sustainable Development (WBCSD) Forest Sector Programme.

5.2.15 Buccleuch Estates manages 10,000ha of woodland across the UK, all of which is independently accredited to the UK Woodland Assurance Standard. These include a number of Sites of Special Scientific Interest (SSSI), scheduled historic designed landscapes and recreation facilities. They don't produce a corporate report but communicate corporate responsibility through their website, which provides narrative on areas such as stewardship, heritage, education and community.

5.2.16 Kingfisher reports its Net Positive Impact online and via a report. One component of this is the Good Woods initiative, which aims to increase the area of well-managed woodlands in the UK. The initial aim is to improve 10,000 hectares of unmanaged woodland. Kingfisher and its partners will seek to deliver and report impacts including improved access to training, enhanced employment and education for local communities, improved biodiversity, and increased demand for local wood products.

5.2.17 UU produces an annual report and sustainability report. Its reporting on woodland is limited to FSC status. To date, UU has not explored generation of Woodland Carbon Units (WCU), and it does not include woodland carbon in its wider corporate reporting. The company is developing thinking around triple bottom line reporting, but has no immediate plans to publish a triple bottom line report. They want to make sure the approach they take forward is a 'credible' one, and that they can act on the insights it provides, avoiding the 'so what factor' of some initiatives in this area to date. UU reports, in narrative form, the biodiversity benefits of

[20] The setting of objectives which are Specific, Measurable, Attainable, Relevant and Time-bound
[21] Principles for Responsible Investment – The Six Principles [online] available at: http://www.unpri.org/about-pri/the-six-principles/

project level initiatives undertaken in partnership with bodies such as RSPB and Wildlife Trusts.

How practical / desirable is direct engagement with woodland projects / managers to gather and track data? What other options could / should be considered?

5.2.18 Church Commissioners both own woodland directly and invest in a forestry fund. For directly owned woodlands, gathering and tracking of additional data would be a practical option. Where their investment is in a fund, the opportunity for direct engagement with woodland projects would depend on the nature of the agreement they have with their fund manager. In both cases the costs and complexity of gathering or tracking data would be a concern. Based on this interview, it appears unlikely the organisation will seek impact related data in the short term.

5.2.19 The Green Investment Bank engages directly with projects, both initially and to verify on-going 'green impact'. This could include woodland, where it is an integral part of a project operating in an area the bank could fund, such as energy efficiency or oil-to-biomass conversion.

5.2.20 Kingfisher pointed out that a lot of potentially relevant data is already gathered by auditors in the certification process. Under the current model, this data is collected and held by the auditors. Kingfisher recommended that the project use criteria, indicators and language closely tied to that used in UKFS / UK Woodland Assurance Scheme.

5.2.21 The Crown Estate identified weather as a key factor influencing the validity of their outcomes in relation to monitoring of community engagement in woodland. For example, more people tend to use / enjoy woodland and greenspace in summer than in winter. It was suggested that a best practice guide, used alongside the framework, could be a good way to ensure factors such as this are addressed in a reasonably consistent fashion.

5.2.22 The cost of data capture is a significant issue for The Crown Estates, especially with regards to wildlife and they highlighted their use of wildlife 'accelerators' - intervention points/activities know to enhance wildlife - as short term options.

5.2.23 Crown Estates felt positive links could be made with the certification process, and with existing systems that sit alongside it to support better access to information, highlighting the Publishers' database for Responsible Environmental Paper Sourcing (PREPS), a joint initiative between 23 of the UK's leading publishers, which holds technical specifications and details of the pulps and forest sources for each of the papers they use.

5.2.24 UU has two dedicated woodland catchment officers who work closely with Forestry Commission and other agencies, and consider this as an integral part of wider UU stewardship of land under its controls. All UU woodlands are FSC certified. However, UU would only invest necessary time and resources in additional reporting where there was a clear business case, and feel that measurement of woodland carbon could potentially be too complex or resource intensive for UU to undertake.

In the context of your organisation what are the possible strengths and weaknesses of the proposed framework for enhanced corporate reporting around woodland creation now and in the future?

5.2.25 Church Commissioners do not engage in woodland for CR purposes, but invest in FSC certified forestry for commercial returns. In future, as policy on response to climate change is operationalized, it was felt that the reporting of carbon could come to the fore, and its inclusion in the pilot tool would be a positive aspect.

5.2.26 The Green Investment Bank has bought Woodland Carbon Units for CR purposes, and felt that the reporting on positive outcomes around areas such as biodiversity enhancement would be positive, as this aligns well with their mandate and their own investment activities.

5.2.27 The Crown Estates felt the pilot tool could potentially make a strong contribution in addressing materiality requirements as they relate to woodland under the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 which came into force on 1st October 2013[22].

5.2.28 UPM highlighted frustration associated with reporting the same or similar forest-related data across multiple initiatives, highlighting early stage development of key performance indicators with two initiatives that UPM is party to - New Generation Plantations, and the WBCSD Forest Sector Group

5.2.29 UU commented that the business case for investment in reporting a more granular level (woodland carbon, biodiversity, water, community) could strengthen over time, but to be attractive for UU, the tools for measuring this would need to be simple and cost effective to use.

5.3 Conclusions

5.3.1 The response of corporates engaged in this short study has been broadly, if cautiously, positive. Whilst there was broad agreement on the suitability of the proposed subject areas covered by the tool (and a few additional areas where proposed), feedback on the approach to measurement (scored, rather than tangible metrics) was less clear cut. Contacts involved in corporate reporting, e.g. GRI, IIRC etc. responded on this indirectly, by highlighting the (alternative) possibility of gathering tangible metrics/data via the FSC audit process, and ongoing (collaborative) efforts to establish baselines in order to demonstrate net positive impact areas including water and biodiversity, whilst corporates who had been selected on the basis of their CSR activities, such as purchase of Woodland Carbon Units for employee engagement activities, were positive about this aspect of the tool.

5.3.2 For corporates seeking a clearer understanding of impact, all the suggested headline categories are relevant. Carbon capture is identified as important and most relevant benefit of investment in woodlands, with a number of corporates identifying climate change as a priority corporate responsibility concern; whereas for United Utilities, the direct relevance of hydrological issues means that water is of primary interest. Community or social benefits are emerging as an area of some importance, with corporates currently exploring effective reporting methods. There was some appetite for consideration of other themes, including timber production.

5.3.3 Areas of concern raised include potential duplication of effort, plus the need for a tool that is simple and cost effective, and the use of which is supported by a strong business case, particularly where additional effort (e.g. in terms of data collection) is required. Concerns about credibility will also be an important consideration when persuading businesses to adopt the pilot tool.

5.3.4 There is a desire for the pilot tool's development to engage with and evolve in line with developments underway elsewhere to build common understanding around net positive impact in areas including biodiversity and water at an international level. Corporates are beginning to explore new approaches to measurement and reporting of social and environmental impact, such as the Total Contribution framework implemented by Crown Estate, Net Positive under development at Kingfisher, and Green Impact Appraisal at GIB. Individual corporate experiences and learning are increasingly shared via multi-stakeholder initiatives such as IIRC Pilot Programme, IUCN Global Business and Biodiversity Programme (BBP) and the Natural Capital Coalition. Companies are striving to identify what works for them in this space, drawing on external technical expertise/experience as part of an on-going process. Presenting a tool that attempts to define/finalise approaches to measuring and reporting impact at too early a stage (and after a relatively short development process) risks losing buy-in from stakeholders. From a corporate reporting perspective the tool should be designed in a way that enables tangible metrics for impact (e.g. biodiversity) to be adopted as consensus on these emerges.

[22] The Financial Reporting Council in its non-mandatory guidance to The Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 highlights the importance of materiality. Information should be considered material, and so should be included within a strategic report, where it would influence an investor's decision to invest in a company.

5.3.5 This all suggests that the short term focus should be on developing and promoting the pilot tool for use amongst corporates, rather than investors / banks. The former face a challenge, and in the UK, a legal obligation, to identify and communicate their strategic position to external stakeholders, especially investors and lenders. The pilot tool could potentially help to communicate how they are using woodland to address risks related to natural capital. Both corporate reporting and wider corporate reputation/sustainability/CSR interests have the potential to drive additional corporate investment in woodland creation. Unlocking additional investment in woodland creation through the former will require (a) tangible metrics for impacts of interest (see 5.3.5 above), and (b) projects that can generate impact on a scale which is considered material in the context of the overall business. In contrast additional investment in woodland creation through the latter could potentially be unlocked using either scored or tangible metrics, where the potential outcomes are well aligned with a specific area of interest (engagement, community, campaign etc.).

5.3.6 Market research suggests that both the choice of subject area and approach to measurement proposed in the tool will support CSR focused interest in woodland creation, but that careful consideration need to be given to the design of the tool (and communication around it) so that it evolves in line with developments in corporate reporting.

5.3.7 In order to test/refine the tool for (initially) CSR focused interest it should be road-tested with a larger sample of individuals working in CSR, marketing and PR functions (- external agencies supporting these functions such also be approached).

6 TESTING OF THE PILOT TOOL AT SELECTED NEWLY CREATED WOODLANDS

6.1.1 This chapter summarises the findings of the pilot tool testing process conducted at each of the selected sites. This is followed by a round-up summarising the key areas of discussion and lessons learned.

6.1.2 For each site, an assessment was completed using the testing phase version of the pilot tool. The completed assessments for each pilot site are provided at Appendix C. These are annotated with feedback from the stakeholders regarding the applicability of selected indicators, alternative suggestions, as well as more general feedback on the pilot tool.

6.1.3 It should be noted that the records of the pilot site assessments cannot be viewed as a complete and fair reflection of the actual or potential environmental and social benefits of the site, as the tool was in pilot form and a number of the questions proved inappropriate or were not asked due to time limitations.

6.2 Coshogle 1 at Drumlanrig, Buccleuch Estates

Site summary based on secondary literature and site assessment

6.2.1 Three distinct woodlands were visited at the Drumlanrig estate, which forms part of the Buccleuch Estates. These were Riverbank, Coshogle 1 and Gallows Knowe. All three woodland sites visited are validated projects with the Woodland Carbon Code and form part of a certified group project. These sites were selected as illustrative of the range of different types of woodlands which have been jointly registered by the Buccleugh Estate under the Woodland Carbon Code. All of these sites have applied for woodland creation grant funding.

6.2.2 The group scheme registration was prepared by Forest Carbon, which has prepared applications for a large majority of all currently validated Woodland Carbon Code projects.

6.2.3 Coshogle I, a 17.2ha site developed for a combination of biodiversity, habitat linkage, landscape and hardwood timber production purposes, was selected for use to test the pilot tool. It comprises native woodland planting with a productive hardwood element of 44% Oak, and 24% Ash, to be managed on a continuous cover basis.

6.2.4 The other two sites visited at Drumlanrig were:

- Riverbank - a 3.43ha site comprising mixed native wood planting on former marginal rough grazing farmland; and
- Gallows Knowe - a 12.4ha site comprising a productive confer plantation on arable grassland of mainly improved Sitka spruce, edged with hybrid larch, to be clear-felled at 38 years. It is for softwood timber production.

6.2.5 The Buccleuch Estate has an estate-wide Forest Plan produced every ten years which indicates the strategic direction for its forestry and woodland. As a strategic document, covering the whole 2,600 hectare estate, it does not address the detailed management of individual woodlands and it does not cover social aspects such as footpath maintenance. There is no reporting internally as the estate owners are well informed, and there are no shareholders to consider. The process of producing the Forest Plan does, however, include liaising with statutory bodies, NGOs and local communities. A Forestry Outcome Plan, which predicts the benefits of a woodland project, is also produced to enable the estate to receive grant support.

6.2.6 Forest Stewardship Council (FSC) compliance is the main existing certification scheme used by the estate, as this is what is demanded by customers purchasing wood. For FSC accreditation, the estate has to produce an annual report of its activity, which can include monitoring for certain sites, such as those designated for their biodiversity interest. Green issues and reporting are felt to be more important to retailers than to the estate's main customers who tend to be intermediaries, such as sawmills. FSC certification is linked to this market, which provides the main source of forestry income to the estate.

6.2.7 All woodland planting and management on the Buccleuch Estates is driven by a strong commercial perspective, though with a relatively long term view of returns, across at least two

generations of the Buccleuch family. All the sites which were visited are designed to be productive to varying degrees, with a mix of more straightforward productive sites, such as Gallows Knowe, contrasting with the small, relatively costly Riverbank site, which would not be commercially viable without woodland grant and carbon sequestration-related funding.

6.2.8 The Estate's motivation for planting includes a strong emphasis on landscape and environmental stewardship. There has been an expansion of high value biodiversity sites across the estate, such as the Coshogle II site which is being expanded to provide a buffer to a native woodland, and there is an ambition to further increase woodland cover. Motivations for increasing woodland cover are varied, reflecting the diversity of sites on the estate. For example, the Riverbank site provides water cooling effects and minimises run-off from agricultural land into a high quality fishing river, as well as improving the quality of the popular riverside footpath.

Test site assessment - how did Coshogle 1 perform using the pilot tool?

6.2.9 This section presents a summary of the benefits identified at Coshogle 1 using the pilot tool, as well as a summary of the limitations identified during the site visit and test use of the pilot tool.

Wildlife

- This woodland scored highly against short term measures for wildlife.
- It includes native species planting, evidenced through a sites planting map.
- Half the woodland is of the native woodland NVC type, as required to be eligible for a grant. This could be evidenced via Forestry Commission verification.
- The site incorporates a range of stand structures appropriate to the site, has an area of minimum intervention, and includes planting that extends an existing woodland, which is known to be home to a BAP priority species (spotted flycatcher).
- The planting includes a diversity of species, selected with consideration of future climate change.
- These benefits are straightforward to report with existing documents. However, in terms of the value-added benefit, some of these are already requirements to qualify for existing grant funding.
- Longer term monitoring questions regarding native species mix and priority habitat would require an appropriate timeframe of more than ten years following planting or even longer. A proxy indicator regarding management would be potentially better.
- Woodland contract documents, planting plans, Woodland Carbon Code audits and other existing monitoring mechanisms would support transparency.

Water

- The site scored positively for those short term water questions that had been developed.
- The site features wet flushes (springs) which provide a spawning area for toads and frogs. It also features a non-intervention area to prevent disturbance of the waterway.
- It provides a buffer on a steep slope previously under heavy agricultural use to prevent diffuse pollution.
- Relevant water companies were consulted. There is an obligation to consult with the SEPA and so this does not offer value added.
- A question on effects for flood flows was not answered for the site, but was judged to be a useful question in terms of recognising the benefits of flood alleviation of riverside sites.
- Longer term monitoring questions could not be answered at this stage. Certain questions were considered not appropriate to the small scale woodland creation projects.

Community

- The site achieved a limited score for community benefits. This reflected both the priority of the woodland objectives for biodiversity and timber production objectives.
- It scored for educational benefits because it provides rural skills days for the local academy.
- It did not score for questions on volunteering, recreational use and community engagement.
- Questions regarding rural employment and enterprise protection were considered to be more relevant for the site.
- There were doubts about the ability to evidence community benefits effectively.

Climate

- The site scored for considering measures to minimise energy use of forest management and for minimising risks to ecosystem benefits.
- These benefits are requirements for Woodland Carbon Code and for UK Forestry Standard.
- Longer term questions were not asked due to lack of time.
- A number of proposed questions were considered to be not applicable or not viable.

Summary of stakeholder feedback on the pilot tool performed and its relevance to the pilot site woodland

6.2.10 This section reports on the feedback by Jim Colchester and James Hepburne-Scott on the pilot tool.

6.2.11 The finalised tool should enable streamlined, efficient reporting of multiple sites held by a single owner or that form part of a woodland. Since individual woodlands should be designed to meet the strengths of the particular site, no woodland should be expected to 'tick all of the boxes' in terms of meeting all of the requirements of the tool.

6.2.12 The tool's metrics should be flexible enough to be used in different contexts across the UK, as exemplified by the 'right to roam' in Scotland, and the different water issues of concern in Scotland as compared to Southern England. This is in addition to the importance of recognising that the relevance of certain issues will also vary site-by-site, such as the significance of water issues, including acidification, erosion prevention and diffuse pollution from agricultural activities.

6.2.13 A major reservation about the adoption of any reporting tool was based on the concern that it would impose an overly burdensome cost on woodland owners or investors. This was based on perceptions that existing certification schemes, such as the FSC, are overly complex and costly. There was concern that required monitoring costs might limit the Estate's ability to establish new projects. It was raised as an undesirable irony that certification schemes risk further increasing the cost of creating woodlands with higher social and environmental value. Such woodlands are likely to generate much lower financial returns than are productive coniferous woodlands. By imposing costs associated with rigorous assessment to demonstrate benefits, this could create a perverse effect of discouraging planting of native varieties or less productive woodland schemes.

6.2.14 On the other hand, there was a strong appetite for a tool that could help a woodland manager or scheme manager attract additional investment in new woodland plantation. To this end, a strong preference was expressed for a tool that focused primarily on outputs, with some outcome indicators which could be measured in the short term and could provide proxies for longer term benefits. The focus of the tool would then be on communicating these outputs and proxy outcomes to corporates in order to attract investment, or 'make a sale'. Where possible, information requirements would be based on data already held, rather than requiring collection of new data, which would create additional work and increase costs. There was discussion

over the potentially tricky balance that needs to be struck between keeping the requirements of the tool 'light', and ensuring that the scoring is sufficiently robust.

6.2.15 Consideration also needs to be given to the timescales involved. It was pointed out that 15 years is likely to be the minimum period for monitoring, as from this stage woodlands can be relatively stable and it becomes clear whether NVC habitats are forming as expected. From that stage on growth can be slow, since native woodlands can take up to 100 years to reach maturity.

6.2.16 A further consideration in terms of timescales is how long corporates will be willing to be involved with their woodlands, with the risk that they may only have a short term interest at the point of woodland planting for the purposes of carbon capture, after which point they may disengage.

6.2.17 There was a desire to see the economic / productive benefits of woodland creation to be recognised in the tool, with an emphasis on the contribution to protecting woodland-related local employment and enterprises in rural communities, such as skilled woodland manager roles, woodland contractors, tree nurseries, local sawmills, and jobs associated with game shooting. Concern was raised about the relevance of the proposed community measures of volunteering and leisure use in woodlands located in rural areas with small populations.

6.2.18 The Tweed Forum was identified as a potential useful stakeholder to consult regarding water-related benefits of woodland planting. There was also discussion of the value of woodland planting for water companies regarding water quality objectives.

6.3 Cwm Fagor, Monmouthshire

Site summary based on secondary literature and site assessment

6.3.1 Cwm Fagor is a mixed woodland being developed by Thorlux Lighting as part of a carbon sequestration project. It is a 1.8 ha site which is Phase 1 of a project of 29.15 ha that is to be planted over a 15 to 20 year timeframe. The site, which was previously used for grazing, was purposely selected and purchased by Thorlux Lighting for the purpose of this project. Thorlux intends to seek Forest Stewardship Council (FSC) certification for the woodland, driven by its own corporate responsibility priorities. The site has Better Woodlands for Wales Creation Scheme funding and is registered by the Woodland Carbon Code, so providing a means for investment in its carbon sequestration.

6.3.2 The land bounds three ancient semi-natural woodland sites and includes riparian zones, smaller ponds and very minor sections of semi-improved grazing.

Test site assessment - how did Cwm Fagor perform using the pilot tool?

6.3.3 This section presents a summary of the benefits identified at Cwm Fagor using the pilot tool, as well as a summary of the limitations that were identified during the site visit and test use of the pilot tool.

Wildlife

- This woodland scored highly against short term measures for wildlife. The woodland links with existing native woodland.
- It has native woodland planting. The species selection has been informed by the aim of increasing priority habitats.
- The woodland plan considers areas for potential minimum intervention. It incorporates a range of stand structures, open spaces and areas of natural regeneration and areas of minimal intervention.
- The woodland includes species sourced to take account of climate change risks (although planting has mainly been of native species which may reduce resilience). Measures have been taken to provide suitable protection for the woodland from relevant forms of damage.
- Transparency is reasonably easy to demonstrate via existing documents, including the planting plan and contract document.

- Longer term outcome indicators were not scored. Several indicators were identified as unlikely to be relevant to a 15 - 20 year timeframe, as significant change would not be expected.

Water

- This woodland scored well against short term measures for water.
- Sites of aquatic and wetland habitats have been identified, as required by the UKFS.
- The site includes riparian buffer zones.
- A proposed question on the effects of woodland on water acidification or diffuse pollution were considered poorly suited to the woodland
- Relevant regulatory bodies and conservation agencies hadn't been consulted about the scheme. Consultation with statutory bodies is not required.
- A long term monitoring question on the range of animal and plant species supported was considered unsuitable as it would require costly seasonal monitoring.
- Other questions were not asked, due to time limitations.
- Transparency would be reasonably easy to demonstrate via contract documents or via a longer term management plan. However, some of the piloted questions refer to measures that are required by law.

Community

- The site scored well for some community measures.
- The site includes a car park, hard surfaced areas, and interpretative notice boards, as well as permissive footpaths. This can be evidenced through maps, contracts and grant aid documentation.
- Information about the site has been presented to the community via a meeting and community website.
- Questions on community activities were considered likely to be more appropriate to longer term outcome monitoring, once the woodland is better established and more attractive as a possible destination for leisure activities.
- There was concern about the difficulty of monitoring and providing reliable indicators of volunteering, training and public access
- Questions on frequency of use were not asked, as feedback had illustrated that this would be onerous to monitor.

Climate

- The site scored positively for two of the short term measures for climate.
- The site has included consideration of timber and woodfuel production.
- A question on identifying and mitigating risks to the woodland were considered to repeat a similar question on wildlife
- The site has contingency plans in place to address potential risks.
- A longer term question on the woodland providing woodfuel or wood products was supported as an appropriate question to include. It could not be answered at this stage.
- A number of questions were skipped due to time constraints.

Summary of stakeholder feedback on the pilot tool performed and its relevance to the pilot site woodland

6.3.4 This section details the key points raised in discussion with the representative of Thorlux Lighting (the woodland owners) and the woodland manager, including inputs by Laura Jones (peer reviewer / advisor), during and following the test assessment using the pilot tool.

6.3.5 In order to encourage adoption by corporate investors who do not have woodlands-related expertise, the tool would need to be in plain English to allow the benefits to be easily understood by a business' customers or other stakeholder groups. The output should be something that could be put onto a website and easily understood by customers.

6.3.6 Time, cost and value were highlighted as key concerns for businesses. It was seen as crucial that the tool is meaningful and adds value if it is to be effective.

6.3.7 The timescales for the assessment were considered important, with a key point of discussion being the need for a flexible approach to monitoring over time. For corporates with an interest in long term involvement, they would be incentivised by the potential to gain credit for the social and environmental benefits achievable over a long timeframe.

6.3.8 Any assessment or monitoring activities should fit around forestry operations and take place in a 'window for assessment' when the woodland is ready. It was discussed that very little happens in most woodlands between ten years and around 25 years, when the first thinning takes place. A monitoring period of 20-25 years would be appropriate for most woodlands across the country. It was also suggested that light-touch interim assessments could be carried out at shorter intervals between more substantive reviews. These could consist of 'easy update' tick box exercises completed by the contractor or woodland manager.

6.3.9 There was an appreciation by the woodland manager in particular that the existence of a recognised corporate reporting tool for different social and environmental benefits could help to promote woodland creation to corporates more widely. However, this recognition was qualified by the observation that there would need to be a clear justification for using the tool. The associated 'symbols' awarded would have to carry sufficient weight to make it worthwhile for woodland owners and managers to complete the assessment.

6.3.10 There was concern that the tool should not 'penalise' woodlands that were not able to demonstrate performance against certain metrics, but that the tool should capture and promote the particular benefits achieved by a woodland.

6.3.11 The availability of the tool, and specific questions included in it, would potentially influence the planning of future new planting, encouraging woodland investors to think more about a wider range of social and environmental benefits of woodland creation beyond carbon capture.

6.3.12 Potential duplication with other certification programmes was not considered to be a concern on the understanding that the proposed tool developed drew closely on the main existing schemes used for woodland management in the UK. The tool was seen as being potentially useful in enabling corporates to compile evidence collected for other purposes (such as for woodland grant schemes) in order to demonstrate and gain recognition for the benefits of their investment.

6.3.13 Whilst Thorlux has a strong interest in demonstrating credibility for its own sake, as evidenced by its choice to include this small woodland for FSC certification, a motivating consideration would be whether or not the use of the tool would enable access to new income streams, including the potential ability to access additional forms of grant support.

6.3.14 It was felt that employment would not be particularly relevant as a metric in this context, since the project requires minimal management, and work on the site is undertaken by forestry contractors who are not necessarily located in the local area. When the woodland comes into maturity it may provide more work, but contractors could be based up to 50 miles away and so it is uncertain how far this will contribute to the local economy.

6.4 Upton Court Jubilee Wood, Slough

Site summary based on secondary literature and site assessment

6.4.1 Upton Court Jubilee Wood was validated as a Woodland Carbon Code site in September 2013. Its net size is 5.8ha, which over its 100 year lifetime, is calculated to yield a 1672 tCO2e net carbon benefit. It has been developed by Slough County Council as a new native woodland on existing parkland to provide social 'amenity' benefits for the residents of Slough, as legacy of the Queen's jubilee, with a strong interest in local people's involvement. It also seeks to contribute to biodiversity and climate change mitigation.

6.4.2 The woodland received funding through the English Woodland Creation Grant Scheme (EWGS) in addition to direct funding by the council, with no private sector investment to date. The council worked with both the Woodland Trust and Verco, a sustainability consultancy, to develop the project and complete the site's application for Woodland Carbon Code registration. The council is interested in monitoring the social and environmental benefits of the woodland, but has not yet put in place any specific measures or reporting framework.

6.4.3 The woodland comprises a mix of native species, rather than a particular woodland national vegetation classification (NVC) type. It has improved the biodiversity of the area by moving it from rough grassland to a higher habitat value offering greater structural diversity. The site includes areas of historic landfill. It is alongside the M4 and is in the Heathrow flight path, both sources of noise and air pollution affecting Slough.

Test site assessment - how did Upton Court Jubilee Wood perform using the pilot tool?

6.4.4 This section presents a summary of the benefits identified at Upton Court Jubilee Wood using the pilot tool, as well as a summary of the limitations identified during the site visit and test use of the pilot tool.

Wildlife

- This woodland site scored well, but not as highly as other pilot sites for wildlife short term measures.
- The woodland has been planted with a wide and eclectic variety of native species, but not with consideration of extending priority habitat.
- It includes a diversified habitat structure, including a shrub understory structure and edged wildflower planting.
- It connects with wetland habitat along stream corridors, supporting connectivity.
- The woodland did not score for the climate change adaptation question, as the diverse planting selection did not take account of climate change. Use of the tool might have prompted attention to a planting list.
- A longer term question on climate change adaptation was considered difficult to answer on this site in terms of judging whether the response should be positive or not. The site includes a wide mix of species, which will enhance resilience, but it hasn't been selected for resilience to climate change.
- For a number of questions, the more community-focused emphasis of the woodland's objectives meant that it would did not score well against wildlife measures, even though it would offer a significant 'value added' relative to the existing 'ecological desert' of mown grassland.
- Transparency could be difficult where it is open to interpretation whether the site should score for certain questions. The planting plan would be a key document.

Water

- This woodland site scored positively for some measures relating to water.
- The site's management includes measures to avoid pollution to the nearby stream, including a buffer area.
- The site is in an area of air pollution and noise pollution which it will help mitigate for benefit of local residents, as well as providing important visual benefits. The site is on formerly contaminated land so may support capture of contaminants. The site also offers landscape improvements. None of these ecosystem benefits of the woodland could be captured in the proposed questions.
- Longer term monitoring questions were not answered as feedback from previous site visits had judged them as inappropriate.
- Transparency could be provided through reference to the design document.

Community

- This woodland scored very highly for community benefits. Even so, the questions did not fully capture the range of community benefits offered by the site.
- The site is on public open space and connects with national cycle networks and other rights of way.
- The plans have been communicated to local residents. There was volunteer involvement in tree planting, as part of educational provision for local school groups.
- There is a variety of provision in place or planned, including an interpretation board and way marked trail, picnic areas and plans for installations in clearings.
- A range of activities for health make use of the site, including GP Walk for health activities and running activities make use of the site, as well as a range of other informal uses.
- Evidence to support transparency is available, but could be burdensome to upload on to a website.

Climate

- This site scored in recognition that consideration been given to the carbon capture of the woodland, as a registered Woodland Carbon Code site.
- Other questions were considered to have limited applicability to the site and were not answered.

Summary of stakeholder feedback on the pilot tool performed and its relevance to the pilot site woodland

6.4.5 This section reports on the feedback discussion with Bruce Hicks, Parks and Open Spaces Improvement Officer and Laura Jones, peer reviewer/advisor to the project, during and following completion of the assessment using the pilot tool.

6.4.6 On the basis of the use of the pilot tool 'in test', the finalised tool was considered likely to be relatively simple to fill in, comparable to tools that are regularly completed by council officers for other initiatives. The Green Flag Award for open spaces was identified as a comparable scheme that uses an online system of self-assessment, verified by the award scheme operators, to recognise well-run open spaces and parks.

6.4.7 The council would welcome help boxes or a user guide incorporated alongside the criteria as part of a simple, easy to use interface. Case studies could also be helpful. For example, a worked example for urban community woodlands would illustrate the type of evidence required, avoiding replication of effort by those involved in new and comparable woodland creation projects.

6.4.8 Discussions on the potential for the tool included consideration of whether local authorities, such as Slough County Council, could use it as a way of encouraging local businesses to contribute to funding of new woodland creation, through investment in carbon credits and the wider social and environmental benefits, particularly in dense urban areas such as Slough, where businesses would have a potential interest in the improved living environment as a way to attract and retain employees.

6.4.9 The potential to use the tool to capture long term benefits was considered attractive, including its usefulness in providing outputs for other monitoring requirements, such as those of the EWGS at 10 years. The tool was also identified as potentially enabling the reporting of diverse social and environmental benefits to be linked into various other areas of the council's reporting responsibilities, including in areas of Carbon / Climate Change, Planning, and Parks. Long term monitoring would enable capture of the likely increased number and quality of community benefits over time.

6.4.10 In terms of comparability, discussions revealed a very wide range of ways in which the woodland is likely to contribute to community benefits, including in terms of volunteering opportunities, providing a venue for healthy lifestyle activities, educational activities, community involvement (e.g. via 'Friends' groups), plus social inclusion benefits (e.g.

maintenance activities being delivered via a 'community pay-back' scheme). This contrasts strikingly with more rural woodland schemes where there may be limited direct community benefits, and therefore it may be difficult to identify a concise set of questions that would enable a woodland such as this to fully illustrate the range of community benefits it provides.

6.4.11 In exploring potential questions regarding community involvement, it was reported that even with the range of community 'uses' of the woodland, the degree of community involvement in the woodland's design or management to date was considered to be limited, with some recognition that both in the design stage and in the future woodland management there remains considerable scope for greater involvement by local people in order to build ownership for the woodland. Similarly, in addressing a proposed question regarding disabled access to the woodland, it was identified that some consideration has already been given to enhancing the inclusive access at the Jubilee wood, with a main level hard pathway through the site. But this also led to discussion of opportunities to further enhance inclusive access, for example, by creating slopes suitable for wheelchair access to raised viewing points, and the inclusion of seating across the site. In developing the tool further, it would be desirable to capture the extent of progress towards achieving desired outcomes, such as inclusive access.

6.5 Summary

6.5.1 The pilot site visits yielded a wide range of feedback on the pilot tool.

6.5.2 Key lessons taken from the site visits to incorporate into a revised version of the tool include:

- Design a tool that is attractive for corporates to adopt, in terms of offering recognition, minimising associated costs and reflecting their priorities; where possible, this should be easily transferable to other reporting obligations.
- Further consider the timescales for monitoring and reporting, giving consideration to the timescales of woodland development in different parts of the UK, opportunity to tie-in with other reporting requirements, feasibility and corporate needs for reporting.
- Design a tool that enables the unique characteristics of individual woodlands to be recognised and does not penalise woodlands unable to 'tick all the boxes'. Selected metrics need to provide the flexibility to respond to the different contexts and characteristics of different sites.
- Respond to woodland owners' and managers' demands for a simple, straightforward assessment process which minimises the burden on business, including by ensuring that the requirements, where possible, make use of evidence already collected and readily available, rather than requiring extra work. This is driven by a desire to avoid the costs associated with the tool acting as a disincentive to corporate investment in new woodland that achieves social and economic benefits.
- Avoid technical language as far as possible so that non-specialists can understand the questions and can interpret the results, and share them with their customers and other stakeholders.
- Scoring criteria, means of achieving transparency or robustness and assessment processes need to be designed to make it worthwhile for corporates to adopt (i.e. they should carry sufficient 'weight' in terms of internal and external reporting to justify the costs of assessment) .
- Develop recommendations on how the tool's identity / status (e.g. as a nationally-recognised scheme) can make it worthwhile for corporates to adopt.

7 FINALISED PILOT REPORTING TOOL FOLLOWING FEEDBACK

7.1.1 Following the pilot site visits and corporate engagement phases of the research, a pilot reporting tool was developed. The finalised pilot reporting tool was developed in accordance with a set of broad principles which were derived from the findings of the literature review, pilot visits, and corporate engagement. They therefore reflect the concerns of a diverse range of stakeholders, including foresters, corporates, and investors.

These principles are:

- Timescales needs to be given careful consideration, from the planting of a woodland through to its maturity
- The tool needs to draw upon existing monitoring and verification processes (i.e. it should be predominately a desk-based exercise)
- The potential for the tool to fit in with other reporting frameworks should be considered (e.g. WCC / Woodland Star Rating / ability to inform PES scheme development and monitoring)
- The questions and their scoring should positively reflect the many different 'types' of woodlands that can be created and managed
- The 'uniqueness value' of woodlands should be captured
- The tool and its outputs must be accessible to all audience, including the use of clear language
- The various types of ecosystem service should inform the tool's development, even if they are not explicitly referred to
- For simplicity, the number of scoring categories used should be kept to a minimum (e.g. low, medium, and high)
- Double counting of benefits should be avoided
- The tool should relate to the current policy context, but be flexible enough to adapt as this changes
- The purpose and burden of the assessment should be considered whenever including an additional question (i.e. always asking 'is this question worthwhile?')
- Balancing the need for a light touch assessment against it being too easy for respondents to score points
- The tool should meet SMART principles - specific, measurable, attainable, relevant and time-bound
- The development of best practice guidance to sit alongside the framework should be considered
- There should be the potential to translate the pilot reporting tool into a web-based format
- The tool should encourage woodland managers/investors to consider how they might alter their activities to score more points in the future
- Balances the requirement for transparency with the burden of having to upload evidence

7.2 Guide to the pilot reporting tool

Structure of the guide

7.2.1 This chapter provides a guide to the pilot reporting tool, explaining its functions and the logic behind its structure and content. A fully functioning, Excel-based version of the pilot reporting tool accompanies this report and it is recommended that the reader refers to this alongside this chapter. Screenshots of the tool also accompany the text for those without access to the Excel version of the tool.

7.2.2 This guide firstly explains the development of each of the questions that have been incorporated into the Underlying Tool[23]. This is then followed by an explanation of how these questions and their answers relate to the final Reporting Output of the tool[24], which will be used by woodland investors to report their woodland's benefits. Explanations of the tool's general structure will also be included wherever appropriate.

7.3 The Underlying Tool

7.3.1 The 'Underlying Tool' tab sets out the questions that respondents will complete when assessing the environmental and social benefits of their woodland. In total there are 48 questions in the current pilot version of the reporting tool, with the potential to expand or reduce this number in future versions if desired.

7.3.2 The questions incorporated into the tool are grouped under five category headings, with these being: Wildlife; Water; Community; Climate; and Managing Risks. These headings have been chosen on the basis of:

- their broad scope, which covers the majority of social and environmental benefits that can be obtained from woodlands;
- their relationship with the UKFS, which sets out its own guidance under similar headings and is familiar to many woodland owners / managers;
- the simplicity that these headings bring in terms of the structure of the tool and the language used, so providing an accessible interface; [25] and
- stakeholder feedback from the pilot visits and corporate engagement.

Wildlife

7.3.3 The first category in the Underlying Tool is 'Wildlife'. In the present pilot version of the tool there are 14 questions in this category, with these questions grouped into three separate 'Routes' (see Box 7-1). These Routes are as follows:

- Create and manage a native woodland with the aim of delivering biodiversity gains
- Create a woodland with a diverse range of features in order to bring about ecological benefits
- Create a woodland that leads to an improvement in the surrounding ecological network

Box 7-1 below explains the reasoning behind the selection of these Routes and the questions that are associated with them. The 'Tool Structure' included in this chapter describes the structure and functions of the pilot tool. It should be noted that the principles they outline apply throughout the pilot tool.

Box 7-1 Tool Structure: Routes

Each Route[26] seeks to reflect the management aims of the woodland being assessed and the associated benefits and management being undertaken to deliver these aims. For instance, the aim of 'Wildlife Route Number One' is to:

"*Create and manage a native woodland with the aim of delivering biodiversity gains*"

The questions associated with this Route therefore relate to the steps that can be taken by the woodland owner or manager to establish a mainly natively planted woodland which delivers gains for biodiversity, and where appropriate, the means by which they can monitor progress

[23] See tab two 'Underlying tool' in the accompanying Excel spreadsheet for the underlying questions
[24] See tab one 'Reporting output' in the accompanying Excel spreadsheet for the final reporting sheet
[25] NB. Earlier versions of the pilot reporting tool were built around an ecosystem services typology, with category headings derived from this (e.g. the earlier 'impact' orientated approach was to take this approach, see Section 4.3 above). However, it was decided that, whilst ecosystem service thinking should inform the design of the tool, the direct use of such terms had the potential to confuse given the diversity of the intended audience.
[26] N.B. 'Routes' were referred to as 'Requirements' in the draft reporting tool taken to the pilot sites. This term has since been changed in order to make clear that assessed woodlands are not required to meet all these aims, but instead are expected to develop in diverse ways, with differing social and environmental benefits obtained as a result.

in meeting these objectives. By taking these steps the woodland should develop in a manner conducive to the achievement of the final aim of the Route in question.

There are currently eleven Routes in the tool, all of which are grouped under the five category headings[27]. The objectives associated with each of these Routes are used to:

- make clear the purpose of the questions that follow; and
- inspire thought about what results can be achieved through the various forms of woodland design and management.

Each of the Routes is entirely optional. It is expected that those completing the tool will wish to concentrate their efforts on some paths (e.g. those in the Wildlife category) rather than others (e.g. those in the Community category), depending on their own aims for the woodland, the opportunities and constraints it faces. Routes are not mutually exclusive, with respondents permitted to answer any of the questions in the tool they consider relevant to their woodland. Instead Routes should be seen as a guide that makes it clearer to the respondent how particular questions relate. This flexibility should assist in making the tool relevant to all woodland stakeholders given that trade-offs in the benefits derived from woodlands are inevitable and that woodland contexts vary widely.

Wildlife: Route One

Route One: "Create and manage a native woodland with the aim of delivering biodiversity gains"

7.3.4 The woodland aim associated with this Route was chosen on the basis of UKFS and UKWAS guidance. This guidance highlights the importance of creating and protecting priority habitats when seeking to deliver biodiversity gains, and the particular value of native woodland habitats to biodiversity[28]. It is expected that accompanying guidance will explain the background to this Route, including an explanation of terms such as 'biodiversity' and 'native woodlands'.

7.3.5 More generally, where new concepts and terms are introduced in the pilot reporting tool it is expected that explanatory text will be necessary. Terms that may require explanation to non-technical audiences are highlighted in red in the Excel version of the tool. This should allow for ease of understanding across diverse audiences. Further details about the content, structure, and importance of the tool's accompanying guidance are included in the following 'Tool Structure' Box 7-2.

Box 7-2 Tool Structure: Accompanying Guidance

It is expected that once fully developed the pilot reporting tool will be released with detailed accompanying guidance. It is anticipated that this guidance will include:

- The background and purpose behind the pilot reporting tool, setting out clearly who the target audience for the tool and its outputs is, and what inputs are likely to be required in order to complete it
- Definitions and explanations for each of the key terms and concepts used throughout the tool, so enabling those of all backgrounds to understand the requirements of the tool and the nature of its outputs
- Details of the tool structure, including the background to each Route so demonstrating

[27] There are three 'Routes' associated with the Wildlife category; two with the Water category; three with the Community category; two with the Carbon category; and one in the Managing Risks category. The number of Routes included each category has been decided by a combination of: the availability of material supporting the development of 'questions; the time available for the project; and a desire to create a reasonably balanced assessment (e.g. not having the majority of questions in a single category). The number of available 'routes' in each category could be expanded or reduced in future iterations of the tool.

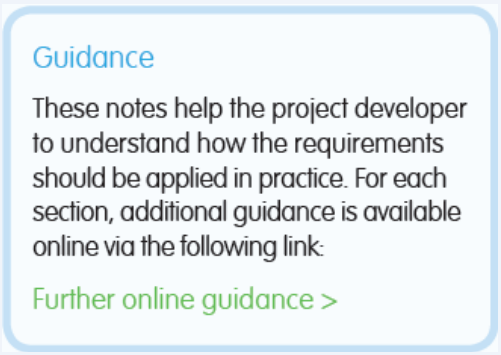
[28] For instance, the 'Forests and Biodiversity: UK Forestry Standard Guidelines' (2011) note that: 'Priority habitats have the potential to provide for the richest and most varied components of biological diversity'; and that 'native woodlands, and especially ancient woodlands, are the priority habitats of greatest relevance to forestry. They have a very high biodiversity value or potential, and support a large proportion of priority species'.

why a particular issue is considered important, and why each of the questions accompanying each of the Routes have been included in the tool

- Details of the types of actions that can be taken by woodland owners or managers in order to score positively for each of the questions, so supporting them in achieving the aim of their woodland
- 'Worked examples', potentially based on the pilot site woodlands, to illustrate how the tool can be completed for different types of woodlands
- Advice on the types of evidence that can used to support claims of positive action by woodland owners or managers, so allowing them to 'build the case' that their woodland has achieved, or is on course to achieve, a particular benefit
- Details of where sources of information might conflict in their recommendations, and how decisions might be made over which advice to follow (e.g. conflicting opinion over what might be considered a native species)
- Make clear how the tool's outputs can be used to develop and disseminate easily understandable communications material targeted at their customers, shareholders, and wider stakeholders

In terms of the structure of this guidance, it was noted during the pilot site visits that it should be as slim as possible in order to prevent it appearing overly burdensome. Guidance would also need to be flexible enough to be easily adapted as the policy context shifts (e.g. new advice appearing on the size of riparian buffers etc.).

Figure 5 - Links to further guidance included in WCC documentation



Given these concerns it is suggested that the guidance uses a format similar to that of the Woodland Carbon Code 'Requirements for voluntary carbon sequestration projects'[29]. This PDF document sets out in broad terms the compulsory requirements of the Code, with more detailed guidance provided online (See Figure 7.1).

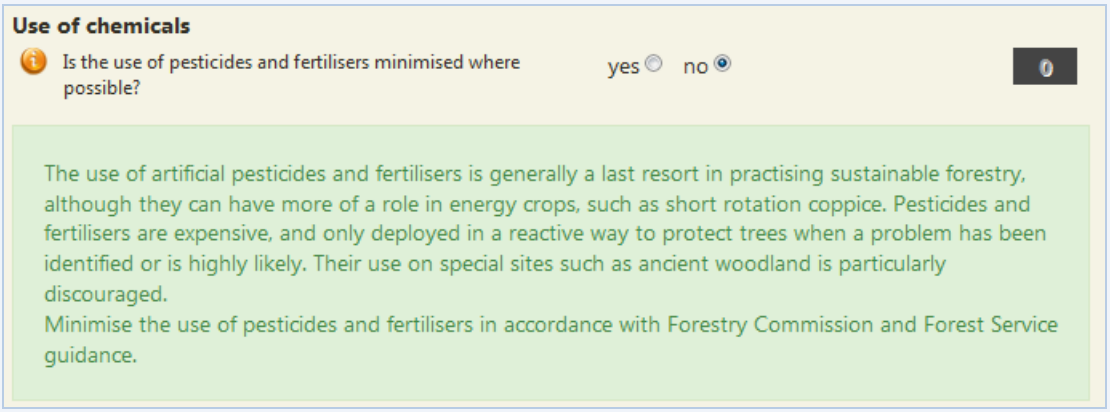
By using webpages to provide more detailed guidance, the main PDF version of the Code is condensed to 22 pages, so allowing for easy access to the most crucial information. Having slim guidance such as this is likely to be important for this tool in terms of accessibility, as some audiences may be uncomfortable with using a single, lengthy and highly detailed guidance document.

As well as facilitating this slim line approach, the use of online guidance is also likely to allow detailed requirements to be easily updated. This is because webpages can be adjusted rapidly when compared to the production of new versions of PDF guidance documents. Being able to make alterations quickly will be important when adjusting to future changes in the policy context.

Given the flexibility of online guidance, the main PDF document accompanying the pilot reporting tool should relate as much as possible to those aspects of the tool that are most likely to remain fixed over time (e.g. the structure of the tool, key terms, Routes etc.). Alternatively, there is the potential for the guidance to be entirely web based. Such an approach could draw upon the structure of the Woodland Star Rating[30] which includes an 'i' button which can be clicked to gain access to additional information (see Figure 7.2). This would allow easy access to information without having to refer to a separate document. Such a facility was suggested during the pilot visits.

[29] Forestry Commission (2013) Woodland Carbon Code: Requirements for voluntary carbon sequestration projects, Version 1.2 [online] available at: http://www.forestry.gov.uk/pdf/WoodlandCarbonCode_Version_1.2.pdf/$FILE/WoodlandCarbonCode_Version_1.2.pdf
[30] Sylva Foundation – myForest: Woodland Star Rating [online] at http://sylva.org.uk/myforest

Figure 6 – The Woodland Star Rating's information button



As can be seen in the above example (Figure 7.2), the information included in the Woodland Star Rating tool refers to external guidance documents produced by the Forestry Commission and Forest Service. Referring to external sources wherever possible may also be beneficial in this case, as this will reduce the level of detail that will need to be included in the guidance and will provide flexibility. During the pilot visits, alignment of the tool with existing standards and guidance was encouraged.

Due to the time constraints associated with this project it has not been possible to produce this accompanying guidance. However, wherever relevant suggestions have been made as to the potential content of any accompanying guidance.

Wildlife Route One: Stage One

7.3.6 As can be seen in the accompanying Excel version of the tool and in the below screen shot (Figure 7.3) the first set of questions in the Wildlife category are associated with 'Stage One: Design & Planting (0 - 2 years)'. Further details of how this 'Stage' and others function as part of the pilot reporting tool are provided in Box 7-3 below.

7.3.7 There are two questions included in the 'Stage One' of 'Wildlife Route No.1'. Each of these questions is in turn associated with a particular 'Path'. Details of how these 'Paths' function as part of the pilot reporting tool are included below in the 'Tool Structure' Box 7-4.

Figure 7 - Screenshot of the Stage One questions associated with Wildlife Route No.1

Wildlife Route No.1	Stage One: Design & Planting (0 – 2 years)	
	Path One: Native Woodland – Progress Q.1	Path Two: Priority Habitats – Progress Q.1
Create and manage a native woodland with the aim of delivering biodiversity gains	Has the woodland been planted mainly with native species, or allowed to regenerate naturally?	Has the woodland been designed with the aim of increasing the area, or improving the condition, of priority habitat?
	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Box 7-3 Tool Structure: Stages

All of the questions in the pilot reporting tool are associated with a particular stage in time. This is to reflect how the actions that can be taken to influence the development of a

woodland, and the social and environmental benefits that a woodland produces, change over time. For the current pilot version of the tool two such stages[31] have been developed, with these being:

Stage One: Design & Planting (0 - 2 years)

- It is anticipated that for most projects design and planting will be undertaken between zero and two years. This period is considered important as it is earliest stage in the development of the woodland, during which initial plans are made for design and management of the woodland. These decisions are likely to strongly influence the benefits that are derived from the woodland in the future.
- It is envisaged that this stage of the assessment will also encourage woodland stakeholders to think about how their woodland will continue to score points in the longer term (e.g. during the Stage Two assessment), and so plan how their woodland will develop over the long term.

Stage Two: Early Maturity (10 - 25 years)

- This timeframe has been developed on the basis of feedback from the pilot visits, which suggested that following design and planting the woodland undergoes a period of 'establishment' which should be completed in early maturity between 10 and 25 years, dependent on the type of woodland and its location. This is therefore a key time to monitor progress and to plan for future developments.
- A fifteen year window of time has been included to enable a flexible approach, so allowing the 'early maturity stage' assessment to take place at a time deemed suitable by the woodland owner or manager. This is needed given the diversity of woodland types and growing conditions the tool will need to cover.

There is the potential to develop the tool further, with additional 'stages' and their associated questions added. Whilst it is beyond the scope of this project to look in detail at the creation of these later stages, an example has been produced to demonstrate the concept. This example is 'Stage Three: Maturity (50-100 years)', under Wildlife Route No.1 (see the Excel version of the tool and the discussion section 'Wildlife: Route One: Stage Three' below).

It is envisioned that the timescales featured in the tool (e.g. 0-2 years for Design & Planting, 10-25 years for Early Maturity) will be seen as recommended only. For example, if a woodland takes longer than 25 years to become dominated by native species as a result of pests then this should not prevent it from scoring points at Stage Two; instead it would score these points at a later date. Conversely, a respondent would be able to bring forward their Stage Two assessment if they wished; for instance in the case of a community woodland manager who wishes to be awarded points for community benefits that are occurring before ten years have passed. As such the timescales associated with each Stage function as a guide as to when actions or their outcomes are most likely to be undertaken or measured. Accompanying guidance would include details on why these timescales are likely to be appropriate. This provides the tool with greater flexibility.

In order to ensure that the scores achieved by respondents remain accurate over the periods between each of the 'stages' they will be periodically required to confirm their results. Further details of this approach are included in Box 7-6.

NB. The timescales used for the Stages and their titles have been drawn up using the feedback from the pilot visits and information drawn from the literature. However, it may be necessary to further test these Stages to ensure they are correctly aligned both with forestry systems and established terminology.

[31] N.B. This 'stage' based approach was developed to address the concerns of stakeholders during the pilot site visits. The initial pilot tool was also in a two-stage format, with the questions split between 'Short term options' and 'Longer term monitoring'. Questions in the 'Short term options' section were roughly analogous to those in 'Stage One' - i.e. they related to steps that could be taken early in a woodlands life. However, it was noted during the pilot visits that the 'Longer term monitoring' questions did not take into account the timeframes over which certain actions and monitoring activities would be practical. This led to the development of this more nuanced approach to the assessment, with questions more closely associated with particular timeframes.

Box 7-4 Tool Structure: Paths and Progress & Monitoring Questions

Within each of the Routes included in the tool (see Box 7-1 above) there are a number of 'Paths' that can be taken. These Paths are sets of linked questions that if answered positively will lead to the achievement of an objective. This objective will related to the overall aim of the Route in question.

To explain this concept an example is useful:

As mentioned above in Box 7-1, the aim of Wildlife Route Number One is to:

"*Create and manage a native woodland with the aim of delivering biodiversity gains*"

This aim can then be broken down into a number of associated objectives. In the case of 'Wildlife Route Number One' these objectives include:

- Creating a woodland that is mainly composed of native species; and
- Creating a woodland that increases the area, or improves the condition of priority habitat.

In the tool these objectives form the basis for two 'Paths', with Path One being focused on the creation of native woodland; and Path Two focused on increasing and / or improving areas of priority habitat. These Paths are not mutually exclusive, with respondents permitted to answer any of the questions associated with them at any point.

Each of these two 'Paths' consists of a number of linked questions. For instance, in the case of 'Path One: Native Woodland' these questions are:

- Has the woodland been planted mainly with native species, or allowed to regenerate naturally? (Stage One: Design & Planting (0 - 2 years); and
- Is the established woodland dominated by native species? (Stage Two: Establishment (10 - 25 years)

As can be seen in this example, the Path One questions occur across separate stages in the life cycle of the woodland (Design & Planting and Early Maturity). This is to reflect the time taken for initial actions (or outputs), to be translated into woodland benefits (or outcomes).

To reflect the fact that the tool includes questions relating to both outputs and outcomes two forms of question are included in the tool. Those relating to the actions that are capable of bringing about a benefit are termed 'progress questions' (as highlighted on the left of Figure 7.4 below). Those that are associated with assessing whether those actions have been successful are termed 'monitoring' questions (as highlighted on the right of Figure 7.4).

Figure 8 – Screenshot of the a 'progress' question and the 'monitoring' question associated with it for Wildlife Route One, Path One

Stage One: Design & Planting (0 - 2 years)		Confirmation (every 5 years or after a major change)	Stage Two: Early Matu
Path One: Native Woodland - Progress Q.1	Path Two: Priority Habitats - Progress Q.1		Path One: Native Woodland - Monitoring
Has the woodland been planted mainly with native species, or allowed to regenerate naturally?	Has the woodland been designed with the aim of increasing the area, or improving the condition, of priority habitat?	Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Is the established woodland dominated by native species?
81%-100% of the woodland area planted with native species or allowed to regenerate naturally (Score 20 Wildlife)	Yes (Score 20 Wildlife)	We confirm that our Path One response is still accurate	Yes, 81%-100% of the woodland area is dominated by native species (Score 50 Wildlife)
Evidence available (Score 25 Transparency)	Evidence available (Score 25 Transparency)	We confirm that our Path Two response is still accurate	Evidence available (Score 25 Transparency)

When a positive answer is recorded against a 'monitoring' question then a 'Path' can in some circumstances be complete (i.e. the benefit has been obtained and no further questions will be asked). The respondent then has to simply confirm that the prior assessments remain accurate during the tool's 'confirmation stages' (see Box 7-6 below).

It is important to note that the 'monitoring' questions will not always relate directly to the woodland related benefit being sought. This is to reflect the fact that proxy indicators will

sometimes be more appropriate given available resources. The example given above in Figure 7.4 reflects this well, with the establishment of a woodland dominated by native species considered a suitable proxy for the wider biodiversity benefits that such woodlands deliver.

In some instances there are no 'monitoring' questions included in the tool as a result of the difficulties in collecting valid data on the outcome obtained. For instance, feedback from the pilot visits indicated that monitoring freshwater environments associated with woodlands would not be practical due to the time and resource costs of monitoring and the problem of attributing an outcome on some waterways (e.g. those where uncontrollable upstream impacts may affect results). As such, questions associated with the freshwater environment relate only to management actions that can be taken (i.e. only 'progress questions' are used).

The example included above in Figure 7.4 shows two Paths beginning during the Design & Planting stage. Whilst the majority of the Paths included in this tool do emerge during this initial stage in the woodland's lifecycle, there is the potential for Paths to begin in later stages of a woodland's development. This is because it will only become practical to think about some woodland benefits, and the routes to achieving them, later in the woodland's development. Such a situation is demonstrated in the case of the tool's deadwood focused Path which begins during the 'Maturity' stage (see the 'Wildlife: Route One: Stage Three' section below)

The drop down menu for each of the 'progress' and 'monitoring' questions allows respondents to indicate that they are not taking this particular Path. This is to ensure that the tool remains sufficiently flexible to cater for the needs of all respondents given the varying trade-offs, opportunities, and limitations inherent to any woodland creation project.

NB. Paths and their associated 'progress' and 'monitoring' questions have been used as a means of structuring the tool in a consistent and logical manner. As a result they are also referred to extensively in the discussion below of the questions included in the tool. It is however possible that these terms will create unnecessary confusion if included in a final version of the tool. As such, it is recommended that a tool developed for public presentation would use these concepts during development, but would dispense of them in any version made publically available.

Wildlife Route No.1, Path One - Q.1:	"Has the woodland been planted mainly with native species, or allowed to regenerate naturally?"
Drop Down Menu:	80%-100% of the woodland area planted with native species or allowed to regenerate naturally (Score 20 Wildlife)
	60%-79% of the woodland area planted with native species or allowed to regenerate naturally (Score 15 Wildlife)
	50%-59% of the woodland area planted with native species or allowed to regenerate naturally (Score 10 Wildlife)
	Less than 50% of the woodland area (Score 0 Wildlife)

7.3.8 Path One of Wildlife Route One focuses on the creation of woodlands that are planted mainly with native species or which are allowed to regenerate naturally. This is based on the UKFS, which states that native woodlands 'have a very high biodiversity value or potential, and support a large proportion of priority species'[32]. The establishment of such woodlands has therefore been considered a suitable proxy for wildlife gains.

7.3.9 To score any points for this question respondents must have planted over 50% of their woodland area with native species, or to have allowed this area to have naturally regenerated

[32] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

(see Box 7-5 below for details of how scores have been allocated). This base figure is drawn from the Sustainable Forestry Indicators 2010[33], which notes that the threshold for stands dominated by introduced tree species is >50 % of basal area by tree species introduced per ha. This addresses the concerns expressed on the pilot visits that the wording 'mainly planted with native species' would be too subjective.

7.3.10 Using the >50% figure as a baseline, the scoring bands included in the drop down menu for this question have been developed to give a higher score for a greater area of the woodland dedicated to native species or allowed to regenerate naturally (e.g. 80%-100% of the woodland area scores more than 60-79% of the area). Whilst the scoring bands above 50% are somewhat arbitrary, the use of an area-based approach to scoring is a common feature of most current biodiversity scoring systems, with scores tending to be derived as function of both area and quality.[34]

7.3.11 Issues that might require further consideration in terms are scoring include:

- The existing baseline – it may be the case that the site to be used for woodland creation already features established native species. As such, there is therefore the option for a strict definition based on area of native woodland planted, or a looser definition based on the total area of native species in the woodland following planting.
- The presence of important non-woodland habitats – in addition to woodland, a site might include important wildlife features such as ponds, verges, glades, and heath. If native woodland extent is based on the entire sites area, then this question may reward woodlands which are homogenous in nature (which can result in poorer habitat for wildlife.

Given the above concerns, it is considered that an approach to measuring the quantity of native woodland should focus only on those areas of a site set aside for the creation of woodland habitat (as opposed to the entire site area. Accompanying guidance should indicate to the respondent that this approach to measurement is to be used.

7.3.12 Comments during the piloting phase suggested that the reference to natural regeneration could be removed given that this was undertaken very rarely. However, it was decided not to delete this reference on the basis that:

- the tool should be as inclusive as possible; as such, it should be applicable to those woodland creation projects using natural regeneration techniques even if they are few in number;
- natural regeneration is being increasingly favoured for extending woodland to nearby open land, and contributes to the UK's biodiversity objectives by maintaining the diversity of genotype, species composition and structure[35]; and
- the UKFS notes that 'if native species are still present, natural regeneration and colonisation are the most appropriate way of creating and restoring woodland habitats'[36].

7.3.13 It is suggested that accompanying guidance should point to existing sources of information on native tree species. For example, the Woodland Trust has a list of acceptable native tree species which it can make available to those creating woodland. The Trust also has produced a guidance document focused on the steps that need to be taken to create new native woodland[37].

7.3.14 Guidance should also indicate the types of evidence that would be acceptable in supporting their native planting / natural regeneration claims, so allowing respondents to score for this

[33] Forestry Commission (2010) Sustainable Forest Management Indicators [online] available at: http://www.forestry.gov.uk/website/sfmindic2010.nsf/LUContentsTop?openview&RestrictToCategory=1

[34] Forestry Commission (2013) Designing biodiversity metrics for woodlands and forests – A review of practical approaches for businesses

[35] Forestry Commission (2002) UK indicators of sustainable forestry [online] available at: http://www.forestry.gov.uk/pdf/fullsfi.PDF/$FILE/fullsfi.PDF

[36] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf?bcsi_scan_AB11CAA0E2721250=2L+hg/P7Kvk0ERFdY74tMt61La4mAQAA+IWFCg==&bcsi_scan_filename=FCGL001.pdf

[37] Woodland Trust (2010) A guide to creating a new native woodland [online] available at: http://www.whiteroseforest.org.uk/Files/Documents/Good-Practice/Tree-and-woodland-planting/creating-new-native-woodland.aspx

question in terms of transparency (see Box 7-5 below for information on how scores for transparency are obtained for each question).

Types of evidence suggested during the pilot visits and in the literature are:

- Site planting maps;
- Contract documents (which may give the percentage of each tree species planted);
- Seed and plant supply invoices (in the absence of a contract); and
- Planting lists

Box 7-5 Tool Structure: Progress, Monitoring & Transparency Scores

Progress & Monitoring Scores

The approach to scoring taken during the design of the tool has deliberately been kept as simple as possible. As such the scores for positive answers to the tools 'progress' and 'monitoring' questions have been allocated on the basis of:

- Where appropriate a higher score has been given for outputs and outcomes that are likely to yield greater benefits

NB. The scores currently included in the tool are likely to require further refinement, as there was limited time in which to fully rationalise them. Weighing up the benefit of multiple actions and outcomes may involve the establishment of a framework that can be applied across all questions. For instance, the Woodland Star Rating tool has a scoring system that provides points on the basis of a UKFS action having been achieved and the ecosystem services that might be secured by completing that action.[38]

- Scoring bands are kept to the minimum required (e.g. reflecting low, medium, and high levels of attainment)
- Positive responses to 'monitoring' questions tend to score more highly than those associated with progress questions as they are associated with measured outcomes
- A score of zero is given for results below the minimum required standard or for not taking a particular Path

The 'progress' and 'monitoring' scores associated with each category (e.g. Wildlife) are then totalled and given as a percentage. These percentages then feed into the final Reporting Output of the tool (see Section 7.4 below).

Transparency Scores

In order to ensure that any claims of benefit are open to public scrutiny a score is given for the 'transparency' of the party completing the tool. A fixed transparency score is awarded for making evidence available to support the response to a question, which is then used to feed into the final Reporting Output of the tool. Where a positive claim is not being made, the applicant can select 'not applicable' in the evidence box.

Whilst the evidence that can be provided will be at the discretion of the applicant to allow flexibility, accompanying guidance should set out the types of evidence that may be appropriate given best practice and how this evidence might be acquired. An alternative approach could be to require certain 'primary' pieces of key evidence specified in the accompanying guidance, whilst allowing the presentation of additional 'secondary' evidence at the respondent's discretion. However, in order to maintain flexibility this approach has been discounted at this point.

It is anticipated that by providing a score for transparency on the final Reporting Output and best practice guidance on acceptable evidence, respondents will be encouraged to support their claims as fully as possible. For instance, best practice guidance on evidence may encourage transparency by giving a basis for the scrutiny of interested third parties (e.g.

[38] Sylva Foundation – Woodland Star Rating: Background Document [online] available at: http://sylva.org.uk/myforest/documents/Woodland%20Star%20Rating%20scheme%20details.pdf

NGOs). Such third party scrutiny is expected to be sufficient to ensure compliance initially due to the reputational risks of public criticism. However, should the number of users of the tool grow substantially there may be a need to bring in a more formal and resourced system of monitoring to ensure that appropriate evidence is being submitted in all cases.

In terms of the presentation of evidence, the final Reporting Output of the tool will allow for links to evidence hosted online on the respondent's site to be posted. Alternatively, the respondent could note in this reporting template the types of evidence that are available, along with contact details for any evidence requests.

NB. In the current Excel version of the tool it is possible to score points for transparency by selecting the drop down menu even if no points are being scored for the earlier Progress or monitoring Question. It has not been possible to build in a system for preventing this issue given time constraints. However, it anticipated that in future this could be easily corrected in an online version of the tool, or alternatively a macro might be developed for Excel. Alternatively guidance could simply make clear when a transparency score can be awarded.

Potential for the scoring of 'Robustness'?

With the 'monitoring' questions included in the tool there is an opportunity to score not only for transparency, but also the 'robustness' of the evidence that is presented. For instance, in terms of the establishment of native woodland there is the potential for evidence to take numerous forms, for instance:

- The opinion of the forest manager
- The opinion of an independent expert
- Monitoring of a proxy (e.g. data on damage caused by disease)
- A full ecological survey

These differing forms of evidence will each have varying degrees of confidence associated with them. A robustness based approach could give a score based on the degree of confidence associated with each form of evidence. Forms of evidence would be listed in the accompanying guidance along with the 'robustness scores' associated with them.

A 'robustness' scoring system is less likely to be appropriate for 'progress questions', which seek to confirm that the woodland is being managed in a manner which is conducive to a benefit, and so need only to be evidenced in a relatively simple manner (e.g. proof that planting of native species has taken place).

As this idea for this additional type of scoring has emerged relatively late in the design of this pilot tool it has not been incorporated here. In addition, the idea of conducting a monitoring exercise explicitly for this tool (i.e. going beyond the evidence that could be collected through a desk-based assessment) proved unpopular with most corporates and pilot site stakeholders due to the time and expense involved, meaning that a 'robustness' feature may not be desired by many stakeholders. However, there is certainly the potential for such a scoring system to be incorporated at a later date, so allowing those respondents that 'go the extra mile' in terms of evidence collection to score additional points.

Wildlife Route No.1, Path Two - Q.1:	"Has the woodland been designed with the aim of increasing the area, or improving the condition, of priority habitat?"
Drop Down Menu:	Yes (Score 20 Wildlife) No (Score 0 Wildlife)

7.3.15 This question has been selected due to the importance of priority habitats[39] for biodiversity. For example, UKFS guidance notes that 'priority habitats have the potential to provide for the richest and most varied components of biological diversity' and that 'particular consideration should be given to conserving, enhancing or restoring priority habitats and species identified in the UK Biodiversity Action Plan, through the delivery of country strategies and local level plans'[40]. Priority species were scoped out of this question on the basis of pilot site feedback which suggested it would be difficult and expensive to plant and manage for the benefit of single species.

7.3.16 A simple 'yes / no' scoring system has been adopted for this question. This is due to the fact that priority habitat is of high biodiversity value regardless of its type (i.e. the priority habitats cannot be ranked). In addition, woodland that is home to multiple small areas of priority habitats would not necessarily be of greater value than one dominated by a larger area of a single priority habitat.

7.3.17 The term 'habitats' has been used as this allows non-woodland priority habitats within the assessment area (e.g. wetlands) to be scored. Accompanying guidance should make the broad scope clear. Guidance could also suggest contact with a relevant forestry authority / nature conservation agency on the requirements of priority habitats and species and on suitable planting and management options (as is advised in the UKFS**Error! Bookmark not defined.**) and could guide respondents on the country strategies and local level plans they should seek out.

7.3.18 Guidance should indicate the types of evidence suitable for supporting this claim. Forms of evidence suggested during the pilot visits and in the literature are:

- FC approval for grant aid (as sites have to be a native woodland NVC type in order to be eligible for the grant);
- Contract document in which NVC type is mentioned
- Country strategies and local level plans relating to priority habitats

Wildlife: Route One: Stage Two

7.3.19 The 'early maturity' stage in which the Stage Two questions are likely to be answered is several years after the initial 'planting & design' stage. Given this gap between assessments respondents are asked simply to confirm their prior responses periodically. The structure and function of the confirmation stage is outlined in more detail in Box 7-6 below.

Figure 9 - Stage Two questions associated with Wildlife Route No.1

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 - 25 years) - Q2	
	Path One: Native Woodland - Monitoring	Path Two: Priority Habitats - Progress Q.2
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Is the established woodland dominated by native species?	Is the woodland being managed in manner which supports the development or improvement of priority habitat?
<<Drop down to select>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Box 7-6 Tool Structure: Confirmation Stage

The confirmation stage has been incorporated between all of the stages in the tool in order to ensure that the scores obtained by companies remain accurate over the long timescales

[39] The UK Biodiversity Action Plan (UKBAP) sets out the UK response to the Convention on Biological Diversity. It contains a programme of action to conserve and enhance biological diversity throughout the UK. In doing so it identified threatened and declining habitats and native species ('priority habitats' and 'priority species') for which urgent conservation action was considered necessary. Action plans have been written for many of these habitats and species. These plans detail the habitat or species status, threats and targets for conservation and recovery.

[40] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

involved in the move from initial woodland planting, to establishment, and on to maturity.

Figure 10 – Screenshot of the confirmation stage

Confirmation (every 5 years or after a major change)
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).
We confirm that our Path One response is still accurate
We confirm that our Path Two response is still accurate

A five year time frame has been chosen to reflect the slow development of woodland and the need to avoid placing an undue burden on the applicant in terms of their input.

In order to ensure that the score derived from the tool remains accurate during these five year periods, the accompanying guidance will advise that applicants will have to go through 'confirmation' if there is a major change in the status of the woodland (e.g. a fire or pest outbreak) regardless of when this occurs. What might be considered a major change would be outlined in the guidance, but it would be at the discretion of the owner / manager to decide whether or not a reassessment is required.

Should a prior response no longer be accurate, applicants will be advised to go back and adjust their response and update the evidence base associated with the question. For example, should a woodland no longer be dominated by native species as the result of an invasive species, the points scored for achieving this goal would be lost and could not be claimed again until the woodland has over 50% native species once more. Conversely, if new planting during early maturity took a woodland over the 50% native species threshold, respondents would be able to revise their response and score during the confirmation stage.

Wildlife Route No.1, Path One - Monitoring:	"Is the established woodland dominated by native species?"
Drop Down Menu:	80%-100% of the woodland area is dominated by native species (Score 50 Wildlife) 60%-79% of the woodland area is dominated by native species (Score 30 Wildlife) 50%-59% of the woodland area is dominated by native species (Score 20 Wildlife) Less than 50% of the woodland area is dominated by native species (Score 0 Wildlife)

7.3.20 This question seeks to confirm that the native woodland planted by those respondents taking this Path has been established as expected. It is therefore an example of a 'monitoring' question (as opposed to a 'progress question'), as it seeks to record that an outcome has been achieved. Monitoring the establishment of native woodland at this stage is considered appropriate given pilot site feedback which suggested that the majority of woodlands would be established during this time period (10-25 years), regardless of woodland type and climate.

7.3.21 The scoring system adopted is a simple continuation of that used for Path One Question One, with higher scores given for larger areas of woodland dominated by native species. The specific evidence used to support claims of successful native woodland establishment would be outlined in accompanying guidance, and might include:

- Confirmation from the forest manager
- Confirmation of an independent expert
- Monitoring of a proxy (e.g. data on damage caused by disease)

- A full ecological survey

It is notable that feedback from the pilot sites indicated that successful woodland establishment is often verified as a requirement of financial support (e.g. WCC, Grant Schemes). As such, evidence supporting establishment claims may easily be available to woodland managers. The opportunity for such synergies should be pointed out in accompanying guidance.

Wildlife Route No.1, Path Two - Q.2:	"Is the woodland being managed in manner which supports the development or improvement of priority habitat?"
Drop Down Menu:	Yes (Score 30 Wildlife) No (Score 0 Wildlife)

7.3.22 This 'progress question' seeks to confirm that the woodland is being managed in a manner which will lead to the biodiversity benefits associated with priority habitats, so ensuring that the benefits of initially designing a woodland with the aim of creating and / or improving priority habitats are maintained and enhanced as the woodland develops.

7.3.23 The question used during the pilot site visits was a 'monitoring' question which asked whether the woodland featured an area of priority habitat. Feedback from the pilot visits suggested that this question was inappropriate as it would not be possible to determine whether a priority habitat had developed until considerably later in the life cycle of a woodland.

7.3.24 Guidance pointing to sources of information on best practice management for priority habitats should be included alongside this question. For example, Forest Research is conducting research on the management and restoration of priority open habitats[41]. The key messages of such research could be incorporated in best practice guidance for respondents. Contact with relevant forestry authorities / nature conservation agencies could also be advised[42].

7.3.25 Evidence for this question would likely be in the form of a management plan setting out how the woodland will be managed for the benefit of priority habitats.

Wildlife: Route One: Stage Three

Figure 11 - Stage Three questions associated with Wildlife Route No.1

Confirmation (every five years or after a major change)	Example - Stage Three: Maturity (50-100 years)	
	Path Three: Deadwood - Progress Q.1	Path Two: Priority Habitats - Monitoring
Please confirm that the assessment undertaken for Stages One & Two are still accurate. If any changes have occurred please retake the relevant question(s).	Does the management of the woodland allow for a proportion of deadwood to remain?	Is the management of the woodland for the development or improvement of priority habitat delivering gains?
<<Drop down to select>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

7.3.26 Given time constraints this final version of the tool has produced questions only for the first two stages of woodland development, with these being 'Stage One: Design & Planting' and 'Stage Two: Early Maturity'. Feedback from one of the pilot site visits suggested that, given their own experience with those using the Woodland Carbon Code, corporates were unlikely to stay engaged in terms of monitoring of benefits of woodland creation in the long term. However, given the possibility of recording the long term benefits of woodlands through to the

[41] Forest Research - Management and restoration of priority open habitats [online] available at: http://www.forestry.gov.uk/fr/INFD-7J5CLY

[42] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

'Stage' based structure of the developed tool, and the potential for some corporate interest in a longer term framework an additional Stage has been developed as a 'proof of concept'.

7.3.27 In order to show how later Stages might function, an example has been included of Stage Three: Maturity (50-100 years) for Wildlife Route No.1. A time period of 50-100 years has been chosen given that both coniferous and broadleaf woodlands should enter maturity during this phase (as highlighted during the pilot site visits). The two questions developed for this Stage are detailed below.

Wildlife Route No.1, Path Three – Q1:	"Does the management of the woodland allow for a proportion of deadwood to remain?"
Drop Down Menu:	Yes (Score 40 Biodiversity) No (Score 0 Biodiversity)

7.3.28 Deadwood is considered highly beneficial for biodiversity, with the UKFS noting that 'up to a fifth of woodland species depend on dead or dying wood for all or part of their life cycle' with the amount of deadwood present 'used as a key international indicator of the biodiversity of forest ecosystems[43]'. However, as highlighted during the pilot site visits, deadwood only begins to appear in mature woodlands. As such, the deadwood associated 'Path Three' only begins during Stage Three: Maturity.

7.3.29 A simple 'yes / no' response has been included for this question, as management for deadwood cannot be easily broken into categories reflecting high, medium, or low degrees of action. However, a monitoring question incorporated in a later stage (e.g. 'Late Maturity 100 years+') could show the progress achieved by managing for deadwood. For example, UKWAS guidance[44] suggests that about 20 m^3/ha of deadwood (excluding tree stumps) should be provided across a woodland.

7.3.30 Accompanying guidance should set out how deadwood might be managed given current understanding of best practice. For instance, the UKWAS provides advice on the most valuable areas in which to develop deadwood habitats**Error! Bookmark not defined.**, whilst the Forestry Commission has published guidance on managing deadwood in forests and woodlands[45] which could be summarised and to which links could be provided.

7.3.31 Evidence supporting positive claims is likely be the management plan of a woodland in which the actions taken to encourage the accumulation of deadwood are set out.

Wildlife Route No.1, Path Two – Monitoring:	"Is the management of the woodland for the development or improvement of priority habitat delivering gains?"
Drop Down Menu:	Yes (60 Wildlife) No (0 Wildlife)

7.3.32 This 'monitoring question' seeks to establish whether the management of the woodland for the development and / or improvement of priority habitat is delivering gains. Whilst a priority habitat may not have fully formed during this Stage (50 – 75 years), it is possible that some gains could have been achieved, for example the appearance of indicator species.

[43] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

[44] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf

[45] Forestry Commission (2012) Managing deadwood in forests and woodlands[online] available at: http://www.forestry.gov.uk/pdf/FCPG020.pdf/$FILE/FCPG020.pdf

7.3.33 A simple 'yes / no' response has been chosen for this question given the difficulties in determining what might constitute a gain in terms of priority habitat development / improvement given the wide variation in priority habitat types and how their respective conditions might be measured.

7.3.34 Whilst it is acknowledged that corporates may wish to report more specifically on habitat condition and the benefits this has provided (e.g. gains in terms of particular charismatic species), it is considered too difficult to define these and to score them in the tool given the diversity of habitat types and species that might be encouraged on a particular site, the varying means of measuring gains in them, and the varying levels of desire / resources available to corporates to measure these improvements. As such, this question functions as an open framework in which evidence showing habitat improvement (including potential gains in species) might be reported, with it left open to the reporting company to decide the extent and rigour of evidence provided.

7.3.35 Accompanying guidance should summarise and link to information on how to recognise improvements in habitat condition for a variety of priority habitat types, including sources detailing how to collect evidence to differing levels of rigour. For example, the Farm Environment Plan Manual[46] provides guidance on conducting simple condition assessments for a number of BAP habitats (e.g. BAP grassland habitats).

7.3.36 The types of evidence used to support claims associated with gains in the condition of priority habitats are likely to be in the form of field observations or survey results. The expert opinion of forest managers and other experts (e.g. Wildlife NGO specialists) might also be used.

Wildlife: Route Two

Route Two:	"Create a woodland with diverse features in order to bring about ecological benefits"

7.3.37 This 'Route' has been chosen based upon guidance from UKFS[47] and UKWAS[48] which highlights the importance of a diverse woodland structure for biodiversity and resilience. Much woodland biodiversity is considered to be directly related to stand structure, internal and external edges, and other woodland features. The language of this requirement has been simplified since the pilot stage based upon comments received.

Wildlife: Route Two: Stage One

Figure 12 - Stage One questions associated with Wildlife Route No.2

Wildlife Route No.2	Stage One: Design & Planting (0 – 2 years)	
	Path One: Woodland Features – Progress Q.1	Path Two: Minimum Intervention – Progress Q.1
Create a woodland with **diverse features** in order to bring about ecological benefits	Does the woodland design plan for a range of **woodland features**?	Has the potential for an area of **minimum intervention** been assessed?
	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>

[46] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037

[47] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

[48] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf

Wildlife Route No.2, Path One - Q.1:	"Does the woodland design plan for a range of woodland features?"
Drop Down Menu:	Yes, planning 5 or more additional features (Score 20 Wildlife) Yes, planning 3 - 4 additional features (Score 15 Wildlife) Yes, planning 1 - 2 additional features (Score 10 Wildlife) No additional features (Score 0 Wildlife)

7.3.38 The design stage is an important time to consider how a woodland will develop a diverse range of features, such as ponds, verges, or glades over time, with opportunities available to encourage the processes of succession that can lead to structural diversity.[49]

7.3.39 A 'high / medium / low' approach to scoring has been used for this question to allow those that encourage diversity in their woodland habitat to be rewarded for creating more opportunities for wildlife. 'No additional features' refers to a homogenous woodland stand situation. The features created are to be counted over the entire woodland creation site. A woodland features per hectare approach has been discounted on the basis that features vary in size (e.g. ponds and glades) and so may be difficult to calculate.

7.3.40 Guidance could set out the types of additional feature which could be counted towards these bands, with this approach suggested during piloting. However, it would be at the ultimate discretion of the respondent to record features not listed should they feel them applicable. It will also be important for guidance to make clear whether areas of minimum intervention should be counted as a feature or not under this question and Path One: Q.2 (see below) given that such areas are scored separately under Path Two: Q.1 and Path Two: Monitoring: (below). At present it is suggested that minimum intervention areas are not classed as additional features under Path One, as a lack of management intervention can allow structural diversity to naturally form. Minimum intervention areas can therefore be seen as being a separate means of acquiring diversity in a woodland when compared to directly designing in features from the outset.

7.3.41 The scoring bands used for this question currently are indicative only and may require further development through dialogue with woodland managers, owners, and specialists. For instance, it may be the case that smaller woodlands function better where the number of woodland features is limited. Trade-offs in terms of the number, size and quality of features must also be considered in the development of these scoring bands. An alternative option may be to include a question asking whether the woodland has been designed in a way that will result in an *appropriately* diverse woodland given the needs of wildlife.

7.3.42 Guidance should explain the options available in terms of designing for a diverse structure. For example, the report Woodland Creation for Wildlife**Error! Bookmark not defined.** highlights the opportunities to design features such as glades and rides, and to include areas of high, medium, and low planting density. Links could be provided to advice such as this, with the UKFS also setting out means of producing diverse woodlands (e.g. varying growth rate of species)[50]. In addition, the reasons why these options might be important (e.g. encouraging woodland edge species) should be made clear.

7.3.43 In terms of evidence that might be appropriate to support responses to this question it was suggested during the pilot visits that:

- A woodland contract would provide some details (e.g. mix of woodland types; presence of veteran trees; areas of open ground; areas of natural regeneration)
- Woodland Carbon Code documentation allows for the recording of existing features (e.g. veteran trees) in its baseline section

[49] Blakesley, D. (2006) Woodland Creation for Wildlife – How to design a new wood [online] available at: http://www.emr.ac.uk/Guide%20to%20Woodland%20Creation%20for%20Wildlife/chapter4[1].4.pdf

[50] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf

- The site plan (e.g. showing shrub areas that will provide understory structure)

Wildlife Route No.2, Path Two - Q.1:	"Has the potential for an area of minimum intervention been assessed?"
Drop Down Menu:	Yes (Score 20 Wildlife) No (Score 0 Wildlife)

7.3.44 This Path and its associated questions looks to promote the idea that an area of minimum intervention[51] may deliver gains for biodiversity, with non-intervention areas becoming over time very valuable for species requiring old growth conditions.[52] Reflecting this importance the UKFS calls for an assessment of 'possible areas for minimum intervention'.[53]

7.3.45 Feedback from the pilot visits also suggested that that whilst on some sites it will be immediately clear where minimum intervention will take place (e.g. hard to reach areas), in others it will take time for this to become apparent. This question therefore only seeks to ascertain whether an assessment of the potential for minimum intervention has taken place, with points awarded for the final decision made through the Path Two Monitoring question (see below).

7.3.46 A simple 'yes / no' choice of responses has been included in the drop down menu for this question. Points are to be rewarded regardless of whether an assessment finds that an area of minimum intervention is possible or not. This is due to this question's focus on encouraging the consideration of such areas during the woodland design process.

7.3.47 It should be noted that an area of minimum intervention would be regarded as a woodland feature under Wildlife Route No.2, Path One - Q.1 (see above). This question simply seeks to provide additional points for those who include an area of minimum intervention as a part of their woodland, given its potential value to biodiversity. However, this may be an area where the tool might be streamlined in future, with questions focused on minimum intervention removed in favour of an approach focused only on woodland features more generally (Path One).

7.3.48 Guidance should set out what minimum intervention areas the benefits associated with them, when they may be appropriate, and how they might be created. In doing so it should make clear how these considerations can allow for an accurate appraisal of whether an area of minimum intervention is suitable. This guidance should note that an area should not necessarily be subject to minimum intervention immediately, as management is often necessary to ensure successful establishment.**Error! Bookmark not defined.**

7.3.49 Evidence is likely to take the form of the output of any assessment of the potential for an area of minimum intervention. It is anticipated that this output might feature:

- Maps of the site, indicating areas of higher potential for non-intervention;
- Details of anticipated forms of management on the site; and
- A written appraisal of the evidence and a conclusion on whether such an area is appropriate

[51] Minimum intervention is defined in the UKFS as: '*Management with only the basic inputs required to protect the woodland from external forces or to ensure succession of key habitats and species*'.
[52] Blakesley, D. & Buckley, P. (2010) Managing your woodland for wildlife [online] available at: http://www.woodlands.co.uk/owning-a-wood/managing-your-woodland-for-wildlife/managing-your-woodland-for-wildlife.pdf
[53] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

Wildlife: Route Two: Stage Two

Figure 13 - Stage Two questions associated with Wildlife Route No.2

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 – 25 years)	
	Path One: Woodland Features – Progress Q.1	Path Two: Minimum Intervention – Monitoring
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Is the woodland being managed with the goal of delivering a range of **woodland features**?	Does the woodland include an area of **minimum intervention**?
<<Drop down to select>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Wildlife Route No.2, Path One - Q.2:	"Is the woodland being managed with the goal of delivering a range of woodland features?
Drop Down Menu:	Yes, managing for 5 or more additional features (Score 40 Wildlife) Yes, managing for 3 - 4 additional features (Score 30 Wildlife) Yes, managing for 1 - 2 additional features (Score 20 Wildlife) No additional features (Score 0 Wildlife)

7.3.50 This is a 'progress question' which seeks to confirm that the additional features that will deliver a diverse stand structure are being delivered. During the pilot visits this question asked whether 'species associated with a diverse range of forest stand structures are found in the woodland?' This 'monitoring' question was not considered appropriate by pilot respondents due to the timescales involved in the appearance of such structures. The collection of species data was also considered likely to be too onerous for most respondents. However, there is the potential to include a 'monitoring' question in later tool 'stages' if desired, with evidence of indicator species (such as those highlighted in UKFS guidance[54], see Figure 7.10) as a potential source of robust evidence[55]. This question also initially focused on woodland stand structure alone. However, it was suggested that this should be altered to capture more of the diversity of woodland features that can be incorporated for biodiversity (e.g. wild flower meadow).

7.3.51 The scoring system adopted for this question is a continuation of the 'high / medium / low' approach used in Q.1 of this Path. This is in order to reward those that are managing multiple woodland features in line with best practice, with greater numbers likely to be of benefit to biodiversity (although as noted above, this may not be the case for smaller woodlands).

7.3.52 The scoring bands used for this question currently are indicative only and may require further development through dialogue with woodland managers, owners, and specialists. For instance, it may be the case that smaller woodlands function better where the number of woodland features is limited. Trade-offs in terms of the number, size and quality of features must also be considered in the development of these scoring bands. An alternative option may be to include a question asking whether the woodland has been designed in a way that will result in an *appropriately* diverse woodland given the needs of wildlife.

7.3.53 Accompanying guidance should summarise and link to information on best practice management of a wide array of woodland features that respondents might have on their site. For example, the 'Managing your woodland for wildlife'[56] report provides advice on how

[54] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

[55] Such evidence would likely score highly if a 'robustness' score is built into the tool at a later date (see Box 7-5 above)

[56] Blakesley, D. & Buckley, P. (2010) Managing your woodland for wildlife [online] available at: http://www.woodlands.co.uk/owning-a-wood/managing-your-woodland-for-wildlife/managing-your-woodland-for-wildlife.pdf

numerous features can be managed, including information on how to control bracken and bramble along the woodland edge, conservation grazing, and managing veteran trees.

7.3.54 It is anticipated that the main form of evidence used to support positive claims will be the management plan for the woodland. Statements of intent may also be appropriate where management interventions are not yet required.

Figure 14 – Examples of species associated with different forest & stand structures[57]

Woodland description	Stand age (years)	Example species
Open, new planting and regeneration, restocked areas, recently cut coppice.	0–5	Nightjar, black grouse, Kentish glory moth, hen harrier.
Young woods, coppice regrowth, rides with bog myrtle.	5–15	Whinchat, dormouse, argent and sable moth.
Dense, pole-stage or mid-rotation stands with little or no shrub layer and sparse ground vegetation.	15–50	Mycorrhizal fungi (e.g. *Russula* spp.), red squirrel.
Mature stands, areas that have been well thinned and stands managed under continuous cover forestry systems, development of diverse shrub and understorey layers and deadwood habitats, wood pasture and parkland.	50–120	Herb Paris, bats (e.g. noctule), hole-nesting birds (e.g. redstart).
Natural reserves, stands managed for long-term forest cover, minimum intervention areas. Multi-layered, multi-aged stands with high levels of deadwood.	120+	Lichens (e.g. lungwort *Lobarion* spp.), wood-decaying fungi, invertebrates (e.g. stag and longhorn beetles).

Wildlife Route No.2, Path Two - Monitoring:	"Does the woodland include an area of minimum intervention?"
Drop Down Menu:	Yes, 15% or more of the woodland has been set aside as minimum intervention (Score 50 Wildlife) Not the most appropriate option ecologically; 15% or more of the woodland under active wildlife management (Score 50 Wildlife) Area not set aside for minimum intervention or active management (Score 0 Wildlife)

7.3.55 It is considered appropriate to monitor whether an area of woodland has been set aside for minimum intervention during Stage Two (early maturity) as pilot site feedback suggested that it would be possible to identify such areas by around year fifteen.

7.3.56 The scoring for this question is a variation on the simple 'yes / no' response. Whilst an area of minimum intervention is created or not created, it is not always ecologically the best option to create an area of minimum intervention in a woodland, with the UKFS stating that such areas should only be created where its 'biodiversity value is understood and the ecological processes maintain and enhance the site'.[58] Management delivering higher biodiversity gains in some instances was also highlighted during the pilot visits. As such, respondents are rewarded points for having either set aside an area for minimum intervention or for active

[57] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

[58] Forestry Commission (2011) Forests and biodiversity: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL001.pdf/$FILE/FCGL001.pdf

wildlife management. This requirement is based upon the UKWAS guidance that 15% of a woodland area shall be managed with the 'conservation and enhancement of biodiversity as a major objective' and that such areas should be 'managed by minimum intervention unless alternative management has a higher conservation or biodiversity value'.[59]

7.3.57 It should be noted that an area of minimum intervention would be regarded as a woodland feature under Wildlife Route No.1, Path One - Q.2 (see above). This question simply seeks to provide additional points for those who include an area of minimum intervention as a part of their woodland, given its potential value to biodiversity. However, this may be an area where the tool might be streamlined in future, with questions focused on minimum intervention removed in favour of an approach focused only on woodland features more generally (Path One).

7.3.58 Guidance should make clear how to assess the potential gains of a minimum intervention approach against those of managing actively for biodiversity. For instance, the report 'Managing your woodland for wildlife' sets out some of the drawbacks of a minimum intervention approach.[60] The guidance should also highlight where such areas might be most appropriate, for instance by making clear how to identify areas with particularly high biodiversity interest.**Error! Bookmark not defined.**

7.3.59 Based on the literature and pilot site visits, recommended evidence might include:

- Documents related to the planned provision of a minimum intervention or active wildlife management area (e.g. a map with the area outlined);
- Management planning documentation; and
- Demonstration of the rationale for pursuing an minimum intervention or active wildlife management approach.

Wildlife: Route Three

Route Three:	"Create a woodland that leads to an improvement in the surrounding ecological network"

7.3.60 The development of this Route has been particularly driven by the findings of the 'Lawton Review'[61] which calls for the enhancement of England's ecological network by creating 'more, bigger, better and joined' areas for biodiversity. In addition, UKWAS calls for new woodlands to contribute to the conservation of neighbouring semi-natural woodland and other habitats.[62]

Wildlife: Route Three: Stage One

Figure 15 - Stage One questions associated with Wildlife Route No.3

Wildlife Route No.3	Stage One: Design & Planting (0 - 2 years)	
	Path One: Woodland Expansion - Progress Q.1	Path Two: Preferred Area Expansion - Progress Q.1
Create a woodland that leads to an improvement in the surrounding ecological network	Will woodland creation on the planned site an existing woodland, or otherwise connect valuable habitats?	Is the woodland in a preferred area for woodland expansion?
	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>

[59] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf
[60] Blakesley, D. & Buckley, P. (2010) Managing your woodland for wildlife [online] available at: http://www.woodlands.co.uk/owning-a-wood/managing-your-woodland-for-wildlife/managing-your-woodland-for-wildlife.pdf
[61] Defra (2010) Making Space for Nature: A review of England's Wildlife Sites and Ecological Network [online] available at: http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf
[62] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf

Wildlife Route No.3, Path One - Q.1:	"Will woodland creation on the planned site expand an existing woodland, or otherwise connect valuable habitats?"
Drop Down Menu:	Yes (Score 20 Wildlife) No (score 0 Wildlife)

7.3.61 This question seeks to encourage consideration of how a woodland might be sited and planted in a manner which creates a connection to a nearby woodland, or results in the connection of another form of valuable habitat. This reflects the UKFS requirement that the implications of woodland creation for 'biodiversity in the wider landscape' are considered, with such considerations taking into account both the 'roles of forest habitats and open habitats in ecological connectivity'.[63]

7.3.62 The scoring system adopted is a simple 'yes/no' drop down menu, with the connections having been planned for or not. In the piloted version of the tool, points were to be given for proximity to existing woodlands (e.g. within 1km) as well as a connection, with higher scores given for greater proximity. This scoring system has been removed in the interests of simplicity and on the assumption that the benefits of proximity will be covered in the Path Two questions which focus on preferred areas for woodland expansion (see below). This question could perhaps be refined in future to give a higher score to those woodlands that expand priority habitats (this was the case with one of the pilot sites visited). However, this adds additional complexity (e.g. incidences when the expansion of woodland next to priority habitat wouldn't be appropriate) and so has been scoped out at this stage.

7.3.63 Accompanying guidance should clearly summarise and link to information on the benefits of connecting habitats and the types of habitat that might be considered valuable (e.g. BAP priority habitats). For instance the 'Lawton Review' includes guidance on how habitats can be connected through continuous or 'stepping stone' corridors.[64]

7.3.64 It is anticipated that evidence supporting claims of improved habitat connectivity will take the form of maps of the site indicating areas of habitat, with a woodlands design plan potentially forming the basis for this. Evidence from wildlife conservation bodies on neighbouring habitat types may also be used by respondents.

Wildlife Route No.3, Path Two - Q.1:	"Is the woodland in a preferred area for woodland expansion?"
Drop Down Menu:	Yes (Score 20 Wildlife) No (score 0 Wildlife)

7.3.65 This Path has been developed based on feedback from the pilot site visits which highlighted the availability of Forestry Commission maps setting out preferred areas for woodland expansion. The use of such resources should allow respondents to consider how their woodland might be sited to maximise the gains for biodiversity it provides in the wider landscape at relatively little cost (i.e. through a desk-based exercise). This Path Two has been developed to complement Path One, in that respondents can be rewarded for both extending an existing woodland and doing so in a preferred area.

7.3.66 A simple 'yes/no' approach to scoring has been adopted, given that a woodland will either be established in a preferred or will not be.

[63] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf

[64] Defra (2010) Making Space for Nature: A review of England's Wildlife Sites and Ecological Network [online] available at: http://archive.defra.gov.uk/environment/biodiversity/documents/201009space-for-nature.pdf

7.3.67 Guidance should point to the availability of tools and resources for establishing preferred areas for woodland expansion. For instance, the forest habitat network in Scotland is a focus of research, with the aim of producing 'a range of scenario maps for the different regions of Scotland indicating expansion opportunities and constraints for focal species' using the Habitat Network Tool from BEETLE.[65] A Forestry Commission 'information note'[66] also outlines how such tools are being used to develop strategic plans for woodland creation across the UK.

7.3.68 Whilst preferred area maps produced by agencies such as the Forestry Commission will provide a useful source of evidence, the type of evidence used to support claims has been left open to reflect the possibility that these maps may not be available to some respondents now or in the future. As such, guidance should also set out other ways in which a woodland owner / manager might assess whether an area is preferred. For example, by considering the amount of woodland in the vicinity using the 'Habitat Hectares'[67] approach a case might be built that an area is 'preferable' for expansion.

Wildlife: Route Three: Stage Two

Figure 16 - Stage Two questions associated with Wildlife Route No.3

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 - 25 years)	
	Path One: Woodland Expansion - Monitoring	Path Two: Preferred Area Expansion - Monitoring
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Does the established woodland connect to an existing woodland, or otherwise connect valuable habitats?	Is the woodland successfully established in a preferred area for woodland expansion?
<<Drop down to select>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Wildlife Route No.3, Path One - Monitoring:	"Does the established woodland connect to an existing woodland, or otherwise connect valuable habitats?"
Drop Down Menu:	Yes (Score 50 Wildlife) No (Score 0 Wildlife)

7.3.69 This 'monitoring' question seeks to simply confirm that the woodland, or other valuable habit, successfully connects to the existing habitat once the site has been established (i.e. that it has reached the 'early maturity' stage). The establishment of this connection is considered a proxy for the ecological benefits of habitat connectivity. The tool taken to the pilot sites suggested that the ecological benefits of greater connectivity could be verified by a third party. However, concerns were expressed about the time and resources required for such assessments.

7.3.70 An alternative longer term question suggested during the pilots was: 'Is the other woodland still there?' However, it would potentially be unfair to score respondents negatively for this requirement, given that the disappearance of adjacent woodlands is likely to be outside of their control. There is also a presumption against deforestation which should limit the loss of neighbouring woodlands.

7.3.71 The scoring system used for this question is a simple 'yes / no' drop down menu, with the connections having been established successfully or not.

[65] Forest Research - Forest habitat network in Scotland [online] available at: http://www.forestry.gov.uk/fr/INFD-69PF6U
[66] Forestry Commission (2007) Evaluating Biodiversity in Fragmented Landscapes: Applications of Landscape Ecology Tools [online] available at: http://www.forestry.gov.uk/pdf/FCIN085.pdf/$FILE/FCIN085.pdf
[67] The 'Habitat Hectares' approach is used as the basis of 'Biodiversity Offsetting in Australia. This methodology features a 'landscape contact component criteria relating to 'neighbourhood' (assesses the degree of both 'linked' and 'unlinked' native vegetation in the 'neighbourhood', a total of three 'neighbourhoods' within nested radii - i.e. 100 m, 1 km, 5 km - are scored) and 'distance to core area' (a 'core area' is defined as a block of native vegetation greater than 50 ha. These assessments are deemed most accurate with GIS, but can be conducted using maps as part of a desk based exercise. (Source: Parkes, D. et al. (2003) Assessing the quality of native vegetation: The 'habitat hectares' approach [online] available at: http://forest-trends.org/documents/files/doc_578.pdf)

7.3.72 Accompanying guidance may wish to highlight how the condition of habitats might be assessed in order to determine whether created habitat has become fully 'established' and so is performing its connective role. For example, guidance on conducting simple condition assessments for a number of BAP habitats (e.g. BAP grassland habitats) is included in the Farm Environment Plan Manual[68].

7.3.73 Evidence supporting claims of successful establishment and connectivity are likely to be in the form of maps of the site indicating areas of habitat and the results of any assessment of condition by the respondent or a third party.

Wildlife Route No.3, Path Two - Monitoring:	"Is the woodland successfully established in a preferred area for woodland expansion?"
Drop Down Menu:	Yes (Score 50 Wildlife) No (Score 0 Wildlife)

7.3.74 This 'monitoring' question requires only a simple confirmation that the woodland has established successfully in a preferred area for expansion. The presence of the established woodland in the preferred expansion area is considered to be an acceptable proxy for the actual benefits to biodiversity that accrue as a result of habitat connectivity given the difficulty inherent to measuring the contribution of a single woodland's landscape impact.

7.3.75 A 'yes / no' response to scoring has been used given that woodland will be established in a preferred area or not. Guidance should make clear that reassessment would not be necessary should an area cease to be 'preferred', as this is likely to be beyond the control of the respondent and could occur for positive reasons (e.g. the planting of sufficient woodland in the preferred area).

7.3.76 Accompanying guidance is likely to be relatively limited for this question. However, it may be appropriate to highlight means of assessing whether woodland has become established, for instance by linking to resources such as the Farm Environment Plan Manual.[69]

7.3.77 The types of evidence used to support claims for this question are likely to be highly similar to that those used in response to the Path One 'monitoring' question above – i.e. the use of maps of the site indicating areas of habitat and the results of any assessment of condition by the respondent or a third party. The possibility of using a similar evidence base may help to minimise costs for those taking both of the paths associated with Wildlife Route No.3.

Water

7.3.78 The second category in the Underlying Tool is 'Water'. The current pilot version of the tool features eight questions in this category, with these questions grouped into two separate Routes. These are detailed below.

Water: Route One

Route One:	"Create and manage a woodland that protects and improves the site's aquatic or wetland habitats"

7.3.79 This requirement is based upon the provisions of the UKFS, which notes that 'forestry operations have the potential to affect the immediate aquatic environment and for the effects to be exported well beyond the confines of a site'.[70] As a result it is considered important that

[68] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037
[69] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037
[70] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf

questions are used to reward woodland creation and management actions that affect the aquatic environment positively.

Water: Route One: Stage One

Figure 17 - Stage One questions associated with Water Route No.1

Water Route No.1	Stage One: Design & Planting (0 - 2 years)	
	Path One: Aquatic Habitat Management - Progress Q.1	Path Two: Aquatic Habitat Creation - Progress Q.1
Create and manage a woodland that protects and improves the sites aquatic or wetland habitats	Have aquatic and wetland habitats been identified and their management appropriately planned for?	Does the woodland design include new areas of aquatic or wetland habitat?
	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Water Route No.1, Path One – Q.1:	"Have aquatic and wetland habitats been identified and their management appropriately planned for?"
Drop Down Menu:	Yes (Score 20 Water) No (Score 0 Water)

7.3.80 A Path focused on the identification and appropriate management of aquatic habitats on woodland sites has been developed to reflect the UKFS requirement that 'watercourses and waterbodies should be identified', with 'appropriate buffer areas established and maintained to protect aquatic and riparian zones from adjacent activities'. This requirement to establish buffer areas has been expanded to be 'appropriate management' more generally to allow greater flexibility in the evidence than can be presented to support a positive claim (e.g. those who go beyond establishing buffer strips). A question relating to the identification of aquatic and wetland habitats was broadly supported during the pilot site visits.

7.3.81 A simple 'yes / no' approach to scoring has been used, with points awarded for the identification of aquatic and wetland habitats and the creation of appropriate management plans. A 'high / low / medium' approach to scoring has not been used given the wide range of ways in which aquatic and wetland habitats might be managed, with this potentially depending on site-specific conditions. In addition, it was noted during the pilot site visits that best practice guidance for forest and water (e.g. on buffer strip width) is subject to change. As such, scoring for particular management options has not been deemed appropriate. There is the potential to score applicants higher if they have a woodland that is designed primarily for the protection of aquatic or wetland habitats (e.g. a woodland's prime function is as a riparian buffer, as was the case with one pilot site). However, at present this option has been scoped out due to the additional complexity it would bring to the tool.

7.3.82 The guidance accompanying the tool should link to sources of information setting out how aquatic and wetland habitats might be identified and best practice guidance as to their management should they be identified. A useful resource that might be linked to is the Farm Environment Plan Manual[71] which sets out on how to identify aquatic and wetland habitats such as bogs, ponds, lakes, and reedbeds. Online Forestry Commission resources[72] and UKFS guidance[73] (e.g. on buffer strips, see Figure 7.14) may also be summarised and linked to.

[71] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037
[72] Forestry Commission - The effect of riparian woodland management on the freshwater environment [online] available at: http://www.forestry.gov.uk/fr/INFD-6MVJKC
[73] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf

7.3.83 In terms of available evidence, feedback from pilot site visits suggested that acceptable sources of evidence might include:

- Site design documents, which include information on the habitats found on site
- The presence of habitats and plans for their management would be shown initially in the site contract, then in a management plan going forward.

Figure 18 – Minimum buffer widths from forest edge to the watercourse/body or abstraction point.[74]

Buffer width	Situation
10 m	Along permanent watercourses with a channel less than 2 m wide. (Narrower widths of buffer area may be allowable along minor watercourses with a channel less than 1 m wide, especially on steep ground.)
20 m	Along watercourses with a channel more than 2 m wide and along the edge of lakes, reservoirs, large ponds and wetlands.
50 m	Around abstraction points for public or private water supply, such as springs, wells, boreholes and surface water intakes.

Water Route No.1, Path Two – Q.1:	"Does the woodland design include new areas of aquatic or wetland habitat?"
Drop Down Menu:	Yes (Score 30 Water) No (Score 0 Water)

7.3.84 The inclusion of this Path was suggested during the pilot visits. It was noted that whilst the identification and appropriate management of wetland habitats was a sensible question, it did not 'raise the bar' in terms of the aquatic environment due to its inclusion in the UKFS. It was suggested that it could be valuable to reward those who plan to create new aquatic or wetland in their woodland (e.g. ponds). This would encourage an increase in the number of aquatic habitats on woodland sites, whilst allowing those without any water on their site initially to consider how they might nonetheless score points.

7.3.85 The approach to scoring used for this question is a simple 'yes / no' drop down menu, which reflects whether or not an aquatic or wetland habitat has been created. Another option considered was to give a 'high / medium / low' score on the basis of the area or number of aquatic or wetland habitats created. However, it is not necessarily the case that a greater number of habitats will be of greater value than a single larger habitat. An area-based assessment may also be inappropriate given the complicating factor of existing aquatic or wetland habitats on some woodland sites. One option that might be developed in conjunction with aquatic and wetland habitat experts is a scoring system based on the type of habitat created, with higher scores given to those habitats that are considered to be a priority.

7.3.86 Accompanying guidance should set out the types of aquatic or wetland habitat that might be appropriate for woodland sites, and under what circumstances, including a focus on those aquatic or wetland habitats deemed to be particularly important (e.g. those classified as BAP priority). Care will need to be taken to ensure signposting to areas of regulation that may impact upon operations (e.g. creation of water bodies if they are becoming larger). Guidance should also summarise and link to information on how such habitats might be created. For instance, the Million Ponds Project website features a 'Pond Creation Toolkit' which details the

[74] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf

best practice principles of clean water pond creation, such as location (including establishment in woodlands), design, project planning and implementation.[75]

7.3.87 The types of evidence that are likely to be used by respondents to show they plan to create aquatic or wetland habitats on their site are likely to include:

- Design documents and site maps showing where such habitats will be created
- Contracts with third parties working on habitat creation

Water: Route One: Stage Two

Figure 19 - Stage Two questions associated with Water Route No.1

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 - 25 years)	
	Path One: Aquatic Habitat Management - Progress Q.2	Path Two: Aquatic Habitat Creation - Monitoring
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Are the identified aquatic and wetland habitats being appropriately managed?	Have new areas of aquatic or wetland habitat been established?
<<Drop down to select>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Water Route No.1, Path One – Q.2:	"Are the identified aquatic and wetland habitats being appropriately managed?"
Drop Down Menu:	Yes (Score 40 Water) No (Score 0 Water)

7.3.88 This 'progress' question seeks to establish that identified aquatic and wetland habitats being appropriately managed in accordance with best practice. During the pilot site phase this question sought to discover whether the 'the aquatic environment supports an appropriate range of plant and animal species'. Feedback from these pilot visits indicated that such monitoring would not be practical due to the time and resource costs of monitoring and the problem of attributing an outcome on some waterways (e.g. where uncontrollable upstream impacts may effect results).

7.3.89 As was the case with Q.1 of this Path, a simple 'yes / no' scoring system has been adopted given the complexity of scoring management actions on the basis of 'high / medium / low' attainment given varying ecological contexts and shifting advice on best practice. How the effects of the appropriate management of aquatic and wetland habitats might be easily and effectively monitored[76] requires further thought. The Farm Environment Plan Manual's[77] condition assessments for ponds, lakes and standing water could potentially be used as a basis.

7.3.90 As noted above for Q.1 of the Path, the guidance supporting the tool should set out where to find information on appropriate best practice management for the full suite of aquatic and wetland habitats that applicants might come across. Resources might include Forestry Commission web-based resources[78] and UKFS guidance[79]. Guidance should also make clear

[75] Pond Conservation – Million Ponds: Pond Creation Toolkit [online] available at: http://www.pondconservation.org.uk/millionponds/pondcreationtoolkit

[76] NB. For some issues a 'monitoring' question may never be a practical option due to the resources required. Where this is the case the tool could continue to ask whether appropriate management is being undertaken during every stage in a woodlands life, with this being used as a proxy for the desired outcome.

[77] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037

[78] Forestry Commission - The effect of riparian woodland management on the freshwater environment [online] available at: http://www.forestry.gov.uk/fr/INFD-6MVJKC

that 'identified aquatic and wetland habitats' are to include those created on the woodland site by those taking Path Two of Water Route No.1.

7.3.91 The evidence used to support claims of appropriate management of aquatic and wetland is likely to be in the form of the site management plan, as highlighted during the pilot site visits.

Water Route No.1, Path Two – Monitoring:	"Have new areas of aquatic or wetland habitat been established?"
Drop Down Menu:	Yes (Score 60 Water) No (Score 0 Water)

7.3.92 The focus of this 'monitoring' question is to reward respondents for the successful establishment of the planned-for aquatic or wetland habitat. It is expected that this would be the last question in Path Two, as the established aquatic habitat would now become the focus of ongoing 'appropriate management', which is the focus of Path One of Water Route No.1.

7.3.93 As was the case for Q.1 of the Path, the scoring system used is a simple 'yes / no' drop down menu. This has been chosen given the difficulties in establishing a 'high / medium / low' score on the basis of the area or number of habitats. It may however be possible in future to develop a scoring system based on the type of habitat created with the input of experts on aquatic and wetland habitats experts.

7.3.94 Guidance for this question should set out how respondents might recognise that the aquatic or wetland habitats they have created have become established. A useful resource for this may be the Farm Environment Plan Manual[80] which provides a simple guide to how the condition of ponds, lakes and standing water can be assessed, and resources provided by Pond Conservation[81] and other third sector and specialist bodies.

7.3.95 The evidence used by respondents to support claims of aquatic or wetland habitat establishment may include statements from the woodland manager or a third party on the condition of the habitats (e.g. the results of a condition assessment).

Water: Route Two

Route Two:	"Create and manage a woodland that contributes to water quality or flood risk objectives"

7.3.96 This Route has been created to encourage respondents to consider the positive impact their woodland could have in terms of water quality and flood risk, for example in areas downstream from their site, through appropriate woodland placement, design, and management. The inclusion of this Route is supported by the UKFS which notes that 'integrated catchment management[82] provides a framework to safeguard the natural functioning of freshwater ecosystems and thereby to enhance their value to society'.[83]

[79] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf

[80] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037

[81] Pond Conservation – Million Ponds: Pond Creation Toolkit [online] available at: http://www.pondconservation.org.uk/millionponds/pondcreationtoolkit

[82] Integrated catchment management is a subset of environmental planning which approaches sustainable resource management from a catchment perspective. This approach is in contrast to approaches that artificially separate land management from water management.

[83] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf

Figure 20 - Stage One questions associated with Water Route No.2

Water Route No.2	Stage One: Design & Planting (0 – 2 years)	
	Path One: Quality & Flood (Location) – Progress Q.1	Path Two: Quality & Flood (Manage) – Progress Q.1
Create and manage a woodland that contributes to water quality or flood risk objectives	Is the woodland located where it will contribute to relevant water quality or flood risk objectives?	Have plans for the woodlands design and management been informed by relevant water quality or flood risk objectives?
	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Water Route No.2, Path One – Q.1:	"Is the woodland located where it will contribute to relevant water quality or flood risk objectives?"
Drop Down Menu:	Yes, Water Quality & Flood Risk Objectives (Score 40 Water) Yes, Water Quality Objectives (Score 20 Water) Yes, Flood Risk Objectives (Score 20 Water) No (Score 0 Water)

7.3.97 This question seeks to reward those respondents who site their woodlands in locations where their planting will contribute to water quality or flood risk objectives that are of relevance in that area, and responds to the UKFS requirement that 'Country forestry policies and strategies reflect the potential of forests to deliver Water Framework Directive (WFD) objectives' and that 'opportunities for woodland creation and management to reduce flood risk' should be considered in catchment flood risk management plans.[84] During the pilot visits this question focused solely on the ability of woodlands to contribute to reducing acidification or diffuse pollution in the freshwater environment. However, it was highlighted that a broader question might be more appropriate in capturing the wide number of ways that woodlands can contribute to freshwater objectives (e.g. flood management, reducing or filtering run-off, particularly in catchments sensitive to nitrates or acidification or in waterways with poor quality due to localised sources of pollutants).

7.3.98 For the scoring of this question a simple 'yes / no' approach to the drop down menus has been used, although more points are given to those woodlands which are able to contribute to both water quality and flood risk objectives. This method of scoring has been chosen given the difficulty in establishing 'high / medium / low' levels of benefit in terms of the siting of woodland and given the diverse range of water quality and flood risk objectives that might be contributed to by a particular woodland, and how their priority might vary geographically.

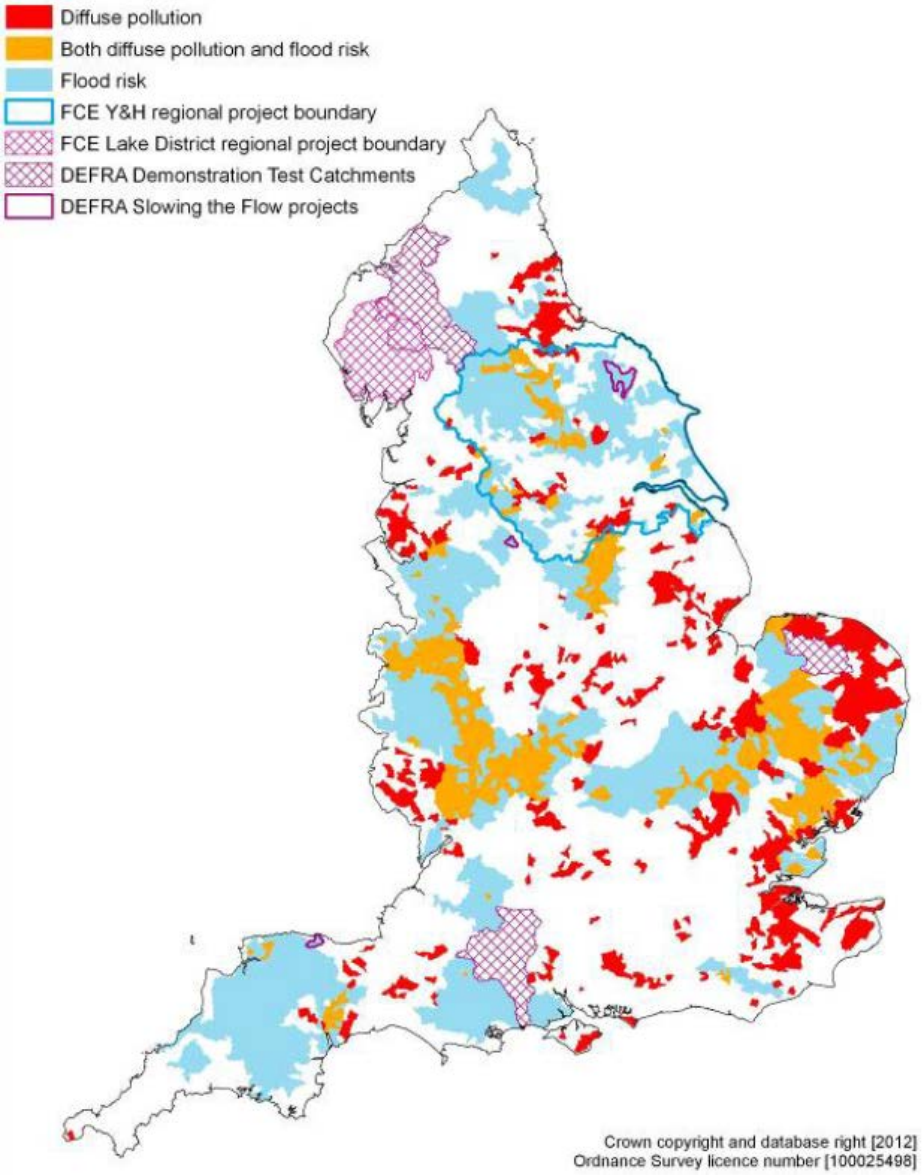
7.3.99 Accompanying guidance should assist the respondent in identifying the water quality and flood risk objectives towards which their woodland could potentially contribute. For instance, guidance could highlight the importance of River Basin Management Plans (RBMP), with the UKFS noting that these 'allow integrated catchment management to take place' and are 'a key mechanism for implementing the WFD'. Guidance could also direct respondents to the ongoing work of the Forestry Commission in identifying priority areas for forestry expansion that brings about benefits, such the water focused national map of woodland creation opportunities for England (See Figure 7.17)

7.3.100 It is expected that the type of evidence used to support claims of a woodland being located where it can contribute to freshwater objectives will include:

[84] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf

- Documentation indicating water quality and / or flood risk objectives of relevance
- A statement from the forest manager or another third party as to how the woodland will contribute
- Maps showing the location of the woodland

Figure 21 – Map showing how the identified priority target river water bodies for woodland creation in England compare with areas affected by related strategies and catchment initiatives[85]



[85] Forest Research (2012) National map of woodland creation opportunities: targeting EWGS to help meet the objectives of the WFD and reduce flood risk in England [online] available at: http://www.forestry.gov.uk/pdf/NationalMapping_report.pdf/$FILE/NationalMapping_report.pdf

Water Route No.2, Path Two – Q.1:	"Have plans for the woodland's design and management been informed by relevant water quality or flood risk objectives?"
Drop Down Menu:	Yes, Water Quality & Flood Risk Objectives (Score 40 Water) Yes, Water Quality Objectives (Score 20 Water) Yes, Flood Risk Objectives (Score 20 Water) No (Score 0 Water)

7.3.101 This question has been designed to complement Path One by rewarding those respondents who set out to manage their woodlands in a manner which contributes to water quality or flood objectives. The importance of appropriate woodland management is highlighted in Resolution on Forests and Water of the Ministerial Conference on the Protection of Forests in Europe[86]. This resolution commits signatory states, including the UK, to: 'maintaining and enhancing the protective functions of forests for water and soil, as well as for mitigating local water-related natural disasters through sustainable forest management'.[87]

7.3.102 In terms of scoring the use of a simple 'yes / no system has been deemed the most appropriate approach, although more points are given to those woodlands which are able to contribute to both water quality and flood risk objectives. This approach has been taken as the diverse range of freshwater objectives that might be contributed by a particular woodland precludes the creation of a simple 'high / medium / low' scoring system based upon the types of management undertaken by respondents.

7.3.103 Accompanying guidance should set out how woodlands can contribute positively towards a range of freshwater objectives through their design and subsequent management. A resource that might be summarised in such guidance is the work Woodland for Water[88] report produced by Forest Research. This document collates existing scientific research and policy options on how woodland can be used to improve water quality and water management.

7.3.104 In terms of the evidence that might be used to support design and management related claims, it is expected that:

- Site plans and associated maps could form the evidence base in terms of design
- Contracts and a statement of intent could be suitable in terms of setting out plans for the future management of the woodland site

Water: Route Two: Stage Two

Figure 22 - Stage Two questions associated with Water Route No.2

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 – 25 years)	
	Path One: Quality & Flood (Location) – Monitoring	Path Two: Quality & Flood (Manage) – Progress Q.2
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Is the woodland successfully established where it will contribute to relevant water quality or flood risk objectives?	Is the woodland being managed appropriately to deliver relevant water quality or flood risk objectives?
<<Drop down to select>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

[86] http://www.euforgen.org/about_euforgen/news/fifth_mcpfe.html
[87] Forestry Commission (2011) Forests and water: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL007.pdf/$FILE/FCGL007.pdf
[88] Forest Research (2011) Woodland for Water: Woodland measures for meeting Water Framework Directive objectives [online] available at: http://www.forestry.gov.uk/pdf/FRMG004_Woodland4Water.pdf

Water Route No.2, Path One - Monitoring:	"Is the woodland successfully established where it will contribute to relevant water quality or flood risk objectives?"
Drop Down Menu:	Yes, Water Quality & Flood Risk Objectives (Score 60 Water) Yes, Water Quality Objectives (Score 30 Water) Yes, Flood Risk Objectives (Score 30 Water) No (Score 0 Water)

7.3.105 This 'monitoring' question requires a simple confirmation that the woodland has established successfully in a preferred area for woodland creation given relevant water quality and flood risk objectives. The establishment of woodland in an area where it is considered to be a positive land use change is considered a suitable proxy for a benefit being obtained given the difficulties in monitoring the impact of such actions (e.g. given the wide geographical areas that issues such as diffuse pollution occur). It is expected that this will be the last question in terms of Path One of Water Route No.1, with the management of the now established woodland for freshwater quality objectives covered by Path Two (see below).

7.3.106 For this question a 'yes / no' response to scoring has been adopted, given that the woodland will or will not be established in an area where or it contribute to freshwater or flood risk objectives (although more points are given for woodlands that contribute to both). A 'high / medium / low approach to scoring has not been used as a result of the wide range of freshwater objectives that particular woodland might contribute to, and how the importance of this contribution might vary geographically.

7.3.107 The accompanying guidance featured alongside this question is likely to be relatively limited. It may however be appropriate to include, or link to, information on how to assess the successful establishment of woodland. A resource that might be linked to for this purpose is the Farm Environment Plan Manual[89].

7.3.108 The types of evidence used to support claims of woodland establishment in areas of benefit to freshwater objectives are likely to include:

- Maps of the site indicating areas of established habitat
- Statements from the forest manager or a third party (e.g. detailing the results of a condition assessment)

Water Route No.2, Path Two – Q.2:	"Is the woodland being managed appropriately to deliver relevant water quality or flood risk objectives?"
Drop Down Menu:	Yes, Water Quality & Flood Risk Objectives (Score 60 Water) Yes, Water Quality Objectives (Score 30 Water) Yes, Flood Risk Objectives (Score 30 Water) No (Score 0 Water)

7.3.109 This question seeks to ensure that the management actions that were planned for during Stage One (Design & Planting) and that were the focus of Path Two, Q.1, are being implemented. It should be noted that there are similarities between this question and Path One, Q.2 ('Are the identified aquatic and wetland habitats being appropriately managed?') in Water Route No.1. Guidance should make clear that this question requires the applicant to go further than generally appropriate management. Instead, to score points for this question the

[89] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037

applicant should be able to demonstrate that they are managing their woodland at a current best practice level for specific, relevant, water quality or flood risk objectives.

7.3.110 Resourcing any monitoring of progress towards freshwater objectives may be prohibitively expensive and any effects may be difficult to attribute to a particular woodland (e.g. flood issues that are influenced by a large number of landscape scale processes). As such, it may be the case that Path Two can only repeatedly acknowledge continued best practice management, with this acting as a proxy for improvements in the wider freshwater environment.

7.3.111 For the scoring of this question a simple 'yes / no' system has been adopted, although more points are given for woodlands that contribute to both water quality and flood risk objectives. This is considered appropriate given the wide variety of water quality and flood risk objectives that a particular woodland might be able to contribute to, and the frequent variation in the importance of these objectives geographically, with this precluding a 'high / medium / low' type scoring system.

7.3.112 Guidance should set out what best practice management should entail for a full range of issues that might be of relevance, for example given current WFD and RBMP objectives. As was the case for Path Two, Q.1, it may be useful for the guidance to include a summary of the findings of the Woodland for Water[90] report.

7.3.113 In terms of the evidence that might be used to support positive claims, it is anticipated that woodland management plans will be the main form of evidence. In addition, statements of intent may be appropriate where management interventions are not yet required.

Community

7.3.114 The third category in the Underlying Tool is 'Community'. The pilot version of the tool includes 14 questions in this category. These questions are grouped into three separate Routes, the details of which are included below.

Community: Route One

Route One:	"Create an actively used woodland that delivers community facilities, particularly where there is demonstrable demand"

7.3.115 This 'Route' is based upon requirements from the UKFS which seek to ensure that woodlands provide safe, inclusive access and opportunities for leisure and recreation for all members of society, including hard to reach groups.[91] The UKFS also calls for woodlands to contribute to improvements in quality of life, including mental, physical and social well-being.

[90] Forest Research (2011) Woodland for Water: Woodland measures for meeting Water Framework Directive objectives [online] available at: http://www.forestry.gov.uk/pdf/FRMG004_Woodland4Water.pdf

[91] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5

Community: Route One: Stage One

Figure 23 – Stage One questions associated with Community Route No.1

Stage One: Design & Planting (0 – 2 years)		
Path One: Facility Management – Progress Q.1	**Path Two: Facility Supply – Progress Q.1**	**Path Three: Community Activities – Progress Q.1**
Does the woodland design include **community facilities** and plans for their maintenance?	Will the woodland project create **community facilities** that are in demand in the local area?	Is the woodland to be used for **community activities**?
<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Community Route No.1, Path One - Q.1:	"Does the woodland design include community facilities and plans for their maintenance"
Drop Down Menu:	Yes (Score 20 Community) No (Score 0 Community)

7.3.116 This question seeks to reward those respondents who deliver benefits by providing community facilities that are to be well maintained. This supports the UKFS which states that 'the provision of visitor facilities and site interpretation can help manage access and increase the public benefit' of a woodland. This question combines and expands upon two of the questions used during the pilot site visits. One of these questions focused on the provision of Public Rights of Way (PROW) and permissive footpaths. The pilot site visits found that regional differences could affect the usefulness of this question (e.g. the influence of the right to roam in Scotland and open space designation in parkland). The other piloted question focused on the delivery of recreational facilities (e.g. the provision of waymarked trails for walking, running, horse-riding or mountain biking). Given these concerns, a broader approach was deemed more appropriate.

7.3.117 In line with the broad approach suggested by the results of the pilot site visits, a simple 'yes / no' approach to scoring has been adopted for this question. The use of a 'high / medium / low' scoring system was also considered for this question. However, creating such bands has proven problematic. For instance, scoring on the basis of the number of facilities provided may not be appropriate, as the value of a single facility in an area where it is in short supply may be higher than five different facilities in an area where provision is already high. There is, however, the potential for more defined scoring bands to be developed based upon the 'type' of community facility provided, or the differing added value offered by some facilities. For example, if two sites had comparable footpath networks but one also had a visitor centre, then the one with the visitor centre would probably be more highly valued and used as it would enable additional services to be offered to visitors.

7.3.118 Accompanying guidance for this question should summarise and link to information on the types of community facilities that might be provided in woodlands, what contexts these might be appropriate in, and how they might be maintained. For instance, the guidance might synthesise some of the research into public access, recreation and tourism in woodlands that has been conducted by Forest Research.[92]

7.3.119 Evidence for the planned provision of facilities would likely be in the form of a site map / plan. For the planned maintenance of facilities, the site contract or a statement of intent could be used.

[92] Forest Research - Public access, recreation and tourism [online] available at: http://www.forestry.gov.uk/fr/INFD-5VFMB7

Community Route No.1, Path Two - Q.1:	"Will the woodland project create community facilities that are in demand the local area?"
Drop Down Menu:	Four or more in demand facilities (Score 40 Community) Two or three in demand facilities (Score 30 Community) One in demand facility (Score 20 Community) No in demand facilities (Score 0 Community)

7.3.120 This 'progress' question is focused on the provision of community facilities in areas where their value may be particularly high given demand for them. An example of how the benefit of a woodland's facilities might vary geographically is highlighted in the UKFS, which notes that 'access to woodlands can be particularly beneficial for people from urban areas'.[93]

7.3.121 For this question a 'high / medium / low' approach to the scoring of responses has been adopted. This is to reflect the fact that the value of multiple in demand community facilities is likely to be of more value than a single in demand community facility. Whilst a particular type of facility might be generally more valuable (e.g. a camping facilities as opposed to interpretation boards), it is possible that such values might be eventually be captured through the development of more refined, 'facility type' based, scoring bands for Path One, Q.1 (see discussion of above).

7.3.122 Consideration might also be given to simplifying this question by asking whether in-demand community facilities have been provided, rather than taking the high / low / medium approach adopted presently. This may be appropriate given that a single facility, for which there is very high demand, may be more valuable than multiple facilities with high but lesser demand associated with them. If this approach were taken there would be the potential to combine Path One Q.1 and Path Two Q.1 in a question that asked woodland owners: a. whether they have a. provided community facilities; b. have provided community facilities and these are in demand; or c. have not provided community facilities. Whilst this would lose the greater nuance of the current approach in terms of number of facilities, it would have the benefit of reducing the tools requirements.

7.3.123 It should be noted that the scoring for this question has been adjusted to allow recognition of the scarcity value of a community facility in a particular location where it responds to demand. For example, the provision of a single in demand community facility would allow a respondent to score 20 points under Path One, Q.1, and 20 points under this question, giving 40 in total. This high score is given to reflect the value of in demand facilities.

7.3.124 The guidance accompanying the tool should set out how evidence might be collected and presented to show that there is a *demonstrable* demand for the community facilities provided by a woodland. This could include links to information on how to identify groups that may be able to provide statements of their level of need in terms of facilities. Guidance may also wish to point to research which might support clams. For example, Forest Research has highlighted how car parking facilities are of particular value in peri-urban and rural woodlands.[94] Consultation with third parties, such as Local Government and third sector bodies such as the Woodland and Wildlife Trusts might also be advised.

7.3.125 The evidence used to support claims about the provision of in demand community facilities is likely to include:

- Maps and other documentation (e.g. research reports) indicating the deficiency of a particular facility in the area a woodland is situated
- Statements from third parties about the level of provision in the local area

[93] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5

[94] Forest Research (2012) Public access to woodlands and forests: a rapid evidence review [online] available at: http://www.defra.gov.uk/forestrypanel/files/Public-Access-RER1.pdf

- Contracts and site map / plans indicating that the woodland will feature the facilities in question

Community Route No.1, Path Three - Q.1:	"Is the woodland to be used for community activities?"
Drop Down Menu:	Yes (Score 20 Community) No (Score 0 Community)

7.3.126 The questions associated with this Path have been developed based on the idea, promoted by the UKFS, that woodlands can 'provide an ideal environment for many types of activities such as horse riding, mountain biking, orienteering, walking and running' with rural woodlands also important for providing the 'pursuit of traditional country sports such as shooting'. As such, this 'progress' question has been included to reward those respondents who have planned for the provision of community activities in their woodland.

7.3.127 For this question a simple 'yes / no' scoring system has been used. This approach to be scoring has been taken on the basis that a 'high / low / medium' method of scoring is inappropriate given that a woodland set aside for a single activity of high value to a community is not necessarily of less value than one which features multiple activities of lesser value. There is however the opportunity to develop a typology of woodland activities that could form the basis of 'high / low / medium' scorings, with activities ranked in terms of their general value. Such development scoring bands would likely require expert input. There is also the opportunity to include an additional question in the tool which asks whether or not a particular activity is in demand the area in which the woodland is located. However, the evidence base available to make such claims appears limited and so such a question has been scoped out at this stage.

7.3.128 The guidance accompanying the tool should set out what types of community activity might take place in a woodland, under what circumstances they might be appropriate (e.g. given the opportunities and constraints inherent to different woodlands), and how these activities might be managed and encouraged. A resource that might be linked to is the 'Naturally Active' website, which hosts an advisory package for woodland owners wishing to develop woodland recreation.[95]

7.3.129 In terms of the types of evidence that might be provided by respondents to support claims about woodland activities, it is anticipated that statements of intent will be important during the design and planting stage, with this later supplanted by a site management plan.

Community: Route One: Stage Two

Figure 24 - Stage Two questions associated with Community Route No.1

Stage Two: Early Maturity (10 - 25 years)		
Path One & Two: Management & Supply - Monitoring	**Path One: Facility Management - Progress Q.2**	**Path Three: Community Activities - Monitoring**
Have community facilities been created in the woodland?	Are the woodlands community facilities properly maintained?	Is the woodland regularly used for community activities?
<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

[95] Naturally Active – An interactive web based resource to inspire recreation opportunities [online] available at: http://www.naturallyactive.org/

Community Route No.1, Path One & Two - Monitoring:	"Have community facilities been created in the woodland?"
Drop Down Menu:	Yes, in demand facilities provided (Score 60 Community) Yes, facilities provided (Score 40 Community) No facilities provided (Score 0 Community)

7.3.130 This 'monitoring' question seeks to confirm that community facilities have been established in the woodland, and so are delivering benefits to communities. Given that the provision of woodland-based community facilities is the focus of both Path One, Q.1, and Path Two, Q.1, this question is a 'monitoring' question for both Paths. This allows for the tool to be kept as slim lined as possible. However, if a typology of community facilities was to be developed in future for Path One, Q.1, as discussed above, then separate questions may be needed in order to maintain a simple scoring system.

7.3.131 This scoring system used for this question is a variation on the simple 'yes / no' approach, with more points given for establishment of in demand facilities[96] (the focus of Path Two, Q.1) than for the creation of community facilities more generally (the focus of Path One, Q.1). This is to reflect the greater value of these facilities to communities.

7.3.132 The accompanying guidance for this question is likely to be limited beyond outlining what might be considered acceptable forms of evidence.

7.3.133 The sources of evidence that might be used by applicants to support claims on the successful establishment of community facilities may include:

- Statements from the forest manager or another relevant third party
- Evidence of the use of facilities (e.g. visitor numbers)
- Photographs of the completed facilities

Community Route No.1, Path One - Q.2:	"Are the woodlands community facilities properly maintained?"
Drop Down Menu:	Yes (Score 40 Community) No (Score 0 Community)

7.3.134 This question seeks to confirm that the facilities that have been established in a woodland are being properly maintained, and so are delivering maximum benefit to the communities that use them. This 'progress' question is a continuation of the second element of Path One, Q.1 which looked to establish whether a woodland design included "community facilities and plans for their maintained". It is anticipated that in later stage of the tool (e.g. maturity) this will remain as a 'progress' indicator given that it is difficult to define how appropriate maintenance might be monitored.

7.3.135 A potential 'monitoring' question for this Path would be the level of use of the provided facilities. Such a question was incorporated in the tool taken to the pilot sites. Concerns were raised during these pilot visits about the costs and difficulties associated with monitoring numbers of users for many types of facility. For example, interannual variation related to warm and wet years or monitoring use of open access facilities. As such the continued provision and maintenance of community facilities are considered suitable proxies given the needs of the tools target audience.

[96] Changes in the number of in demand facilities between Stage One and Two – e.g. the creation of less facilities than planned at the outset - would be covered by the confirmation stage question (see Box 7-6), which requires the retaking of the Stage One assessment when circumstances change.

7.3.136 The scoring for this question is in the form of a simple 'yes / no' drop down menu. This approach has been chosen as most appropriate given that maintenance activities do not easily lend themselves to a 'high, low, medium' scoring format. For example, whilst frequency of maintenance might be used for the scoring bands, this approach is limited by the varying maintenance requirements of different types of facility (e.g. car parks as opposed to signage).

7.3.137 The accompanying guidance supporting this question is likely to include information on the best practice maintenance of various types of community facilities. Existing woodland managers who have experience of facility maintenance may be a useful source of experience that might be used to inform the development of the guide.

7.3.138 In terms of the evidence that might be used to support claims of appropriate facility maintenance it is anticipated that management plans and contractor invoices may be useful.

Community Route No.1, Path Three – Monitoring:	"Is the woodland regularly used for community activities?"
Drop Down Menu:	Yes, regularly used for range of activities contributing to specific community objectives (Score 50) Yes, regular public access and wider community activities (Score 30 Community) Yes, regular public access (Score 20 Community) No (Score 0 Community)

7.3.139 This question looks to monitor whether woodland is being used regularly for community activities and the degree to which these activities are likely to deliver community benefits. Whilst it is likely to be relatively difficult to monitor the use of woodland facilities (see discussion for Path One, Q.1, above), the pilot site visits revealed that it would often be possible to monitor more formalised community activities. For example it was considered reasonable to provide evidence to show that volunteering and educational activities take place on the pilot sites

7.3.140 This question uses a scoring system based on 'high / medium / low' levels of community benefit being achieved. The scoring approach has been designed to give more recognition to high and diverse community usage, with activities that are capable of contributing to specific community objectives[97] given the highest score, and public access alone given the lowest score. The term regularly has been used to reward continual community activity, as the pilot site visits indicated that communities are sometimes involved only during the initial planting stage. An alternative approach developed was to score simply for the regularity of activities, regardless of type (e.g. quarterly, annually etc.). However, it was felt that given the potential variation in the value of particular community activities an approach based on activity type was more appropriate. As a result, respondents will be expected to build their own case as to what constitutes 'regular' activity given their particular woodland context.

7.3.141 The guidance accompanying this question is likely to be important, with it being crucial to set out clearly what might be classed as a community activity, and how community activities more generally can be distinguished from those that contribute to particular objectives (e.g. health, education, crime). This should set out how such objectives might be found, for instance through examining Local Government plans and strategies.

7.3.142 The evidence that might be used support claims focused on the community activities being undertaken in a woodland may include:

- Records of community activity captured for grants (e.g. during the pilot visits it was revealed that evidence of volunteering tends to be well documented as a result of criteria attached to grant aid)

[97] For instance, the UKFS calls for woodland managers to 'Consider developing partnerships with health interests to establish and promote forest recreation activities in relation to health and well-being.'

- Other evidence of community activities, with this likely to be highly diverse (e.g. pilot feedback highlighted that webpage indicating that a school runs activities in a woodland could be provided)
- Local plans and strategies setting out community objectives, or a statement of support from a relevant community representative or group.

Community: Route Two

Route Two:	"Ensure that all relevant communities have been actively engaged by the woodland project"

7.3.143 The development of this 'Route' and its associated questions has been informed by the requirements of the UKFS. This calls for improvement in public awareness and access to information about woodlands. It also seeks to promote community engagement in decision making.[98]

Community: Route Two: Stage One

Figure 25 - Stage One questions associated with Community Route No.2

Stage One: Design & Planting (0 - 2 years)		
Path One: Woodland Promotion - Progress Q.1	**Path Two: Informed Communities - Progress Q.1**	**Path Three: Community Involvement - Progress Q.1**
Are there plans to promote the use of the woodland?	Have details of the woodland proposal and its potential impacts been communicated to relevant communities?	Have communities been involved in the design of the woodland?
<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Community Route No.2, Path One - Q.1:	"Are there plans to promote the use of the woodland?"
Drop Down Menu:	Yes (Score 20 Community) No (Score 0 Community)

7.3.144 This question seeks to encourage respondents to think from the outset how their woodland could be promoted to the communities that could potentially benefit from it. This supports the UKFS which states that the provision of information can be a means of encouraging greater woodland access.[99]

7.3.145 For the scoring of this question a simple 'yes / no' approach has been used. This has been chosen on the basis that woodlands can be promoted in a large number of ways (e.g. flyers, community meetings, and webpages). Whilst these means of promotion could potentially form the basis of a typology, with community meetings potentially more likely to yield a benefit than flyers on a 'high / medium / low' type scale this has not been considered appropriate. This is due to the wide variety of contexts in which a woodland might be promoted (e.g. where a population is particularly dense a leafleting approach might be an effective means of reaching a large number of people) and uncertainty over the effect of interventions (e.g. capture by self-selecting groups during community meetings).An alternative approach that might be

[98] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5

[99] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5

considered is the level of expenditure focus on marketing a woodland (e.g. 5% of management costs) or level of effort (e.g. % of the likely beneficiary population reached / targeted). However, given the need for simplicity, these options have been scoped out at present.

7.3.146 Accompanying guidance for this question should set out the types of promotional activity that might be available to the respondent (e.g. flyering, websites, newspapers, and social media), the effectiveness of these approaches in various contexts, and the types of activity that could be promoted. This may include case studies of how woodlands and their facilities have been promoted in the past, and how interested parties might be identified and contacted (e.g. local natural history groups).

7.3.147 Based upon the findings of the pilot site visits, evidence of such promotional activities might include photographs of signs, the minutes from meetings, and photocopies of documents such as newspapers and letters, engagement of social media platforms such as Facebook.

Community Route No.2, Path Two - Q.1:	"Have details of the woodland proposal and its potential impacts been communicated to relevant communities?"
Drop Down Menu:	Yes (Score 20 Community) No (Score 0 Community)

7.3.148 This question seeks to ensure that communities are made aware of the proposal for the woodland and its implications at the outset. During the pilot visits it was found that all proposals have to undergo a 28 day consultation by law[100]. To avoid points being scored by all woodlands, and to encourage best practice, this question should award points to only those woodlands that go above and beyond the requirements of this statutory consultation. For instance, respondents at one pilot site pointed out how they had gone beyond the basic requirements for public consultation by using a village meeting to communicate their proposals.

7.3.149 A simple 'yes / no approach to the scoring of this question has been used. This approach has been chosen given the various means by which a woodland proposal and its associated impact might be communicated. As noted above in the discussion for Path One, Q.1, the effectiveness of a particular means of engagement may vary according to the setting it takes place in. As such it may be hard to develop 'high / medium / low' bands that can be used for the scoring of this question.

7.3.150 The guidance supporting this question should set out the requirements of statutory consultation and how these might be exceeded through best practice activities. Case studies, such as the example found during the pilot site visits may be highlighted to raise awareness of potential actions. There is also the need to make clear the difference between raising awareness that a woodland is being created and its potential impacts, and actively promoting its use (the focus of Path One, Q.1), so preventing accidental double counting.

7.3.151 The types of evidence used to show that the details of a woodland proposal and its impacts have been communicated in line with best practice are likely to be similar to Path One, Q.1, namely photographs of signs, the minutes from meetings, and photocopies of documents such as newspapers and letters.

[100] The forestry authorities make provision for anybody to comment on forestry proposals before a decision is reached. The mechanisms for doing this vary across England, Scotland, Wales and Northern Ireland, and with the significance and extent of the proposal. Consultation is extensive where an Environmental Impact Assessment is involved. The minimum consultation requirement in Great Britain is that clear-felling applications, forest management plans (for the public forest estate and for other woodlands) and grant applications are entered on the public Register of New Planting and Felling. (Source: Forests and people: UK Forestry Standard Guidelines)

Community Route No.2, Path Three - Q.1	"Have communities been involved in the design of the woodland?"
Drop Down Menu:	Yes (Score 60 Community) No (Score 0 Community)

7.3.152 This question seeks to reward those respondents who actively involve their local communities in the design of their woodland. Public involvement in decision making is encouraged through the UKFS, with 'proactive dialogue' with communities and the consideration of local opinion considered to be a means of improving decisions, implementing forestry proposals more effectively, with this leading to a 'culture of co-operation and support'.[101]

7.3.153 During the pilot site visits it was made clear that community engagement was a somewhat controversial issue, with two of the three sites not having involved the community during design. This reluctance appears to be based on concerns over the diverse range of individuals who may want to influence woodland design, so adding complexity to the process; plus the potential for the process to be captured by individuals or groups with special interests, such that the process does not truly represent the needs of the whole community. Nonetheless, during the pilot visit to a primarily community orientated woodland site, it was noted that there was the potential to engage communities during the design process, and that this may help to increase the amount of 'buy in' local people have in the woodland. As such, this question has been included in the tool to encourage and reward woodlands with a very strong community focus. A high score has been applied to this question given pilot site feedback which suggested that such involvement was rare and should be highly rewarded.

7.3.154 A simple 'yes / no' approach to scoring has been adopted for this question. There is the potential to develop a 'high / medium / low' scoring system based upon the degree of input that the community has into the design of a woodland. The drawing up of such a typology is likely to require the input of those with experience in such design processes.

7.3.155 The guidance to be provided alongside this question should set out how community members might be successfully engaged in the design project, including how to define the scope of such input, and the means by which input might be encouraged and incorporated. This may involve the inclusion of best practice example of community engagement in the woodland design process. Existing Forestry Commission research on public engagement may also prove useful.[102]

7.3.156 It is expected that the type of evidence used to support claims of community involvement in design will include the minutes from meetings, the plans for the site, and other documentation recording community input.

[101] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5

[102] Forest Research - Public engagement in forestry and woodland plans and projects [online] available at: http://www.forestry.gov.uk/fr/INFD-8HSEBB

Community: Route Two: Stage Two

Figure 26 - Stage Two questions associated with Community Route No.2

Stage Two: Early Maturity (10 - 25 years)		
Path One: Woodland Promotion - Progress Q.2	**Path Two: Informed Communities - Progress Q.2**	**Path Three: Community Involvement - Progress Q.2**
Q1. Is the use of the woodland promoted on a regular basis?	Are communities kept informed about any significant changes to the woodland?	Are local communities involved in decisions regarding the management of the woodland?"
<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Community Route No.2, Path One - Q.2:	"Is the use of the woodland promoted on a regular basis?"
Drop Down Menu:	Quarterly or more often (Score 60 Community) Biannually (Score 50 Community) Annually (Score 40 Community) Less than annually (Score 0 Community)

7.3.157 This question seeks to confirm that the woodland is being regularly promoted to those in the community who might benefit from it. This question has been developed in response to the findings of the pilot visits. During these visits, it was found that the promotion of a newly created woodland had peaked during the design and planting stage, and then had tailed off somewhat following this initial phase. Whilst to some extent a relative loss of media interest may be beyond a respondent's control, this question has been designed to encourage thought about how a woodland might be promoted in the longer term (e.g. through a website or community meetings).

7.3.158 A scaled 'high / medium / low' approach to scoring has been created on the basis of frequency of promotion, with those who more frequently encourage community use rewarded with a greater number of points. There is the possibility that respondents will use the cheapest and easiest means of promoting their woodland in order to boost their score for this question. This has not been seen as a problem as promotional activity would still be high, regardless of type. However, should this be seen as acting as a perverse incentive adopted a simple 'yes / no' approach to scoring and allowing respondents to build their own case for 'regular' promotional activity may be a useful alternative option.

7.3.159 The accompanying guidance for this question would be likely to use and link to the same information as highlighted above for Path One, Q.1, namely types of promotional activity, their effectiveness and factors affecting it, and the types of activity that could be promoted. It may also wish to include specific details on how interest in woodland can be maintained over the long term (e.g. after initial media interest has faded). Some forms of activity may also have to be made exempt from this question, such as established webpages which continually promote a woodland.

7.3.160 The types of evidence used to support claims of regular woodland promotion are likely to be similar to those used for Path One, Q.1, with minutes from meetings, photographs of signs, and photocopies of documents such as newspapers and letters potentially used.

Community Route No.2, Path Two - Q.2:	"Are communities kept informed about any significant changes to the woodland?"
Drop Down Menu:	Yes (Score 40 Community) No (Score 0 Community)

7.3.161 This questions looks to ensure that communities are kept informed of any significant changes in a woodland after the design and planting stage has been completed. A focus on 'significant' changes has been chosen because such impacts are likely to be of most interest to communities. This approach also prevents there being an undue burden on respondents to report every change. Such an approach is supported by the UKWAS, which calls for 'local people and relevant organisations and interest groups' to be identified and advised of high impact operation and revised management planning[103], and PEFC which calls for 'effective communication and consultation with local people'.[104]

7.3.162 For this question a simple 'yes / no' approach to scoring has been used. This is due to the wide variety of types of changes that might be considered 'significant' and varying means by which they might be communicated, which precludes the use of a suitably simple 'high / medium / low' set of scoring bands. However, this question could potentially give a higher score to those respondents who also allow communities to also comment on significant changes (e.g. through online consultation, meetings), so going further in terms of engagement. However, it is felt that such engagement is covered by Path Three, Q.2 (see discussion below).

7.3.163 Accompanying guidance should set out what might be considered a 'significant change' (e.g. the temporary loss of facilities) and how such changes might be communicated to communities using best practice. Links to case studies highlighting communication strategies may form a useful resource for respondents.

7.3.164 As highlighted in the literature, the types of evidence that might be used by respondents to support claims of community engagement might include:

- Letters sent to affected individuals or groups
- Photographs of temporary or permanent signs in or near the affected woodland
- Scans of information in local newspapers or other publications
- The minutes from community meetings

Community Route No.2, Path Three – Q2:	"Are local communities involved in decisions regarding the management of the woodland?"
Drop Down Menu:	Yes, a constituted local group have a degree of say in how the woodland is managed for community use (Score 70 Community) Yes, relevant local groups and other interested parties asked for views when appropriate (Score 50 Community) Communities not engaged in decision making (Score 0 Community)

7.3.165 This question seeks to promote the involvement of communities in the long term management of the woodland, so rewarding those woodlands that continue to have a very high level of community engagement beyond the design and planting stage. This supports the UKFS,

[103] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf

[104] PEFC (2012) UK Certification Scheme for Sustainable Forest Management [online] available at: http://www.pefc.co.uk/news-page/technical-documentation/item/34-pefc-uk-certification-scheme-for-sustainable-forest-management

which calls for woodland managers to 'consider engaging with the local community by seeking their views, developing proposals that are responsive to them and building co-operative partnerships'.[105] During the pilot site visits an alternate question was trialled which asked whether the public was 'continually involved in decisions about woodland management or new facilities'. This question has been made more nuanced on the basis of pilot site feedback, with varying degrees of enthusiasm for such engagement revealed. There was however a positive reaction to high levels of community involvement in decision making by the most community-orientated of the pilot sites, so supporting the inclusion of this question.

7.3.166 In terms of the scoring of this question, a simple 'high / low' approach to scoring has been used. This method has been chosen with a view to highly rewarding woodlands that achieve the maximum level of community involvement though the constitution of a local group with a say in woodland decision making. A relatively high number of points are also awarded to those respondents who ask for the views of relevant parties where this is considered appropriate given the challenges associated with some activities.

7.3.167 The guidance that accompanies this question should set out how respondents might go about involving their local communities in the decision-making process, highlighting case studies of how this has been done in the past, and how the challenges inherent to group decision making can be met. In doing so the guide should make clear when community choices are appropriate (e.g. when a decision by a qualified professional is likely to be required) and that public participation does not mean that the public 'has a veto on forest management decisions'[106]. It may be useful for the guidance to use and link to online resources and organisations focused on the development of community woodlands, such as Community Woodlands Association.[107]

7.3.168 Evidence used to support claims of community engagement would most likely take the form of minutes from meetings with individuals and groups and the results of other forms of consultation. This would likely be supplemented with a statement or other documentation indicating how these views here taken into account during the decision making process.

Community: Route Three

Route Three:	"Create and manage a woodland in a manner that sustains economic development"

7.3.169 This Route has been developed on the basis of feedback from the pilot site visits, which highlighted the particular importance of productive woodlands to communities in rural areas. In addition, the UKFS notes the focus of UK and EU policy on rural diversification to address the dwindling supply of rural land-based occupations. In terms of forestry is said to mean 'finding new services, products and markets that can support rural economies'.[108]

7.3.170 It should be noted that this route has been included in the Community section relatively late in the design process. Since its inclusion a potential conflict has been identified between this set of questions and those featured in Community Routes One and Two. This is due to the fact that some economic activities (e.g. felling) can reduce the capacity of a woodland to incorporate community activities. This might limit the ability of some woodlands to score maximum points for the Community category, even if they are community orientated in their approach. This may particularly be the case for smaller woodlands, where the zoning of activities is less possible. A solution that might be adopted during any future development of the tool may be to create a separate Economy category, with this potentially featuring a wider range of questions than those featured below.

Community: Route Three: Stage One

[105] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5
[106] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5
[107] Community Woodlands Association – About us [online] available at http://www.communitywoods.org/about-mission.php
[108] Forestry Commission (2011) Forests and people: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/forestry/infd-8bvgl5

Figure 27 - Stage One question associated with Community Route No.3

Community Route No.3	Stage One: Design & Planting (0 – 2 years)
	Path One: Economic Development – Progress Q.1
Create and manage a woodland in a manner that sustains **economic development**	Has the woodland been designed, and its management planned, with **economic development** as a key aim?
	<<Drop down to select answer>>
	<<Drop down to select evidence>>

Community Route No.3 Path One - Q.1:	"Has the woodland been designed, and its management planned, with economic development as a key aim?"
Drop Down Menu:	Yes (Score 30 Community) No (Score 0 Community)

7.3.171 This question seeks to broadly establish that a woodland has been designed with economic development as a key aim, and that its future management has been planned with the delivery of such benefits in mind. This is in order to reward productive woodlands for the economic benefits they bring to communities. This also supports one of the ten forest management principles of the FSC, which states that management 'should maintain or enhance' long term economic benefits that are derived from a forest[109]; and the UKWAS which calls for owners / managers to promote the integration of woodlands into the local economy'[110].

7.3.172 For the scoring of this question a simple 'yes / no' approach has been adopted. This gives respondents the flexibility to reflect their own case given the wide range of economic activities[111] that can take place in woodland. The use of a set of 'high / medium / low' scoring bands was also considered for this question, with this to be based on an economic typology, with those activities more likely to contribute significantly to local economies given a higher score (e.g. sports classes in comparison to large scale timber production) .The creation of such a question is likely to be difficult however, as the state of the economy in which an activity takes place will have a strong degree of influence on the benefit obtained. For instance, generally speaking, a woodland producing a high quantity of timber in the South East of England is likely to have a lesser economic benefit than a similar woodland in a more northerly rural area of the country. A future step that might be taken to address this contextual issue is the inclusion of an additional question on whether the woodland is situated in an area where economic activity is particularly needed. For example, data is available from the ONS on areas of employment deprivation down to the Ward level[112].

7.3.173 The guidance accompanying this question make clear the types of design features and management plans that may make a woodland particularly economically productive, including how the wider socioeconomic context might influence the benefits of particular activities (e.g. if a woodland is in an area of economic priority indicated through EU support or deprivation). This may involve linking to existing guidance, such as the UKWAS, which outlines how a woodland integration into the local economy may be achieved (e.g. by allowing local or specialist markets opportunities to purchase small scale or specialist parcels of woodland).[113]

[109] FSC - The 10 Principles: Ten rules for responsible forest management [online] available at: https://ic.fsc.org/the-10-principles.103.htm
[110] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf
[111] Pilot site feedback revealed the wide range of ways that a woodland could effect to an area economically (e.g. by providing jobs in a rural area where they are in limited supply; by greening a town and so making it more attractive to business; and by displacing lower or higher employment land uses).
[112] ONS - Neighbourhood Statistics [online] available at: http://www.neighbourhood.statistics.gov.uk/dissemination
[113] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf

It should also set out what might be considered as a woodlands 'principal' aims, potentially with reference to case studies.

7.3.174 In terms of the evidence that might be provided in support of economic claims it is anticipated that:

- A clear statement of what the economic aims of the woodland are and why these are of key importance
- During the design phase, evidence is likely to be in the form of design plans setting out areas and facilities dedicated to particular economic activities and statements
- Proof of management planning is likely to take the form of statements of intent initially, with these later being supplanted by a full management plan

Community: Route Three: Stage Two

Figure 28 - Stage Two question associated with Community Route No.3

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 – 25 years)
	Path One: Economic Development – Progress Q.2
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Is the woodland being managed with **economic development** as a key aim?
<<Drop down to select>>	<<Drop down to select answer>>

Community Route No.3, Path One - Q.2:	"Is the woodland being managed with economic development as a key aim?"
Drop Down Menu:	Yes (Score 60 Community) No (Score 0 Community)

7.3.175 This 'progress' question uses the continued management of a woodland with the key aim of economic development as a proxy for wider economic benefits being obtained locally. This proxy based approach has been chosen as a result of the complexity associated with measuring and scoring the specific contributions of a diverse range of woodlands over long time scales, with this type of research considered likely to be undesirable given feedback from the pilot visits and business feedback.

7.3.176 An alternative / additional question developed was to ask whether a woodland 'is achieving its productive potential'. This would ask whether a woodland is set to achieve its economic aims, for instance by achieving expected timber yields. However, such a question may be difficult to accurately score. For instance, a large coniferous woodland which is not set to meet its full productive potential may nonetheless have a greater economic benefit than a smaller woodland that is on course to meet initial targets. In addition, there are many forms of economic activity that take place in a woodland, and so the achievement of economic 'potential' may be hard to access where multiple activities take place in a single area (e.g. sports shooting in a timber producing woodland).

7.3.177 Another alternative / additional option considered was to ask respondents about the 'level of support their woodland provides to local woodland-based businesses or livelihoods'. This could include scoring bands such as: Yes, short term planting and maintenance jobs by local contractors / employees (lower score); Yes, range of local businesses/livelihoods including nursery, contractors etc. (higher score). However, the amount of economic support a woodland provides is likely to fluctuate a great deal (e.g. over the course of each productive timber cycle). This makes specifying a time when levels of support should be measured and

scored difficult to specify. In addition, specifying what might be considered a 'local' economic benefit may prove difficult.

7.3.178 The scoring of this question uses a simple 'yes / no' response to reward those that are managing their woodland with economic development as a key aim. This approach has been chosen over a 'high / medium / low' type scoring system due to the influence of wider socioeconomic circumstances, the effects of which are discussed above for Path One, Q.1.

7.3.179 The guidance that accompanies this question should summarise and point to information on how woodlands can be managed economically in accordance with best practice. Case study examples of woodlands targeted at economic development may be a useful resource for respondents.

7.3.180 It is expected that a woodland management plan will form a primary form of evidence supporting claims of a focus of economic development. Other sources may include statements from forest managers, business stakeholders, and other interested parties, plus copies of documentation relating to business agreements

Climate

7.3.181 The forth category included in the Underlying Tool is 'Climate'. In the pilot version of the tool there are 10 questions in this category, with these questions grouped into two separate Routes. Details of these are included below.

Climate: Route One

Route One: "Create a woodland that actively contributes towards climate change mitigation"

7.3.182 This Route has been developed with reference to the UKFS, which notes that forestry can contribute to climate change mitigation by protecting and increasing forest carbon stocks and points to the importance of storing carbon long term in wood products.[114] In addition, the Read Report highlights the potential for wood fuels to displace fossil fuels, and for wood products to substitute for more energy intensive materials.[115]

Climate: Route One: Stage One

Figure 29 - Stage One questions associated with Climate Route No.1

Stage One: Design & Planting (0 – 2 years)		
Path One: Carbon Sequestration – Progress Q.1	**Path One: Carbon Sequestration – Monitoring**	**Path Two: Wood Production – Progress Q.1**
Has the woodland been designed, and its management planned, with **carbon sequestration** as a key aim?	How many tonnes of carbon is the woodland estimated to **sequester** per hectare?	Has the woodland been designed, and its management planned, with the production of **wood products** or **wood fuel** as a key aim?
<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Climate Route No.1, Path One - Q.1: "Has the woodland been designed, and its management planned, with carbon sequestration as a key aim?"

[114] Forestry Commission (2011) Forests and climate change: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL002.pdf/$FILE/FCGL002.pdf

[115] Read, D.J. et al. (2009) Combating climate change – a role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. The synthesis report. [online] available at: http://www.forestry.gov.uk/pdf/SynthesisUKAssessmentfinal.pdf/$FILE/SynthesisUKAssessmentfinal.pdf

Drop Down Menu:	Yes (Score 20 Climate) No (Score 0 Climate)

7.3.183 This 'progress' question seeks to reward those respondents that have carbon sequestration as a key aim of their woodland, and so have the potential to contribute towards climate change mitigation through the design and management of their woodland. This question was received well at the pilot visit, with the distinction between carbon being a primary and secondary focus being shown to work well. In this case a primarily community focused woodland did not score for this question given its community orientation. This lesser focus on carbon was reflected in the lower expected sequestration rates it was expected to obtain when compared the other two pilot site, so lending support to the idea of awarding for mitigation benefits to those woodlands that focus on carbon primarily from the outset.

7.3.184 For this question a simple 'yes / no' approach to scoring responses has been used. This method has been chosen given the difficulties in breaking both carbon focused woodland design and management planning into a suitably simple 'high / medium / low' scoring system (e.g. siting a woodland where it is most likely to create carbon rich soil[116], thinning of stands at the stem exclusion phase[117]). It is possible that such a typology could be created in future with the input of specialists in this area. Currently, given the large variety of approaches available it was felt that a 'yes / no' approach would provide the flexibility for respondents to build their own case. This question could also potentially include carbon as a secondary aim, with a lower amount of points awarded for this. However this increases the complexity of this question, for example in terms of having to distinguish between secondary and tertiary aims in guidance, and so has been scoped out at this stage.

7.3.185 It is expected that accompanying guidance would point applicants to sources of information on how to design and plan woodland with the aim of sequestering carbon. For example, the Read Report notes that 'the choice of tree species that are planted and the resulting stand composition may have a major impact on the carbon sequestration capacity of the forest ecosystem'.[118] Guidance could also link to specialist outside agencies that can provide carbon orientated woodland design and creation services.

7.3.186 In terms of evidence, it is likely that a woodland being registered in the Woodland Carbon Code would be a primary means of verification, although as noted during the pilot visits this is not always indicative of carbon sequestration being a primary objective. Statements of intent might also be used to show that carbon sequestration is a primary purpose of the woodland and that appropriate design and management are being put in place, with these later supplanted by management plans.

Climate Route No.1, Path One – Monitoring:	"How many tonnes of carbon is the woodland estimated to sequester per hectare?"
Drop Down Menu:	400 tonnes or more of carbon per hectare (Score 40 Climate) 350 - 399 tonnes of carbon per hectare (Score 30 Climate) 250 - 349 tonnes of carbon per hectare (Score 20 Climate) Under 250 tonnes carbon per hectare (Score 0 Climate)

7.3.187 Woodlands with carbon sequestration as a primary purpose may have differing levels of carbon uptake. This was demonstrated during the pilot visits, during which the carbon

[116] Cannel, M.G.R. (1999) Growing trees to sequester carbon in the UK: answers to some common questions, Forestry, Vol.72, No.3 [online] available at: http://forestry.oxfordjournals.org/content/72/3/237.full.pdf

[117] Read, D.J. et al. (2009) Combating climate change – a role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. Section 3: Mitigation. [online] available at: http://www.tsoshop.co.uk/gempdf/ClimateChange_Main_Report_Section_3_Mitigation.pdf

[118] Read, D.J. et al. (2009) Combating climate change – a role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. The synthesis report. [online] available at: http://www.forestry.gov.uk/pdf/SynthesisUKAssessmentfinal.pdf/$FILE/SynthesisUKAssessmentfinal.pdf

sequestration rates achieved at the sites visited varied considerably due to design and local circumstances. For example, the per hectare level of carbon sequestration at the pilot sites varied from 288 tonnes to 406 tonnes. As such, this question has been developed to reward those woodlands that are predicted to sequester larger amounts of carbon. This is an example of an interim 'monitoring' question, whereby an estimated level of progress is rewarded. It is considered appropriate to include this 'monitoring' question during Phase One as estimates of final carbon sequestration are made during the early stages of a Woodland Carbon Code project.

7.3.188 For the scoring of this question a 'high / medium / low' attainment approach has been adopted with higher scores given to those woodlands that achieve greater levels of carbon sequestration per hectare. Two approaches to scoring levels of carbon sequestration, with this method selected as preferable. These approaches and some of their benefits and limitations are as follows:

1. Scoring based on carbon uptake per hectare: This approach allows those woodlands that have been designed and managed to produce a high level of carbon uptake per hectare. However, larger woodlands would not be able to score for their greater overall sequestration. Extrapolating from Woodland Carbon Code statistics[119] an average sequestration rate of 361 tonnes per hectare can be calculated, so providing a basis for scoring bands.

2. Scoring based on total predicted CO_2 sequestration: This approach would reward woodlands that are larger, but with the influence of woodland size potentially 'drowning out' any recognition of good design and management for carbon sequestration on smaller sites. Scoring bands would be based upon the average amount of carbon predicted to be sequestered over the duration of Woodland Carbon Code projects. By extrapolating from Woodland Carbon Code statistics[120] an average total expected CO_2 sequestration figure of 35,915 tonnes per project can be established, with this potentially forming a basis for scoring.

7.3.189 Currently a sequestration per hectare basis for scoring has been chosen as preferable. One reason for this is that respondents may be more able to influence carbon sequestration rates in response to the tool (e.g. by altering the design of their woodland), whilst the size of a site is more likely to be beyond the control of respondent. In addition, it is considered likely that woodland size varies to a much greater extent than average carbon sequestration per hectare. Using a total CO2 sequestered per project approach a few very large projects could potentially pull the average total carbon sequestered up beyond the reach of most smaller woodland, so excluding many from scoring without efforts to develop scoring bands that reflected size distribution. This variation may also make the scoring bands highly susceptible to change over time, as they would need to be regularly updated as large projects entered and left the Woodland Carbon Code scheme.

7.3.190 The guidance accompanying this question is likely to be similar to that of Path One, Q.1, with information on how to design and plan woodland with the aim of sequestering carbon linked to and summarised, along with details of specialist third parties that may be available to assist. In addition, links may be provided to information on measuring carbon, such as the Forestry Commission's FAQ on this subject[121].

7.3.191 The evidence that is used to support claims of carbon sequestration rates per hectare are likely to be in the form of Woodland Carbon Code documentation. The project design documents produced for woodland creation projects that are part of the scheme are required

[119] Forestry Commission (2013) Woodland Carbon Code Statistics - Data to September 2013 [online] available at: http://www.forestry.gov.uk/pdf/wccoct2013.pdf/$FILE/wccoct2013.pdf - A total of 142 projects were registered under the Woodland Carbon Code at 30 September 2013, covering an area of 14.1 thousand hectares of woodland and projected to sequester 5.1 million tonnes of carbon dioxide.

[120] Forestry Commission (2013) Woodland Carbon Code Statistics - Data to September 2013 [online] available at: http://www.forestry.gov.uk/pdf/wccoct2013.pdf/$FILE/wccoct2013.pdf - A total of 142 projects were registered under the Woodland Carbon Code at 30 September 2013, covering an area of 14.1 thousand hectares of woodland and projected to sequester 5.1 million tonnes of carbon dioxide.

[121] Forestry Commission – Frequently Asked Questions on Measuring Carbon [online] available at: http://www.forestry.gov.uk/forestry/INFD-889HSZ

to include such calculations currently. This should enable respondents to easily calculate and evidence their response as part of a desk based exercise.

Climate Route No.1, Path Two - Q.1:	"Has the woodland been designed, and its management planned, with the production of wood products or wood fuel as a key aim?"
Drop Down Menu:	Yes (Score 20 Climate) No (Score 0 Climate)

7.3.192 The Woodland Carbon Code currently measures the carbon that is stored within a woodland and does not account for the carbon captured in any materials taken from the site, or the carbon displaced as a result of materials with a high carbon footprint that are replaced by wood products or fuels. This question therefore seeks to reward those woodlands that do seek to produce such materials for their contribution to climate mitigation. For instance, Forestry Commission England estimates that for every cubic metre of wood that is used as a substitute for other building materials, around two tonnes of carbon dioxide are saved.[122] The term 'key' has been included as a means of separating those who are intending to actively produce wood for extraction from those who will produce wood on only an occasional, secondary basis (e.g. after thinning).

7.3.193 It should be noted that a woodland which is aimed at wood production is likely to bring about economic benefits as well as carbon mitigation benefits. As such, there is the potential for this question to award points in both the Community and Carbon categories. However, as noted in the discussion for Community Route No.3, there is a variety of economic activities that can occur in a woodland. As such, allowing the scoring of Community points for wood production alone would disadvantage those whose woodland is focused on other economic activities (e.g. sports shooting, paintballing etc.). For this reason a positive answer to this question is only scored in terms of Carbon.

7.3.194 For this question a simple 'yes / no' approach to scoring has been used. This approach has been chosen due to the difficulties associated with producing a more nuanced 'high / medium / low' scoring system. One approach could be to reward respondents on the basis of the type of product that they produce. For instance, substitution of other materials with wood products provides a greater emission reduction per unit of wood than the substitution of fossil fuels with woodfuel and result in carbon being stored for longer.[123] [124] However, this adds complexity in terms of accounting for how woodlands might produce differing quantities of a product, so affecting overall levels of sequestration through displacement. In, addition, it may be difficult to identify the final use of timber once it has left the woodland gate. As a result the term 'key' has been used to allow respondents to build their own case that their woodland is seeking to contribute as much as possible to climate mitigation through displacement.

7.3.195 There is a potential concern in terms of trade-offs with this question, which may need to be given further consideration during any future development of the tool. For example, a site which does not produce wood products or fuel, but which is instead allowed to develop into a mature broadleaf woodland has the potential to capture an equivalent amount of carbon as a productive woodland depending on the types of products produced (e.g. the amount of time they store carbon for, the materials they displace). However, such a woodland would be unable to score maximum points in the Climate section due to its lack of productive focus. At the same time, mature woodlands can be subject to wind throw, fire, and disease which would result in the loss of carbon stocks. All these factors complicate the picture. A solution to this in

[122] Forestry Commission England – Mitigation through our woodlands [online] available at: http://www.forestry.gov.uk/forestry/infd-8m6hg9

[123] Riutta, T. et al. (2010) Temperate, broad-leaved forests as carbon sinks; implications for forest policy in the UK [online] available at: http://www.bihip.org/cms/news/92-new-research-shows-that-broadleaved-woodland-absorbs-twice-as-much-co2-per-unit-area-as-tropical-rainforest.html

[124] IPCC (2007) Increasing off-site carbon stocks in wood products and enhancing product and fuel substitution [online] available at: http://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch9s9-4-2-4.html

future may be to include an 'opt out' function for those woodlands that predict their carbon sequestration rates will be higher when not producing wood products or fuel.

7.3.196 The guidance that accompanies this question should link to sources of information on the types of wood product that might be produced in woodlands and the circumstances in which they are most likely to be appropriately targeted. Whilst not directly scored by this question, guidance could encourage respondents to produce products with the highest possible carbon displacement potential. In this respect, research on the greenhouse gas footprints of wood products and fuels may be synthesised. For instance an FP Innovations report[125] reviews existing literature and summarises consensus findings on the net life cycle greenhouse gas footprint of global construction products.

7.3.197 Evidence that the production of wood products or fuels is a key aim of a woodland is likely to include:

- In terms of management, contracts or statements of intent may form the initial evidence base, with these followed by a management plan at a later date.
- Proof that the design of the woodland is orientated towards wood products or fuels may take the form of site maps and planting records

Climate: Route One: Stage Two

Figure 30 - Stage Two questions associated with Climate Route No.1

Stage Two: Early Maturity (10 - 25 years)		
Path One: Carbon Sequestration - Progress Q.2	**Path One: Carbon Sequestration - Monitoring**	**Path Two: Wood Production - Progress Q.2**
Is the woodland being managed with carbon sequestration as a principle aim?	Is the established woodland achieving growth rates consistent with anticipated carbon uptake?	Is the woodland being managed with the production of wood products or wood fuel as a principle aim?
<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Climate Route No.1, Path One - Q.2:	"Is the woodland being managed with carbon sequestration as a key aim?
Drop Down Menu:	Yes (Score 30 Climate) No (Score 0 Climate)

7.3.198 This 'progress' question looks to confirm that the woodland is continuing to be managed with the sequestration of carbon as its principal aim. This is to reward those respondents who implement management actions, so going further than simply planning them as was the case during the planning and design stage (see above discussion of Stage One, Q.1).

7.3.199 The scoring of this question uses a simple 'yes /no' system. Such an approach has been selected on the basis that it is difficult to break down the management activities that might enhance carbon uptake (e.g. maintaining planting density[126], avoiding disturbance of forest soils[127]), so allowing for 'high / medium / low' scoring bands to be developed. The creation of such a management typology may be possible in future in conjunction with experts in this area. As was the case for Path One, Q.1, there is also the scope to reward those who have

[125] FPInnovations (2010) A synthesis of research on wood products and greenhouse gas impacts, 2nd edition [online] available at: https://www.zotero.org/groups/tag_canadian_libraries/items/itemKey/45IQXR4V
[126] Cannel, M.G.R. (1999) Growing trees to sequester carbon in the UK: answers to some common questions, Forestry, Vol.72, No.3 [online] available at: http://forestry.oxfordjournals.org/content/72/3/237.full.pdf
[127] Forestry Commission (2011) Forests and soil: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL006.pdf/$FILE/FCGL006.pdf

the management of their woodland for carbon sequestration as a secondary aim. However, this adds complexity in terms of distinguishing between secondary and tertiary aims.

7.3.200 Accompanying guidance should point applicants towards information on best practice in woodland management for carbon sequestration. For example, this guidance should highlight issues such as soil carbon[128] (this was identified as a relevant concern during the literature review and pilot visits), which will be affected by management regimes[129]. Within this section there is also the opportunity to highlight the potential for reducing fossil fuel usage in management activities (although this is not strictly 'carbon sequestration' related).

7.3.201 In relation to the evidence that might be used to support claims of woodland management targeted at carbon sequestration, it is expected that the woodland management plan will be the primary source of evidence, with this potentially supported by additional documentation (e.g. contracts for work undertaken on the site).

Climate Route No.1, Path One – Monitoring:	"Is the established woodland achieving growth rates consistent with anticipated carbon uptake"
Drop Down Menu:	Yes; on course for or risen to 400 tonnes or more of carbon per hectare (Score 60 Climate) Yes; on course for or risen to 350 - 399 tonnes of carbon per hectare (Score 50 Climate) No; fallen to 350 - 399 tonnes of carbon per hectare (Score 30 Climate) Yes; on course for or risen to over 250 - 349 tonnes or more of carbon per hectare (Score 40 Climate) No; fallen to 250 - 349 tonnes or more of carbon per hectare (Score 20 Climate) Set to achieve under 250 tonnes carbon per hectare (Score 0 Climate)

7.3.202 The purpose of this question is to reward those respondents who have successfully brought their woodland to maturity whilst maintaining predicted per hectare carbon sequestration rates. As with the Stage One, Path One 'monitoring' question discussed above, this is an example of an interim 'monitoring' question whereby an estimated level of progress is rewarded as a proxy for the final benefit obtained. In terms of monitoring the final levels of sequestration achieved by a woodland, there is the potential for such a question to be included in a later of the tool, for instance Stage Three: Maturity which covers the period from 50 to 100 years after creation.

7.3.203 This question uses 'high / medium / low' scoring bands to reward those with higher sequestration rates per hectare. This sequestration per hectare approach has been selected on the basis of:

- The availability of figures on carbon sequestration in Woodland Carbon Code woodlands, so allowing for scoring bands to be developed
- The potentially greater influence that respondents potentially have on per hectare sequestration rates when compared to woodland size

[128] A decision was made to not include a separate question on the management of woodlands to protect and enhance soil carbon. This is due to the overlap with existing questions (Path One, Q.1 & Q.2) and difficulties in monitoring soil carbon – for example, there is very little data available on soil carbon levels for different soil types under different types and ages of forest in the UK. (Source: Sandwood Enterprise (2012) A Carbon Account for the Woodlands in the Lake District National Park).
[129] Forestry Commission (2011) Forests and soil: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL006.pdf/$FILE/FCGL006.pdf

- The likely lower levels of variation in sequestration rates per hectare when compared to variations in woodland size, so allowing for a scoring bands that can be used consistently across different areas of woodland.

In order to avoid perverse outcomes[130] in terms of the scores awarded for this question, fewer points are awarded to respondents whose carbon sequestration rate has fallen below the rate estimated for the Path One 'monitoring' question completed during Stage One.

7.3.204 In terms of the guidance that would accompany this question, it is likely that it will take a similar form to that used for the 'monitoring' question associated with Path One, Q.2 (see above discussion). This would involve linking to and summarising information on best practice in woodland management for carbon sequestration. Information of how to measure carbon sequestration might also be linked to, for example Forestry Commission's carbon measurement FAQ[131].

7.3.205 Under the Woodland Carbon Code scheme, monitoring and verification first takes place within 5 years of the project's start date, followed by further monitoring and verification at intervals of ten years or less.[132] As such, it is anticipated that carbon-orientated woodlands in the scheme will have easily available evidence to confirm they are on course to achieve anticipated levels of carbon sequestration.

Climate Route No.1, Path Two - Q.2:	"Is the woodland being managed with the production of wood products or wood fuel as a key aim?"
Drop Down Menu:	Yes (Score 30 Climate) No (Score 0 Climate)

7.3.206 This 'progress' question is linked to Path Two, Q.1, and seeks to confirm that the woodland is being continually managed in a manner conducive to the production of wood products and fuel and that such production is a key aim of the woodland. This is with the aim of rewarding those woodlands that result in the displacement of more carbon intensive materials offsite.

7.3.207 As with the scoring of Path Two, Q.1, above, a simple 'yes / no' approach to scoring has been used. This is due to the difficulties in developing a typology of wood products and wood fuels that is simple enough to be used as the basis for 'high / medium / low' scoring bands given the variety of such products, their varying carbon displacement potential, difficulties in identifying final uses beyond the forest gate, and the varying quantities that are likely to be produced by particular sites. As a result, respondents are given the flexibility to build their own case that their woodland is seeking to contribute as much as possible to climate mitigation as a result of woodfuel and wood product production.

7.3.208 There is the opportunity to use measures of the amount of wood produced by a site (both in terms of fuels and timber for products) as a crude measure of the amount of carbon benefit that has been obtained. For example, estimates have been made of the annual carbon sequestration benefits obtained as a result of harvested wood products in the Lake District National Park (Figure 7.27).[133] Such a question might be phrased as such: 'What percentage of the woodland's sustainable yield has been harvested since the last assessment?' (as

[130] For example, if Woodland 'A' is estimated to sequester 400 plus tonnes of carbon per hectare at Stage One it would score 40 Carbon points. If Woodland 'B' was estimated to sequester 250-349 plus tonnes of carbon per hectare at Stage One it would score 20 Carbon points. If at Stage Two, Woodland "A''s rate of sequestration fell to 350 - 399 tonnes of carbon per hectare, and a penalty was not introduced for this fall, then it would score 50 carbon points. Meanwhile the Stage Two rate of sequestration at Woodland "B" rises to 400 plus tonnes of carbon per hectare, scoring it 60 carbon points. This would give a total score of 90 to Woodland "A" where the total rate of sequestration had fallen, and a lower score of 80 to Woodland "B", despite this woodland now being on course to achieve a higher level of benefit in terms of carbon sequestration.

[131] Forestry Commission – Frequently Asked Questions on Measuring Carbon [online] available at: http://www.forestry.gov.uk/forestry/INFD-889HSZ

[132] Woodland Carbon Code – Monitoring [online] available at: http://www.forestry.gov.uk/forestry/INFD-8JUHC7

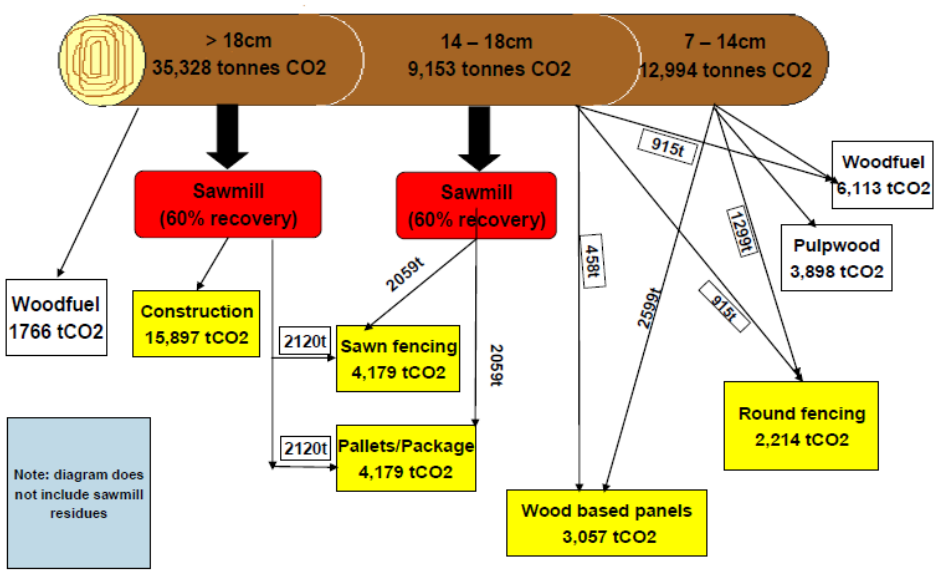
[133] Sandwood Enterprise (2012) A Carbon Account for the Woodlands in the Lake District National Park [online] available at: http://www.lakedistrict.gov.uk/__data/assets/pdf_file/0007/277585/A-Carbon-Account-for-the-Woodlands-in-the-Lake-District-National-ParkFINAL.pdf

included in the Woodland Star Rating assessment tool[134]). This question has not been included at this stage, as feedback from the pilot sites indicated that significant harvesting would not be undertaken until a woodland was more mature (e.g. around 50 years for coniferous woodland).

7.3.209 Guidance should set out the types of best practice management activities that might be expected in a woodland where the production of wood products or woodfuel is a key aim. As with the guidance to Path Two, Q.1, information should be provided on how products might be produced with the highest possible carbon displacement potential. This may potentially involve the use of research on the greenhouse gas footprints of wood products and fuels, for example the FP Innovations synthesis[135].

7.3.210 In terms of providing evidence that a woodland is being managed with the production of wood fuels and wood products as a key aim, it is expected that a woodland management plan would be an appropriate source of proof. This may be supplemented with additional sources of evidence, such as statements from the forest manager and business stakeholders, plus copies of documents relating to business agreements.

Figure 31 – Wood Products and Carbon Storage from current annual conifer production in the Lake District National Park[136]



Climate: Route Two

Route Two: "Create a woodland that actively contributes towards climate change adaptation"

7.3.211 The UKFS notes that over the coming decades UK forestry needs to respond to climate change 'in two principal ways: through mitigation and adaptation'[137]. It also notes that, as well as reducing the vulnerability of forests to climate change (covered below in the 'Managing Risks' category), woodlands should be aim to reduce the vulnerability of society to climate change through their protective capacities. As such, this route has been created to encourage and reward those who create woodlands that contribute towards climate adaptation.

[134] myForest – Woodland Star Rating [online] available at: http://sylva.org.uk/myforest/wsr
[135] FPInnovations (2010) A synthesis of research on wood products and greenhouse gas impacts, 2nd edition [online] available at: https://www.zotero.org/groups/tag_canadian_libraries/items/itemKey/45IQXR4V
[136] Sandwood Enterprise (2012) A Carbon Account for the Woodlands in the Lake District National Park [online] available at: http://www.lakedistrict.gov.uk/__data/assets/pdf_file/0007/277585/A-Carbon-Account-for-the-Woodlands-in-the-Lake-District-National-ParkFINAL.pdf
[137] Forestry Commission (2011) Forests and climate change: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL002.pdf/$FILE/FCGL002.pdf

Climate: Route Two: Stage One

Figure 32 - Stage One questions associated with Climate Route No.2

Climate Route No.2	Stage One: Design & Planting (0 - 2 years)	
	Path One: Adaption Location - Progress Q.1	Path Two: Adaption Management - Progress Q.1
Create a woodland that actively contributes towards climate change adaptation	Is the woodland located in an area where it will contribute to local climate adaptation priorities?	Has the woodland been designed, and its management planned, to contribute to local climate adaptation priorities?
	<<Drop down to select answer>>	<<Drop down to select answer>>
	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Climate Route No.2, Path One - Q.1:	"Is the woodland located in an area where it will contribute to local climate adaptation priorities?"
Drop Down Menu:	Yes (Score 20 Climate) No (Score 0 Climate)

7.3.212 The UKFS states the importance of considering the adaptive capacities of woodlands (e.g. the alleviation of flooding, the control of soil erosion, and moderating temperatures in towns and cities) when deciding on the 'location of new woodlands'[138]. Given the adaptive benefits that well-sited woodlands can place this question has been developed to encourage the consideration of local climate adaptation priorities when siting their woodland. An emphasis on 'local priorities' has been chosen due to the varying impacts that climate change will likely have across the UK[139], so potentially resulting in localised adaptive priorities.

7.3.213 For this question a simple 'yes / no' approach to scoring has been adopted. This has been chosen due to the difficulties inherent to creating a more nuanced 'high / medium / low' scoring system. Such a system could potentially have been based on the type of priority towards which a woodland is contributing. However, given the wide range of adaptation issues to which woodlands can contribute (e.g. flood alleviation, shading) and likely variation in these values dependent on context (e.g. urban vs. rural shading), this is not considered practicable.

7.3.214 Accompanying guidance should provide advice on how woodlands can identify local climate adaptation priorities and then provide adaptive benefits in their locality through site location. For instance, the UKFS highlights opportunities for woodland creation and management to reduce flood risk through alignment with catchment flood risk management plans, along with the use of woodlands as part of sustainable urban and rural drainage systems. In addition, the potential benefits of woodlands in urban areas subject to the 'heat island' effect should be highlighted given the increased value likely to be placed on shade trees[140].

7.3.215 In terms of evidence, it is anticipated that numerous forms may be used to support claims that a site has been located to contribute to local climate adaptation priorities. These may include:

- Maps of a site and its surrounding area (e.g. indicating flood risk areas)
- Local policy and strategy documents indicating local adaptation priorities (e.g. green infrastructure strategies)

[138] Forestry Commission (2011) Forests and climate change: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL002.pdf/$FILE/FCGL002.pdf

[139] Met Office – How your region might be affected in the 2050s [online] available at: http://www.metoffice.gov.uk/climatechange/guide/ukcp/map/

[140] Read, D.J. et al. (2009) Combating climate change – a role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. Chapter 4 - Adaptation. [online] available at: http://www.forestry.gov.uk/pdf/SynthesisUKAssessmentfinal.pdf/$FILE/SynthesisUKAssessmentfinal.pdf

Climate Route No.2, Path Two - Q.1:	"Has the woodland been designed, and its management planned, to contribute to local climate adaptation priorities?"
Drop Down Menu:	Yes (Score 20 Climate) No (Score 0 Climate)

7.3.216 In addition to situating a woodland in an area where its adaptive benefits will be maximised (the focus of Path One), the design of a woodland and plans for its future management are important determinants of the benefits obtained. This Path and its associated questions have therefore been developed to encourage applicants to design and plan the management of their woodland with climate adaptation in mind from the outset. For instance, the UKFS highlights the potential for woodlands to differ in their flood protection capabilities dependent on the type of forestry operation adopted.[141]

7.3.217 The scoring for this question takes the form of a simple 'yes / no' drop down menu. A more nuanced 'high / medium / low' scoring system could potentially be developed based on the types of adaptation measures put in place. However, such an approach is far more complex due to the number of adaptive possibilities[142] and their associated management and design options. The issue of the relative effect of such measures would also need to be taken into account (e.g. forest wetland may be less important in an area less subject to flooding). Given these concerns it has been decided to use a simple scoring approach in which respondents can 'build their case' in terms of providing benefits.

7.3.218 It should be noted that there is a risk of the double counting as a result on the inclusion of Water Route Two (see above) and its focus on achieving flood risk benefits through woodland creation. One option in this case is to exclude flood risk reduction as a benefit that can be reported against this question.

7.3.219 Accompanying guidance should set out and link to information on how to maximise woodland's adaptive benefits in relation to local circumstances. For example, the UKFS[143] notes that within areas of high flood risk clear-felling should be phased to minimise the risk of increasing local flood flows, whilst action can also be taken to restore forest wetlands and create ponds, so increasing flood storage and slowing flood flows.

7.3.220 The evidence used to support claims of woodland design and management focused on climate change adaptation is likely to include:

- Site plans and maps in support of design claims
- Contracts and statements of intent in support of management claims, with woodland management plans used at a later date
- Local policy and strategy documents indicating local adaptation priorities (e.g. green infrastructure strategies)

[141] Forestry Commission (2011) Forests and climate change: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL002.pdf/$FILE/FCGL002.pdf

[142] Forests and woodlands can help people and society adapt to climate change by providing benefits such as: provision of habitats that provide ecological connectivity; natural flood management; diffuse pollution control; slope stability and control of soil erosion; a source of renewable energy; temperature control; and shade and shelter. (Source: Forestry Commission - Forests and climate change: UKFS)

[143] Forestry Commission (2011) Forests and climate change: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL002.pdf/$FILE/FCGL002.pdf

Figure 33 - Stage Two questions associated with Climate Route No.2

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 - 25 years)	
	Path One: Adaption Location - Monitoring	Path Two: Adaption Management - Progress Q.2
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Has the woodland become established in an area where it will contribute to local climate adaptation priorities?	Is the woodland being managed in a way which will contribute to local climate adaptation priorities?
<<Drop down to select>>	<<Drop down to select answer>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Climate Route No.2, Path Two - Monitoring:	"Has the woodland become established in an area where it will contribute to local climate adaptation priorities?"
Drop Down Menu:	Yes (Score 30 Climate) No (Score 0 Climate)

7.3.221 This 'monitoring' question seeks to simply confirm that the woodland has become established in an area where it will contribute to local climate adaptation priorities. The location of the woodland is therefore considered a proxy for the climate adaptation benefits to have occurred. This simple, proxy based approach has been chosen (rather than the direct monitoring of adaptive benefits (e.g. flood flows and cooling effects)) due the diversity of potential benefits and the time and resources associated with measuring contributions (e.g. where the adaptive benefits of woodland accrue over the landscape scale).

7.3.222 For this question a simple 'yes / no' response to scoring has been used. This is due to the fact that a woodland will have become established in an area where is will contribute to local climate adaptation priorities or it will not have. Accompanying guidance should make clear that this reassessment would be needed should the adaptation priorities of an area shift, given that this is likely to be beyond the control of the respondent (e.g. due to the inherent uncertainty in climate change projections[144]) climate and could occur for positive reasons (e.g. sufficient capacity having been developed to address an climate adaption issue).

7.3.223 The guidance accompanying this question is to be relatively limited. It may however be appropriate to highlight established means of assessing whether woodland has become established, for instance by linking to resources such as the Farm Environment Plan Manual[145].

7.3.224 The types of evidence used to support claims of woodland establishment in an area where it contribute to local climate adaptation priorities may include:

- Maps of the site showing areas of woodland and the results of any assessment of condition by the forest manager or a third party
- Local policy and strategy documents indicating local adaptation priorities (e.g. green infrastructure strategies)

Climate Route No.2, Path Two - Q.1:	"Is the woodland being managed in a way which will contribute to local climate adaptation priorities?"

[144] Defra (2009) Adapting to climate change: UK Climate Projections [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69257/pb13274-uk-climate-projections-090617.pdf

[145] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037

Drop Down Menu:	Yes (Score 30 Climate) No (Score 0 Climate)

7.3.225 This 'progress' question is linked to Path Two, Q.1, and as such looks to confirm that the woodland is continuing to be managed with the aim producing climate adaptation benefits. This question has been developed to encourage and reward continual consideration of how a woodland might be best managed to deliver adaptive benefits, with this being particularly important given the uncertainty over how climate change will affect the UK, and to what extent[146].

7.3.226 A simple 'yes / no' approach has been used for the scoring of this question. This has been chosen due to the difficulties in developing a typology of adaptation measures that is sufficiently simple to form the basis of a 'high / medium / low' type scoring scale given both the diversity of these measures, and the influence of context upon their relative merit. As such, respondents are given the flexibility to develop and present their own case for adaptive benefits having been obtained.

7.3.227 Accompanying guidance for this question is likely to be very similar to that for Path Two, Q.1, in that it should seek to link to and summarise information on the identification of local climate adaptation priorities, how these might change over time, and how a woodland might contribute towards these through best practice management approaches.

7.3.228 Evidence that might be used to support claims of woodland management focused on climate change adaptation is likely to primarily take the form of the site management plan. Additional evidence could include local policy and strategy documents indicating local adaptation priorities and contracts with those undertaking management activities.

Managing Risks

7.3.229 The fifth and final category included in the Underlying Tool is 'Managing Risks'. In the pilot version of the tool there are two questions in this category. There is only one route that may be pursued.

Managing Risks: Route One

Route One:	"Create a woodland which is protected from risks to the benefits it provides"

7.3.230 This Route looks to ensure that current and future risks to woodlands have been identified and appropriate mitigation measures have been put in place. The development of this Route was influenced by the requirements of the UKFS, which highlights the danger posed to woodlands and their carbon stocks from 'wind, fire and damage from pests and diseases'[147], and the 'Read Report', which states that 'forest planning and management must take uncertainty and risk into account'[148].

7.3.231 During the pilot site visits, risk management associated questions were included in both the Climate and the Wildlife categories of the tool. These questions received broad support from stakeholders in terms of the importance of such assessments and the availability of evidence. However, it was suggested that the two questions could be combined into a single risk focused question to prevent duplication of effort and double counting in terms of scoring.

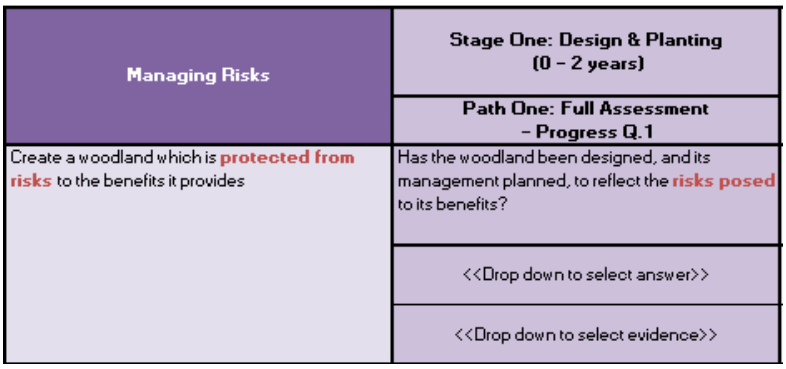
7.3.232 Given these comments and the importance of risk management a separate risk focused section has been included. Positive answers to the questions on risk in this section result in an

[146] Defra (2009) Adapting to climate change: UK Climate Projections [online] available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69257/pb13274-uk-climate-projections-090617.pdf
[147] Forestry Commission (2011) Forests and climate change: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL002.pdf/$FILE/FCGL002.pdf
[148] Read, D.J. et al. (2009) Combating climate change – a role for UK forests. An assessment of the potential of the UK's trees and woodlands to mitigate and adapt to climate change. Section 3: Mitigation. [online] available at: http://www.tsoshop.co.uk/gempdf/ClimateChange_Main_Report_Section_3_Mitigation.pdf

extra 10%[149] being added to the total score for each category (Wildlife; Water; Community; Climate). In the absence of a positive answer, the maximum score that can be achieved in any category is 90%. This scoring system has been designed to reflect the importance of considerations of risk in ensuring that all types of woodland benefit are protected from threats that might result in their non-delivery.

Managing Risks: Route One: Stage One

Figure 34 - Stage One question associated with Managing Risks Route No.1



Managing Risks, Route No.1, Path One, Q.2:	"Has the woodland been designed, and its management planned, to reflect the risks posed to its benefits?"
Drop Down Menu:	Yes (+10% all categories) No

7.3.233 This question seeks to ensure that risks to woodlands are considered at the outset of a woodland creation project, when they can be used to the design of a woodland and the plans that are in place for its future management. For instance, the UKWAS notes that planting plans can be designed to 'minimise the risk of damage from wind, fire, invasive plant and animal species, and other pests and diseases'.[150]

7.3.234 During the pilot site visits two risk focused questions were trialled. One question asked whether a risk assessment had been conducted, whilst the second asked whether a diversity of species had been chosen for the woodland in order to increase its resilience. Both these questions were broadly supported during the pilots and could be evidenced. In the interests of tool simplicity these questions have been combined by requiring the design and future management of the woodland to reflect the risks posed to its benefits.

7.3.235 As noted in the above discussion of the development of Managing Risks, Route One, a positive answer to this question increase the total score awarded in each category by 10%[151]. As a result, a point based system is not used for this question. During the pilot visits it was suggested that this question could include a list of risks (e.g. wind throw, climate change) that could be checked off if considered. However, it was acknowledged that this might make this question overly large and complex given the diversity of risks to woodlands. As a result this format has not been pursued.

[149] NB. 10% of the total number of points achieved in each category is added to its total – e.g. a score of 60% in the Community category would become 66% should the Managing Risks question be answered positively.
[150] The UK Woodland Assurance Standard Third Edition (version 3.1) [online] available at: http://ukwas.org.uk/wp-content/uploads/2012/05/UKWAS-Third-Edition-version-3.1-20122.pdf
[151] NB. When a woodland is at Stage One of the assessment a positive answer to Path One: Q.1 will increase the category scores by 10%. At Stage Two of the assessment, a positive answer will be required for both Path One: Q.1; and Path One: Q.2 in order to receive a 10% increase in category scores. At present this functionality hasn't been built into the Excel tool due to the complexity involved in doing so. The current tool will only give +10% if both risk questions are answered positively (i.e. it assumes that the respondent is at Stage Two). It is envisioned that this functionality could more easily be built into a web based version of the tool, or could be built using a Macro if a more advanced Excel version was desired.

7.3.236 Accompanying guidance should set out the various forms of risk that should be taken into account, where information can be sourced on their likelihood of occurrence (e.g. climate change projections, maps of areas affected by a particular pest), and the mitigation measures that could be adopted if necessary. For instance, the UKFS sets out how forest design can help increase resilience to the effects of a changing climate and extreme weather events (e.g. through tree and shrub species selection).[152]

7.3.237 In terms of evidence, it is expected that consideration of risk might be detailed in design documents (such as that of the Woodland Carbon Code) or contracts. Site plans and maps, plus statements of intent could be used to show how considerations of risk have informed site design and future management plans. The range of evidence used for this question may well be quite broad, given the different types of risks faced by woodlands. For example, during one pilot visit it was suggested that evidence of soil testing for contamination might be submitted as support for their answer to a risk focused question.

Managing Risks: Route One: Stage Two

Figure 35 - Stage Two question associated with Managing Risks Route No.1

Confirmation (every 5 years or after a major change)	Stage Two: Early Maturity (10 – 25 years)
	Path One: Full Assessment – Progress Q.2
Please confirm that the assessment undertaken for Stage One is still accurate. If any changes have occurred please retake the relevant question(s).	Is the woodland being managed in a manner which reflects the risks posed to its benefits?
<<Drop down to select>>	<<Drop down to select answer>>
<<Drop down to select>>	<<Drop down to select evidence>>

Managing Risks Route No.1, Q.1:	"Is the woodland being managed in a manner which reflects the risks posed to its benefits?"
Drop Down Menu:	Yes (+10% all categories) No

7.3.238 This question looks to confirm that the management of a woodland is informed by the risks that are posed to it. This is to ensure that appropriate protection is continually in place, so ensuring its benefits are sustained over the long term.

7.3.239 During the pilot site visits an additional 'monitoring' question was used in the Risk category. This sought to establish what percentage of the woodland had been damaged during the period between planting and establishment. This was based on similar monitoring incorporated in the Sustainable Forestry Indicators (2010)[153] and the Farm Environment Plan Manual[154]. However, concerns were raised during the pilot visits over the amount of effort such assessments of damage might require. In addition, damage may occur to a woodland despite risks having been considered and mitigation measures put in place. This could potentially lead to an applicant being unfairly penalised for events that were outside of their control. As a result this question has been scoped out.

[152] Forestry Commission (2011) Forests and climate change: UK Forestry Standard Guidelines [online] available at: http://www.forestry.gov.uk/pdf/FCGL002.pdf/$FILE/FCGL002.pdf

[153] Forestry Commission - Sustainable Forest Management Indicators 2010 [online] available at: http://www.forestry.gov.uk/website/sfmindic2010.nsf

[154] Natural England (2010) Higher Level Stewardship Farm Environment Plan (FEP) Manual, Third Edition [online] available at: http://publications.naturalengland.org.uk/publication/32037

7.3.240 A positive answer to this question will increase the total score awarded in each category by 10%. As a result, a point based system is not used for this question. It should be noted that even if a 'yes' response is recorded for Path One, Q.1, a 'no' response to this question will result in the respondent not gaining the 10% increase in category scores[155].

Accompanying guidance is likely to be similar to that of Path One, Q.1 in setting out the risks that might be considered, sources of information of their likelihood, and means of managing them. Particular emphasis might be placed how threats to a woodland can change over time (e.g. pests that effect woodland during different life stages), and the means by which they could be tackled.

7.3.241 The evidence used to support claims associated with risk management are likely to be similar to those used during the establishment stage and may include assessments of risk incorporated in design documents (e.g. Woodland Carbon Code documentation) or contracts, management plans. Reports of emerging local, regional, and national threats may demonstrate an understanding of the risk context, whilst statements from the forest manager or a third party could be used to show how these contextual considerations have been incorporated into updated risk management plans.

7.4 The Reporting Output

Total score calculator

7.4.1 As described in Box 7-5 above, for each response given to the question featured in the Underlying Tool a score is given both for the Category in which it sits in (e.g. Wildlife) and for Transparency (i.e. the provision of evidence to support a claim). These scores are added automatically in a 'total score calculator' which can be found at the bottom of the Underlying Tool tab.

Figure 36 - Screenshot of the total score calculator

Total Scores

Wildlife Scores	Wildlife Score (% of total available)	Community Scores	Wildlife Score (% of total available)
Route One:	100%	Route One:	100%
Route Two:	100%	Route Two:	26%
Route Three:	64%	Route Three:	33%
Total Score:	81%	Total Score:	50%
Water Scores	**Water Score (% of total available)**	**Climate Scores**	**Climate Score (% of total available)**
Route One:	33%	Route One:	100%
Route Two:	10%	Route Two:	80%
Total Score:	18%	Total Score:	84%
Managing Risks	**Managing Risks? (Increase 10% across all categories for 'Yes')**	**Transparency Score**	**Transparency Score (% of total available)**
	Yes		81%

Final Wildlife Score:	90%	Wildlife Badges Awarded:	5
Final Water Score:	20%	Water Badges Awarded:	1
Final Community Score:	56%	Community Badges Awarded:	3
Final Climate Score:	93%	Climate Badges Awarded:	5
Final Transparency Score:	81%	Transparency Badges Awarded:	4

7.4.2 A screenshot of the total score calculator above in Figure 7.32. This example shows the calculations for a woodland which is particularly strong in terms of the Wildlife and Climate Categories. As can be seen:

[155] NB. When a woodland is at Stage One of the assessment a positive answer to Path One: Q.1 will increase the category scores by 10%. At Stage Two of the assessment, a positive answer will be required for both Path One: Q.1; and Path One: Q.2 in order to receive a 10% increase in category scores. At present this functionality hasn't been built into the Excel tool due to the complexity involved in doing so. The current tool will only give +10% if both risk questions are answered positively (i.e. it assumes that the respondent is at Stage Two). It is envisioned that this functionality could more easily be built into a web based version of the tool, or could be built using a Macro if a more advanced Excel version was desired.

- Percentage scores are given for each Route within each Category[156] – e.g. this woodland scored 85% of the points available for Wildlife Route Two
- A total score is given for each of the Categories – e.g. this woodland scored 54% of the total number of points available for Community
- A total score is calculated for Transparency – e.g. this respondent scored 87% of the total number of points available for providing evidence
- The calculator records whether positive answers have been given for Managing Risks and automatically increases the final score for each category by 10% if it is.
- The final scores for all Categories and Transparency are summarised and 'Symbols' are awarded on the basis of:
  - Score below 10% = 0 Symbols
  - Score 11% to 20% = 1 Symbol
  - Score 21% to 40% = 2 Symbols
  - Score 41% to 60% = 3 Symbols
  - Score 61% to 80% = 4 Symbols
  - Score 81% to 100% = 5 Symbols

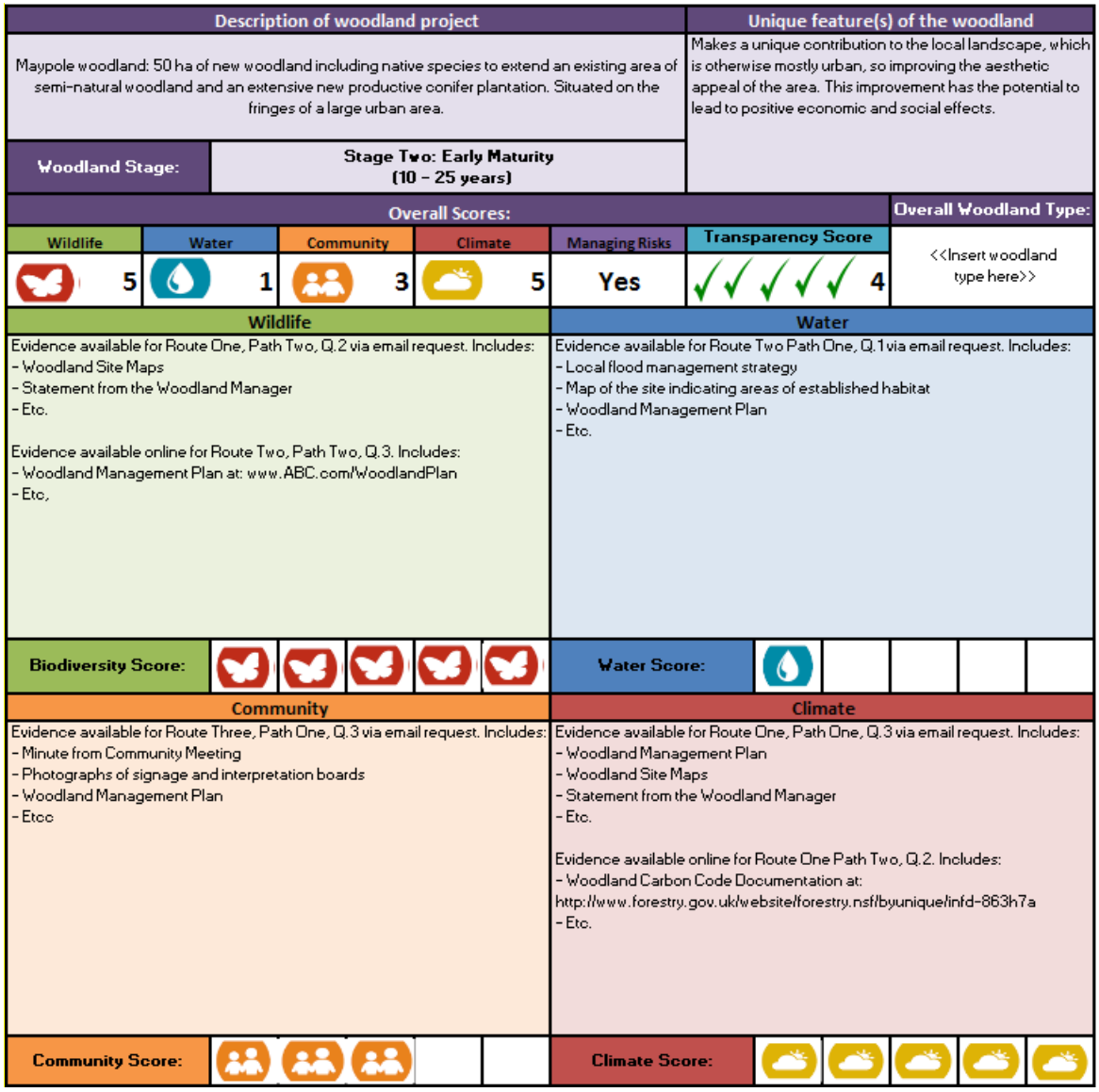
7.4.3 The number of Symbols awarded to a woodland for each of the Categories and for Transparency is then automatically transferred to the Reporting Output sheet which can be found in tab One of the accompanying Excel version of the tool.

The Reporting Output sheet

7.4.4 The purpose of the Reporting Output sheet is to summarise the results of the underlying assessment and to point interested parties towards the evidence that is available. As such, it is intended to both highlight the achievements of respondents and to provide a means for third parties to request evidence about the claims made. This reporting sheet has been developed on the basis of a prototype drawn up by Mark Broadmeadow of the Forestry Commission.

[156] NB. The total score currently sums the points available across all Stages in the woodland lifecycle. This means that a woodland in Stage One: Design & Establishment will be unable to be awarded full points in any of the categories. Future iterations of the tool should seek to include a total score for each stage, with Symbols awarded on the basis of the total number of points scored across all completed stages.

Figure 37 - Screenshot of the final Reporting Output



7.4.5 Figure 7.33 shows a completed example of the reporting output. As can be seen the Reporting Output sections is broken up into several sections, with these being:

- *Description of woodland project*: This box is to summarise the woodland project in terms of its structure and any other contextual factors considered to be relevant. This should allow any interested party to quickly get an idea of the type of woodland project that the tool is assessing.
- *Unique features of the woodland*: This box was included on the basis of feedback from the pilot site visits and corporate interviews that suggested that respondents should be given the opportunity to highlight 'hard to describe' benefits of their woodland project which might otherwise be overlooked by the tool. This was considered important due to the diversity of woodlands and their contexts. A scoring system has not been used for this question given the difficulty in defining a unique feature and so setting out guidance on how such claims might be made, so potentially limiting the scope for assessment by a third party. There is, however, the opportunity for a 'symbol' to be developed to visually indicate a claim of uniqueness (i.e. something equivalent to the butterfly, raindrop etc. symbols)

- *Woodland Stage*: This details the stage in the woodland's life that the assessment has been completed.
- *Overall Scores*: The Symbols awarded for each of the Categories and for Transparency are recorded here. The figures are automatically updated from the total score calculator in the underlying tool. These symbols provide a visual indication of the woodland's achievements. Sitting alongside the narrative text these symbols will clearly indicate the degree to which a woodland has scored points against the Wildlife, Water, Community, and Climate categories. It is anticipated that these graphics and their accompanying narrative should translate well into company reporting, particularly in terms of material promoting CSR successes.
- *Evidence Boxes*: For each of the categories there is a large box for respondents to insert details of the evidence that is available to third parties. This may include evidence that has been uploaded and so is available online, plus evidence that can be requested (e.g. by email). Respondents will be required to make clear which question(s) evidence relates to, so enabling easy monitoring of claims by interested third parties.
- *Category Scores*: The Symbols awarded for each Category are shown below the Evidence Box. These are images taken from the UKFS and must be copy and pasted manually by the user in the present Excel version of the tool.

7.4.6 The Reporting Output sheet will be made available online, ideally on a registry similar to that of the Woodland Carbon Code[157]. Concentrating the Reporting Outputs in one location in this manner may allow easier monitoring by interested third parties by ensuring that the Outputs are accessible. If it were to be launched in future, a non-excel Reporting Output Sheet may also be used to improve the user interface and design.

[157] Forestry Commission - UK Woodland Carbon Code Registry: Public View [online] available at: http://www.forestry.gov.uk/forestry/infd-997cdg

8 DISCUSSION

8.1 Introduction

8.1.1 This chapter reflects on a number of challenges encountered in the conduct of this project and in the development of the proposed reporting framework and indicators. It then turns to consider the value and limitations of the pilot tool, including its value with reference to EnviroMarket's (2013) Catalysing Impact Investment in Woodland Creation: Measurement, Reporting and Rating Impact Woodland Carbon Code, the Grown in Britain agenda, and wider natural capital valuation and corporate reporting priorities.

8.2 Challenges in undertaking the research

8.2.1 The project revealed the numerous challenges that are associated with achieving the project objectives whilst also taking account of the priorities of various interested parties. This section reports on the most important challenges encountered.

An area of growing interest with many disparate initiatives

8.2.2 The research team had a constrained budget with which to identify and appraise the proliferating literature and related initiatives in the growing area of natural capital, including other related pilot studies commissioned by Defra, the Forestry Commission and others. Insofar as was possible, the study took into account existing guidance, reporting frameworks and indicator sets specific to the woodland and forestry sector, as well as in the wider area of natural capital valuation. The study also examined international corporate reporting frameworks and leading businesses' in-house approaches to corporate reporting.

8.2.3 The study also drew on research undertaken as part of EnviroMarket's (2013) *Catalysing Impact Investment in Woodland Creation: Measurement, Reporting and Rating Impact*. Further related reports and initiatives were brought to the team's attention over the course of the study, including by the steering group and by corporates and woodland stakeholders involved in the project's road testing with businesses and pilot testing at woodland sites. Within the tight timeframe and constraints of the study, the project team had limited capacity to fully consider all these various reports and initiatives in detail. Necessarily the project research team focused on frameworks that most closely related to the scope of the study and which enabled more direct transferability, whilst taking note of wider developments. These are documented in the literature review proforma in Appendix A.

8.2.4 The range of corporate perspectives obtained was more limited than hoped, with reasons for declining an invitation to participate including:

- corporate reporting on benefits of woodland investment not being a current priority;
- a preference to prioritise limited resources on other related initiatives; and
- a lack of availability within the timeframe.

However, the project was able to draw on understanding from EnviroMarket's 2013 study regarding corporate attitudes towards reporting.

The wider policy and economic context for woodland creation

8.2.5 Stakeholders involved in the research identified wider barriers to increased rates of woodland creation in the UK. This includes current frustration amongst stakeholders that corporates are not permitted to claim 'carbon offsetting' credits from the sequestration of carbon achieved via their investment in woodland creation in the UK. Stakeholders in two of the pilot sites expressed a strong desire for a change in UK policy regarding the ability of businesses to claim carbon offsetting gains. This influenced attitudes towards the pilot tool, with a challenge for the business case to be more strongly demonstrated. This coloured stakeholder views on the desirability of the pilot tool, with a concern that it would impose further additional costs for woodland creation, making it less rather than more attractive as an investment.

Many indicators to choose from but not all relevant

8.2.6 The various reporting frameworks and wider literature that was reviewed included a large number of indicators, many of which would be potentially relevant to the pilot framework. It proved impossible within the scope of this study to methodically consider all relevant indicators. Feedback from pilot sites indicated a strong preference for avoiding the collection of baseline data and a preference for indicators that would enable desk-based completion of the framework. These preferences imposed limits on the range of appropriate indicators.

8.2.7 Many woodland-specific indicators relate more to established woodlands and their management, or to commercial forestry, rather than to small woodlands. Pilot site testing demonstrated that such indicators would be inappropriate at the initial woodland creation stage, and in some cases, even in the 10 - 25 year period following woodland establishment. The pilot visits were very informative in terms of selecting indicators capable of working over relevant timescales. However, the proposed indicators may prove too sector specific to be welcomed by corporates with interests crossing sectors and countries.

8.2.8 The small size of most newly created woodlands in the UK may create some challenges in terms of the pilot framework. The costs involved in establishing benefits for sites with very small margins may prohibit some small woodlands from participating in using the tool, despite best efforts to minimise the resources required to complete the tool (e.g. by making it a desk based exercise insofar as was possible). An impact based framework is likely to be even further beyond the reach of most small woodland owners and operators given the greater resources involved in such assessments. One approach to this problem in future tool development may be to create a slimmed assessment for woodlands beneath a certain size, where certain questions are omitted from the tool. A tiered set of requirements based on woodland size is used in the UKWAS, so such an approach is not without precedent.

How to reflect carbon capture and climate change benefits?

8.2.9 For many corporates, climate change is identified as their most important corporate responsibility priority, with other social and environmental benefits considered secondary to it. For them it is likely to be desirable that the pilot tool relates to the Woodland Carbon Code, as this represents an established and trusted means of measuring and reporting carbon capture by new woodlands. All of the pilot sites were certified Woodland Carbon Code projects. At these sites levels of support were mixed about including carbon indicators as part of the pilot tool. Simplified or alternative measures of carbon benefits could have the potential to undermine the Woodland Carbon Code by enabling green-wash claims. At the same time, it is also desirable that corporates are able to be able to present their total contribution, including carbon capture and other social and environmental benefits, in a single streamlined reporting framework.

8.2.10 Given the benefits associated with demonstrating total contribution, efforts have been take to ensure that the perverse outcomes associated with reporting of carbon in the pilot tool should not occur, for example through encouraging transparency and third party scrutiny, and linking questions with the monitoring steps included in the Woodland Carbon Code. However, future development of the tool should consider the implications of the inclusion of the Carbon Category and its associated questions in the tool.

The challenge of balancing comparability and flexibility

8.2.11 The choice of pilot sites in Scotland, England and Wales raised challenges for the pilot tools' development in terms of framing questions that were sufficiently flexible to work across these countries and rural / urban contexts but also would still enable comparability. Particular examples of relevant differences include:

- differences in public access rights and landowner responsibilities;
- differing statutory consultation obligations;
- differing water issues in upland Scotland, southern England and Wales;
- differences in scale and type of demand for leisure uses of woodlands in urbanised and rural areas, e.g. shooting and fishing or walking and cycling;
- differing purposes of woodlands, for example primarily amenity use or primarily productive, or primarily carbon capture;

- differences in existing national evidence datasets (e.g. Natural England's Woodland Calculator tool in England); and
- differing climate change-related concerns.

Overall time and resource constraints of the project

8.2.12 It proved challenging within the timeframe of the project to fully reflect all the different sources of evidence, to methodically translate this evidence into a functional pilot tool suitable for testing, and to subsequently further develop the tool on the basis of feedback received whilst capturing all the different considerations. The research team has prioritised the creation of a fully developed workable pilot tool that reflects stakeholder feedback. The pilot testing used a partially completed set of assessment questions, and without a fully developed scoring system. The timeframe did not allow for a second phase of testing the pilot tool, either at woodland creation projects or with corporate stakeholders

8.3 The value of the proposed pilot tool and its limitations

8.3.1 The final pilot tool has been developed with reference to a set of guiding principles in order to ensure that the aim and objectives of the project are achieved. The development process has taken into account a range of stakeholder considerations and concerns in wider related agendas, including the need to streamline standards and metrics, and to encourage greater corporate investment in woodland creation.

Synergies with EnviroMarket research on impact investment in woodland creation

8.3.2 The pilot tool offers synergies with EnviroMarket's (2013) research, which explores the measurement and reporting of social and environmental impacts generated through woodland creation from the perspective of impact investors. The report identifies two main types of impact investors. Thematic investors look for market rate returns and take positive outcomes as a reasonable proxy for impact – i.e. they don't reference outcomes against a baseline. Impact first investors can accept sub-market returns but look for explicit measurement of impact – i.e. they seek outcomes measured against an agreed baseline.

8.3.3 In terms of attracting impact investment, the majority of corporates that could invest in woodland creation are for profit, and report outcomes/output in line with frameworks such as GRI. These investors will be interested in the extent to which woodland creation improves their underlying/relative environmental and social performance.

8.3.4 In terms of achieving increased investment in woodland creation, a better understanding of impact could clearly help to strengthen the internal case for woodland creation amongst leading corporates to demonstrate the 'net positive impact'. However, broadly agreed baselines are a prerequisite for measuring and reporting impact, and whilst the Woodland Carbon Code establishes such a methodology for carbon impacts, development of standardised approaches for other benefits of interest (e.g. biodiversity) is ongoing.

8.3.5 For the majority of corporates that could invest in woodland creation a main driver is likely to remain commercial and financial, as illustrated by United Utilities' investment in woodland creation across water catchment areas towards satisfying its obligations under the EU Water Framework Directive. Corporate adoption of the pilot tool will be influenced by the extent to which new measurement and reporting add to the reporting already undertaken and / or require additional resources. These findings suggest that, at this stage, the most suitable approach for the majority of corporates will be one that focuses on positive social and environmental outcomes, whilst leaving open the potential to measure and report impact as understanding and experience develops[158]. The approach taken in the pilot tool should satisfy the requirements of thematic investors, who represent the greater volume of investors potentially able to invest in woodland creation in the UK.

8.3.6 Whilst the rationale for adopting an approach that reports outputs and uses proxy indicators for likely impact is strong, it nevertheless is important to acknowledge that limitation of the proposed tool is that it does not measure outcomes against an agreed baseline, meaning that

[158] EnviroMarket (2013) Catalysing Impact Investment in Woodland Creation: Measurement, Reporting and Rating Impact. [unpublished draft report submitted to Forestry Commission. Expected to be published in 2014]

it may be considered inadequate by impact investors. This choice has been discussed with reference to the trade-off between the associated costs versus the greater reliability of outcomes measured against a baseline. This limitation is in turn likely to influence the opportunity for the pilot tool to be streamlined with international standards and metrics that are based on comparable baseline.

Robust metrics, transparent reporting

8.3.7 The project aims state that it should propose a 'sufficiently robust' set of metrics and / or indicators. The selected metrics are informed, where possible, by scientific evidence, including standards and guidance. Indicators have been refined to be meaningful across a range of woodland types and contexts, taking into account pilot feedback. However, the measures do seek to establish a baseline for woodland benefits. The proposed tool uses transparency as a means of supporting confidence in the tool and in the assessments of individual woodland projects, by encouraging evidence availability. The tool methodology and supporting guidance will be available to businesses and their customers, so allowing people to understand more about the chosen metrics and indicators, and to critique the approaches taken by respondents should they wish. The approach is based on self-assessment, with no formal independent verification or auditing of the assessment as part of the initial version tool. This means it would be reliant both on the honesty of those completing the assessment and on the interest of third parties in checking whether claims are truthful. With wide uptake of the tool, or its streamlining with other natural capital valuation tools, there would be the potential for third party verification to be introduced.

Compatibility with natural capital valuation frameworks

8.3.8 Natural capital accounting and markets for ecosystem services, including Payment for Ecosystem Services (PES), are a particularly rapid area of development at present, though not without challenge to their adoption. Throughout the pilot tool's development, there has been consideration of how proposed metrics reflect different types of ecosystem services (see Appendix D). However, ecosystems services terminology is not easily accessible to general business users or customers not currently engaged with this agenda. In terms of ease of presentation, the project avoided use of ecosystem services terminology.

8.3.9 The tool, whilst is ties in well with existing UK woodland-specific requirements and guidance, needs further development to connect with the wider emerging natural capital and payment for ecosystem services approaches, which requires the establishment of a baseline and absolute metrics for measuring the additional value creation. It is likely that an alternative tool would need to be developed to fully contribute to natural capital valuation. Such a tool would respond more fully to the requirements of impact investors as well as land owners seeking to sell the ecosystem services resulting from their actions. At the same time, lessons can certainly be drawn from the development of the pilot tool, for instance from stakeholder feedback (e.g. from the Green Investment Bank), and the development of the tool's structure (e.g. allowing data collection to be flexible, but supporting best practice by including guidance on the methodologies appropriate to different contexts).

8.3.10 The current pilot tool provides an initial stepping stone towards the development of a more impact orientated appraisal of benefits by allowing the social and environmental benefits of a woodland creation project to be scoped. For instance, the tool could be used to aid PES-scheme development by enabling the scoping of woodland benefits using PES schemes. It may be particularly useful to create 'layered' or 'bundled' PES (in which multiple ecosystem services are sold to multiple or single buyers) by making clear the multitude of ecosystem service benefits that a woodland project will bring about. For instance, the Woodland Trust brought together a range of beneficiaries in a 'layered' PES scheme at the MOD owned Warcop Training Area. These beneficiaries included retail companies wishing to pay for carbon sequestration and the North Pennines AONB contributes to the project in order to see improvements made to Black Grouse habitat.[159] This example highlights the potential usefulness of the tool to PES-interested intermediaries such as the Woodland Trust, given its focus on clearly highlighting multiple woodland benefits.

[159] Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, C. and White, C. (2013). Payments for Ecosystem Services: A Best Practice Guide – Case study annex. Defra, London.

8.3.11 There is also potential for guidance accompanying the current tool to contribute to PES scheme development by highlighting examples of where management actions might be funded through PES. For instance, whilst payments for ecosystem services are usually made for improvements in the flow of natural services, land management changes are often used as a proxy for these benefits ('input-based' payments). In addition, accompanying guidance could also link to methods of collecting rigorous data to support responses to the tool's 'monitoring' questions. The collection of such data by interested respondents could potentially support 'output-based' payments which are the basis of actual ecosystem services provided.[160] Such rigorous evidence could also potentially contribute towards natural capital reporting efforts.

8.3.12 In terms of 'output-based' PES scheme development and natural capital reporting, it should be noted that the measurement of baseline and resulting changes in ecosystem services is likely at present to be in many cases difficult, resource intensive, and context-dependent. This latter point particularly was highlighted during the pilot site assessments, which demonstrated the range of factors that influence the opportunities for change at individual sites and between individual woodlands. The difficulty of developing indicators sets that cover all contexts, even within the sector in Britain, cannot be underestimated.

Relationship with Woodland Carbon Code

8.3.13 The pilot tool provides corporates and thematic investors with a means of reporting positive social and environmental outcomes of their investment in woodland creation in the UK, covering a range of themes that are complementary to the carbon capture reported using the Woodland Carbon Code. It is expected that the inclusion of a Climate Category in the pilot tool will encourage greater uptake of the scheme. The requirements of this Category draws strongly from the existing code and it is expected that guidance will point to the scheme as a means of ensuring that high points are scored for Climate. In addition, by providing a means by which WCC benefits can be reported as part of a woodland investor's total contribution it is hoped that companies will be encouraged to promote the benefits of their woodland creation activities more prominently. However, the pilot tool is a 'tool' which can help inform decision-making and enable reporting, but is different from the Code, which is an established standard, with an agreed process for projects to be certified. The pilot tool should not be added as a component of the Woodland Carbon Code.

8.3.14 The pilot steering group also recognised that the tool has potential value that extends wider than the Woodland Carbon Code, particularly in its potential value to intermediaries to attract investment and to enable reporting on benefits, including for projects that are not certified with the Woodland Carbon Code.

Relationship with emerging research on influencing woodland creation decisions

8.3.15 Emerging research commissioned by Defra and the Forestry Commission into the attitudes and motivations of farmers in terms of woodland creation may be of use to intermediaries attempting to increase rates of woodland planting using the tool developed during this study. This research used a segmentation model to group farmers according to their shared characteristics, including data on the woodland benefits that might encourage them to plant more woodland in future.[161] This analysis showed that wildlife habitat is considered to be the most important benefit by farmers across all of the segments established during the study. Such information may aid intermediaries by allowing them to highlight how woodland creation might bring about benefits of interest to farmers (e.g. using the results of the tools Wildlife category), plus the wider benefits of woodland planting that these stakeholders may not have previously considered.

Addresses a range of practical concerns of woodland investors, managers and owners

8.3.16 The pilot tool can be completed as desk based study by either a woodland manager, an agent to the woodland owner, or by a corporate investor's corporate reporting team. As such, it

[160] Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, C. and White, C. (2013). Payments for Ecosystem Services: A Best Practice Guide. Defra, London.

[161] Quick, T., Smith, S., Johnson, M., Eves, C., Langley, E., Jenner, M., Richardson, W., Glynn, M., Anable, J., Crabtree, B., White, C., MacDonald, C., and Slee, B. (2014). Analysis of the potential effects of various influences and interventions on woodland management and creation decisions, using a segmentation model to categorise sub-groups - Volume 4: Woodland creation segmentation and assessment of interventions. Defra, London.

should not place an undue burden on woodland stakeholders in terms of resources, a concern that was raised both during corporate interviews and discussions during the pilot site visits. At the same time, the flexible evidence base and supporting best practice guidance will enable those who wish to go further in their collection of evidence to do so.

8.3.17 The proposed pilot tool provides compatibility with the main existing UK forestry standards, including the UKFS, UKWAS, and the Woodland Carbon Code, whilst questions and supporting guidance have been deliberately designed to be easily adaptable to changing policy. This will streamline reporting requirements, thereby helping to address stakeholder reservations about the development of a new tool.

8.3.18 The tool has been structured in a way which should be easily converted into a web-based tool. This will enable easy access for businesses wishing to undertake the assessment, speedy and easy updating of accompanying guidance, and should enable the results of any assessment to be made available on a businesses' website. An online approach will also enable evidence to be made available easily to interested third parties.

8.3.19 By including two or more assessment 'stages' the pilot tool will encourage woodland investors and managers to consider how their future woodland management could achieve a higher score in future. The tool's potential influence on the design and management of woodlands was acknowledged during the pilot site visits, with it being seen as a means of guiding action to deliver increased social and environmental benefits. As such, the pilot tool and its accompanying guidance can be seen as a resource for woodland stakeholders as well as being a means of recording benefits.

8.3.20 As set out in Chapter 6 and 7 above, the tool has been designed with simplicity, user-friendliness, and completeness in mind. This has involved consideration of the value of each question and stage included in the assessment, so ensuring that the tool does not require excessive resources to complete. This need for simplicity and 'lightness' was at all times carefully balanced with the need to ensure that comprehensive assessments are undertaken, so making the results of the assessment worthwhile in terms of reporting.

8.3.21 The pilot tool has been designed to record the positive benefits of woodland creation and so does not penalise businesses where a particular woodland does not, or cannot, achieve certain desirable outcomes. This is necessary given the wide variety of woodland types and contexts that exist. The importance of such an approach was highlighted during the pilot site visits.

8.3.22 The pilot tool is designed to be flexible to the range of different woodland types and settings across the UK, including within England, Scotland and Wales. This is important given the differing socio-economic, geographical, and ecological contexts in which woodland creation takes place (e.g. varying policy contexts, river basin characteristics, and species suitability). Whilst the questions used in the tool have been kept deliberately broad, it is expected that accompanying guidance will set out how approaches and their associated benefits may vary dependent on context.

Practical limitations

8.3.23 At present, the tool is designed to assess a single woodland at a time. However, for investors with several new woodland creation projects, it would be desirable for the tool to be capable of reporting for a number of newly created woodlands and for the benefits to be reported together. Future development of the tool may involve examining how the Woodland Carbon Code has been adapted to allow the assessment of multiple projects (e.g. at Buccleuch) .,

8.3.24 The pilot sites were selected according to the range of social and environmental benefits that needed to be tested. However, these sites were limited in the range of ownership types, reflecting somewhat atypical woodland owners, and excluding any sites owned by private farmers. Major estates, such as the Buccleuch Estate, operate with very different systems of governance and approaches towards woodland investment when compared to farmers. The findings of the woodland creation segmentation study recently undertaken by URS[162] on

[162] Due for publication in February 2014: Forestry Commission & Defra – Analysis of the potential effects of various influences and interventions on woodland management and creation decisions, using a segmentation model to categorise sub-groups, Volume 4: Woodland creation segmentation and assessment of interventions

behalf of Defra may be useful in understanding how farmers and other types of woodland owners would respond to the reporting framework and what may be needed to encourage uptake of the proposed reporting framework by different types of woodland owners.

8.3.25 The choice, wording and selected indicators vary in terms of whether they are 'yes / no', or 'high/ medium / low' indicators. The approach to assigning some of these values requires further testing and validation, with inputs by experts in different specialist areas.

9 CONCLUSIONS, RECOMMENDATIONS AND NEXT STEPS

9.1 Introduction

9.1.1 This chapter identifies some of the key findings from the research. It should be noted that this pilot study was identified as a starting point for considering possible options and it was not envisaged that the pilot tool produced would be immediately ready for application at a national scale or would fully address all of the challenges associated with this emerging and contested area of policy development.

9.1.2 The chapter rounds up by suggesting areas for further research and challenge, particularly to obtain further feedback from potentially interested businesses and intermediaries regarding the potential uses of the pilot tool and what further work is required to support corporate reporting of the environmental and social returns of new woodland creation.

9.2 Conclusions

9.2.1 The pilot reporting framework themes address the woodland benefits identified as being of most importance to businesses, including climate, water (quality and flood-related), economic contribution to local communities, recreational value and the protection and enhancement of biodiversity, with the benefits of carbon capture the most strongly identified impact of interest for corporates' response to climate change.

9.2.2 The pilot tool in its current form is designed to capture specific environmental, social and economic benefits in relation to woodland creation activities. It streamlines with existing woodland management standards and relates to comparable initiatives for woodland management, such as the Sylva Foundation's woodland star rating. In doing so, it provides a means for woodland owners and corporate investors in new woodlands to better recognise 'unsung' benefits, such as water quality, community use and biodiversity, alongside the better recognised carbon sequestration benefits. It offers an approach which can balance demands for simplicity and for rigour, within the context of emerging efforts to develop more robust measurements of the many and varied ecosystem service benefits of woodlands.

9.2.3 The pilot tool successfully brings to life the variety of environmental and social benefits achieved through new woodland creation, with a relatively simple set of scored metrics under four main areas, namely wildlife, community, climate and water. It generates as its main output a 'balanced scorecard' style visual summary of the benefits, which is intended to be attractive for corporates and other investors to help them build a business case to support woodland creation. The pilot tool's front-page output offers flexibility for more committed corporates to voluntarily monitor and report verifiable quantitative evidence to demonstrate the reliability of their claims. The format also provides flexibility for it to be adapted in the future to include reporting of other outputs, for example to give greater emphasis to the timber production.

9.2.4 The pilot tool can be used alongside the Woodland Carbon Code for investors to report on the benefits additional to the carbon captured for certified projects. But it also has potential wider applicability than the WCC, to encourage corporate investment in new woodland, potentially through its use by intermediaries to communicate and market the benefits of new woodland. It also has potential for use by corporates as a decision-making tool to guide their investment choices, based on a more integrated understanding of the social, environmental and economic returns offered by investment in new woodland.

9.2.5 The balanced scorecard could be reproduced in corporate reporting and communications, such as customer-facing webpages, so that corporates could communicate a greater range of benefits than is currently the case. There remains the need for further corporate feedback on how the outputs could be used in reporting and communications.

9.2.6 The pilot tool uses indicators that are compatible with existing forestry sector standards and guidance, based on available scientific evidence, whilst scores for 'transparent' reporting are used as a cost-effective means to support confidence in the tool's outputs. The pilot tool includes metrics that reflect impacts, or benefits, that are compatible with different types of ecosystem services. It has been designed to respond to a range of practical concerns of stakeholders concerning the costs and practicalities of adoption.

9.2.7 An important limitation of the proposed tool, in its present version, is that it does not involve the establishment of a baseline and use of absolute measures to fully satisfy the principles of leading corporate reporting approaches or to support PES schemes.

9.2.8 The tool, by refining understanding of which outputs are relevant for new woodland creation that can be measured at different stages in a woodland's development, moves forward understanding of what metrics would be appropriate for a future net-benefits reporting tool. This can be used in future work to move towards a reporting tool that more fully responds to the needs of impact investors and for payments for ecosystem services, including establishment of a baseline and absolute metrics. Whilst some suitable metrics do exist, particularly concerning carbon capture, timber production, others including benefits for flood alleviation, biodiversity benefits and community involvement, would need to draw on ongoing initiatives to develop suitable metrics, such as the Scottish Forest Alliance's work on biodiversity metrics[163]. It would be valuable to identify a combination of metrics that enable comparison across sectors as well as woodland sector-specific metrics. This would enable major corporates to report the returns from woodland investment in combination with other forms of investment, which is an increasing emphasis for leading reporting frameworks. This pilot tool provides a basis for greater comparability between woodland creation projects, but has not grappled with identification of measures that could also be used in other sectors.

9.2.9 Businesses already report on corporate sustainability and on corporate responsibility through a range of initiatives, such as the London Benchmarking Group and the IIRC, with associated principles for reporting value creation. Businesses communicate the benefits of investment in wider corporate communications, such as to inform customers about the numbers of trees planted, sometimes converted into the amount of carbon dioxide removed from the atmosphere, and less frequently, description of the range of wider potential benefits for people and the environment. The Scottish Forest Alliance provides an important example of development of biodiversity KPIs specific to woodland creation suitable for impact reporting, with BP as the key investor.

9.2.10 However, in general, in both sustainability reporting and corporate responsibility reporting, the measurement of, and reporting on, impact is at an early stage, particularly for sector specific investment. The pilot tool in its current form does not satisfy all the requirements of good corporate reporting requirements for assessing materiality, including for payment for ecosystem services schemes. Further work is required to address the opportunities for making the pilot tool and its outputs compatible with corporate standards and good practice for reporting, as well as for use in wider corporate communications.

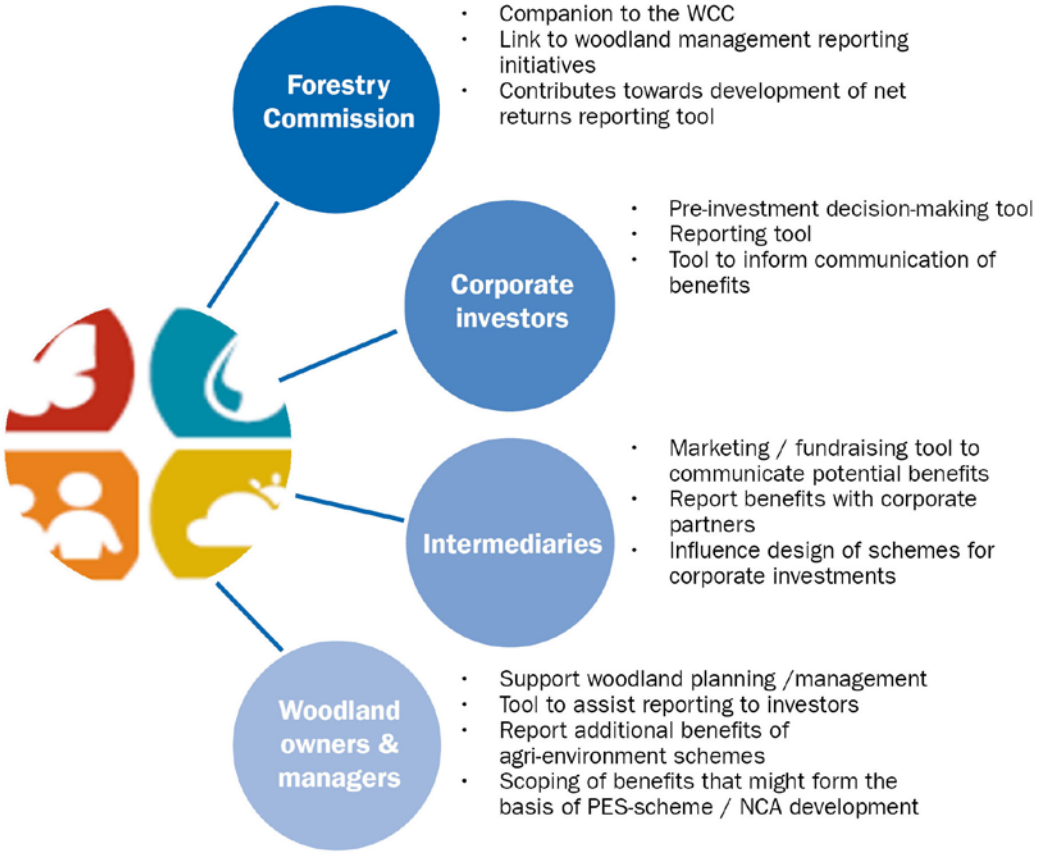
9.2.11 Woodland owners and managers as well as other intermediaries for investment in woodlands express concerns that the costs borne by them to satisfy the requirements of existing certification schemes (such as FSC) can discourage their adoption. The pilot tool has been designed to minimise this burden. There remains work though to convince intermediaries that the tool could actually support them in attracting corporate interest in new woodland creation.

9.2.12 The planned further testing of this tool by Grown in Britain should support further understanding of corporate and intermediary views regarding the potential value of the pilot tool. Potential uses agreed by the steering groups include its potential value to intermediaries, including charities committed to tree planting, as a marketing tool to secure funding; as a tool to aid corporate decision-making by illustrating to potential investors the benefits of new woodland creation; and as a tool for corporates to measure and report the benefits of their investment.

9.2.13 The range of potential users and uses of the pilot tool are illustrated in Figure 38 overleaf.

[163] Smith, M., Cowie, N., Atkinson, S. & Harve, G. (2010) Long term biodiversity planning and monitoring of new native woodlands' Presenting author Mike Smith, Chair SFA Biodiversity Working Group, Scottish Forest Alliance.

Figure 38: Potential uses of the pilot tool



Recommendations and next steps

9.2.14 The following recommendations and suggested next steps are for the Forestry Commission and the project steering group to consider, both in reviewing the pilot tool and draft report and in further efforts towards enabling corporate reporting of the social and environmental benefits of woodland creation.

Define more closely the ownership, identity and purpose of the pilot tool

9.2.15 Engage further with corporate investors, intermediaries, such as Grown in Britain members, to decide whether the tool should be 'owned' by the Forestry Commission , with guidance developed to support its use as a nationally-recognised tool, or whether it should be made available for corporates and intermediaries to adopt and tailor to their own needs; this should include testing with voluntary organisations committed to woodland planting, to test its potential value as a tool to support their efforts to raise money for their woodland planting plans.

9.2.16 Promote the pilot tool as a potential companion to the Woodland Carbon Code, which may help to encourage investors to seek certification with the code. But keep it as a distinct tool, not as part of the code, which is a standard requiring verification.

9.2.17 Further engagement with corporates, including through practical trialling of the pilot tool, should be undertaken to explore its strengths and its limitations for corporate reporting and communications purposes. This should also include consideration of how far it can also be used for reporting the benefits of existing woodland management.

Develop a process for testing of the pilot tool and a potential investor pool

9.2.18 Consider the development of a set of 'completed case studies' which demonstrate the application of the pilot tool. Given the considerable *pro-bono* input to date by various parties involved with the pilot site visits, it is recommended that woodland managers be compensated

for any further time required to prepare these case studies. These case studies and completed assessments would enable testing of the pilot tool. The case studies could also be used to promote the pilot tool for wider uptake.

9.2.19 Consider creating a project pipeline, potentially identified from the Woodland Carbon Code register, and use the pilot tool to profile a range of woodland creation opportunities. By identifying interested parties who have signed up to the Grown in Britain initiative, particularly those who are also members of the London Benchmarking Group (LBG), seek to engage with these organisations to create an investor pool to consider investment in identified new woodland opportunities.

Scope and life of tool

9.2.20 Seek further feedback from corporate investors and intermediaries regarding the scope of the tool, including:

- How a single corporate investor in woodland can most efficiently use the tool to report the benefits of multiple woodlands or investment in tree planting across a portfolio of sites;
- The desired tool lifespan, in terms of whether the tool remains limited to assessment during the early stages of woodland creation and establishment, or whether it will seek to capture the benefits of creation through to maturity;
- Corporate views on the inclusion of 'transparency' as part of the scoring system used and the appetite for third parties having a role in use of the tool. As a tool, rather than a standard, the pilot tool does not involve any associated verification process. The tool's current format enables and rewards transparent reporting. This makes it possible for interested third parties to check whether self-assessments are reliable. It could also be made possible for third parties, such as local voluntary bodies, to play an active role in use of the tool, for example, to record different community uses of woodland. If supported, this could be set out in supporting guidance, using illustrative case studies.

Development and harmonisation in line with the wider natural capital valuation agenda

9.2.21 Further research is recommended to consider how the research to date, including elements of the pilot tool, can inform the development of an impact-based tool for use in natural capital valuation, PES scheme development, and reporting that more fully satisfies the needs of impact investors. For example, the current tool may prove to be a useful resource for those wishing to identify the broad range of benefits a woodland creation project is capable of bringing about, so providing a basis for later natural capital reporting or PES scheme development. Accompanying guidance could set out how the pilot tool could contribute to such scoping, and could also detail how management actions might be linked to 'input-based' PES schemes, and how more robust evidence might be collected under each question, so providing a basis for 'output-based' PES schemes and information to inform natural capital valuation and reporting efforts.

9.2.22 This should be linked with national and international initiatives regarding harmonisation of natural capital valuation within the public and business sectors, for example by Defra, the IFC and the Natural Capital Coalition[164]. One route forward in this respect is to consider how the tool's accompanying guidance can highlight more rigorous means of data collection in support of claims of attributable benefits, and how such data might be used to support PES scheme development and natural capital reporting. It should also more fully respond to the principles of leading corporate reporting initiatives, such as the LBG and IIRC, as outlined in 3.4 above.

9.2.23 Future development of an impact-focused reporting tool should draw on the Scottish Forest Alliance's work to develop scientific measures for reporting biodiversity benefits of new woodland creation. It may be appropriate to link with other corporates or partnerships focused on other areas, such as the Tweed Forum, concerning flood and water quality benefits.

[164] Project: Developing And Testing A Harmonised Framework For Valuing Natural Capital In Business & Investor Decision Making http://www.teebforbusiness.org/how/natural-capital-protocol.html [Accessed 15/01/2013]

Tool structure

9.2.24 In planning next steps to develop an operational tool based on the pilot tool, we would recommend the FC:

- Consider using the final Excel version pilot tool as the basis to construct a web-based tool with drop down menus or tick boxes that can be completed and uploaded by the woodland manager or agent (e.g. comparable to the Sylva Foundation's Woodland star rating), whilst also keep an Excel 2003 compatible version that can be conveniently used in the field offline;
- Develop a slim-line PDF guide to the tool, which uses web links to wider guidance. Pop-up 'help' boxes as part of the website should also be considered. The purpose of supporting guidance would be to enable assessments to be easily and accurately completed by relevant persons, which might be a woodland manager, scheme manager or agent, or a corporate reporting team.
- Incorporate links or cross-references to existing guidance and frameworks, e.g. to link to EA guidance on water quality within an operational tool and supporting guidance, so that it can be more easily kept up to date.
- Maintain the approach in the pilot tool, which has used language that is flexible so that it links to the current policy context and advice, but is not outdated each time guidance or policy changes e.g. re buffer zones.
- Seek feedback from intermediaries and potential corporate users (including those involved in Grown in Britain) regarding the desirability of the transparency score. Corporates may not wish to report a level of uncertainty. However, in line with reporting principles, such as those of Defra and IIRC, that encourage the limitations of evidence to be reported, this may be desired.
- Whilst the current tool rewards transparency in terms of the evidence base supporting claims, there is also the opportunity to reward woodland stakeholders for the robustness of the evidence they collect. Those claiming to have conducted a robust assessment would gather evidence based on best practice guidance on research methodologies set out in the pilot tool's accompanying guidance. This would reward those companies that go the 'extra mile' in terms of their assessment. The collection of such evidence may also provide a more firm basis for natural capital valuation and PES scheme development. In addition, assessments scored for robustness may be of greater interest to impact investors. Seek feedback from intermediaries and potential corporate users (including those involved in Grown in Britain) regarding the desirability of including such a function in future iterations of the tool.
- Further explore different alternative approaches to scoring 'Community' benefits, including wellbeing and health-focused metric development, approaches which attempt to monetise social benefits or approaches which report the 'distance travelled', in terms of the qualitative difference made to a beneficiary as a result of a particular initiative.
- Seek further feedback from intermediaries and potential corporate users on the basis of the pilot tool regarding the benefits and limitations of the use of a scoring-based tool in relation to the tool's application for different purposes.

APPENDIX A – LITERATURE REVIEW

Standards
Forestry Commission (2011) UK Forestry Standard
Forestry Commission (2013) Woodland Carbon Code, v.1.2
Forest Stewardship Council (2012) Principles and Criteria, v.5
The Gold Standard Foundation, The Gold Standard (online)
Programme for the Endorsement of Forest Certification (online)
UK Woodland Assurance Standard (2013) UKWAS v3.1
World Wide Fund for Nature, Global Forest & Trade Network (online)
Tools
The Environment Bank, Impact Calculator (online)
Natural England, Woodland Potential Calculator (online)
Sylva Foundation, Woodland Star Rating (online)
URS, Ecosystem Services Identification, Valuation, and Integration
Frameworks and reporting methods
Carbon Disclosure Project, Forest Program (online)
Cumbria Woodlands (2012) A Carbon Account for the Woodlands in the Lake District National Park
The Crown Estates, Total Contribution (online)
Forestry Commission (2013) Designing Biodiversity Metrics for Woodlands and Forests – A Review of Practical Approaches for Businesses (draft)
The Global Reporting Initiative, Reporting Framework and Guidelines (online)
London Benchmarking Group (2009) Making a Difference
New Economics Foundation (2009) A Guide to Social Return on Investment
PUMA, Environmental Profit and Loss Accounting (online)
Sets of indicators
Defra (2011) Biodiversity Offsetting Pilots Technical Paper: The metric for the biodiversity offsetting pilot in England
Forestry Commission (2010) Sustainable Forest Management Indicators
Forestry Commission (2002) UK Indicators of Sustainable Forestry
The Global Impact Investing Network, Impact Reporting and Investment Standards (online)
James Hutton Institute, Soil Indicators for Scottish Soils (online)
Natural England, Local indicator of habitat connectivity (online)
Welsh Assembly (2011) Woodlands for Wales Indicators, 2012-2013

Guidance documents
Defra, Biodiversity offsetting: guidance and information (online)
Defra (2013) Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance
Forestry Commission, The effect of riparian woodland management on the freshwater environment (online)
Forestry Commission (2012) Estimating woodland carbon sequestration from the Carbon Lookup Tables
Forestry Commission (2005) Evaluating biodiversity in fragmented landscapes
Forestry Commission, Managing riparian buffer areas (online)
Forestry Commission, Mitigation through our woodlands & wood and timber properties (online)
Natural England (2013) Higher Level Stewardship Farm Environment Plan Manual, v.3
Parkes, Newell and Cheal (2003) Assessing the quality of native vegetation: The 'habitat hectares' approach
Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, C. and White, C. (2013). Payments for Ecosystem Services: A Best Practice Guide. Defra, London.
The Green Flag Award (2009) Raising the Standard: The Green Flag Award Guidance Material
The World Business Council on Sustainable Development (2011) Guide to Corporate Ecosystem Evaluation
Academic and grey literature
Amar et al (2004) What's Happening to our Woodland Birds?
Broadmeadow et al (2009) Opportunity mapping for woodland creation to meet the objectives of the Water Framework Directive
Eftec (2011) Scoping Study on Valuing Ecosystem Services of Forests Across Great Britain
Eftec (2010) The Economic Contribution of the Public Forest Estate in England
Kahn, Greene and Hoo (2013) Measuring UK Woodland Ecosystem Assets and Ecosystem Services
Lawton et al (2010) Making Space for Nature
Liley, Brereton and Roy (2004) The Current Level of Butterfly Monitoring in UK Woodlands
Morison et al (2010) Understanding the GHG Implications of Forestry on Peat Soils in Scotland
Nisbet et al (2011) Woodland for Water: Woodland measures for meeting Water Framework Directive objectives
Read et al (2009) Combating Climate Change – a role for UK forests
Slee, Urquhart and Taylor (2006) Woodland Management for Timber and Wood Products: The Impact on Public Good Outputs
Valatin and Starling (2010) Valuation of Ecosystem Services provided by UK Woodlands
Willis et al (2003) The Social and Environmental Benefits of Forestry in Great Britain

Appendix B: Site visit schedule

Piloting the measurement of social and environmental returns from woodland creation

Overall project purpose and aim

The longer term purpose of the project is to inform the future development of the Woodland Carbon Code, a voluntary forest carbon standard set up by the Forestry Commission (see www.forestry.gov.uk/carboncode), and to support the work of the Grown in Britain initiative which is seeking to increase investment in forestry in Britain.

The aim of this project is to pilot a framework for quantifying and reporting the social and environmental impacts of creating new woodlands.

Site visit purpose

Conduct site assessments of selected woodland creation projects to:

- assess the social and environmental impacts of the woodlands;
- test the proposed reporting framework, including the set of metrics and/or indicators to be used in future for this type of assessment;
- test the process for using the reporting framework, from the point of view of woodland owners, managers and local stakeholders.

Next steps

The site visit will be written up. The pilot reporting framework will be finalised based on lessons learned from all the site visits and on feedback from corporate investors regarding the value to businesses.

Both the finalised pilot reporting framework and a set of recommendations to improve the reporting of social and environmental benefits from woodland creation will be presented to the Forestry Commission. The report and pilot framework will be subject to peer-review.

The Forestry Commission will decide what further steps are needed to move from the pilot tool towards the production of a voluntary Woodland Carbon Code. The Forestry Commission will decide on how to take forward any recommendations as part of the wider strategic drive to increase investment in forestry in Britain.

Site visit process

We are conducting 3 site visits, as follows:

Insert table with locations, dates, summary of site

For each site visit, the process will include:

- visit to woodland created, with woodland manager or equivalent person able to talk about the background to the woodland creation;
- semi-structured interview with woodland manager, to answer a range of questions concerning the woodland creation and the reporting framework's applicability and use;
- completion of the reporting tool with the woodland site manager

For Buccleugh, we would envisage completing separate versions of the reporting tool for each new woodland created, though some of the information and interview is likely to be applicable to more than one site. [key question – for multiple sites, how to improve efficiencies if require multiple versions to be completed]

Subject to agreement of the woodland manager, we would propose to send them a completed version of the assessment, for them to check. In all cases, we would aim to get a signed off agreed completed assessment for each woodland during the site visit / interview, but it may prove necessary to send completed version by email after the visit for checking [particularly where data is drawn from newly provided documents].

We would ask to be able to either take photos or hard copy versions of any documents shown during the site visit. It is important that any concerns about confidentiality [commercial or personal] are identified to us in sharing any documents.

SSI Questions

1. Previous background of woodland management
2. Previous experience of woodland creation
3. Purpose of woodland creation / main driver for woodland creation
4. Importance of corporate investment to creation of this woodland
5. Existing reporting frameworks used (internal / external)
6. Key measures being used to monitor woodland management / carbon capture / other benefits
7. Potential benefits of having woodland carbon code as voluntary reporting framework for UK woodlands
8. (Scottish independence?)
9. How relevant are reporting groups to this site?
10. How appropriate are indicators used?
11. Are any key important benefits overlooked or undervalued by this tool?
12. What are the 'site specific' issues for this site? How can these be captured in this tool?
13. What are the practical 'costs' of using this framework?
14. What are the likely financial implications for this framework?
15. Would this framework/selection of metrics, if applied, influence:
    - decision-making/approach to future woodland creation?
    - Woodland management of existing or future woodland creation?
    - Relation to other stakeholders?
    - Relations between woodland owner and corporate investors?
16. Experience of completing framework?
    - Ease of understanding
    - Time taken

- Applying judgment on ranking
- Who needs to be involved?
- Sensitivity

17. What does it add that existing reporting frameworks don't already cover?
18. What does it duplicate from other existing reporting/management?
19. How easily can existing reporting be carried across?
20. Views on frequency / timing /
21. Technical considerations re each set of indicators -
22. What would be desirable additions/modifications to take it from pilot tool to voluntary woodland code used nationally?
23. Suggestions to encourage its completion by woodland managers?
24. Suggestions to improve transparency / robustness / confidence in the tool.

APPENDIX C – MARKET RESEARCH ON SELECTED CORPORATES

Selection Criteria

Initial desk research and feedback suggested that the most promising approach would be to develop a tool to support the reporting/grading of outcomes related to woodland creation based on a series of scored metrics.

The prototype tool was developed in Excel and a short market research exercise undertaken to gain further insights on reporting practices from a selection of corporates. The shortlist of prospective interview candidates was drawn from:

a) Companies that use a lot of wood, e.g. IKEA, house builders using timber frames, companies that support the Wood for Good campaign.

b) Companies that have significant land holdings which are either creating woodlands or may be prepared to do so.

c) Blue chip companies that have a significant brand value and have the resources and interest to be involved in the road testing. These may include companies that are already investing in, or have shown interest in investing in, the Woodland Carbon Code.

d) Corporates who are leading the way in impact reporting (e.g. the Crown Estate publishes a Total Contribution report which includes woodlands).

e) Institutional investors and banks with a commitment to socially responsible investment and lending

Table C-1: List of corporates identified for outreach

Organisation	Selection Criteria	Already invested (Y/N)?
Aviva Investors	e	N
Church Commissioners	e/b	Y
Green Investment	e	N
Crown Estates	b/d	Y
UPM	a/b/c	Y
United Utilities	b/c	Y
Kingfisher	a/b/c	Y
Waitrose	c	N
Stagecoach	c	N
Toyota	c	N
Centre Parcs	b/c	Y

Given limited resource the research could only captured a relatively small sample but within this attempted to cover a broad cross section of potential interest; investment managers with multi-million pound investments in UK forestry, analysts responsible for assessing green impact associated with lending activity, sustainability professionals with responsibility for corporate forestry assets, and individuals involved in the purchase of Woodland Carbon Units, wood/wood products, and engagement with woodland projects.

Table C-2: Interviewees and interview schedule

Organisation	Contacted	Title	Interview (Y/N)
Aviva Investors			N
Church Commissioners	Carol Hawkey	Head of Rural Asset Management	Y
Green Investment	Emma Strong	Green Impact Analyst	Y
Crown Estates	Mark Gough	Sustainability Director	Y
UPM	Andrew Heald	Manager – Sustainable Plantations	Y
United Utilities	Chris Mathews	Head of Sustainability	Y
Kingfisher	Jamie Lawrence	Corporate Responsibility Adviser	Y
Waitrose	Quentin Clark	Head of Sustainability and Ethical Sourcing	Y
Stagecoach			N
Toyota Manufacturing			N
Centre Parcs	Dave Chapman	Head of Facilities & Environment	N

Three of the contacts were not interviewed. The contact identified at Aviva Investors was unavailable due to ill health. Contacts at Stagecoach and Toyota Manufacturing, both of whom were approached as buyers of Woodland Carbon Units (having been identified via the Woodland Carbon Code Registry), declined to take part in a full interview, considering their purchases a 'one-off', but offered some useful ad-hoc insights on a brief call.

Each contact was sent the prototype tool in Excel, a note outlining its design and operation, and four research questions:-

- Which benefits/impacts of woodland creation and management are most relevant / important to your organisation and why (e.g. carbon sequestration and storage, water regulation, biodiversity, recreation, health and well-being and community engagement?)
- How do you currently measure and report these impacts to key stakeholders (e.g. through online and written communication to investors)
- How practical/desirable is direct engagement with woodland projects/managers to gather and track data? What other options could/should be considered?
- In the context of your organisation what are the possible strengths and weaknesses of the proposed framework for enhanced corporate reporting around woodland creation (a) now, and (b) in future?

The interviews involved semi-structured telephone conversations and face to face meetings.

Summary of Results

Which benefits/impacts of woodland creation and management are most relevant / important to your organisation and why (e.g. carbon sequestration and storage, water regulation, biodiversity, recreation, health and well-being and community engagement?)

Awareness of, and interest in, the broader benefits and impacts of woodland creation varied widely reflecting the role of the respondent, and/or strategic focus of the organisation concerned.

Amongst financial organisations clearest support came from groups with a well-defined internal mandate to track and manage social and environmental impacts. The Green Investment Bank, for example, has bought Woodland Carbon Units as part of their internal CSR commitment, but also saw potential in relation to GIB Green Impact Appraisals on potential investments, and the five green purposes determining GIB investment strategy (reduction of greenhouse gas, advancement of natural resource efficiency, protection/enhancement of the natural environment, protection/ enhancement of biodiversity, promotion of environmental stability).

Amongst non-financials the clearest indication came from those involved in the purchase of Woodland Carbon Units, wood/wood products, and engagement with woodland through in house corporate reporting initiatives e.g. Total Contribution (Crown Estates), and Net Positive (Kingfisher). The latter group are already testing and developing approaches to measurement and reporting related to woodland, and hence had a direct and immediate interest in the tool.

Crown Estates included forestry related case studies at Glenlivet and Windsor in its first Total Economic Contribution Report, measuring and reporting economic impacts on local communities, recreational value, and social value of carbon captured.

As part of its long term commitment to a Net Positive business model Kingfisher has become a partner in the Good Woods initiative, which aims to increase the area of well-managed woodlands in the UK. Kingfisher and its partners will seek to deliver and report impacts including improved access to training, enhanced employment and education for local communities, improved biodiversity, and increased demand for local wood products.

The two candidates who declined a full interview commented that their purchase of Woodland Carbon Units had been related to employee engagement programmes. In both instances the locality of the woodland, opportunity to show visible action on climate change, wildlife conservation and community support were key factors in the buying decision.

Across all respondents the most consistently identified benefit/impact of interest was carbon sequestration and storage.

Overall respondents from non-financial groups viewed all benefits/impacts included in the tool as relevant and made further suggestions including uniqueness (aspects that make a woodland unique e.g. historical context), timber/economic and tourism.

How do you currently measure and report impacts to key stakeholders?

Respondents from the finance sector measure and report via the Principles for Responsible Investment, in parallel with community and employee engagement activities, and wider corporate communication/PR/ marketing.

Most non-financial respondents were reporting corporate sustainability in parallel with community and employee engagement activities, and wider corporate communication/PR/marketing.

The Global Reporting Initiative was the most frequently referenced framework for corporate reporting; other frameworks and organisations referenced included the CDP Carbon and Water Programmes and WBSCD Forest Sector Programme. The London Benchmarking Group model was the most frequently referenced framework for measuring and reporting Company Community Investment.

Respondents identified steps to integrate sustainability and financial reporting, via the International Integrated Reporting Framework, and emerging compliance/ regulatory regime

(e.g. the Companies Act 2006 (Strategic Report and Directors Report) Regulation 2013 which requires all UK listed companies to report greenhouse emission in annual Directors reports, and identify other environmental impacts that could have a material impact on future performance) as key drivers for corporates seeking to better understand, measure and report their social and environmental impact.

In the absence of a standard approach to measuring and reporting/valuation of impact at least three of the respondents are actively exploring and developing their own responses, often in collaboration with external partners/consultancies and networks e.g. Crown Estates is participant in the IIRC Pilot Programme, UPM is a partner in the WWF led New Generation Plantations initiative in which a discussion on suitable reporting metrics is underway. Both Kingfisher and UPM are contributors to the IUCN programme exploring Net Positive Impact in biodiversity, and recently initiated work around water.

How practical/desirable is direct engagement with woodland projects/managers to gather and track data? What other options could/should be considered?

Finance sector responses were characterised by the overall mandate/mission of the organisation involved and their position within the investment value chain.

Church Commissioners, whilst managing a substantial portfolio of rural assets, primarily invest via third party fund managers selected via a rigorous appraisal process. Investment is undertaken in line with guidelines established by, and input from, the Church of England Ethical Investment Advisory Group (EIAG). For direct investments a key consideration was additional cost that increased non-financial measurement and reporting (over and above that required to meet EIAG guidelines) could incur, given the level of financial return the management team are required to achieve. In the case of fund managers direct engagement was considered neither practical nor desirable, as this would be part of the service the managers themselves would be appointed to provide.

In contrast the Green Investment Bank is explicitly mandated by government to measure and report 'green impact' making direct engagement prospective and active investment a prerequisite. As of February 2014 the GIB does not have a mandate to make direct investment in woodland, but could invest (via one of its appointed fund managers, depending on scale of investment) in projects with an impact on woodland e.g. boiler conversion from oil to wood fuel/pellet on energy efficiency grounds.

For non-financials who purchase Woodland Carbon Units and wood/wood products, but don't own woodlands/forestry, direct contact/engagement with woodland projects/ managers was considered a desirable and practical way to catalyse social and environmental impact.

Several respondents highlighted the existing role of certification (FSC and PEFC), both as a tried and tested 'arms-length' sustainable forest management assurance system, and a globally embedded process.

Although not publically available, audit data collected in the validation and verification processes was viewed as potentially offering valuable insights on project level social and environmental impact. Crown Estates highlighted a practical response to demand for additional supply chain data from within the publishing sector; an independently managed Publishers' database for Responsible Environmental Paper Sourcing (PREPS) holds technical specifications and details on pulps and their forest sources for each of the papers used by group members.

In the context of your organisation what are the possible strengths and weaknesses of the proposed framework for enhanced corporate reporting around woodland creation (a) now, and (b) in future?

Respondents commented on the potential value of the tool for reporting in this context two key and interconnected trends; materiality – the drive to capture more detail in areas of most relevance to the reporting entity and its stakeholders – and impact – the drive to reflect the long term social and environmental difference the reporting entity makes.

One potential weakness anticipated ahead of the market research was the tool's use of a scored metric system, when widely used corporate sustainability frameworks such as GRI embrace tangible metrics. Surprisingly this central aspect of the design was not raised during the course of the market research.

One reason for this may be that several respondents are exploring approaches 'in house' and are developing and testing tangible metrics for woodland that reflect/accommodate their individual reporting strategy. Several of the respondents highlighted the collaborative nature of this work, especially around the development of suitable baselines, referencing initiatives on measuring/reporting net positive impact on biodiversity, and more recently water, being convened by groups such as IUCN.

Further, although the model uses a scored metric system, it offers the potential to integrate tangible metrics as greater consensus emerges on approaches to measurement, especially around baselines.

Effort vs. materiality: Even for those with significant existing woodland, the economic value of associated social and environmental benefits may turn out to be a tiny fraction of that generated elsewhere across operations. One respondent, currently working to explore/define their future reporting strategy, identified exactly this scenario, leading to an initially downbeat assessment on the value of the tool in the context of corporate reporting. However when prompted to consider its potential for non-reporting purposes e.g. community/employee engagement, marketing, he quickly began to see opportunities around at least one of their sites. Different audiences will see different strengths and weaknesses.

Recommendation for Further Engagement

As scoped, the tool has potential to support reporting on community and employee engagement, and marketing/PR, in addition to corporate reporting.

The sample of views captured in this brief market research may not adequately reflect views of individuals responsible for corporate communication, community and employee engagement.

To address this it is recommended that further market research is undertaken at the earliest opportunity, potentially leveraging interest amongst LBG member organisations and stakeholders in the Grown in Britain campaign.

Additional input from Woodland Trust

Feedback was received very late in the day from the Woodland Trust, identifying the following points regarding the draft final version of the pilot tool:

- It makes good sense technically, in terms of woodland-specific issues, though with some scope identified for the specific measures to be improved.
- The main output 'balanced scorecard' is user friendly and will be attractive to corporates and other investors and help them to build a business case to support woodland creation
- But, currently not many corporates support specific sites, as nationally focused companies normally want to achieve a broader impact geographically to fit with their objectives and therefore support trees and woods via different types of projects e.g., tree planting with schools
- Aside from corporates, the model could be very helpful for the type of investment product the Woodland Trust are currently developing, to demonstrate the environmental and social returns
- For corporate purposes it reflects the long term nature of woodland projects (up to 25 years), but this is often a stumbling block for corporates as people move jobs/outlook is rarely that long term, with doubts over the practicalities of updating it over that time period.

APPENDIX C – SITE VISIT INTERVIEW SCHEDULE

Site name:

Woodland Manager:

Date:

Interviewer:

Background

1. Experience of woodland creation and management
2. Purpose / main driver for new woodland creation
3. Importance of corporate investment to the creation of this woodland
4. Existing management and reporting frameworks
5. Key indicators currently being used to monitor the woodland

Framework issues / indicators

6. Relevance of overarching reporting groups?
7. Short term (output) indicators used? (technical considerations)
8. Longer term (outcome) indicators used? (technical considerations)
9. Are any key important benefits overlooked or undervalued by this tool? What are the 'site specific' issues for this site? How can these be captured in this tool?

Framework completion

10. Experience of completing framework?

Ease of understanding / Time taken / Applying judgment on ranking / Who needs to be involved? / Sensitivity

11. How might the use of the tool be made more appealing to woodland managers?
12. Suggestions to improve transparency and confidence in the tool?
13. Views on frequency / timing of monitoring activities?

Contribution of the framework

14. How would this framework/selection of metrics, if applied, potentially influence:

    Relations between woodland owner and corporate investors?
    Decision-making/approach to future woodland creation?
    Woodland management decisions?
    Relations with other stakeholders?

15. What does the pilot reporting framework offer that existing corporate reporting frameworks don't already cover?
16. What does the pilot reporting framework duplicate from other existing reporting/management frameworks?
17. How easily can the results of existing reporting be carried across for use in this pilot reporting framework?

Practical implication of using the tool

18. Practical 'costs'? / Practical 'benefits'?
19. Financial implications for woodland owners?
20. What would be desirable additions/modifications to take it from pilot framework to voluntary woodland code used nationally?

APPENDIX D: COMPLETED ASSESSMENTS FOR PILOT SITES

Coshogle I , Drumlanrig Site Assessment

Wildlife Questions

Wildlife Requirement	Short term options		Longer term monitoring	
1. Create and manage a native woodland with the aim of delivering biodiversity gains, particularly in terms of the extent or condition of priority habitats and/or number and population of priority species	Has the woodland been planted mainly with native species or allowed to regenerate naturally?	Has the selection and distribution of tree and shrub species been informed by the needs of priority species and/or the aim of increasing the area of priority habitats?	Q.3 What % of the woodland is dominated by native tree species?	Q.4 Is an area of the woodland classified as a priority habitat in favourable condition and / or is it a home to a population of a priority species that is stable or increasing?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	See comments	See comments	See comments
Buccleuch Comments General: Timeframe an issue. Will be around 25 years plus before anything is happening. A commercial crop is the only thing easier to access over a smaller timeframe. 15 years would give you an idea of establishment & of NVC type. However for some woodlands it still wouln't be possible to get an idea of yield class at this point (necessary for carbon)	Evidence of the planting native species would be available through a sites planting map – could easily cut and paste this into any additional assessment	Half of the woodland is of the native woodland NVC type. It needed to be to get the grant, was a value added issue. Half of the woodland is productive native (hardwood). The woodland was given FC approval and so evidence could be from their verification	Not able to provide this information yet as the woodland is not yet mature enough. The evidence required would be of other species regenerating in the woodland and crowding out your native planting. In terms of timescales the risks posed by natural regeneration are low until around 10 years plus. Until this point the woodland is likely to be as described in the contract.	Wouldn't be able to tell whether priority habitats had formed or not for a considerable amount of time. The word favourable may be also be difficult as it is a subjective term and one that is mainly associated with SSSIs, and no new woodland will be a SSSI and so suitable for assessment using the same criteria. Suggestion: Is the species mix still as expected during the original planting (i.e. has it been taken over by other species). This would be easier to evidence. A risk is choosing the wrong site for the habitat initially - success of establishment will help to show whether the right site has been selected. Approach to the management of the site as a potential proxy for creating a priority habitat / encouraging priority species – real risk is choosing the wrong site for the creation of the habitat.

Wildlife Requirement	Short term options		Longer term monitoring	
2. Create a woodland with a diverse structure where ecological processes are given the greatest possible opportunity to operate freely for the benefit of biodiversity	Q1. Has the woodand has been planned to incorporate a range of stand structures and silvicultural approaches across the forest as a whole, potentially including veteran trees, open-crowned trees, open space and areas of natural regeneration?	Q2. Has woodland planning considered potential areas for future minimum intervention forestry and, where these will deliver habitat objectives, will ecological processes be allowed to develop?	Q.3 Are species associated with a diverse range of forest stand structures found in the woodland?	Q.4 Is an area of woodland set aside as a 'minimum intervention' reserve area, where no active woodland management takes place?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	See comments	Not applicable	See comments
Buccleuch Comments General: N/a	Site features high density productive and mixed density native woodland, and so is likely to be under different management regimes. Potential for drop down menu to list different aspects that could be planned for (e.g. open space; areas of natural regeneration). In terms of evidence veteran trees are not usually mapped - however, Google Earth could be a useful tool for this (high resolution). The sites contract will also specify that it will be a mix of woodland types. In addition, some information on this may be collected but not incoporated in formal documents. There are questions in the WCC on the site baseline where information on existing trees can be recorded.	There is an area of native woodland which isn't to be accessible and so will be subject to minimum intervention. Some of this information could be collected during the initial WCC application.	Not considered realistic because of the initial even stand ages associated wth woodland creation projects. Degree of veteran-ess could be an alternative measure. Certain species will become veteran a lot quicker (as compared to Oak, which takes a long time) so an appropriate species mix that incorporates trees with various rates of maturity could work. Without using a proxy such as this it could be very hard to get anything of use as it takes so long for age structures to form.	This couldn't be properly assessed until around 15 years into the project. It isn't possible to have minimum intervention until the woodland is established as it would be destined to fail otherwise. In terms of auditing it would only be possible to mark this on a map - who would then come and check whether this is true?

Wildlife Requirement	Short term options		Longer term monitoring	
3. Create a woodland which leads to an improvement in the condition of key elements of the landscapes wider ecological network	Q1. Will creation on the planned site expand an existing woodland or be in proximity to an existing woodland?	Q2. Has the siting of the woodland has been planned to increase the connectivity of priority habitat and/or to increase and extend populations and ranges of priority species?	Q.3 What proportion of the area within a 5km radius is covered by native woodland?	Q.4 Does the established woodland contributes to the connectivity of priority habitats and features in the local landscape?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	See comments	Not applicable	See comments

Buccleuch Comments General: N/a	It does and this would be easy to answer with a map in terms of evidence (e.g. OS / Google Earth).	This woodland extends a wood with Spotten Flycatchers (a priority species). Evidence of this would be found in the contract with the Forestry Commission. Questions of whether BAP or LBAP would be most appropriate? LBAP perhaps most suitable as it takes into account local abundance.	This appears to be another way of asking Q1 of this requirement (will creation on the planned site expand an existing woodland or be in proximity to an existing woodland?) and so might really be considered a short term option. The Forestry Commission has a map which details preferred areas for native woodland expansion and this could be a much more appropriate and would be simple to evidence. This woodland is in one of these areas so would score under this criteria.	Concern about the time and resources required to acquire such third party verification. The key question in a number of years time may be whether the other habitats still remain - i.e. is your previously connected woodland now an island?

Wildlife Requirement	Short term options		Longer term monitoring	
4. Measures have been put in place to protect native woodland from threats this form of habitat often faces, or will increasingly face in future	Q1. Has the control of invasive and pest species been planned for, including considering barriers to dispersal and their impact in the woodland and across the landscape?	Q2. Have a diversity of species been selected for planting, taking into account the risks and opportunities of climate change for particular species and regions; or has the woodland has been allowed to regenerate naturally?	Q.3 How much of the woodland has been damaged as a result of invasive or pest species?	Q.4 Does the established woodland contains a diverse range of species, so increasing its resilience to climate change?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	Management plan uploaded (Score 15 Transparency)	See comments	See comments

Buccleuch Comments General: N/a	This is covered in the woodland contract. The Forestry Commission already requires a consideration of key risks.	The risk were considered, but the is no significant change predicted. This area of Britan faces the lowest level of predicted climate change nationwide. Climate change risks are considered in WCC design document which looks at the species mix and the risk of pests and disease. Question the value of natural regeneration in terms of resilience. Natural regeneration is likely to come from only a few trees and so will have limited genetic diversity.	Damage to the woodland should be picked up in year fifteen inspections. In terms of evidence, the amount of woodland that s still there will be covered in WCC audits.	This overlaps with the first question - i.e. is your original mix of species still there and established

	Wildlife Score	Transparency Score
Requirement One:	80%	85%
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**80%**	**85%**
Awarded:		

General points

Coshogle I , Drumlanrig Site Assessment

Water Questions

Water Requirement	Short term options		Longer term monitoring	
1. Create and manage a woodland that protects the aquatic environment, including sites, habitats and species subject to the legal provisions of EU directives and UK legislation	Q1. Have sites of aquatic and wetland habitats and species, including spawning areas, been identified?	Q2. Have riparian buffer zones been established to protect sensitive habitats?	Q.3 Does the aquatic environment support an appropriate range of plant and animal species?	Q.4 XXX
	Yes (Score 10 Water)	Yes (Score 10 Water)	See comments	<< TBC >>
	No evidence uploaded (Score 0 Robustness)	No evidence uploaded (Score 0 Robustness)	See comments	<< TBC >>
Buccleuch Comments General: Difficult to come up with indicators where an effect on the waterway can be attributed to the site - e.g. due to upstream impacts. A question that might potentially work is 'has the vegetation that is needed to provide a healthy riparian zone established?' (e.g. at 15 years)	The woodland is not riparian, but it does feature wet flushes (springs). This provides a spawning area for toads and frogs.	Whilst not a riparian site, it does feature a non-intervention area which will preent disturbance of the waterway (e.g. during harvesting). Other sites on the estate (e.g. the 'Riverbank' site) are clearly designed as a riparian buffer zone site which willl help to prevent nitrate overloading.	Have no evidence or idea whether this would be the case.	N/a

Water Requirement	Short term options		Longer term monitoring	
2. Create and manage a woodland that protects and restores the quality of the freshwater environment by reducing the impact of intensive land management and improving the quality of water.	Q1. Have the potential effects of planting on water acidification or diffuse pollution been considered in site selection, shape and species mix?	Q2. XXX	Q.3. Is there any evidence of increased acidification in the aquatic environment?	Q4. XXX
	Yes (Score 10 Water)	<< TBC >>	Not applicable	<< TBC >>
	No evidence uploaded (Score 0 Transparency)	<< TBC >>	Not applicable	<< TBC >>
Buccleuch Comments General: Need to ensure that question wording means that Yes' is a positive answer in all cases to aid consistancy and ease of use	Yes - diffuse polution has been considered on this site. It is a steep site which is currently under heavy agriculture. The native woodland will form a buffer to this. The site is not in a catchment sesnsitive area for acidification. A native woodland would be very positive in such an area. Note that the FC always requires a broadleaf buffer with coniferous sites.	N/a	This isn't applicable as the woodland is not in a sensitive catchment area.	Suggestion: is there any evidence of diffuse pollution - e.g. from year 15 is someone letting their cattle back into the wood for winter sheltering

Water Requirement	Short term options		Longer term monitoring	
3. XXX	Q1. XXX	Q2. XXX	Q.3 XXX	Q.4 XXX
	<< TBC >>	<< TBC >>	<< TBC >>	<< TBC >>
	<< TBC >>	<< TBC >>	<< TBC >>	<< TBC >>

Water Requirement	Short term options		Longer term monitoring	
4. Plan and manage a woodland that helps to restore natural physical processes, e.g. contributing to improved flood alleviation in floodplain areas or improving water yield downstream.	Q1. Have relevant water regulatory authority and conservation agencies been consulted about the scheme?	Q2. Have the potential effects of planting on flood flows been considered? E.g. using spatial mapping to select site	Q.3 Is the woodland 's contribution to water management recognised in River Basin or Catchment Flood Management Plan?	Q.4 Does the woodland show signs of trapping and intercepting sediment in flood areas?
	Yes (Score 10 Water)	No (Score 0 Water)	See comments	Not applicable
	Management plan uploaded (Score 15 Transparency)	Not applicable	See comments	<< TBC >>

Buccleuch Comments General: Consider this to be a good question. Woodland schemes to prevent flooding being established by the Tweed Forum. In terms of corporates it would be good to speak to companies such as United Utilities about these questions.	This should always be the case as there are statuatory consultees that must be about woodland creation schemes.	This hasn't been considered for this site. This will be a good question in terms of awarding points to flood alleviation focused sites such as those established by the Tweed Forum. However, tt should be noted that all riparian planting has benefits in term of flow regulation and the health of freshwater biodiversity.	The site isn't mentioned in any such plan. It is unlikely that such plans would mention individual woodlands unless they were of exceptional size - e.g. 1000ha plus.	Not applicable to this site. In terms of evidence, a visual check might allow this to be established, but then there is the question of how this is then verified. There could potentially be a question about reducing the risk of erosion, which would be a more direct benefit than trapping sediment. For example, there is the issue of livestock on riverbanks and their effects on the bank and on water quality.

	Water Score	Transparency Score
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		✓

General points

The water related benefits of woodland are moving up the agenda. Areas of erosion, difuse pollution, and flood risk to be mapped and more money made available for targeted creation projects. In some parts of the country these maps are available, but not to the average forest manager.

Tweed Forum worth getting in touch with regarding woodlands and catchment management: have around four sites for flood alleviation and wider benefits.

Coshogle I , Drumlanrig Site Assessment

Community Questions

Community Requirement	Short term options		Longer term monitoring	
1. Create and manage a woodland that provides safe, inclusive access and opportunities for leisure and recreation for all members of society, including hard to reach groups.	Q1. Will Public Rights of Way (PRoW) and permissive footpaths across the woodland be maintained throughout the projects life?	Q2. Are facilities provided / planned for visitors to the woodland, including visitors with disabilities?	Q.3 What % of the woodland is accessible to the public?	Q.4 On average, how many people visit the woodland annually?
	See comments	No (Score 0 Community)	91-100% (Score 40 Community)	See comments
	Not applicable	Not applicable	No evidence uploaded (Score 0 Transparency)	See comments
Buccleuch Comments General: N/a	There is a debate here over what might be classed as 'maintenance'. There is no official Public Right of Way through the site, but in Scotland the right to roam means that this is not particularly an issue.	It is unlikely that there will be any demand for facilities on the site and so they have not been provided.	There is 100% access to the site due to the right to roam. As such, this question is not particularly pertinant in Scotland. There is a question also of what is meant by accessible - e.g. is there a barbed wire fence. There is nothing done on the site to formally encourage or discourage access.	This would be difficult to establish. Measuring the number of individuals visiting the woodland would be expensive. Counters on stiles are a possibility, but it is unlikely that these would be installed.

Community Requirement	Short term options		Longer term monitoring	
2. Create and manage a woodland that provides local communities with an opportunity to build relationships, develop community identity, and contribute to the development of forestry proposals in their areas.	Q1. Are the aims of the forestry proposals and their potential impacts communicated clearly to local communities? [e.g. via village meeting; leaflet; website or social media; information board]	Q2. Has the community been invited to be involved in the design process?	Q.3 Is a public engagement mechanism maintained and regularly updated? [e.g. newsletter; social media; regular on-site 'meet the manager' events]?	Q.4 Are local stakeholders continually involved in decisions about woodland management or new facilities?
	See comments	No (Score 0 Community)	No updates (Score 0 Community)	No (Score 0 Community)
	See comments	Not applicable	Not applicable	Not applicable
Buccleuch Comments General: The kind of monitoring suggested here goes beyond that which is required for receiving public money. This raises the question of whether corporates will be more interested than government in accurately establishing the social benefits of woodland creation.	There is a statutory public consultation period of 28 days, which is on a public register. It is the Forestry Commission's responsibility to let people know of their right to reply. So in this sense the woodland would score for this requirement. However, this would not be going beyond what is already required. It is hard for woodland creation projects to get people enegaged unless it is the public themselves that are driving for it. This is especially the case in remote areas. There needs to be a reason for engagement to take place (e.g. English Community woodlands where buy in brought benefits such as lower levels of vandalism). For a community woodland this question would be much more pertinent.	In 99% of cases on the estate the community are not involved in the planning of woodland creation projects. A lack of woodland knowledge creates a lot of work and it takes a lot of time to smooth out disagreements. Also, this question if a little vague - who is the local community? There can be problems with woodland type when communtiy is nvolved in the deign process - e.g. opposition to Sitka Spruce woodlands	No - this question will be more applicable to other organisations and sectors such as the Woodland Trust, the Forest Trust, and Community woodlands.	No - this question will be more applicable to other organisations and sectors such as the Woodland Trust, the Forest Trust, and Community woodlands.

Community Requirement	Short term options		Longer term monitoring	
3. Create and manage a woodland that provides jobs, supports the local economy, and offers opportunities for local people to develop their skills and learn about the natural environment.	Q1. Has the woodland involved volunteers in planting or other creation activities, or will it in future?	Q2. Has the woodland creation project engaged with schools or other groups for education and learning activities, or will it in future?	Q.3 How many days are volunteered on site annually?	Q.4 How many hours of employee training are provided annually?
	No (Score 0 Community)	Yes (Score 10 Community)	No volunteering activities (Score 0 Community)	<< TBC >>
	Not applicable	Management plan / record of engagement uploaded (Score 15 Transparency)	Not applicable	<< TBC >>

Buccleuch Comments General: This section of the tool currently focuses on voluntary work over woodland related employment. As such, these questions are more related to community woodlands than the woodlands on this estate. Suggest an employment related question: 'Has the woodland been designed so that it can generate economic activity in the future?'; and / or ' Will the woodland provide economic activity during creation and does it have productive potential?'	No - but this question would make sense for a community woodland. Volunteering can be a sensitive issue. Planting contractors rely on the work generated by woodland creation projects. It is tough work and needs to be done correctly if a good quality woodland is to be created.	Yes - the estate is involved with the Queensbury Initiative providing rural skills days for the local academy. This is evidenced on websites etc.	Question the focus on volunteering as there is a need to create employment opportunities too. Consistant employment is an important issue in rural areas. There is concern over the employment associated with native woodland creation in north Scotland. This form of creation tends to lead to a boom-bust scenario as jobs are ony there during the initial creation phase. Consistent employment opportunities tend to only emerge after the first felling. This is 30-50 years for softwood, very long term for hard wood. Models exist for woodand employment (ask Pat) but these tend to be out of date. Estmated 20-25 man days / ha for planting.	Not sure whether this question follows from the short term options. Often use contractors and so this isn't particularly applicable.

Community Requirement	**Short term options**		**Longer term monitoring**	
4. Create and manage a woodland that supports a healthy local environment for people and contributes to improvements in quality of life, including mental, physical and social well-being.	Q1. Does the woodland include the planned provision of recreational facilities - e.g. of waymarked trails for particular activities, such as walking, running, horse-riding or mountain biking?	Q2. Has the project made contact with potential parther local health groups or interest groups to promote recreational activities?	Q.3 How frequently is the woodland used by school parties, or for other educational purposes?	Q.4 How frequently is the woodland used for community activities and events?
	No (Score 0 Community)	<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
	Not applicable	<<Drop down to select evidence>>	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Buccleuch Comments General: These are good questions for those woodlands near to towns, but they are less applicable here.	No. However, shooting is an important part of the local economy. Lifestyle woodland owners are often interested in creating woodland cover for shooting. This provides economic benefits and habitat for biodiversity. Shooting can involve communtiy activity and economic gains in many cases. There is a tourism aspect ot activities such as shooting as well - e.g. people who come to Scotland for sport	Skipped this question due to time constraints.	Skipped this question due to time constraints.	Skipped this question due to time constraints.

	Community Score	**Transparency Score**
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		✓

General points

Social aspects of woodland management moving up the certification agenda and this is causing controversy – extremely difficult to be accurate and time consuming / expensive.

Having an employment element will be important. Definite support for a timber category – push for greater focus on timber production from Confor & Grown in Britain. The social and economic benefits of woodlands are hard to divide.

Coshogle I , Drumlanrig Site Assessment

Carbon Questions

Carbon Requirement	Short term options		Longer term monitoring	
1. The potential of the woodland ecosystems to store carbon has been maximised as a result of effective planning and ongoing management activities	Q1. Has consideration been given to the carbon content and growth rate of species when planning the woodland, and the carbon uptake of the chosen planting scheme been estimated?	Q2. Do plans for the management of the woodland allow for a proportion of standing and fallen deadwood to be left in place?	Q.3 Does monitoring of the woodland demonstrate that the woodland is establishment as planned and that tree growth rates are consistent with anticipated carbon uptake?	Q.4 What quantity of deadwood is found in the woodland?
	Yes (Score 10 Carbon)	See comments	See comments	<< TBC >>
	Management plan uploaded (Score 15 Transparency)	Not applicable	Not applicable	<< TBC >>

Buccleuch Comments General: N/a	Yes - Yes, this is a WCC woodland so consideration has been given.	This wouldn't usually be covered. Management plans have a life of ten years so deadwood is unlikely to form in any quantities. Accumulation fo deadwood would also conflicts with the objectives of Short Rotation Coppice Woodlands.	Q3 & 4 are conflicting. Shouldn't be deadwood if growing at a suitable rate. Would be a concern to have deadwood at an early stage.	At worst it would be substitution if deadwood was taken away.

Carbon Requirement	Short term options		Longer term monitoring	
2. Every practical opportunity has been to reduce the carbon footprint of the forestry operations associated with the woodland	Q1. Have forestry operations been planned to minimise energy use, incuding considering the use of sustainable biofuels for machines and vehicles?	Q2. The planned location of the woodland has taken into account distance to likely markets and the potantial of using lower carbon forms of transportation for wood products?	Q.3 What proportion of the annual fuel use associated with this woodland has taken the form of sustainable biofuels?	Q.4 What is the form of transport most often used to transport wood products from the woodland and what is the average distance to their destination?
	Yes (Score 10 Carbon)	See comments	<< TBC >>	<< TBC >>
	See comments	Not applicable	<< TBC >>	<< TBC >>

Buccleuch Comments General: N/a	Yes - under UKFS certification you have to have this, so it would not be particularly additional *Evidence not covered due to time constraints*	Yes, it is economic to transport the wood to mill. This question is somewhat redundant though, as a productive WL will natuarally be positioned in an economic position,	Question of what is a sustainable biofuel, this is a difficult area. At year 15 there would be no activity on the woodland that requires fuel.	Would have to be year 30 or 40 for this to be applicable. Perhaps could work with SRC. What happens beyond the forest gate is not forest managers responsibility - whoever buys the wood bears the responsibility.

Carbon Requirement	Short term options		Longer term monitoring	
3. Forest products are used to substitute for more energy-intensive materials and / or used as a source of renewable heat and electricity.	Q1. Has the potential for woodfuel, timber, and energy crops been considered?	Q2. Do plans for the management of the woodland allow stumps to be left in place wherever practical?	Q.3 Does the woodland provide a source of wood products or wood fuel?	Q.4 What proportion of the woodland has been disturbed as a result of stump harvesting?
	Yes (Score 10 Carbon)	Timeframe / Inappropriate / Alternative	See comments	See comments
	Not applicable	Not applicable	Not applicable	Not applicable

Buccleuch Comments General: N/a	Yes. *Evidence not covered due to time constraints*	Yes - but they are there as the site is a new planting. This question is only relevant on older sites, such as those that are being restocked.	Will it might be more relevant - at year 15 you would know whether the woodland is going to grow properly. Can't be assessed here yet though.	Unlikely to be applicable by year 15 - too far out. Stump harvesting is becoming less of an issue as it is not economic and is unsustainable (carbon emmissions, erosion, diesel required).

Carbon Requirement	**Short term options**		**Longer term monitoring**	
4. Current and future risks to the woodland ecosystem and its carbon stores have been identified and appropriate mitigation measures have been put in place	Q1. Have risks to the forest from spillages, pest and disease outbreaks, extreme weather events and fire have been considered durning woodland planning?	Q2. Have appropriate contingency plans been put in place to deal with risks to the forest, including spillages, pest and disease outbreaks, extreme weather events and fire?	Q.3 XXX	Q.4 XXX
	Yes (Score 10 Carbon)	See comments	<< TBC >>	<< TBC >>
	See comments	See comments	<< TBC >>	<< TBC >>

Buccleuch Comments General: N/a	Yes. As part of the WCC this has to be considered, although not spillages. 'Has a full full risk assessment been conducted?' might be a better question. This could be wide ranging and have numerous categories to select.	If you've done one, then the answer to two will be the same	N/a	N/a

	Carbon Score	**Transparency Score**
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		✓

General points

Suggestions: soils could be a good, but a longer term monitoring question could be difficut - e.g. it could take 100 yrs for soil carbon to change.

Two parts to this category - carbon mitigation & risk to the carbon stored (e.g. risk assessments, horizon scanning)

Cwm Fagor Woodland Site Assessment

Wildlife Questions

Wildlife Requirement	Short term options		Longer term monitoring	
1. Create and manage a native woodland with the aim of delivering biodiversity gains, particularly in terms of the extent or condition of priority habitats and/or number and population of priority species	Has the woodland been planted mainly with native species or allowed to regenerate naturally?	Has the selection and distribution of tree and shrub species been informed by the needs of priority species and/or the aim of increasing the area of priority habitats?	Q.3 What % of the woodland is dominated by native tree species?	Q.4 Is an area of the woodland classified as a priority habitat in favourable condition and / or is it a home to a population of a priority species that is stable or increasing?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	See comments	Not applicable	Not applicable
Cwm Fagor Comments <u>General</u>: P&R: The term 'woodland' needs to be considered / defined - e.g. would you have to use the tool several times for each block if you have several small woodlands that are close together. LRJ: The previous land use on the site might be something to consider - e.g. are you planting on previously intensive agricultural land. Planting on such land could have benefits in terms of water, environment(e.g. NOx benefits) etc. Question could be: 'Has this planting improved the land? LRJ: The answer to this will usually yes woodland creation usually results in a deintensification of land use. Would suggest no more categories than 'high' and 'low ' based on the previous intensity of land use - e.g. grazing is less intensive.	P&R: The term 'Mainly' is subjective - is this over 50%? P&R: Question of who will be auditing this as an incentive to be as biased as possible. In terms of evidence the contract document gives the percentage of tree species planted. From year nought to fifteen everything planted will still be there. The order slips for trees could also be presented as evidence if there isn't a contract, but this is rare. P&R: Woodland creation very rarely involves natural regeneration. This would usually be for restocking only as it would take generations for a woodland to emerge from scratch.	LRJ: Recommend that we go only for habitats with this question as it is hard / expensive to manage for a species alone. Don't just limit question to priority woodland habitats - e.g. hedges are important for biodiversity. LRJ: This woodland recognises and quotes the NVC as a priority native woodland habitat, so would say yes to this question. (*CE: question of language here as P&R originally felt that the woodland wouldn't score for this objective). P&J: In terms of evidence, NVC is mentioned in contract. It would more difficult to show this long term. P&J: Woodland hasn't been designed with particular priority species in mind. Bats would be the key species In the area and bat boxes could perhaps be put up. Could also orientate (north - south) and widen rides for butterflies, rather than focusing only on the public access element alone.	P&J: Would expect the woodland to be the same in terms of species composition at year 15. Haven't adjusted anything at this point, unless there has been thinning.	LRJ: Need to loose the mention of favourable conditions as it is the language of SSSIs. This is too formal a definition that would require a high level of monitoring to establish. P&J: It would be difficult to say whether this would be the case at 15 years LJR: Potential alternative would be to ask whether the woodland is being managed, and is developing, in the direction of being a priority habitat.

Wildlife Requirement	Short term options		Longer term monitoring	
2. Create a woodland with a diverse structure where ecological processes are given the greatest possible opportunity to operate freely for the benefit of biodiversity **- need to shorten this**	Q1. Has the woodand has been planned to incorporate a range of stand structures and silvicultural approaches across the forest as a whole, potentially including veteran trees, open-crowned trees, open space and areas of natural regeneration?	Q2. Has woodland planning considered potential areas for future minimum intervention forestry and, where these will deliver habitat objectives, will ecological processes be allowed to develop? **- need to shorten this**	Q.3 Are species associated with a diverse range of forest stand structures found in the woodland?	Q.4 Is an area of woodland set aside as a 'minimum intervention' reserve area, where no active woodland management takes place?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	Unavailable / Inappropriate / Alternative	See comments	Not applicable
Cwm Fagor Comments <u>General</u>: LJR: The tool needs to be simple and self regulated - someone will blow the whistle if corporates are not being honest. P&R: Most woodland don't have management plans, although they are required with grant aid now. Difficult to complete these plans as they take time and require thinking ~25 years ahead. LJR: The tool should avoid being focused on the conditions of grant schemes, as these may well change over the years - e.g. don't tie it into RDP. LJR: Perhaps don't always need the 4x4 structure in the final tool, for instance it may only be suitable to have one long term monitoring option for some requirements TL: Would need some explanations of the technical language associated with the tool - e.g. stand structure. Would need a plain english guide to accompany the tool.	P&R: Yes, should score for pretty much all of these. Some of the woodland will be high forest, some will be coppiced etc. LJR: This would be a good question for woodland management too, as it encourages good practice P&R: In trems of evidence, open ground would be mentioned in the contract. Veteran trees would maybe be mentioned. Natural regeneration would be mentioned (it is in this contract). Probably wouldn't see future silvicultural practices mentioned (although it is in detail with this particular contract). LJR: Important to mention shrubs too as the understory component of the woodland is important for biodiversity. It is good to have a shrub layer around the edges of the woodland for structural diversity and is good to have against hedges. Question of have you got the shrubs and are they in the right place?	P&R: Have included areas of non-interventon. P&R: In terms of evidence, this couldn't be shown on a map at present. It would be covered in a management plan though. It depends on the site whether you know straight away where non-intervention areas will be placed. Sometimes it is simply in parts of the site you can't get to, in other cases it takes time to decide where non-intervention takes place.	LRJ: Potential to just use the stand structures as opposed to the species associated with them - e.g. at 15 years is there stand structure diversity / are stand structures developing? Hard to determine whether the species visits, but you can create the habitat. Lot of work to monitor species and it would only be possible with volunteers (e.g. RSPB) really. LRJ: Might want to focus on structural diversity rather than stand diversity alone - important to keep open speces etc. maintained in the long term as well. P&R: In terms of evidence it might be 20-25 years before you start thinning here (dependednt on the species). There is a 10 years contract for this site, but then hopefully there will be a management plan / statement of intent. LRJ: Evidence of continual management of a kind that leads to structural diversity forming could be the proof required. Potential for the tool to take the form of a 'Pathway' to a certain outcome (e.g. biodiversity gains). This pathway could be determined by habitat type.	P&R: Probably would know this after 15 years. P&R: Normally would set aside 10-20% of the woodland area at a maximum. Even organisations such as the Wildlife Trust's may have limited areas of non-intervention on their sites as management is often requred to deliver biodiversity gains. This brings into question the use of these 'bands' of area set aside.

Wildlife Requirement	Short term options		Longer term monitoring	
3. Create a woodland which leads to an improvement in the condition of key elements of the landscapes wider ecological network **- shorten this and dejargonise**	Q1. Will creation on the planned site expand an existing woodland or be in proximity to an existing woodland?	Q2. Has the siting of the woodland has been planned to increase the connectivity of priority habitat and/or to increase and extend populations and ranges of priority species?	Q.3 What proportion of the area within a 5km radius is covered by native woodland?	Q.4 Does the established woodland contributes to the connectivity of priority habitats and features in the local landscape?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	See comments	Not applicable	Not applicable

Cwm Fagor Comments <u>General</u>: LJR: Doesn't just have to be woodland that is being expanded, opportunity to link other habitats too (e.g. those associated with open space)	P&R: Yes - a map would be a simple way of evidencing this and it can be seen in the plans. LJR: Could score for productive woodlands (e.g. Sitka Spruce) here too, which could be good for the economy (i.e. a larger block which is easier to harvest). This makes the next question on connecting prioity habitats important, as this will more clearly show a benefit to biodiversity.	P&R: Have done this in terms of habitat, as it links with mixed native woodland, but not sure about species category. P&R: In terms of evdence, this would be in the application for grant money or in the EIA / EIA deternination.	P&R: Perhaps could alternatively as whether the other woodlands in the landscape are still there. LJR: Would it be fair on a corporate to score it less highly if the other woodlands have disappeared when it is beyond their control. There is also a presumption against deforestation which should limit this. LJR: In terms of the distance / area bands suggested, there is the issue of marginal benefit. This may go down if there is a lot of woodland in a locality (e.g. the forest of dean), In such cases you may be planting open ground where it is important for biodiversity or landscape values. An alternative question could be does the connectivity still exist?	LJR: Perhaps change to is the connection still there?

Wildlife Requirement	Short term options		Longer term monitoring	
4. Measures have been put in place to protect native woodland from threats this form of habitat often faces, or will increasingly face in future	Q1. Has the control of invasive and pest species been planned for, including considering barriers to dispersal and their impact in the woodland and across the landscape?	Q2. Have a diversity of species been selected for planting, taking into account the risks and opportunities of climate change for particular species and regions; or has the woodland has been allowed to regenerate naturally?	Q.3 How much of the woodland has been damaged as a result of invasive or pest species?	Q.4 Does the established woodland contains a diverse range of species, so increasing its resilience to climate change?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	Rare <20% of the woodland affected (Score 40 Wildlife)	See comments
	See comments	See comments	See comments	Not applicable

Cwm Fagor Comments <u>General</u>: N/a	P&R: Have identified problem species such as alder which could take over the site (LRJ: Although these are native and so woudl probably not be classified as invasive species - list of such species available of the Defra website). There is a legal requirement to address to address some invasive species such as Ragwort. P&R: Deer survey has been undertaken and deer control control options costed, but numbers are low. LRJ: There is a problem with woodland owners having takled some forms of est and inasive species, but not others - e.g. Japenses Knotweed is not a problem if growing woodlands, but it is a conern in the wider landscape. P&R: Perhaps a drop down menu of options that need to be, or can be covered might work here. However, this could make this question overly large / complex. LJR: Could potentially use the term 'planned for appropriately' P&R: In terms of evidence, what is included in the contract on this issue is very open. There is no need to specify exactly what you do to protect trees, just that you will. L: Could keep it general: e.g. have you looked a mammal pests	P&R: Yes, this has been taken into account. In terms of evidence, it would be possible to audit on providence. Can get information on this from nurseries. It is better not to get trees of local providence now, looking at continental / more southerly providence at the moment given climate change. Can see species numbers and percentages in the contract document. LRJ: In terms of sourcing plants, the disease risk much lower from seeds as opposed to saplings, which carry soil etc. with them. This will be Important when considered southern providence. It is also possible to get trees of different providences grown locally too, which reduces risk. LRJ: The list of species planted could be accompanied by a statement that the woodland owner has chosen the species providence with consideration of climate change. There is some concern here with the term 'native' species, as selecting on providence would perhaps introduce some species that wouldn't be considered native. Perhaps best to use the term 'ecological resilient' selection instead (i.e. native plus).	P&R: The site has lost trees because of ash dieback. It is difficult to measure the effect of some species - e.g. from squirrels. Would need to be provided with a guide as to how damage would be measured. Even then it might be quite hard to monitor though in terms of effort. LRJ: The number of dead trees recorded on a transect might be work in terms of monitoring P&R: Ideally it would be possible to answer questions such as this from a desk - e.g. something as simple as 'has the been damaged', high / medium / low; although these bands would need defining. P&R: Woodland habitat would naturally have gaps and it is good to have deadwood, so significant damage would be over 20% of the woodland. Also need to take into account replanting.	P&R: This is an approprate question. If thinning has been done then you'll know where the woodland has been taken to. Data will then show what the species mix is on the site. The process currently required might change in future though. P&R Thinning isn't undertaken until around 25 years (max) in this area though. In Scotland the woodland may well consist of softwood (e.g. Sitka Spuce) and so could have been subject to two thinnings by this point.

Cwm Fagor Woodland Site Assessment

Water Questions

Water Requirement	Short term options		Longer term monitoring	
1. Create and manage a woodland that protects the aquatic environment, including sites, habitats and species subject to the legal provisions of EU directives and UK legislation **- shorten as these latter points relate to legislation**	Q1. Have sites of aquatic and wetland habitats and species, including spawning areas, been identified?	Q2. Have riparian buffer zones been established to protect sensitive habitats?	Q.3 Does the aquatic environment support an appropriate range of plant and animal species?	Q.4 XXX
	Yes (Score 10 Water)	Yes (Score 10 Water)	See comments	<< TBC >>
	See comments	Management plan uploaded (Score 15 Transparency)	See comments	<< TBC >>
Cwm Fagor Comments <u>General</u>: LJR: Need to keep the tool simple and related to the existing audit trail so that it is easy to complete.	P&R: Yes - but this is perhaps a requirement from the UKFS, so is the tool going further? Another option would be to ask whether any aquatic or wetland habitats have been created - e.g. ponds. This would open up the water section to those whose woodlands aren't currently near to any water. P&R: In terms of evidence, you would have to show this in the contract or in the management plan going forward.	P&R: Yes these have been incorporated and are shown in the contract now, then will be shown in the management plan later. Would have to refer to guidance regarding what is required of a buffer zone - e.g. correct width etc. LJR: Point in the direction of outside guidance, rather than giving it as it will always be changing. In terms of plain english you could ask 'Is appropriate management in place around waterways'.	LRJ: Costly seasonal monitoring equired here. May be preferable to ask whether management plans are still focused on maintaining and improving riparian areas. E.g. could be a statement saying that objectives for the riparian area updated. This might only be two sentences if it is a continuation of past practices, but could be more if changes are required. LRJ: The 'pathway' to the woodland desired is as much a thought process as anything else.	

Water Requirement	Short term options		Longer term monitoring	
2. Create and manage a woodland that protects and restores the quality of the freshwater environment by reducing the impact of intensive land management and improving the quality of water.	Q1. Have the potential effects of planting on water acidification or diffuse pollution been considered in site selection, shape and species mix?	Q2. XXX	Q.3. Is there any evidence of increased acidification in the aquatic environment?	Q4. XXX
	See comments	<< TBC >>	<<Drop down to select answer>>	<< TBC >>
	Not applicable	<< TBC >>	<<Drop down to select evidence>>	<< TBC >>
Cwm Fagor Comments <u>General</u>: N/a	LJR: This requirement wouldn't work for every woodland. Water might be cleaner as a result of woodland creation on this site, but it would be hard to prove this in practice. LJR: The woodlands for water scheme might be helpful for this question, as it has an opportunity map. This just covers England for the time being, but it may be the case that similar maps are available for acidification in Scotland. There are likey to increasingly be frameworks relating to water and woodland influence on it. These could provide the basis for tick boxes.	The opportunities also depend on the previous land use. If the previous land use is intensive agriculture then woodland could be beneficial - in such cases a relevant question might be are you in a nitrate positive zone? There is the potential to keep this question broad - e.g. are you in an areas where woodland will be beneficial for water?	Skipped this question.	N/a

Water Requirement	Short term options		Longer term monitoring	
3. XXX	Q1. XXX	Q2. XXX	Q.3 XXX	Q.4 XXX
	<< TBC >>	<< TBC >>	<< TBC >>	<< TBC >>
	<< TBC >>	<< TBC >>	<< TBC >>	<< TBC >>

Water Requirement	Short term options		Longer term monitoring	
4. Plan and manage a woodland that helps to restore natural physical processes, e.g. contributing to improved flood alleviation in floodplain areas or improving water yield downstream.	Q1. Have relevant water regulatory authority and conservation agencies been consulted about the scheme?	Q2. Have the potential effects of planting on flood flows been considered? E.g. using spatial mapping to select site	Q.3 Is the woodland 's contribution to water management recognised in River Basin or Catchment Flood Management Plan?	Q.4 Does the woodland show signs of trapping and intercepting sediment in flood areas?
	No (Score 0 Water)	<<Drop down to select answer>>	<<Drop down to select answer>>	<<Drop down to select answer>>
	Not applicable	<<Drop down to select answer>>	<<Drop down to select answer>>	<< TBC >>

Cwm Fagor Comments <u>General</u>: LRJ: There are two issues on water - is it on site and is the woodland in the right place. It is perhaps getting too complicated to go beyond this.	P&R. We haven't taken this into account for this scheme. LRJ: The Environment Agency is outside of planning control, so there wouldn't be any statuatory consultation with them.	Skipped this question.	Skipped this question.	Skipped this question.

	Water Score	Transparency Score
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		

General points

LRJ: Identification of features is included in the UKFS, however calling for management to continually take such features into account goes beyond this requirement.

Cwm Fagor Woodland Site Assessment

Community Questions

Community Requirement	Short term options		Longer term monitoring	
1. Create and manage a woodland that provides safe, inclusive access and opportunities for **leisure and recreation** for all members of society, including hard to reach groups.	Q1. Will Public Rights of Way (PRoW) and permissive footpaths across the woodland be maintained throughout the projects life?	Q2. Are facilities provided / planned for visitors to the woodland, including visitors with disabilities?	Q.3 What % of the woodland is accessible to the public?	Q.4 On average, how many people visit the woodland annually?
	Yes (Score 10 Community)	Yes (Score 10 Community)	See comments	See comments
	See comments	See comments	See comments	Not applicable
Cwm Fagor Comments <u>General</u>: LRJ: Proximity to a popopulation is a factor with access. There should there be extra points for public access with sites close to centres of population. It is more onorous and expensive for them to maintain permissive access, and it provides greater social benefits. Permissive should score one point, permissive and near to population should score extra points.	P&R: Yes, we do provide permissive footpaths. A better question might be to ask whether we have public access (yes or no) as we don't have to provide this. there is also th question of whether the footpaths provided are fit for purpose. Open access would be gold standard, but noone will do it. All access trails would be more expensive and most wouldn't provide these, although a Trust might for so for charitable objectives. If someone were to do this they should score very high points. TL: There would be concern over damage from public access. P&R: With PRoW it isn't the landowners responsibility to maintain these, it would fall to the Council. Plus, if there is a PRoW on your land this is something that you can't change. P&R: The evidence we could provide would include maps, contracts and grant aid documentation.	P&R: The site includes a car park, hard surfaced areas, and interpretative notice boards. The can be evidenced through maps, contracts and grant aid.	LJR: This is a tricky question, as it is hard to establish what exact area of a woodland is accessible. Perhaps points could be scored for actively promoting areas of access. This could be shown on a website, flyer, sign, or information board. P&R: There is no infomation on the site which says where visitors can or can't access at the moment. LJR: A question could be: 'do the facilities still exist and is there evidence of promotion to the local community?'	LJR: It is difficult to see how this would be monitored, plus a 'low', 'medium' and 'high' level of visitors is relative to the size of the local population. An alternative question could be: 'are the facilities being maintained and used?' - e.g. are the trails still open.

Community Requirement	Short term options		Longer term monitoring	
2. Create and manage a woodland that provides local communities with an opportunity to build relationships, develop community identity, and contribute to the development of forestry proposals in their areas.	Q1. Are the aims of the forestry proposals and their potential impacts communicated clearly to local communities? [e.g. via village meeting; leaflet; website or social media; information board]	Q2. Has the community been invited to be involved in the design process?	Q.3 Is a public engagement mechanism maintained and regularly updated? [e.g. newsletter; social media; regular on-site 'meet the manager' events]?	Q.4 Are local stakeholders continually involved in decisions about woodland management or new facilities?
	Yes (Score 10 Community)	No (Score 0 Community)	Timeframe / Inappropriate / Alternative	Timeframe / Inappropriate / Alternative
	Unavailable / Inappropriate / Alternative	Not applicable	Not applicable	Not applicable
Cwm Fagor Comments <u>General</u>: N/a	P&R: We held a meeting to tell the local community what they were doing. We will also consult when it comes to felling. However, this would happen anyway with felling as it has to be put on the public register. There was an expectation in the grant giving that the schemes neighbors would be consulted. We have gone further and presented information on the village website, Thorlux's website, and at a village meeting.	P&R: No, and wouldn't be considered normal practice. It can be a bit of a can of worms to do this. LJR: It may well be a different case with community woodlands, for example where local authorities have a democratic incentive. Including communities in the design process would be rare, so a woodland would definitely points for this.	TL: There are updates included on the Thorlux website - e.g. how many trees have been planted on the site. LJR: This would be considered public engagement at a low level, but more than none at all. There is the opportunity to do more that this and so score higher.	LJR: This is not likely to occur on any woodland. P&R: It could perhaps happen if there was an SSSI or local monument, but this would be very rare.

Community Requirement	Short term options		Longer term monitoring	
3. Create and manage a woodland that provides jobs, supports the local economy, and offers opportunities for local people to develop their skills and learn about the natural environment.	Q1. Has the woodland involved volunteers in planting or other creation activities, or will it in future?	Q2. Has the woodland creation project engaged with schools or other groups for education and learning activities, or will it in future?	Q.3 How many days are volunteered on site annually?	Q.4 How many hours of employee training are provided annually?
	No (Score 0 Community)	No (Score 0 Community)	No volunteering activities (Score 0 Community)	<< TBC >>
	Not applicable	See comments	Not applicable	<< TBC >>

Cwm Fagor Comments General: N/a	P&R: No, this has not occurred so far. LJR: Could also include types of volunteering that go beyond woodland creation - e.g. bird monitoring by volunteers	P&R: No, but there is the potential for this to occur. It could be evidenced through some sort of permissive agreement. There would also have to be correspondence and insurance documentation associared with any such activities.	P&R: There are no days volunteered on the site at the moment. If it were to occur, we could have evidence of that.	P&R: We have had some forestry students using the site for training, plus contractors have had people learning on the site. However, the question would need to have a yes / no structure, rather than hours, as this could be difficult to monitor.

Community Requirement	Short term options		Longer term monitoring	
4. Create and manage a woodland that supports a healthy local environment for people and contributes to improvements in quality of life, including mental, physical and social well-being.	Q1. Does the woodland include the planned provision of recreational facilities - e.g. of waymarked trails for particular activities, such as walking, running, horse-riding or mountain biking?	Q2. Has the project made contact with potential parther local health groups or interest groups to promote recreational activities?	Q.3 How frequently is the woodland used by school parties, or for other educational purposes?	Q.4 How frequently is the woodland used for community activities and events?
	See comments	See comments	<<Drop down to select answer>>	<<Drop down to select answer>>
	Not applicable	Not applicable	<<Drop down to select evidence>>	<<Drop down to select evidence>>

Cwm Fagor Comments General: N/a	P&R: This is a reasonable question, as the woodland evolves things that it can offer will emerge. For instance, in ten years time we might discover trails that are good for orienteering etc. This might be better as a long term monitoring question, as a newly created woodland will not suitable for much initially.	P&R: No, and this question might already be covered in the promotion of public access question. LJR: Perhaps have one question associated with public access and give an extra point if they have looked into the health aspects as well.	Skipped this question.	Skipped this question.

	Community Score	Transparency Score
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		✓

General points

LRJ: Opportunity to increase the community values in future on this site - e.g. through forest schools.

TL: Haven't reached out to forest schools yet, but if we could score points for doing so maybe we would. It is a fairly remote site though, with only small villages nearby. Chepstow is the closest town, but has lots of woods nearby.

Cwm Fagor Woodland Site Assessment

Carbon Questions

Carbon Requirement	Short term options		Longer term monitoring	
1. The potential of the woodland ecosystems to store carbon has been maximised as a result of effective planning and ongoing management activities	Q1. Has consideration been given to the carbon content and growth rate of species when planning the woodland, and the carbon uptake of the chosen planting scheme been estimated?	Q2. Do plans for the management of the woodland allow for a proportion of standing and fallen deadwood to be left in place?	Q.3 Does monitoring of the woodland demonstrate that the woodland is establishment as planned and that tree growth rates are consistent with anticipated carbon uptake?	Q.4 What quantity of deadwood is found in the woodland?
	Yes (Score 10 Carbon)	See comments	See comments	<< TBC >>
	Management plan uploaded (Score 15 Transparency)	Not applicable	Not applicable	<< TBC >>

Cwm Fagor Comments General: N/a	P&R: Yes, it is primary designed for this as a WCC woodland. These factors would't come onto the radar of an average woodland planter though.	P&R: It will ultimately be considered in the management plan, but it isn't something that is considered early on LRJ: Leaving deadwood could be carbon negative if you're leaving it to lie in place of trees that might grow and trap carbon	P&R: For revalidation under the WCC there will be a review in three years time, then every 10 years. Yield class data starts to come in around year ten.	LRJ: There would be very little deadwood at year 25. This is classic indicator for mature woodland. There would be tiny amounts warly in a woodland lifespan unless you actively set out to create it.

Carbon Requirement	Short term options		Longer term monitoring	
2. Every practical opportunity has been to reduce the carbon footprint of the forestry operations associated with the woodland	Q1. Have forestry operations been planned to minimise energy use, incuding considering the use of sustainable biofuels for machines and vehicles?	Q2. The planned location of the woodland has taken into account distance to likely markets and the potential of using lower carbon forms of transportation for wood products? - **this is two questions in one**	Q.3 What proportion of the annual fuel use associated with this woodland has taken the form of sustainable biofuels?	Q2. What is the form of transport most often used to transport wood products from the woodland and what is the average distance to their destination?
	No (Score 0 Carbon)	See comments	<< TBC >>	<< TBC >>
	See comments	Not applicable	<< TBC >>	<< TBC >>

Cwm Fagor Comments General: N/a	P&R: This isn't applicable yet on this site. It could be hard to audit this - e.g. the fuels used by contractors vehicles, and so could be costly.	LRJ: This would be too hard to audit - eg. the problem of mills closing. Would be better to ask whether there is a route nearby perhaps? There is also an auditing problem in terms of tracking their transport. Markets are getting better in terms of biomass and timber - getting more local.	Skipped this question.	Skipped this question.

Carbon Requirement	Short term options		Longer term monitoring	
3. Forest products are used to substitute for more energy-intensive materials and / or used as a source of renewable heat and electricity.	Q1. Has the potential for woodfuel, timber, and energy crops been considered?	Q2. Do plans for the management of the woodland allow stumps to be left in place wherever practical?	Q.3 Does the woodland provide a source of wood products or wood fuel?	Q.4 What proportion of the woodland has been disturbed as a result of stump harvesting?
	Yes (Score 10 Carbon)	<<Drop down to select answer>>	No (Score 0 Carbon)	<<Drop down to select answer>>
	See comments	<<Drop down to select evidence>>	See comments	<<Drop down to select answer>>

Cwm Fagor Comments General: N/a	P&R: Yes and because it has been sold there is a record of where it is gone and how much. However, might not be able to establish if a displacement of products takes place. L: The use of wood to create electricity can be controversial as the heat that is generated is often not used.	Skipped this question.	P&R: This is an appropriate question and we would be able to measure this eventually.	Skipped this question.

Carbon Requirement	**Short term options**		**Longer term monitoring**	
4. Current and future risks to the woodland ecosystem and its carbon stores have been identified and appropriate mitigation measures have been put in place	Q1. Have risks to the forest from spillages, pest and disease outbreaks, extreme weather events and fire have been considered durning woodland planning?	Q2. Have appropriate contingency plans been put in place to deal with risks to the forest, including spillages, pest and disease outbreaks, extreme weather events and fire?	Q.3 XXX	Q.4 XXX
	Yes (Score 10 Carbon)	Yes (Score 10 Carbon)	<< TBC >>	<< TBC >>
	See comments	Management plan uploaded (Score 15 Transparency)	<< TBC >>	<< TBC >>

Cwm Fagor Comments General: XXX	P&R: Yes, as was the case for the biodiversity question - could perhaps merge these questions and score for both Carbon and Biodiversity	P&R: Yes, and we would stipulate contingencies in management plans.	Skipped this question.	Skipped this question.

	Carbon Score	**Transparency Score**
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		✓

General points
N/a

Upton Court Jubilee Woodland Site Assessment				
Wildlife Questions				
Wildlife Requirement	**Short term options**		**Longer term monitoring**	
1. Create and manage a native woodland with the aim of delivering biodiversity gains, particularly in terms of the extent or condition of priority habitats and/or number and population of priority species	Has the woodland been planted mainly with native species or allowed to regenerate naturally?	Has the selection and distribution of tree and shrub species been informed by the needs of priority species and/or the aim of increasing the area of priority habitats?	Q.3 What % of the woodland is dominated by native tree species?	Q.4 Is an area of the woodland classified as a priority habitat in favourable condition and / or is it a home to a population of a priority species that is stable or increasing?
	Yes (Score 10 Wildlife)	No (Score 0 Wildlife)	See comments	No (Score 0 Wildlife)
	See comments	Not applicable	Not applicable	Not applicable
Upton Court Jubilee Wood Comments **General: N/a**	SSC: The woodland has been planted predominately with native species. Have a planting list and plans of where the trees went which could provide evidence, and which would be included in the contract.	SSC: The woodland hasn't been designed with this in mind, although to get EWGS funding the site had to include a selection of certain species. LRJ: The woodland is not planted as a habitat in a recognised way. It is however an effective ammenity way of planting the woodland, so driver was different, with a greater focus on community value than biodiversity.	LRJ: This question could also incorporate the use of 'native plus' species, as climate change will be an important factor in future and some of the more resiliant species are already established in the UK (e.g. Sweet Chesnut has been around nearly two thousand years).	LRJ: This couldn't be claimed for this woodland as it has not been established with a cartain habitat type in mind. However, the tool could include a question on whether the land has been improved - e.g this site has moved from an effective ecological desert to a a land use with value for biodiversity.

Wildlife Requirement	**Short term options**		**Longer term monitoring**	
2. Create a woodland with a diverse structure where ecological processes are given the greatest possible opportunity to operate freely for the benefit of biodiversity	Q1. Has the woodand has been planned to incorporate a range of stand structures and silvicultural approaches across the forest as a whole, potentially including veteran trees, open-crowned trees, open space and areas of natural regeneration?	Q2. Has woodland planning considered potential areas for future minimum intervention forestry and, where these will deliver habitat objectives, will ecological processes be allowed to develop?	Q.3 Are species associated with a diverse range of forest stand structures found in the woodland?	Q.4 Is an area of woodland set aside as a 'minimum intervention' reserve area, where no active woodland management takes place?
	Yes (Score 10 Wildlife)	Yes (Score 10 Wildlife)	See comments	See comments
	See comments	See comments	See comments	Not applicable
Upton Court Jubilee Wood Comments **General: N/a**	SSC: The woodland has been designed to incorporate various structures and will be left do that they can develop them, the site won't be gardened like the rest of the park. In terms of evidence, the site plan shows this - e.g. shrub areas which will provide an understory structure.	SSC: Yes, perhaps in terms of the oak which has been spaced for final stand without thinning. The woodland doesn't yet have a managemnt plan, but we do have a statement of intention in the WCC carbon management plan. LRJ: A woodland management pan might not be expected at the creation stage.	*N.B. the question was altered based on previous feedback to ask whether a diverse woodland would be produced* LRJ: The site includes various areas (e.g. a wildflower meadow), so we don't want to talk just about stand structure, which is more relevant for larger, older woodlands. A diversified habitat structure is built in here, e.g. understory planting will provide structural doversity. They haven't just planted trees. SSC: Thso would be evidenced in the planting plan	LRJ: 'Minimum intervention' is a forestry term that doesn't quite fit to this site. Could argue that this site is non-intervention as natural processes are being allowed to predominate, but not what you'd expect to be looking at in a forest setting.

Upton Court Jubilee Woodland Site Assessment				
Wildlife Requirement	**Short term options**		**Longer term monitoring**	
3. Create a woodland which leads to an improvement in the condition of key elements of the landscapes wider ecological network	Q1. Will creation on the planned site expand an existing woodland or be in proximity to an existing woodland?	Q2. Has the siting of the woodland has been planned to increase the connectivity of priority habitat and/or to increase and extend populations and ranges of priority species?	Q.3 What proportion of the area within a 5km radius is covered by native woodland?	Q.4 Does the established woodland contributes to the connectivity of priority habitats and features in the local landscape?
	Yes (Score 10 Wildlife)	No (Score 0 Wildlife)	See comments	Yes, confirmed
	See comments	Not applicable	See comments	See comments
Upton Court Jubilee Wood Comments **General: N/a**	SSC: The site builds on wetland habitat that is found along stream corridors. The woodland strengthens this habitat and joins to it. This can be evidenced through the masterplan of the park. LRJ: This is perhaps green infrastructure connectivity as much as ecological connectivity? - e.g. the woodland links with cycleways	SSC: Wouldn't be applicable to this site	LRJ: Would a woodland get really high point in terms of being one of few woodlands in an area, or score poorly in terms of ecological connectivity. Question of what are the tipping points, which needs needs more thought. The Woodland Trust has information on where there is a lack of accessible woodland, so this might be an alternative approach. SSC: We would have to have a look at maps, it is linked to some woodlands to the east of the park (without road barriers which would limit connectivity)	SSC: The site provides a green corridor and links to the wetland, so potentially potentially providing a buffer to it. LRJ: The site is not a priority habitat, but could provide a buffer to an adjacent priority habitat. However, this isn't an agricultural context so a buffer will have a less significant effect. *Evidence not covered due to time constraints*
Wildlife Requirement	**Short term options**		**Longer term monitoring**	
4. Measures have been put in place to protect native woodland from threats this form of habitat often faces, or will increasingly face in future	Q1. Has the control of invasive and pest species been planned for, including considering barriers to dispersal and their impact in the woodland and across the landscape?	Q2. Have a diversity of species been selected for planting, taking into account the risks and opportunities of climate change for particular species and regions; or has the woodland has been allowed to regenerate naturally?	Q.3 How much of the woodland has been damaged as a result of invasive or pest species?	Q.4 Does the established woodland contains a diverse range of species, so increasing its resilience to climate change?
	<<Drop down to select answer>>	No (Score 0 Wildlife)	Rare <20% of the woodland affected (Score 40 Wildlife)	< 25% of the woodland allocated to a single species (Score 40 Wildlife)
	<<Drop down to select evidence>>	Not applicable	See comments	See comments
Upton Court Jubilee Wood Comments **GeneralN/a**	Skipped this question as it is expected it will be merged with the carbon risk assessment question which has already been answered by SCC.	SSC: We added a diversity of plants, but didn't select particularly on the basis of climate change. Some Sweet Chesnut has been planted, which is tolerant of warm climates but didn't specify southerly providences. We might have taken more species from a FC list if were trying to score against this question.	SSC: We have not had an issue with invasive species so far on the site. It is presumed that we will manage any invasives that do occur - e.g. Himalayan balsam *Evidence not covered due to time constraints*	LRJ: The site has a wide mix of species, which is lots when some sites would pick just four. They haven't been picked out for their resiliance climate change, but should be resiliant is simply as a result of there being a wide range of species. SSC: The woodland isn't going to be wiped out by an issue affecting a particular secies, there are 17 different tree species, plus shrubs and wildflower LRJ: This is compared to around 11 on the site at Devaugen *Evidence not covered due to time constraints*

	Wildlife Score	**Transparency Score**
Requirement One:	80%	85%
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**80%**	**85%**
Awarded:		

General points

SSC: Would like to see inventiveness and creative thought scored for as added value - it is hard to score this, but it is incorporated in the Green Flag awards scheme

LRJ: Some kind of flexible additional column might be useful for capturing those benefits that are hard to prescribe - e.g. is there something that you think hasn't been captured, and if so can you evidence it

Upton Court Jubilee Woodland Site Assessment

Water Questions

Water Requirement	Short term options		Longer term monitoring	
1. Create and manage a woodland that protects the aquatic environment, including sites, habitats and species subject to the legal provisions of EU directives and UK legislation	Q1. Have sites of aquatic and wetland habitats and species, including spawning areas, been identified?	Q2. Have riparian buffer zones been established to protect sensitive habitats?	Q.3 Does the aquatic environment support an appropriate range of plant and animal species?	Q.4 XXX
	Yes (Score 10 Water)	Yes (Score 10 Water)	See comments	<< TBC >>
	See comments	See comments	Not applicable	<< TBC >>

Upton Court Jubilee Wood Comments **General: N/a**	SSC: Identified that there was wetland on the site and had to keep forest activities away from it. Studies have been completed on the habitat and we will not interfer it. This is covered in the design document.	SSC: There is a buffer zone in place and this is covered in the design documents.	**N.B. the question was altered based on previous feedback to ask whether management been updated to keep up with current best practice on managing aquatic habitats* SSC: We think it would be sensible to do this	N/a

Water Requirement	Short term options		Longer term monitoring	
2. Create and manage a woodland that protects and restores the quality of the freshwater environment by reducing the impact of intensive land management and improving the quality of water.	Q1. Have the potential effects of planting on water acidification or diffuse pollution been considered in site selection, shape and species mix?	Q2. XXX	Q.3. Is there any evidence of increased acidification in the aquatic environment?	Q4. XXX
	See comments	<< TBC >>	<<Drop down to select answer>>	<< TBC >>
	Not applicable	<< TBC >>	<<Drop down to select evidence>>	<< TBC >>

Upton Court Jubilee Wood Comments **General: N/a**	SSC: The site has a history of pollution, plus there is air pollution (particularly high levels) and noise pollution in the area LRJ: It could be good to have a more general pollution focused question NH: The contaminated land issue needs to be included in a question	N/a	Skipped this question	N/a

Water Requirement	Short term options		Longer term monitoring	
3. XXX	Q1. XXX	Q2. XXX	Q.3 XXX	Q.4 XXX
	<< TBC >>	<< TBC >>	<< TBC >>	<< TBC >>
	<< TBC >>	<< TBC >>	<< TBC >>	<< TBC >>

Upton Court Jubilee Woodland Site Assessment				
Water Requirement	**Short term options**		**Longer term monitoring**	
4. Plan and manage a woodland that helps to restore natural physical processes, e.g. contributing to improved flood alleviation in floodplain areas or improving water yield downstream.	Q1. Have relevant water regulatory authority and conservation agencies been consulted about the scheme?	Q2. Have the potential effects of planting on flood flows been considered? E.g. using spatial mapping to select site	Q.3 Is the woodland 's contribution to water management recognised in River Basin or Catchment Flood Management Plan?	Q.4 Does the woodland show signs of trapping and intercepting sediment in flood areas?
	No (Score 0 Water)	No (Score 0 Water)	No (Score 0 Water)	See comments
	Not applicable	Not applicable	Not applicable	<< TBC >>
Upton Court Jubilee Wood Comments **General: N/a**	SSC: We wouldn't usually consult with these organisations LRJ: However, a you would likely have to do so automatically in Scotland	SSC: This isn't applicable to this site	LRJ: This is unlikely to occur unless there is a big woodland, or the woodland is in a difficult catchment	*N.B. the question was altered based on previous feedback to ask whether the woodland was contributing to water issues broadly* LRJ: Woodlands increase water filtration which can be good in an urban area, but it is not likely to be as important here given the large catchment and a small woodland area. So the effect will probably not that significant compared to a woodland in a smaller catchment that often floods for instance.

	Water Score	**Transparency Score**
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		✓

General points

LRJ: Might be worth going through the ecosystem service checklist to ensure that every relevant category has been ticked off

Upton Court Jubilee Woodland Site Assessment

Community Questions

Community Requirement	Short term options		Longer term monitoring	
1. Create and manage a woodland that provides safe, inclusive access and opportunities for leisure and recreation for all members of society, including hard to reach groups.	Q1. Will Public Rights of Way (PRoW) and permissive footpaths across the woodland be maintained throughout the projects life?	Q2. Are facilities provided / planned for visitors to the woodland, including visitors with disabilities?	Q.3 What % of the woodland is accessible to the public?	Q.4 On average, how many people visit the woodland annually?
	Yes (Score 10 Community)	Yes (Score 10 Community)	91-100% (Score 40 Community)	See comments
	See comments	See comments	See comments	See comments
Upton Court Jubilee Wood Comments General: LRJ: Distance to popopulation may be an important factor. Location relative to deprived communties may also be of significance - e.g. woodland based events that are appropriate to the local area could be a thing to include	SSC: The site is on public open spae that was already accessible. However, there are specific access routes through the woodland and they will be maintained. Accessibility to and from the site has been kept open. LRJ: This site should score against this category as, although not legally considered permissive, it is accessible. It has the top level of access really in terms of law (legal full access determination as a public open space) SSC: In terms of evidence, we have a masterplan whch shows the old access routes and how these link with the layout of the woodland (two seperate documents). There is also some referencing in the woodland grant documentation.	SSC: Yes, there are some things that still need to be implemented (e.g. interpretation boards) and there will be better maintenance of accessible routes around the site. There will be car parking and a way through to the woodland from it, including some closer to the site. The site is close to the national cycle network. We would like to have a more accessible route onto the viewing mound in future. Have put more oblique paths onto other sites for similar purposes.	SSC: Regarding monitoring timescales, we would perhaps want to record public activity on the site before 25 years. LRJ: A better question could be 'do permissive rights of ways still exist and are they being promoted to the public' - a site could just promote the routes to thier own staff etc. Some woodlands could revert to private woodlands at the end of 10 year grant programmes / contracts. SSC: In terms of evidence this site would be defined open space on a map	SSC: We know how many people visit the park, but not the woodland itself. Something in the range of tens of thousands for the park. We wouldn't envisage conducting visitor counts on the site. This would be quite a task in terms of time and resources. In terms of transparency, there are visitor figures available for the park itself, plus list of events that have been held. An alternative question might ask whether there are still facilities, and have their been any changes and why.

Community Requirement	Short term options		Longer term monitoring	
2. Create and manage a woodland that provides local communities with an opportunity to build relationships, develop community identity, and contribute to the development of forestry proposals in their areas.	Q1. Are the aims of the forestry proposals and their potential impacts communicated clearly to local communities? [e.g. via village meeting; leaflet; website or social media; information board]	Q2. Has the community been invited to be involved in the design process?	Q.3 Is a public engagement mechanism maintained and regularly updated? [e.g. newsletter; social media; regular on-site 'meet the manager' events]?	Q.4 Are local stakeholders continually (change wording to ongoing / regularly instead?) involved in decisions about woodland management or new facilities?
	Yes (Score 10 Community)	No (Score 0 Community)	No updates (Score 0 Community)	No (Score 0 Community)
	See comments	Not applicable	Not applicable	Not applicable
Upton Court Jubilee Wood Comments General: N/a	SSC: Yes, we are certainly to date with communications and keeping that up will be important. There has been involvement with schools (planting), the press, and community groups. In terms fof evidence, there are press cuttings and records of planting.	SSC: The community has only been involved in terms of Councillors drumming up spport for the existence of a new wood, but in terms of overll design, no. The Woodland Trust has adviced us on the choice of species for the site. Definitely feel that communities could be involved in future, and they have been invited on smaller projects. There is the potential to involve them a lot in terms of concept. It adds a sense of owenership, which is key.	SSC: There isn't much planned for the future, we could work more on encouraging various groups to engage in the park - e.g. the creation of friends groups LRJ: You could also see the monitoring of wildlife, bird boxes etc. from local groups SSC: The site is advertised on the Woodland Trust site and the Council's site. There were initial press releases and it was in the Council's newsletter. This newsletter could be a vehicle for future updates. There was local interest in the carbon offsetting and there was a two page spread in the newsletter when it was first planted. Quartery might be good to have in terms of an additional band.	SSC: There is only some input from local stakeholders, as there is awareness of their views, but no formal mechanisms for them to be taken into account. There are some stakeholders groups in the park which could be engaged - e.g. an Owl Sanctuary and an informal residents group .

Community Requirement	Short term options		Longer term monitoring	
3. Create and manage a woodland that provides jobs, supports the local economy, and offers opportunities for local people to develop their skills and learn about the natural environment.	Q1. Has the woodland involved volunteers in planting or other creation activities, or will it in future?	Q2. Has the woodland creation project engaged with schools or other groups for education and learning activities, or will it in future?	Q.3 How many days are volunteered on site annually?	Q.4 How many hours of employee training are provided annually?
	Yes (Score 10 Community)	Yes (Score 10 Community)	Less than 50 Person-days per year (Score 10 Community)	<< TBC >>
	See comments	See comments	Record of volunteering activities uploaded (Score 35 Transparency)	<< TBC >>
Upton Court Jubilee Wood Comments General: N/a	SSC: Yes, it has so far and hopefully in the future as well. Local school groups have been involved, but not businessese. Have a history of having recorded volunteer activity in the past due to the due to the requirements of lottery funding - e.g. the number of hours worked; number of volunteers involved etc. so this could be managed in terms of transparency. Looking to see what they can do in terms of engagement with the Jubilee Woods project – looking to get schools involved and potentially businesses too (e.g. corporate days). LRJ: This would get a high score if you had bands for the levels of participation acheived.	SSC: We brought someone in to engage with the children during planting activities with schools at the woodland. They talked about how woodland grows, wildlife, carbon etc. In future, we will be looking to keep interest going, but nothing has been planned so far. In terms of evidence, we would put content together on on educational activities if this tool needed to be completed - e.g. we might have developed an educational plan, but nothing is in place at present.	SSC: There are likely to be lower numbers of volunteers after creation activities have been completed. We also have ex-offenders working on the site with contractors, but they are likely being paid for this. In terms of evidence, we could put hours together for what has happened to date. LJR: The probation staff working on the site probably wouldn't be included, as their work is not strictly voluntary. There is almost the need for another category where a high score could be justified because of this - e.g. it they could claim a high level of participation, then the state why - this would give flexibility. Accompanying guidance could include examples of what would correspond to a high level of participation - this could include walk for health days etc. The tool can't cover every case given the diversity of woodlands and the contexts they sit in, so instead the tool be a relatively open framework which then allows the woodland owner to build the case.	SSC: We generally don't have official skills transfers - eg. with woodland planting specialists there is a tendency to learn on the job rather than through any formal training programme. We had individuals completing NVQ work experience involved in the initial planning of the site and in terms of maintenance, but this was on the job training and only lasted for a few week. LRJ: An alterative question could be: 'are their still ongoing relationships with schools or other educational facilities' - e.g. is there involvement in the site's management once the inital creaton has occured. SSC: We cave interest in a woodland school / classroom being set up and local scouts group may be interested in the site terms of bushcraft etc.

Community Requirement	Short term options		Longer term monitoring	
4. Create and manage a woodland that supports a healthy local environment for people and contributes to improvements in quality of life, including mental, physical and social well-being.	Q1. Does the woodland include the planned provision of recreational facilities - e.g. of waymarked trails for particular activities, such as walking, running, horse-riding or mountain biking?	Q2. Has the project made contact with potential parther local health groups or interest groups to promote recreational activities?	Q.3 How frequently is the woodland used by school parties, or for other educational purposes?	Q.4 How frequently is the woodland used for community activities and events?
	Yes (Score 10 Community)	Yes (Score 10 Community)	See comments	See comments
	See comments	See comments	Not applicable	Not applicable

Upton Court Jubilee Wood Comments **General:** **LRJ: The site could be used to support micro-businesses (e.g. personal trainers) which could be charged to use the area.**	SSC: There is a route through the site which will be described on an interpretation board (way marked trail). This board will also indicate what might be seen in terms of wildlife. Picnic areas proposed in the meadows. Features of interest are to be installed to attract people into the clearings (consulting on what might be included). In terms of evidence, the design documents provide details of the interpretation board. We could also upload pictures. For the Green Flag awards we have to produce a management plan and evidence activities (e.g. community, biodiversity & learning activities) - this is not as burdensome as the lottery funding critera. The information collected then needs to be uploaded onto their website. LRJ: There is a need to keep the amount of information that has to be uploaded sensible if this is the approach that is used.	SSC: Yes, there have been healthy walk groups using the siteso far. The sports facilities team in the Council know of the woodland and the routes around there, so there are also opportunities in the future - e.g. to engage with park runs in the area. In terms of eveidence, we could show through the health walks programme that woodland is being used for this purpose - e.g. some are prescribed walks. LRJ: There is an increasing push to link public health with outdoor groups, so this group of users may well grow in future as they need accessible land.	NH: This risks repeating the question above regarding educational activities. SSC: This is very similar to a question in the Green Flag document and so could be evidenced.	NH: It may be good to have a question about the frequency and range of activities that take place in the woodland, rather than just focusing in on health and recreation. SSC: There is a need for a broad range of activities to be occuring in order to engage with a range of people. There may be difficulties in trying to evidence theses types of activities as they are often taking place on an informal basis. There are constantly new groups using the park. We used to have a ranger that engaged with such groups, but there are less people on the ground for engagement since the cuts .

	Community Score	Transparency Score
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		

General points

SSC: We would like to be able to capture the improvements to the site in terms of aethetics (quality of landscape) and noise.

LRJ: The quality of landscape in an area will help it's business case - e.g. a community forest makes a place more attractive, this can then encourage staff to move there. This has been the case with community woodland in Swindon.

SSC: In terms of the sites economic contribution, we could easily show how many hours are contracted in terms of labour cost. However, there is then the issue of declaring how much is spent.

LRJ: The economc variables are the size of the woodland - i.e. could extrapolate from the site hectarage (easily auditable). Context is important as well - e.g. with remoteness there are less rural jobs and so the woodland is important; the context is different in Slough - e.g. bringing benefits in terms of attracting business and the per ha maitenecnce costs would be higher due to the location; in somewhere like Dorset the context would be tourism. It becomes complicated in terms of context.

LRJ: A potential question is: 'are there economic benefits?' with a high / medium / low score based roughly on hectarage perhaps? How do you then go about counting the economic benefits in different landscape contexts / local economies is important but difficult.

SSC: The economic benefits of this site are likely lower in terms of attracting business when compared to the potential impact of say a green avenue in the centre. The site is more for park users. Also it is not a major impact here as the wider economy is booming - e.g. compared to rural Scotland.

Upton Court Jubilee Woodland Site Assessment

Carbon Questions

Carbon Requirement	Short term options		Longer term monitoring	
1. The potential of the woodland ecosystems to store carbon has been maximised as a result of effective planning and ongoing management activities	Q1. Has consideration been given to the carbon content and growth rate of species when planning the woodland, and the carbon uptake of the chosen planting scheme been estimated?	Q2. Do plans for the management of the woodland allow for a proportion of standing and fallen deadwood to be left in place?	Q.3 Does monitoring of the woodland demonstrate that the woodland is establishment as planned and that tree growth rates are consistent with anticipated carbon uptake?	Q.4 What quantity of deadwood is found in the woodland?
	Yes (Score 10 Carbon)	See comments	Yes (Score 40 Carbon)	<< TBC >>
	See comments	Not applicable	See comments	<< TBC >>

Upton Court Jubilee Wood Comments General: LRJ: Potentially better to call this section 'climate change mitigation and adaptation'. Some water based criteria might fall under this though.	SSC: Because the woodland has a very mixed variety of species which aren't all large trees carbon uptake will not be maximise, so would perhaps have to answer no for this question. Could evidence this through WCC documentation. LRJ: Rather than no this is perhaps at the low end of the scale in terms of carbon, as it is an ammenity woodland primarily with carbon as an additional benefit. This compares with medium levels at Cwn Fagor and higher levels at Buccleugh.	LRJ: There is only really deadwood appearing in woodlands at 50 years plus, so whilst unsuitable here this question could be useful in a longer term 'pathway' approach	SSC: Yes, and we will be able to evidence this from the WCC reports from Verco.	Skipped this question.

Carbon Requirement	Short term options		Longer term monitoring	
2. Every practical opportunity has been to reduce the carbon footprint of the forestry operations associated with the woodland	Q1. Have forestry operations been planned to minimise energy use, incuding considering the use of sustainable biofuels for machines and vehicles?	Q2. The planned location of the woodland has taken into account distance to likely markets and the potantial of using lower carbon forms of transportation for wood products?	Q.3 What proportion of the annual fuel use associated with this woodland has taken the form of sustainable biofuels?	Q2. What is the form of transport most often used to transport wood products from the woodland and what is the average distance to their destination?
	No (Score 0 Carbon)	No (Score 0 Carbon)	<< TBC >>	<< TBC >>
	Not applicable	Not applicable	<< TBC >>	<< TBC >>

Upton Court Jubilee Wood Comments General: N/a	SSC: This hasn't been done on this site LRJ: This wouldn't be required in most contracts, although it is sometimes required by the FC due to their commitments	SSC: Doesn't apply to this woodland as it is not productively orientated.	SSC: This isn't applicable on this site	SSC: This isn't applicable on this site

Upton Court Jubilee Woodland Site Assessment				
Carbon Requirement	**Short term options**		**Longer term monitoring**	
3. Forest products are used to substitute for more energy-intensive materials and / or used as a source of renewable heat and electricity.	Q1. Has the potential for woodfuel, timber, and energy crops been considered?	Q2. Do plans for the management of the woodland allow stumps to be left in place wherever practical?	Q.3 Does the woodland provide a source of wood products or wood fuel?	Q.4 What proportion of the woodland has been disturbed as a result of stump harvesting?
	No (Score 0 Carbon)	<<Drop down to select answer>>	See comments	<<Drop down to select answer>>
	Not applicable	<<Drop down to select evidence>>	Not applicable	<<Drop down to select answer>>

Upton Court Jubilee Wood Comments General: N/a	SSC: This hasn't been considered as the woodland is not productively orientated.	Skipped this question.	SSC: There will be thinnings from the woodland, but these won't be a large harvest (minimal)	Skipped this question.

Carbon Requirement	**Short term options**		**Longer term monitoring**	
4. Current and future risks to the woodland ecosystem and its carbon stores have been identified and appropriate mitigation measures have been put in place	Q1. Have risks to the forest from spillages, pest and disease outbreaks, extreme weather events and fire have been considered during woodland planning?	Q2. Have appropriate contingency plans been put in place to deal with risks to the forest, including spillages, pest and disease outbreaks, extreme weather events and fire?	Q.3 XXX	Q.4 XXX
	Yes (Score 10 Carbon)	<<Drop down to select answer>>	<< TBC >>	<< TBC >>
	See comments	<<Drop down to select evidence>>	<< TBC >>	<< TBC >>

Upton Court Jubilee Wood Comments General: N/a	SSC: Have taken into account the suitability of the ground on the site and rabbit guards have been put up up. There is a duty of care for open space as a public body and so we are commited to not allow contamination etc. We have evidence of soil testing and tender documentations regarding contractor training.	Skipped this question as it is acknowledged that this could be merged with the prior question on the consideration of risk.	SSC: There will 100 years of monitoring the site as a part of the WCC. This might be a suitable means of checking that the woodland has survived potential threats.	N/a

	Carbon Score	**Transparency Score**
Requirement One:	XXX	XXX
Requirement Two:	XXX	XXX
Requirement Three:	XXX	XXX
Requirement Four:	XXX	XXX
Total Score:	**XXX**	**XXX**
Awarded:		

General points

SSC: The woodland would help to provide cooling with climate change and this could perhaps be acknowledged.

APPENDIX E: ECOSYSTEM SERVICES CHECKLIST[165]

Ecosystem Service			Description	Examples	Pilot tool coverage
Provisioning Services		Crops	Cultivated plants or agricultural products harvested by people for human consumption.	Crops include food sources such as rice and maize.	Whilst there is little tradition of agro-forestry in UK woodlands,[166] there is the potential for some crop-related benefits to occur as a result of woodland creation. For example, woodlands can improve soil structure by increasing the proportion of organic matter, through the actions of tree roots, and by providing shading.[167] Respondents wishing to highlight the economic benefits of woodland creation resulting from improved crop productivity are able to do so under **Community Route No.3**: 'Create and manage a woodland in a manner that brings about economic development'.
		Livestock & fodder	Livestock are animals raised for domestic or commercial consumption or use while fodder is any food stuff used to feed domesticated livestock.	Livestock includes goats, camels, and cows, while fodder is typically made up of hay, straw, silage, legumes etc.	There may be some minor benefits of woodland creation in terms of livestock. For instance, the creation of woodlands on farms has the potential to increase the provision of shelter for livestock. Increasing temperatures resulting from climate change are likely to increase the shade and shelter value of trees for livestock[168]. Respondents wishing to highlight the economic benefits of shade provision are able to do so under **Community Route No.3**: 'Create and manage woodland in a manner that brings about economic development'. Providing shade for livestock might also be reported in **Climate Route No.2**: 'Create a woodland that actively contributes towards climate change adaptation'.

[165] Supporting Services have been scoped out of this assessment as they are not considered of relevance to the pilot tool. This is also the case with some types of ecosystem service, such capture fisheries and aquaculture.
[166] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82
[167] Forestry Commission Wales (2012) New farm woodlands – How planting trees can contribute to your farm business[online] available at: http://www.forestry.gov.uk/pdf/New-farm-woodlands-English.pdf/$FILE/New-farm-woodlands-English.pdf
[168] Forestry Commission Wales (2012) New farm woodlands – How planting trees can contribute to your farm business[online] available at: http://www.forestry.gov.uk/pdf/New-farm-woodlands-English.pdf/$FILE/New-farm-woodlands-English.pdf

		Wild foods	Many societies gather wild sources of food which replenish naturally across a variety of different ecosystems.	Wild foods include plants, fungi, fruits, nuts, as well as animal, bird, insect, amphibian, and reptile species.	Across the UK as a whole, the amount of wild food harvested from woodlands is relatively small. However, these resources do have economic and wider community benefits. [169] Respondents will be able to highlight wild food benefit through **Community Route No.1**: 'Create an actively used woodland that delivers community facilities', particularly where these are in demand', and where the economic benefits of production are particularly relevant through **Community Route No.3**: 'Create and manage a woodland in a manner that brings about economic development'.
		Timber	A range of ecosystems produce trees which can be harvested to provide a variety of wood products.	Timber sourced from a variety of tree species is used in the construction of buildings and furniture.	The production of timber is a major ecosystem service provided by the UK's woodlands, with 8.4 million green tonnes of softwood produced in the UK in 2008.[170] This contribution can be captured in the pilot tool through **Community Route No.3**: 'Create and manage a woodland in a manner that brings about economic development'. There is also the potential to create a 'Timber Route' in future iterations of the tool given the economic importance of this woodland benefit. The use of timber can also reduce the use of more carbon intensive materials such as steel. As such, the benefits of this ecosystem service can also be recorded in **Climate Route No.1**: 'Create a woodland that actively contributes towards climate change mitigation'.

[169] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

[170] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

		Energy	Ecosystems provide a variety of renewable energy sources, from harvestable biomass to hydropower.	Renewable energy sources provided by ecosystems such as woodfuel, biomass, tidal, hydropower, wind etc.	The market for wood fuels has been buoyed recently by factors such as increases in gas and electricity prices, plus interest in reducing carbon footprints.[171] The economic contribution of this growing market can be captured in **Community Route No.3**: 'Create and manage a woodland in a manner that brings about economic development'. It could also form an element of a 'Timber Route' should it be included in future iterations of the tool. The production of woodfuel can also contribute to climate change mitigation, with this captured under **Climate Route No.1**: 'Create a woodland that actively contributes towards climate change mitigation'.
		Genetic resources	This includes the genes and genetic information used for animal and plant breeding and biotechnology.	Natural variation in the genes of a variety of plant species has been used to develop genetically modified species which are more drought resilient, more productive etc.	There is little in way of unique species (endemism) in UK woodlands, at least amongst the well-known groups of organisms. There are however locally adapted provenances and distinctive assemblages.[172] Should a respondent wish to highlight the benefit s of these resources they could do so under **Community Route No.3**: 'Create and manage a woodland in a manner that brings about economic development'.

[171] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

[172] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

		Local climate regulation	Ecosystems can influence the local climate through the level of evapotranspiration, surface albedo, temperature regulation etc.	The Amazon rainforest recycles an estimated 50% of its rainfall when rain evaporates from trees or evapotranspiration transfers soil moisture into the air. This produces the wet climate that the trees need to grow.	Woodlands have the potential to help reduce some of the effects of climate change, for instance by providing shade and shelter, so reducing overheating with resulting benefits for people, livestock, and wildlife. In addition, woodlands can contribute to hazard regulation, for example by reducing peak flood flows.[173] This set of important woodland benefits is captured through **Climate Route No.2**: 'Create a woodland that actively contributes towards climate change adaptation' and **Water Route No.2**: 'Create and manage a woodland that improves the wider freshwater environment'. In addition, a woodlands' design and management can increase its adaptive capacity (e.g. by selecting species with suitable provenance), to secure woodland benefits despite the localised effects of climate change. The benefits of considering such factors are captured in **Managing Risks Route No.1**: 'Create a woodland which is protected from risks to the benefits it provides'.
Regulating Services		Air quality regulation	Ecosystems contribute chemicals to the atmosphere as well as extracting them, influencing many aspects of air quality.	Trees absorb airborne pollutants such as ozone, nitrogen oxides, sulphur dioxides, carbon monoxide, carbon dioxide, and particulate matter. In urban areas particularly, trees can reduce pollution considerably.	Woodlands have the ability to trap and absorb air pollutants, with an estimated health benefit of £0.9 million per year for Britain. Whilst this is small in comparison with some other woodland benefits, this value is dependent on context. For instance, in urban areas, the relative benefit of small woods, with their high edge ratio, will be comparatively high.[174] There is currently no means of capturing such benefits in the pilot tool, but there may be the opportunity to do so in future iteration of the tool through a 'Health & Wellbeing' Route. Respondents can also currently highlight this benefit as a 'unique' feature of their woodland in the reporting output sheet.

[173] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

[174] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

		Global climate regulation	Ecosystems play an important role in global climate regulation through sequestering or emitting greenhouse gases as well as contributing to the albedo effect.	The world's peatlands are thought to contain between 180 to 455 billion metric tons of sequestered carbon.	The ability of woodlands to sequester carbon is one of the most important services they provide. It is estimated that the total carbon stock in UK forests (including their soils) is around 800 mega tonnes of carbon, with a further 80 mega tonnes in the stock of timber and wood products outside forests.[175] Given this importance **Climate Route No.1**: 'Create a woodland that actively contributes towards climate change mitigation' has been included in the tool.
		Hazard regulation	Ecosystems play a role in retaining and replenishing soil and sand deposits as well as protecting natural and human assets from winds, storms, coastal erosion, and floods.	Zones of vegetation such as mangroves can play an important role as a natural buffer to coastal erosion while woodlands reduce surface water flows.	The ability of woodlands to moderate rainfall, so delaying and reducing flood events is acknowledged. For instance, trees and woodland can contribute to water management by providing more sustainable surface drainage in urban areas.[176] These benefits can be captured by respondents through **Water Route No.2**: 'Create and manage a woodland that improves the wider freshwater environment' and through **Climate Route No.2**: 'Create a woodland that actively contributes towards climate change adaptation'.
		Disease and pest control	Changes in ecosystems can directly change the abundance of human pathogens such as cholera, destructive invasive species, and the prevalence of crop and livestock pests and diseases.	Temperature and water availability limit the abundance of disease vectors such as mosquitoes, while predators control agricultural pest numbers. Non-native species introduced to an area can disrupt this balance.	Woodland creation projects can contribute to reducing the spread of diseases and pests that affect such habitats through the careful consideration of the species planted. For example planting schemes can avoid species susceptible to spreading diseases, such as ash die-back, whilst also avoiding the planting of potentially invasive non-native species. The consideration of such factors is captured in **Managing Risks Route No.1**: 'Create a woodland which is protected from risks to the benefits it provides'.

[175] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

[176] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

		Water (supply)	Freshwater is essential for human life and occurs naturally in a range of ecosystems.	Freshwater is found in lakes, rivers, underground aquifers, as well as being held in ice and snow.	The effect of woodlands on water supply varies dependent on context, in some cases the forest cover of catchments may reduce water yield, whilst in others it is considered important in maintaining supplies to urban areas.[177] A key trade-off is between water yield and water quality and regulation benefits, with woodland tending to improve the latter. Where benefits are achieved in terms of supply these can be captured in **Water Route No.2**: 'Create and manage a woodland that improves the wider freshwater environment' and potentially in **Climate Route No.2**: 'Create a woodland that actively contributes towards climate change adaptation'.
		Water quality regulation	Ecosystems can be a source of impurities in fresh water but also can help to filter out and decompose organic wastes introduced into inland waters and coastal and marine ecosystems.	Woodlands can help protect streams from surface water runoff and create nutrient soaks that reduce the amount of pollutants and sediment reaching the water by trapping particles.	Woodland has the potential to improve water quality, for example, as a means of minimising the need for water treatment by excluding livestock from watercourses and their immediate catchments, so reducing the risk of potential water contamination.[178] Such benefits can be highlighted by respondents using the tool in **Water Route No.1**: 'Create and manage a woodland that protects and improves the sites aquatic or wetland habitats', and **Water Route No.2**: 'Create and manage a woodland that improves the wider freshwater environment'.
		Noise regulation	Noise can have both a negative and positive impact on human well-being depending on its magnitude and source. Ecosystems play an important role in noise regulation, both in terms of contributing and reducing noise.	Tree planting and soil bunds along roadsides can reduce the negative noise impacts of traffic, while birdsong contributes noise but is often considered to be welfare enhancing.	The presence of belts of trees and shrubs can be effective at reducing the effects of noise pollution. For example, a 33 m-wide tree buffer may reduce noise levels by 6-8 dB. Whilst this effect is relatively minor in most contexts, it may be locally important certain contexts, such as urban situations and next to roadsides.[179] This benefit is not currently captured by the pilot tool. There is however the opportunity to record the noise reduction benefits of woodland in future iterations of the tool, potentially through a 'Health & Wellbeing' Route. There is also the opportunity for respondents to record this as a 'unique feature' of their woodland in the current version of the tool.

[177] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

[178] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

[179] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

		Soil quality regulation	The capacity of soil for regulation is determined by the interaction of its chemical composition, physical integrity and the structure and activity of soil biodiversity. Different soil types have different inherent regulating capacities.	Certain soils are more suppressive of plant pathogens than others, while others provide better buffers against atmospheric pollutants e.g. peatland soils.	Woodlands have an important role to play in delivering soil related ecosystem services. For example, woodland soils are a major store of carbon, whilst the trees themselves can dampen temperatures in the soil and beneath the canopy (potentially of increasing importance given climate change).[180] These climate-related benefits may be recorded under **Climate Route No.1**: 'Create a woodland that actively contributes towards climate change mitigation' and **Climate Route No.2**: 'Create a woodland that actively contributes towards climate change adaptation'. The presence of woodland cover may also have a remedial role on post-industrial land and contaminated soils. The benefits of such planting are not recorded in the tool at present, but might be captured in a 'Health & Wellbeing' Route in future iterations, or as a 'unique feature' of a woodland in the current tool.
Cultural Services		Tourism & recreation values	People often choose where to spend their leisure time based in part on the characteristics of the natural or cultivated landscapes in a particular area.	There are numerous recreational activities derived from ecosystems such as angling and other field sports, boating, bird spotting, walking and ecotourism.	The UK's woodlands provide a setting for a wide range of tourism-related and recreational activities. Woodlands are listed as one of the most popular destinations for countryside visits, with around 250 million day visits per year recorded.[181] The important benefits associated with such visits are captured in the pilot tool through **Community Route No.1**: 'Create an actively used woodland that delivers community facilities', and **Community Route No.2**: 'Ensure that all relevant communities have been actively engaged by the woodland project'.

[180] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

[181] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82

		Cultural & spiritual values	The diversity of ecosystems is a factor influencing the diversity of cultures and many religions attach spiritual values to ecosystems or their components. Many societies also place a high value on the maintenance of historically important landscapes and value the "sense of place" that is associated with recognised features of their environment.	In Gabon, local inhabitants derive a strong cultural identity from fishing in the area and living on land inhabited by their ancestors. The surrounding environment is used for spiritual ceremonies, the burying of dead, construction of temples, and worship of spirits who inhabit the area.	It is noted in the literature that trees and woodlands are valued for personal enlightenment, as links with the past, and as places of learning. In addition, woodlands can be a focus for communities, for example during their creation and subsequent management, with a large number of volunteer groups making use of woodlands. The provision of these important benefits is captured in the tool by both **Community Route No.1**: 'Create an actively used woodland that delivers community facilities' and **Community Route No.2**: 'Ensure that all relevant communities have been actively engaged by the woodland project'. There is also the potential for a woodlands' particular historic and cultural assets to be recorded as a 'unique feature' in the reporting output of the tool.
		Wild species diversity	Biodiversity is a supporting service since it underpins a number of provisioning, regulatory, and cultural services. However, a number of studies suggest that the diversity of wild species is itself a service regardless of whether it provides a supporting role in the provision of any other services, and that people are willing to pay to protect the existence of wild species even if they do not benefit from the ecosystem services they support.	In societies across the world, the diversity of wild species is considered to be important and valuable. Species which are at particular risk, such as pandas, can generate significant global concern and resources devoted to their conservation.	Biodiversity is of crucial importance to the provision of many of the ecosystem services covered above, with the species that form a natural woodland ecosystem forming the basis of the ecosystem services that emerge (e.g. the role of fungal partners in ensuring woodland health and productivity). Biodiversity is also valuable in terms of its existence value. For instance, in a 2009 survey, people recognised the provision of woodland as 'places for wildlife to live' and as such biodiversity can be considered one of the main benefits of wooded areas.[182] Given the existence value of biodiversity and its underlying importance of for ecosystem service provision, actions to ensure that is it protected and enhanced are captured in four Routes within the pilot tool, with these being **Wildlife Route No.1**: 'Create and manage a native woodland with the aim of delivering biodiversity gains', **Wildlife Route No.2**: 'Create a woodland with a diverse features in order to bring about ecological benefits', and **Wildlife Route No.2**: ' Create a woodland that leads to an improvement in the surrounding ecological network', plus **Water Route No.1**: 'Create and manage a woodland that protects and improves the sites aquatic or wetland habitats'.

[182] National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge. Chapter 8: Woodlands [online] available at: http://uknea.unep-wcmc.org/LinkClick.aspx?fileticket=m%2BvhAV3c9uk%3D&tabid=82