Environmental Statement

Proposal for Mixed Woodland

Cockplay

Dumfries and Galloway

Eskdale And Liddesdale Estate.

Prepared by

[redacted] BSc (Hons), MRICS, MICFor
[redacted] BSc
[redacted]
[redacted]
[redacted] Bsc, MIEEM, CEnv
[redacted] MSc, CBiol, MIEEM
Border Ecology
Rathmell Archaeology
[redacted], Forest Design Services
[redacted]

November 2015

Contents

Technical Annexes - Separate Folder

Annex A **Vegetation Survey**
Annex B **Winter and Breeding Bird Survey**
Annex C **Mammal Survey**
Annex D **Eskdalemuir Forestry Survey**
Annex E **Archaeology Survey**
Annex F **Landscape and Visual Assessment**

Other Annexes

Map 1 **Location and Ownership Boundaries**
Map 2 **Proposal Species Layout**
a) West
b) East
Map 3 **Phase / Habitat**
Map 4 **Viewpoints for Landscape Appraisal**
Map 5 **Soil and Peat Depth Map**
a) West
b) East
Map 6 **Ground Preparation**
a) West
b) East
Map 7 **Constraints and Mitigation**
a) West
b) East
Map 8 **Timber Transport**

Preface

This Environmental Statement has been prepared to inform a proposal for the establishment of mixed woodland on open ground at Cockplay, Buccleuch Estates, approximately 2km to the South of Langholm, Dumfries and Galloway.

The Environmental Statement includes a Non-technical Summary (NTS) which provides a comprehensive summation of the full statement, presented in a non-technical manner. The Environmental Statement comprises the following documents:

- Non-Technical Summary
- The Environmental Statement

The Environmental Statement has been informed by the findings presented within the Technical Annexes listed below.

- **Technical Annex A** - Vegetation Resource (prepared by John Gallacher and Baxter Cooper)
- **Technical Annex B** - Bird Surveys (Prepared by Border Ecology and Alan Leitch)
- **Technical Annex C** - Fauna resource (Presented by Border Ecology)
- **Techincal Annex D** – Eskdalemuir – Comparison of forestry and hill farming; productivity and economic impact
- **Technical Annex E** - Archaeology – Data Structure Report (Prepared by Rathmell Archaeology Ltd)
- **Technical Annex F** - Landscape and Visual Assessment (Prepared by Liz McIntosh, Forest Design Services)
- **Technical Annex F** – Ecological Site Classification

The Environmental Statement may be viewed at the following locations during the statutory consultation period:

Langholm Library
Charles Street Old
Langholm
DF13 0AA

Ewart Library
Catherine Street
Dumfries
DG1 1JB

Eskdale and Liddesdale Estate Office
Ewesbank
Langholm
DG13 0ND

Forestry Commission
55/57 Moffat Road
Dumfries
DG1 1NP

Further copies of the Environmental Statement are available for £65.00 per hard copy or £20.00 For CD ROM from

[redacted]
Buccleuch Woodlands
Queensberry Estate
Drumlanrig Mains
Thornhill
DG3 4AG
Tel: 01848 600283

Non-Technical Summary

This Environmental Statement (ES) covers the potential impacts arising from a proposal to establish mixed woodland over a gross area of circa 510 hectares of open hill livestock grazings at Cockplay, near Langholm, Dumfriesshire (NGR: NY 340 800). The aim of the Environmental Statement is to identify the main or significant environmental issues, their effects in both nature and scale and identify where adverse impacts are minimised and positive impacts maximised.
The land on which this new woodland is proposed is the property of Buccleuch Estates Ltd. Given the very difficult economic climate for upland livestock farming and the financial implications associated with the maintenance of productive agricultural land, Buccleuch Estates has looked to forestry as a viable and practical alternative.
The proposed layout of the forest is found in MapTS1 and Map TS2.
The creation of new woodlands is supported as a Scottish Government aim in their published strategy and appropriate new afforestation is also supported by the Dumfries and Galloway Forest Strategy.

The Primary aims of the scheme are.

- Provide an alternative source of income to upland livestock farming.
- Establish mixed woodland on previously grazed hill land with timber and biomass potentials, helping to underpin a sustainable forest industry and employment.
- Enhance the landscapes visual aspect within a local and regional context.
- Create new native woodland and expand the existing riparian woodland extent, building valued habitat corridors and reducing biodiversity fragmentation.
- Enhance community capacity and social inclusion through new opportunities for responsible access, recreation and sustainable employment.

In order to ensure the best fit for a new woodland would be achieved, a large area (948.2 ha) was originally scoped for suitability. The views of the national, regional and local statutory bodies and the local community were sought to ensure that the proposal would not cause excessive environmental or social harm and all opportunities to mitigate any detrimental effects were taken.
Following the Scoping Meeting in April 2009, and subsequent correspondence, four main issues, or sensitivities, were identified. These are listed below and form the main body of the Environmental Statement called for by the Forestry Commission.

1a) The potential ecological impacts of the project relating to loss of open ground habitat.
1b) The potential ecological impacts of the project on bird populations reliant on open ground habitat.

2) The landscape impacts of the project, particularly those impacts relating to views to and from the project including the design of edge planting along/surrounding topographical features.

3) The potential impacts of the project on known archaeological monuments with particular reference to the planting affecting the surrounding water table.
4).The land use balance of selected tree species and their associated establishment techniques.

Other issues raised were the potential impact(s) of the project on public access and local hydrology.
Specialist information was required to be able to answer these questions and the surveys which created this can be viewed in the annexes. The consideration of the findings relating to each subject can be found in the main body of the statement under the relevant chapter headings.
The summary findings for the four main issues above and the two subsequent issues are as follows:

1 a) Open Ground Habitats

The proposed woodland development area does not fall within, or near to, any designated sites of national and European conservation importance.

The proposed project has been subject to four ecological assessments that can be read in full within the technical annexes. Existing information and field work were used to evaluate the current, or baseline, ecological value and to assess the potential impacts on resident vegetation, Bird population and fauna species of planting mixed woodland.

The surveys showed that the area comprises habitat that has been extensively modified and whose ecological value has been significantly degraded. Of the 950 hectares surveyed the most common vegetation type was marshy grassland at over 75%. Acid grassland and blanket or modified bog made up the majority of the remainder. The areas of marshy grassland mapped by this survey were found to be poor examples of their type due to their extensive alteration through a long period of heavy grazing and drainage. The areas of acid grassland are becoming swamped by the dominant molinia grassland. Due to their relatively degrade nature they do not form part of an “important area of acid grassland” in the sense implied by the Dumfries and Galloway LBAP, at a regional, national or international scale. They are considered of local importance only. The blanket and modified bogs are also poor examples due to previous drainage and burning. These are associated with the deeper peat soils and have been excluded from the planting areas of the design. There are options to improve the quality of these modified and blanket bogs by carrying out ditch blocking and allowing natural processes to take over.

The proposed design although it cannot prevent the loss of open ground habitat entirely has avoided planting the more ecologically important areas. The proposal has also seeked to prevent undue fragmentation of the open ground habitat by providing linkage with a wide corridor in the Western part.

The effect of the proposal on open ground habitats is thought to be significant and detrimental and permanent at a regional scale for marshy grassland and a local scale for acid grasslands.

1b) Bird population reliant on open ground habitat

Winter and breeding bird surveys helped to provide base tone data on usage of the site by birdlife. This has enabled an estimation of the effect on the local birdlife to be made.

The winter usage of the site was mainly by raptors. Both Kestrel and Buzzard will experience some loss of habitat but both species are relatively common. A single hen harrier will experience some loss of hunting habitat but had only used the site very occasionally. Golden Plover were observed adjacent to the site but it is thought their area of use was much wider than the site and the removal of the areas for planting should have no detrimental effect on their usage fo the wider area.

The breeding bird survey showed a common mix of upland waters and smaller bird species such as meadow pipits and skylarks. The bird species of significance identified as using the site were skylark, curlew, reed bunting and snipe. The predicted impact will be the loss of between 2 and 3 pairs of curlews.

The proposed design has kept the areas of land with the higher densities of important species open. There will also be benefit to some woodland edge bird species once the woodland becomes established.

The impact of this project, even with mitigation, on birds requiring open ground habitats is considered to be negative, irreversible and significant at the local scale over the medium to long-term.

2) Landscape

There are no regional or national landscape designations. It falls within the Foothills landscape character identified in the Dumfries and Galloway Landscape Character Assessment (SNH 1998). The design of the proposal was influenced by a landscape appraisal undertaken by a landscape architect. This was done in conjunction with viewpoints agreed with the local council landscape officer. The majority of the site is only visible in long view or from within the site. By using the intimate topography at the edges of the proposal and allowing views to be retained along burn lines the proposal is designed to provide considerable diversity.

The overall impact of this proposal is judged to be long term, beneficial, irreversible and significant.

3) Archaeological

Extensive survey of the area had previously been undertaken so with agreement of the local council archaeological officer the extent of the remains previously recorded was surveyed and marked. There are no Scheduled Ancient Monuments within the site so there will be no alteration of the water table to the nationally important site to the East above Old Irvine. The results of the survey have enabled a significant buffer to be designed into the proposed layout. The significant archaeological remains identified are either outwith the final design or have been given a large protective buffer of open space.

4) Balance of species

The design has balanced the owner's objectives above with the issues raised. This has led to a proposed design which is highly diverse and exceeds the criteria laid down in the UK Forest Standard in terms of minimum species diversity. See Table below.

Area Statement

Category	Species	Area	UKFS Category	UKFS Category Area	%	UKFS Requirement
Sitka Spruce	SS	328.94	Main Species	328.94	65.0%	Max 75%
Norway Spruce	NS	50.41	Secondary Species	52.96	10.5%	Min 10%
Scots Pine	SP	2.55	Secondary Species			
Native Broadleaves	NBL	24.73	Native Broadleaves	32.96	6.5%	Min 5%
Unplanted	UP	74.62	Open Ground	91.33	18.0%	Min 10%
Native Broadleaves/Open Ground Mix (8.23 of NBL and 16.71 of UP)	NBL/OG	24.94				
Existing Broadleaves	**OL**	**1.81**				
Total		**508**		**506.19**		

The optimum species for economic generation in terms of return to the owner and in creation of rural employment is Sitka Spruce which is ideally suited to the site. This will grow to produce timber of construction grade quality. In order to provide a level of diversity and give options to grow trees on a longer rotation there is a considerable quantity of Norway Spruce included in the design. This species is also preferred over Sitka Spruce as a food source by the red squirrel. The Norway spruce is suited to the lower elevations of the site and will also grow timber of construction grade. The native broadleaf areas will be planted to mimic natural woodland so will have a mixed density. The species will match the native woodland that would have been found on

these sites. It will predominately consist of Birch and Willow. The location of the broadleaf areas has been selected to provide the maximum benefit, either as habitat or as visual amenity. The increase in native woodland along the riparian areas will provide habitat linkage and re-inforce the remnants found in the Irvine and Hall burn systems.

The ground preparation methods proposed have been adapted to the soil type and woodland type found in each area. The purpose of the ground preparation is to ensure successful establishment of the trees. This has to be balanced with the need to protect watercourses from any diffuse pollution generated by the ground preparation and to protect the soil from excessive loss of carbon. Due to the nature of the vegetation and the soil type the proposed ground preparation for the conifer areas will be shallow double moleboard ploughing broken every 30m on slopes less than 5%. Due to the sensitivity of the riparian areas ploughing will not be used. It is proposed that the riparian and other broadleaf areas will be prepared by excavator mounding with the mound placed back into the hole. This will have the twofold effect of reducing the risk of diffuse pollution and minimising the alteration of the existing burnside vegetation. The planting density in these areas will also help prevent excessive shading of the watercourses (1/3rd planted with native broadleaf and 2/3rds open ground mixed through the area).

The more general effect of converting open ground to forested ground has been assessed in relation to the wider area. The proposal would increase the forest cover by 6% in a 10 km circle from 12.9% to 18.9% and by 1.6% in a 20 km circle from 22.4% to 24%.

An assessment has also been made of the effect of the proposal on agricultural production on the farms affected by the proposal.

The effect on agricultural production in the Langholm catchment by conversion to forestry ground is predicted to be negative in the short, medium and long term but not significant. The effect on rural employment is deemed to be neutral to slightly positive in the short, medium and long term and not significant.

The effect of the proposal is deemed to be neutral and not significant.

5) Other

Public access and local roads

There will be little impact on the local minor road network as the proposal will be served by an upgrade to the old drove road from the Kerr to Old Irvine which leads straight onto the A7 trunk road. This will also provide an all-weather surface for walkers to cross the moor free from the interference of livestock. The proposed new roads will also open up access across the hillside. The upgrading of the track towards Old Irvine will also have the benefit of improving access for the Kerr plantation thereby removing timber traffic that would travel south to the Evertown Canonbie road on weak roads.

The impact of this project on the public access is deemed to be positive and significant at the local scale.

Hydrology

The proposed methods of woodland establishment including mounding, screefing and ploughing will have minimal effects on soil and water. The layout of the buffer areas and the new native riparian woodland will potentially lead to an improvement in the quality of the local watercourses by preventing stock trampling. The proposed new woodland will dampen extreme variations in water run off and boost biological productivity of the open water habitats. The riparian woodland will also provide cover for water vole and otter where currently there is none.

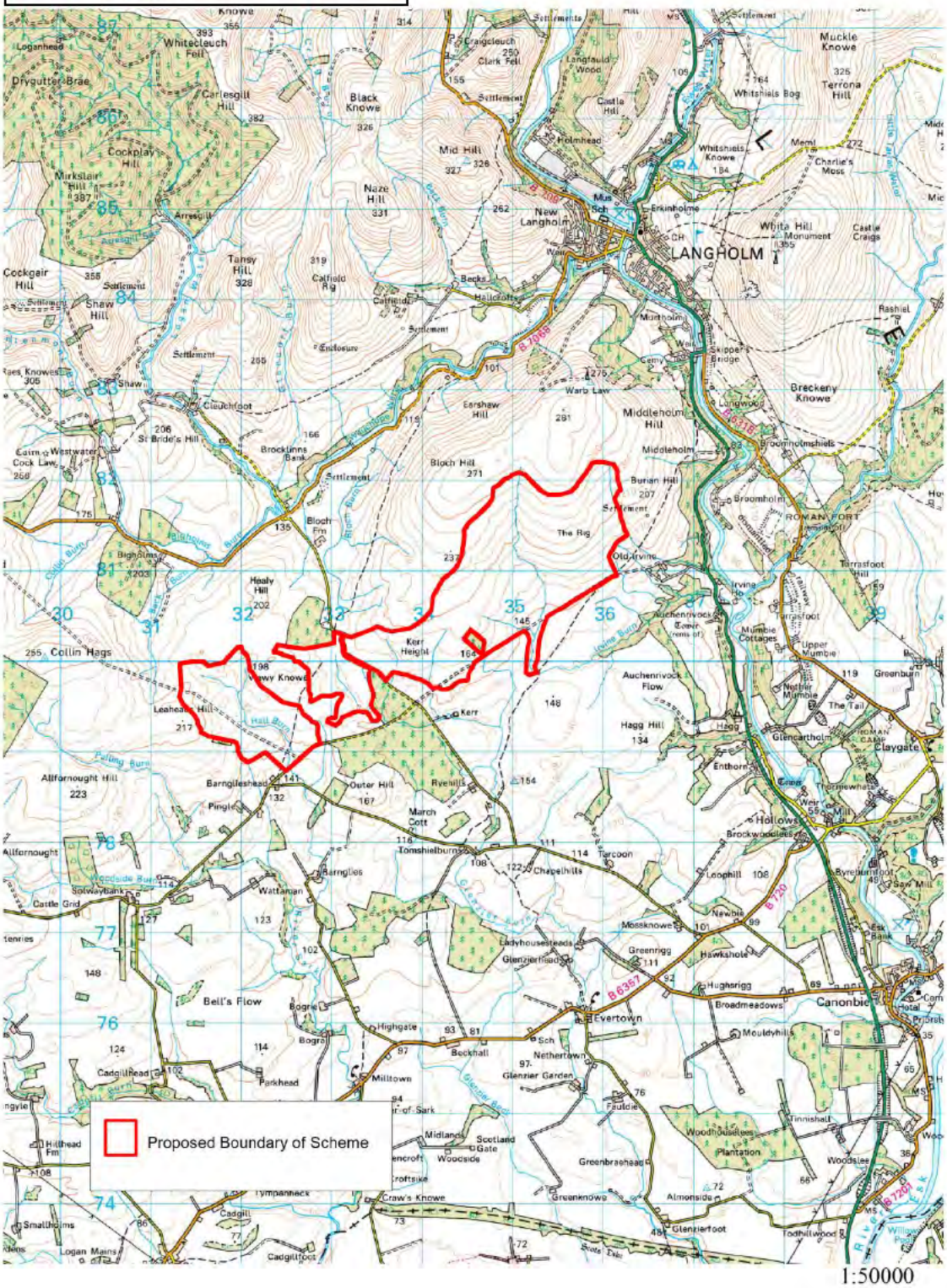
The impacts on hydrology are judged to be neutral in the short term but beneficial and significant over the medium to long term.

Summary

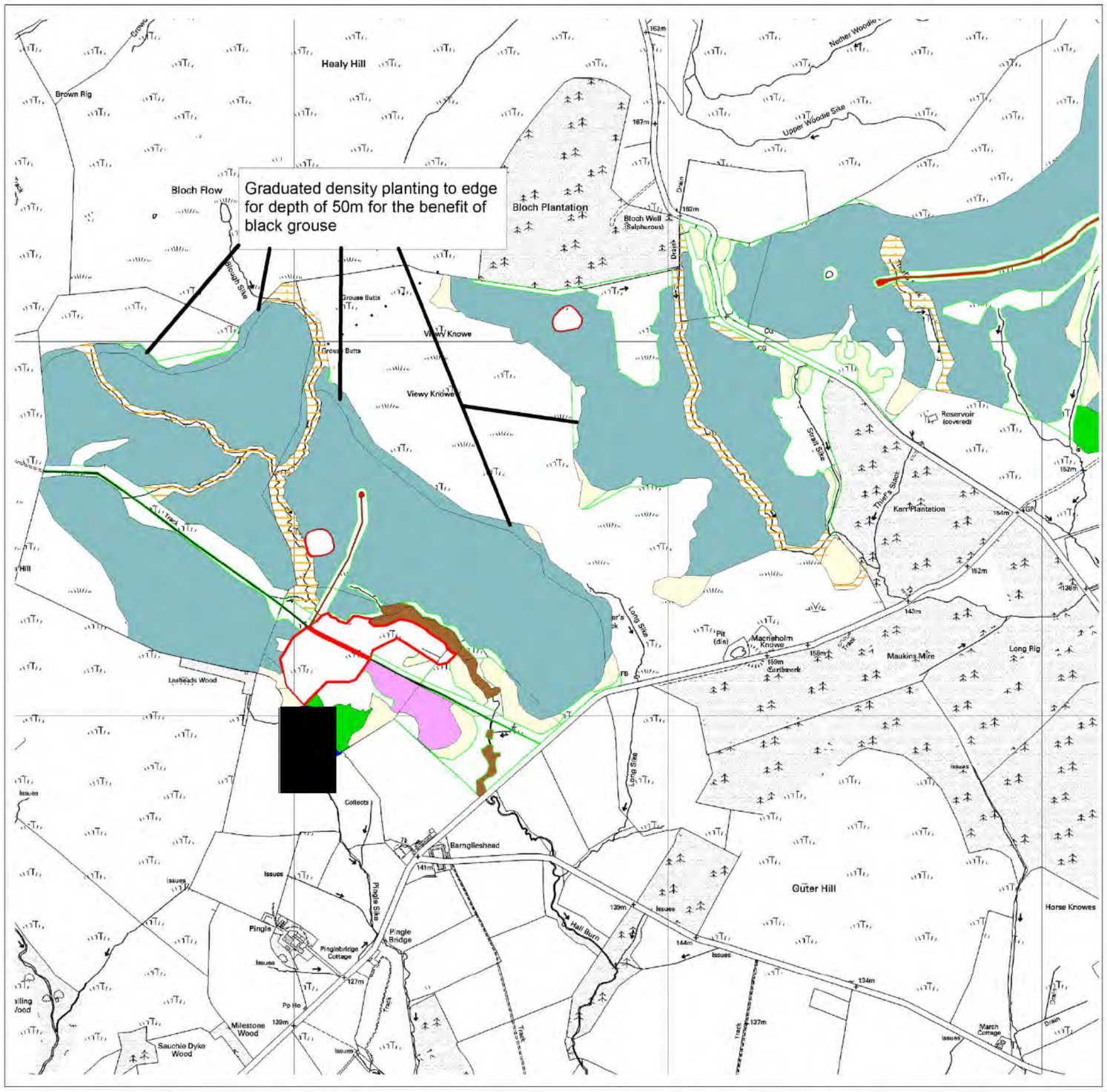
The proposal will have a significant negative effect on the availability of open ground habitat in the local area. However this is a fundamental issue for all afforestation schemes. The Scottish Government has set a target of 10,000 hectares per annum of new woodland. Therefore, loss of open ground habitat is expected and the role of this ES is to provide the information to determine if the open ground habitat being lost is outweighed by the benefit of conversion to forested land in line with National Targets. In the case of Cockplay, the more ecologically important areas have been excluded from the design and the areas being planted are generally of poor or degraded nature.

The advantages from carbon sequestration, improved public access, landscape improvements, local employment opportunities, riparian habitat and ditch blocking on the modified bogs have to be weighed against the loss of open ground habitat.

LOCATION MAP



SPECIES MAP WEST



Map TS3
Cockplay Species Western Area

Legend

- Native Broadleaves
- Native Broadleaves/Open Ground
- Existing Broadleaves
- Norway Spruce
- New Road
- Open Ground (OG)
- Open Ground - Archaeology
- Existing Road
- Scot's Pine
- Sitka Spruce

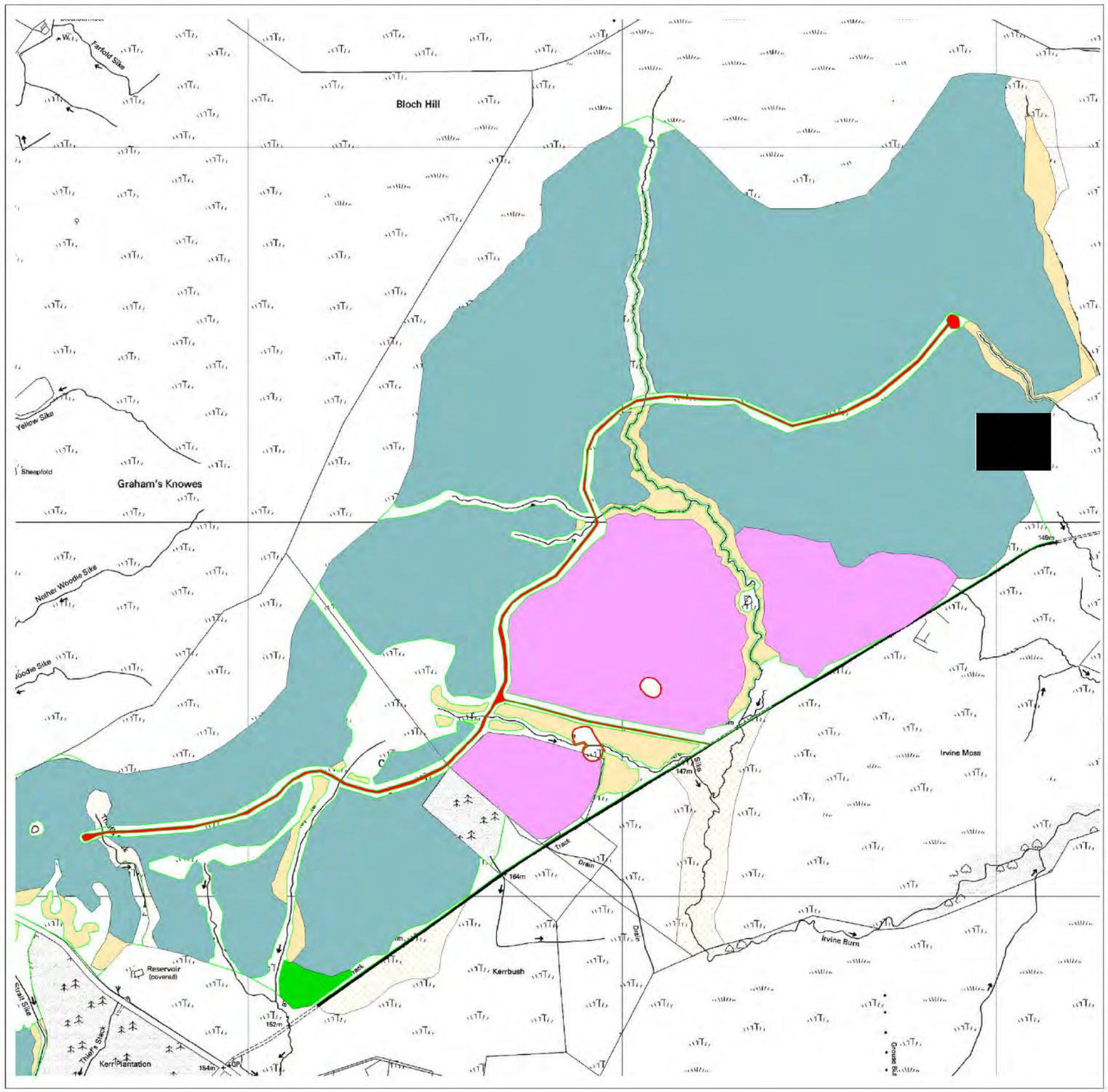
Licence No. AL 813796
OS Sheets :

Scale : 1:10000

N

28 May 2015

SPECIES MAP EAST



Map 2b
Cockplay Species East

Legend

- Native Broadleaves
- Native Broadleaves/Open Ground
- Existing Broadleaves
- Norway Spruce
- New Road
- Open Ground (OG)
- OG - Archaeology
- [redacted]
- Existing Road
- Scot's Pine
- Sitka Spruce

Licence No. AL 813796
OS Sheets :

Scale : 1:10000

N

28 May 2015

1. Introduction

Buccleuch Woodlands has investigated the potential for a new mixed woodland across an area of approximately 950 hectares of open hill ground at Cockplay near Langholm in Dumfries and Galloway. The analysis of the surveys has indicated that a woodland with a gross area of 508 hectares is feasible. The proposal represents an opportunity to change the land management of the project area to meet the following primary aims:

- Provide an alternative source of income to upland livestock farming.
- Establish mixed woodland on previously grazed hill land with timber and biomass potentials, helping to underpin a sustainable forest industry.
- Enhance the landscapes visual aspect within a local and regional context.
- Create new native woodland and expand the existing riparian woodland extent, building valued habitat corridors and reducing biodiversity fragmentation.
- Enhance community capacity and social inclusion through new opportunities for responsible access, recreation and sustainable employment.

Build carbon sequestration potentials through mixed woodland development and peat bog restoration.

1.1. Screening and Scoping

Following informal discussions with the Forestry Commission Scotland (FCS) and other interested parties, FCS requested an Environmental Statement (ES) be prepared to assist the process of Environmental Assessment (EA) in accordance with the Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999. A scoping meeting was held on the 29th April 2009 and from this the key issues to be addressed were identified:

- The potential ecological impacts of the project relating to loss of habitats, with particular interest focusing on the impacts on bird populations reliant on open ground habitat.
- The land use balance of selected tree species and their associated establishment techniques.

- The landscape impacts of the project, particularly those impacts relating to views to and from the project including the design of edge planting along/surrounding topographical features.The potential impacts of the project on known archaeological monuments with particular reference to the planting affecting the surrounding water table.

Other issues that arose during the Scoping Meeting, or in subsequent discussions / correspondence, were the potential impact(s) of the project on public access and hydrology. The Outcome of the Scoping Meeting is summarised below:

Table A - Scoping Meeting Summary

Issue	Description of Impact	Importance	Comments
1. Ecology	Loss of open ground habitat and the potential impact on birds and other protected species and habitats. Loss of mire and acid grassland species. Impact of species selection and establishment techniques on the resident ecology.	High	Assess the impact on vegetation communities and local wildlife to include winter and breeding bird assemblage. Assess the balance of production conifer to broadleaves. Balance establishment techniques with site vegetation, local biodiversity and topographical features.
2. Landscape and Visual Impact	Impact of woodland development and design on the landscape.	High	Landscape and visual assessment required of proposed woodland development. Assess the balance of production conifer to broadleaves.
3. Archaeology	Potential for damage or loss of archaeological remains via the full range of forestry operations	High	Assess the need to accommodate the archaeological remains within the project proposals.
4. Land Use Balance	Impact of afforestation on agriculture – Cultural significance	High	Assess the rural/cultural significance of a land use change from agriculture to Afforestation.
5. Hydrology	Impacts of project on water quality and quantity	Medium	This issue to be addressed with particular reference to woodland establishment, archaeology, road construction and impacts on riparian zone habitats
6. Public Access	Impact of woodland establishment and related infrastructure on opportunities for responsible access	Low	Ensure responsible access within the context of the Scottish Outdoor Access Code. Liaise with local access groups.

The ES will seek to identify and evaluate the key adverse and beneficial environmental impacts of this project. It will also illustrate how the woodland design and implementation of associated works will take these into consideration, seeking to mitigate adverse impacts and enhance

those deemed to be of a beneficial nature. Ecology, visual landscape impact and archaeology will have an identifiable influence on the design of the proposed woodland.

1.2. Consultations

This Environmental Statement has been prepared after consulting with Forestry Commission Scotland, Dumfries and Galloway Council Archaeology Service, Dumfries and Galloway Planning Service, Dumfries and Galloway Access Officer, Dumfries and Galloway Local Biodiversity Action Plan Officer, Deer Commission, Scottish Natural Heritage, Historic Scotland, Scottish Environment Protection Agency, Royal Society for the Protection of Birds, Langholm Walks Group, Community Councils and the surrounding neighbours. Consultation with these organisations, groups and individuals established the "Scope" of the ES. The information and views provided through these consultations have been incorporated, where appropriate, into the overall woodland development proposals for the site. Table B shows the Scoping Matrix for this project.

Table B - Cockplay Scoping Matrix

Scoping Matrix **Cockplay**	**Archaeology**	**Landscape and Visual Assessment**	**Ecology**	**Public Access**	**Deer Management**	**Hydrology**	**Land Use Balance**
D & G Council	●	●	●	●			
Scottish Natural Heritage		●	●	●			
Forestry Commission Scotland	●	●	●	●			
Deer Commission					●		
RSPB			●				
Langholm Walks				●			
SEPA						●	
Historic Scotland	●						
Community Councils		●		●			
Red Squirrel, South Scotland			●				
Neighbours	●	●	●	●	●	●	●

During the development of the new woodland proposal and subsequent preparation of the ES, advice and support has been provided by the Forestry Commission Scotland (FCS), Scottish Natural Heritage (SNH), The Planning, Archaeology, Landscape Architects and Biodiversity departments of Dumfries and Galloway Council, Historic Scotland, the Royal Society for the Protection of Birds (RSPB) and Langholm Walks. The ES gratefully acknowledges their contribution.

The ES follows the format suggested in Undertaking and Environmental Impact Assessment in Forestry and preparing an Environmental Statement (FC 2009). It will address the issues raised at the pre scoping meeting, the formal Scoping Meeting of 29 April 2009 and subsequent correspondence.

2. Environmental Assessment Methodology

2.1. Introduction

This section highlights the role of EIA and describes the method adopted in preparing the Cockplay Environmental Assessment.

All developments must by their very nature have some form of impact, regardless of how small, on their environment. Afforestation even after following extensive mitigation processes to eliminate, reduce or offset its enduring impact, will impart an environmental change.

2.2. The Role of the Environmental Impact Assessment.

It is the role of the Environmental Impact Assessment to ensure that the likely and foreseeable significant impacts of a new development on its environment are fully considered and addressed within the development decision making process.

The key to that process is in the methodical examination of all information attained, presented in a clear, concise, unbiased manner which enables the importance of predicted effects, and the scope of mitigating them to be comprehensively evaluated.

The preparation of this ES has been informed by the varied environmental constraints present. This enabled the development proposals to be adapted at an early stage so as to remove or mitigate any immediate potential adverse effects.

Best Practice is to utilise the EIA as a recurrent review process rather than an environmental appraisal. This ensures that the findings of the EIA can be used to determine the final woodland design and therefore achieve a “best fit” within the landscape. This approach has been adopted for Cockplay where potentially significant effects have been identified highlighting the requirement for appropriate mitigation. Various environmental constraints and opportunities in arenas such as landscape, biodiversity loss/expansion and cultural significance, has allowed for early mitigation proposals to be recognised. Every effort has been made to incorporate those mitigation measures through discussions with relevant parties prior to the formal Scoping Meeting, resulting in an adaptive and sensitive woodland design.

2.3. Scope of the Environmental Impact Assessment

The ES for the new planting proposals at Cockplay has been prepared in accordance with schedule 4 (Part11) of the EIA (Scotland) Regulations 1999, and guidance developed by the Forestry Commission 2009. The following information is included:

- A description of the physical characteristics of the whole development area, land use requirements during the woodland establishment phase and any additional site works;

- A description of the proposed planting scheme, comprising detailed information on the site, design, size and scale of the proposals;

- The required survey data necessary to identify and assess the main effects which the proposed scheme is likely to have on the environment;

- A description of the likely significant effects, direct or indirect, on the environment of the scheme through presented survey data with reference to its possible impacts on the:
  - Archaeological resource (Prepared by Rathmell Archaeology Ltd)
  - Vegetation resource (prepared by John Gallacher and Baxter Cooper)
  - Bird Surveys and Fauna resource (Prepared by Border Ecology and)
  - Landscape and Visual Assessment (Prepared by Forest Design Services)

- Where significant adverse effects are identified, with respect to any of the above points or reports, a description of the measures envisaged in order to mitigate these effects; and

- A summary in non-technical language of the information specified above.

3. National/Regional/Local Policy Context

At the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, and at the second Ministerial Conference on the Protection of Forests in Europe (MCPFE) in Helsinki (1993), commitments were made to address sustainability. In response to these commitments the UK Government formally adopted a forestry policy.
It was developed to address:

- The sustainable management of our existing woods and forests; and
- A steady expansion of tree cover to increase the many diverse benefits that forests provide.

A variety of incentives and directives have been developed over the years to assist in the implementation of forestry policy. Some draw on legislation that specifically addresses forestry; others are based on legislation with wider application. Forest management in the UK is subject to most of the legislation that regulates other commercial enterprises but, like agriculture, is outside the scope of planning law. However all afforestation proposals above 5ha in size are required to be assessed against the need for an Environmental Impact Assessment. This document has been written in respect of that statute.

A number of other Key policies and documents have a contextual relevance to this development.

National

Securing the Future: The UK Government Sustainable Development Strategy (2005), HM-GOV lays out the government's strategy for the sustainability agenda. Two of its priorities are;

- *Climate Change and Energy*
  *"*Carbon is absorbed from the atmosphere when forest coverage or the amount of organic matter in the soil increases".
- *Protecting our Natural resources and Enhancing our Environment*
  *"*Natural resources are vital to our existence. Our health and wellbeing are inextricably linked to the quality of our air, water, soils and biological resources. The use of their environmental wealth is vital for economic development and poverty reduction in this country and abroad."

The UK Forest Standard: The Government's Approach to Sustainable Forestry (2011). Identifies how the UK can meet its Sustainable Development targets through the utilisation of forestry.
"It is currently the policy of each country administration to increase the woodland area." - New woodlands can provide many benefits, including:

- Expanding timber and other woodland resources;
- Enhancing the beauty and character of the countryside, and contributing to the diversity and distinctiveness of rural and urban landscapes;
- Enhancing and conserving wildlife habitats;
- Helping to revitalise derelict and degraded land;
- Creating jobs and providing opportunities for economic diversification in rural areas;
- Improving the quality of life, especially in and around towns and cities by creating opportunities for recreation, health-promoting exercise, education and local community involvement;
- Contributing to the reduction of the level of carbon dioxide in the atmosphere.

Regional

The Scottish Forest Strategy (2006) is the Scottish Executives framework for the future of Forestry. It has identified five objectives on how it intends to address one of its three main outcomes:
"High quality, robust and adaptable environment."

- Help to tackle climate change.
- Contribute positively to soil, water and air quality.
- Contribute to landscape quality.
- Protect and promote the historic environment and cultural heritage.
- Help to protect and enhance biodiversity.

It also set a national woodland creation target of 10,000ha per annum over the period 2012-2022. This target has not been achieved in the years 2012, 2013 or 2014. This proposal helps meet the national target for new planting.

Local Dumfries and Galloway Forestry and Woodlands Strategy (2014) provides a framework for guiding forestry and woodland practice in D&G over the next 10years. The strategy gives guidance and sets objectives on 5 inter related themes to support the vision:

"so much more than trees"

Its objectives were defined as:

To inform and broaden the development of land use strategies for the area. To enable greater community involvement in determining the future pattern of forestry/woodland.

-developing the regions forests and woodlands for the benefit of all, promoting economic development and healthy communities, enriching cultural heritage, landscape and natural environment.

The five themes are **A - Woodlands and the Environment**
B - Woodlands and Sustainable Growth
C - Woodlands and Climate Change
D - Woodlands for People
E - Woodlands and Development

Other relevant documents that bear context to this ES are;

- **Dumfries and Galloway Council Structure Plan**
- **Annandale Local Plan**
- **Dumfries and Galloway Landscape Character Assessment**
- **Landscape Design Guidance for Forests and Woodlands in Dumfries and Galloway**

4. Site Description

4.1. Location

Cockplay (Central Grid Ref NY343 800) lies 2 kilometres to the south west of Langholm in the Esk Valley. It covers a gross area of circa 512 hectares, consisting of predominantly low productivity hill grazings. The original area surveyed extends to over 950 hectares. The results of the surveys has indicated a best fit of only 520 hectares. **Map 1** identifies the Location and Ownership boundaries of the proposed scheme.

4.2. Land use and Planning Context

The area has been managed as part of the out bye land for a number of sheep and cattle farms. Smaller areas may have been part of the in bye but have been largely abandoned, reverting to rush pasture. Due to the land's long history of agricultural improvement in the forms of drainage, burning and high levels of stock grazing there has been a change in dominant vegetation. There has been a loss of diverse habitat and related species. In terms of agricultural capability, the area is classed as severely disadvantaged.

The project area falls wholly within Dumfries and Galloway. The relevant planning context is the Dumfries and Galloway Council Structure Plan and the Annandale and Nithsdale Local Plan.

Policy D28 of the Structure Plan refers to forestry. It notes that forestry schemes should integrate with existing land uses and support and sustain the area's natural and cultural heritage. In determining its response to individual forestry planting and replanting consultations the Council will take into account:-

- The manner in which environmental and other interests identified in the Dumfries and Galloway Forest and Woodland Strategy (DGFWS) are taken into account.

- The schemes location within the sensitive, potential or preferred areas in the DGFWS;

- The retention of an appropriate balance between afforested and un-afforested areas in the locality; and

- How the scheme conforms to the detailed policy guidance set out in the Forestry Subject Local Plan.

The DGFWS is the lead document that sets out the policy towards forest and woodland management including afforestation for the region. The strategy is led by 5 themes as mentioned earlier. The first 4 themes are most relevant to this proposal. The ES indicates the key policy objectives and how the proposal contributes to the key actions under each of these themes in the relevant sections. See **Table C** below.

Table C – Relevant Themes from the DGFWS.

Theme	Description	Where Covered in ES
Theme A – Woodlands and the Environment		
A.1	Conserve and enhance biodiversity within the region.	Sections 4.9, 4.10, 6.1 and 6.2
A.2.	Protect, enhance and restore the water, soil and air environment.	Sections 4.5, 4.8 and 6.6
A.3.	Ensure that tree, forest and woodland planting are appropriate to and enhance their landscape setting	Sections 4.13 and 6.3
Theme B – Woodlands and Sustainable Growth		
B.1.	Support predictable and stable timber supplies	Sections 4.11 and 6.5.
B.3.	Support forestry employment and skills development	Sections 4.11 and 6.5.
B.4.	Continue to explore and develop more sustainable timber transport	Section 5.5
Theme C – Woodlands and Climate Change		
C.1.	Encourage sustainable forest management practices and appropriate woodland expansion to mitigate the effects of Climate Change through adaptation.	Section 5
Theme D – Woodlands for People		
D.1.	Encourage and promote the use of forests and woodlands to improve health and wellbeing in a variety of ways.	Sections 4.11, 4.12, 5.5.1 and 6.7
D.2.	Encourage and promote the use of forests and woodlands for outdoor learning.	Sections 4.11, 4.12, 5.5.1 and 6.7

The main generic issues and constraints that are relevant to the proposal are in **Table D** below:

Table D – Generic issues to be addressed from DGFWS

Issue	Where covered in ES
Land Use Balance	Section 4.3
Public Access to woodlands near communities	Section 4.11 and 5.5.1
Timber Haul Routes	Section 5.5.1 and 5.5.2
Local Provenance	Section 5.4.3
Species Diversity	Section 5.4.2
Habitat Network Creation	Section 4.9, 4.10, 4.3 and 6.1
Priority LBAP Species	Section 4.9, 4.10, 6.1 and 6.2
Landscape Character	Section 4.13 and 6.3
Business development	Section 4.11

The strategy document has provided an indicative map of the preferred areas in the region for different woodland afforestation types. This has used existing data sets to indicate where constraints exist. Some of these data sets are indicative of likely issues and as such raise issues to be investigated rather than give definitive decisions. The proposed forest design lies closest to the Softwood Forest Model. The region has been split between Preferred, Potential, Sensitive and Unsuitable.

The proposal lies in the following categories with the attendant limiting factors. See **Table E** below.

Table E – Breakdown of Proposal by Sensitivity in DGFWS

Category	Area	Limiting Factor	Where Dealt with
Potential	228ha mainly western block	Land Capability	Section 4.6
Sensitive	356ha mainly eastern block	Land Capability Deep Peat	Section 4.5 and 4.6

The regional strategy has also identified local constraints. The proposal fall entirely within the Eskdale Area. The significant issues that relate to the proposal are as follows;

- Open ground habitat and distinctive open landscapes around Meggat Water and to the east and south of Langholm. This is covered in section 4.3.
- Land Use Balance: Significance of open areas of land within landscapes which are predominately covered by forests. This is covered in section 4.3.
- Lack of good quality native woodland, need for native and riparian woodland development. See Section 5.4.3

The strategy also highlights opportunities for afforestation within the Eskdale area.

- The area is a core timber production area with opportunities for new softwood forests close to timber processors, but contains key open ground habitats and important landscapes. Significant fragmentation of these should be avoided. See Section 6.2 and 6.3
- Potential for new native woodland on upper catchments where this can be achieved without compromising landscape character or other environmental interests. See Section 5.4.3
- There is a lack of good quality riparian woodlands in this area. Significant opportunities for native woodland expansion which deliver these objectives. See Section 5.4.3.
- In lower parts of the catchment, good potential for planting of mixed woodlands, native woodlands, farmland trees and shelterbelts on farms: keeping farming the main activity. See section 5.3
- Opportunities for woodland planting within floodplains for flood alleviation purposes. The proposal area lies at the headwaters rather than the floodplain end of the catchments that it covers so this opportunity is not relevant to the proposal area.

4.3. Land use Balance

For the purposes of this Environmental Statement the question of Land Use balance relates to the distribution of open ground habitats against wooded habitats. The predominant land use on the open ground habitats will be agriculture. The DGFWS has recorded the woodland cover of Dumfries and Galloway at 31.62%. See **Table F** below for a breakdown of forest cover at various scales.

Table F - Current woodland cover at D & G and Langholm / Lockerbie scales and the impact of Cockplay being planted.

	Total Area (ha)	Forest Area (ha)	Current Forest Cover	Cockplay Proposal (ha)	Proposed Forest Cover	Additional %
D&G	667,278	211,000	31.62%	461	31.69%	0.07%
Eskdale Area	51,386	27,130	52.80%	461	54.5%	1.70%
20km circle	31470	7049	22.40%	461	24%	1.60%
10km circle	7868	1015	12.90%	461	18.9%	6.00%

73.5% of Dumfries and Galloway is currently agricultural land with a further 1.5% of Land cover attributable to built up areas and inland water bodies (D&G Indicative Forest Strategy).

Two of the main issues raised in the Eskdale Area of the DGFWS are open ground habitat and distinctive open landscapes around Meggat Water and to the East and South of Langholm.

The proposal does not affect the Meggat Water which lies considerably to the north of the site. The open landscapes to the East of Langholm are centred on the White Hill / Tarras Valley area. These are also outside the proposed site. The open landscapes to the South of Langholm refers to the Warb Law / Cockplay / Irvine Moss / Auchenrivock Flow area. The afforestation proposal lies within this area.

The proposed area has been surveyed for ecological importance which highlighted the habitats with the greatest value. These were predominately associated with the areas of deep peat on the Irvine Moss and Auchenrivock Flow. These areas have been removed from the proposal. See sections 4.9 and 4.10.

The area selected for afforestation is only visible from minor roads / tracks or at long distance. The main viewpoints to appreciate the open nature of this area are from the top of Warb Law and from the Old Irvine to Kerr hill track. The view from Warb Law when looking south will retain a sense of open country as only the area immediately in front and below will alter. The planting design will not restrict the view south from Warb Law even when the trees reach maturity. The long open view to the Solway estuary and beyond will remain unhindered. The scheme will predominately remove the sense of open space from the uphill side of the hill track (north) but retain the long open views to the south. This has been dealt with in detail in section 4.12 (landscape).
The above statements also hold for the significance of open areas of land within landscapes which are predominately covered with forests. As can be seen from the table above showing the 20km and 10km circle, the proposed site is located in an area that is not predominately forest (22.4% and 12.9% respectively at current levels). Even if the proposal goes ahead the predominant activity in the surrounding 20 km circle will be agriculture.

4.4. Statutory Designation

There are no statutory ecological or landscape designations overlying this site. It does however form part of a specially identified Area of Hill Land. SGRPID have indicated that the Specially Identified Area of Hill land designation would not prevent the establishment of well-planned woodland. Their latest guidance is that the Specially Identified Hill Area designation, although still in the Regulations, is no longer relevant to SGRPID in relation to the consultation process. This means that they no longer need to be consulted in such cases and therefore do not submit comments for consideration.

4.5. Geology and Soils

The underlying geology taken from the Soil Survey for South East Scotland identifies the project area to be predominantly Ordovican and Silurian greywackes, sandstones and shales.

Soil information, based on the MLURI Land Capability Classification Maps, categorises the prevailing soil type as comprising of mineral gleys with sandy or loamy textures leading to flushed gleys with humose topsoils. A proportion of the area extends the soil range to include peaty podzols and gleys. This is reflected in the 2007 vegetation survey results showing expanses of wet modified bogs sharing an intimate land mix with acidic grasslands.

The DGFWS indicative maps for afforestation indicated that there was likely to be a deep peat limitation to the area initially selected for afforestation. A soil survey was undertaken across the entire site which has mapped all significant areas of peat that is greater than 45cm in depth. See Map 5. The soil survey has recorded the findings using the Forestry Commission Soil Classification system.

The soil survey was undertaken by probing the site on a 50m grid pattern. Wherever peat of over 45cm was found then more intensive survey was undertaken to establish the boundary of the deep peat. Any change in topography or vegetation were also probed to a higher intensity. Soil pits were dug on the different vegetation and topographic areas to establish the underlying soil type. The predominant soil type found was a peaty gley (6) although smaller areas of podzolic peaty surface water gley (6z) were associated with smaller knolls. The around the Kerr heights characterised by the U4 acid grass lands had a small area of podzol (5) . An area of agriculturally altered soils were found in the previously agriculturally improved fields mid way along the Kerr – Old Irvine hill track. These are reverting to their natural surface water gley state prior to improvement due to lack of maintenance to the field drainage system. They could be classified as 7c.

Forestry Commission Scotland current guidance prevents support for forest establishment on areas of peat greater than 50cm in depth. To provide for a safe degree of error due to the uneven nature of peat deposition a 45cm maximum depth was used to establish the plantable ground.

4.6. Land Capability for Agriculture and Forestry

The land capability for Agriculture, based on MLURI Land Capability Classification maps, confirms the land is suited to a mix of improved grassland and rough grazings. Small pockets of agriculturally improved ground could support alternative uses but have access restrictions. The areas of blanket mire and modified bog have a severely limited agricultural use due to the lack of nutrition and general wetness preventing the use of agricultural machinery.

The Land Capability for Forestry based on MLURI maps identifies the project as falling predominantly within category F5 indicating the area as having limited flexibility for the growth and management of trees. Limitations imposed by peaty soils, land patterns and wind. However this land type is suited to coniferous species such as spruce and larch as well as hardy broadleaves such as birch and alder. Again this is mirrored by the site topography and current vegetation types.
The areas of deep peat (greater than 50cm) can be seen in Map 5.

4.7. Topography

The site is topographically diverse, mixing rolling upland hills with blanket peat bogs on the plateaus. It generally faces south with the higher ground to the north. The Rig, in the north, is at 219 metres falling to Hagg Hill at 148 metres to the south. The area is classified within the SNH Landscape Character Analysis as being of Type 18, Foothills. This medium scale landscape type is typified by rounded hills supporting acid and marshy grasslands.

4.8. Hydrology

A number of small burns transect the area. These include, in the east, the Irvine and Hagg Burns, which are tributaries of the River Esk and Hall burn, in the west, which is a tributary of the River Sark. In their lower reaches wet woodland (W7) dominated by alder has developed along the burn systems.

[redacted] **Map 7.**

4.9. Vegetation

A full vegetation survey has been undertaken for this site and can be viewed in the Technical Annexes (See Technical **Annex A**).

Table G below summarises the vegetation habitats found across the site. The vegetation survey was undertaken across the entire area of the initial concept area. Table H indicates the area of each vegetation type that falls within the proposed planting area.

Table G - Summary of the main vegetation types found on the initial concept area and the percentage area they cover.

Phase I Code	Phase I Habitat	Area (Ha)	Percentage
A.1.1.1	Woodland, Broadleaved, Semi-natural	3.85	0.4
A.1.2.2	Woodland, coniferous plantation	2.91	0.31
A.2.2	Scattered scrub	3.87	0.41
B.1.1	Acid grassland, unimproved	45.02	4.75
B.1.2	Acid grassland, semi improved	33.53	3.54
B.2.2	Neutral grassland, semi improved	1.79	0.18
B.5.	Marshy grassland	757.27	79.89
C.1.1	Bracken, continuous and scattered	12.33	1.3
E.1.1	Blanket Bog	24.94	2.63
E.1.7	Modified Bog	61.97	6.54
E.2.1	Quarry	0.35	0.03
	Total	**947.83**	

Source: Cockplay, Dumfries and Galloway Vegetation Survey, 2007

Table H – Proposal's impact on Phase I habitat

Phase 1 Code	Phase 1 Habitat	Initial Concept Area (ha)	Initial Concept %	Proposal Area (ha)*	Proposal %
E.1.1 and E.1.7	Blanket and Modified Bog	87	9	0.97	0.20%
B.5	Marshy grassland	757.27	79.89	402.23	77.40%
B.1.1 and B.1.2	Acid Grassland	78.5	8.29	35.48	6.80%
	Other	25.43	2.82	11.82	2.30%
	Totals	**948.2**	**100**	**519.54**	

* Area of proposal taken as land being affected by roading or conifer planting. Broadleaved planting to be mainly open crown species at relatively low densities.

The precursor vegetation of the proposed woodland can be described in terms of the National Vegetation Classification (NVC):

The commonest vegetation type on the site is Marsh Grassland and is most akin to the NVC **M25 *Molinia caerulea-Potentilla erecta* mire.** In some areas, such as below The Rig, it forms a dense 60cms high monoculture with all other species swamped under litter from the previous year's growth. More species-rich examples occur where grazing keeps the habitat open. Here the sward may contain *Vaccinium oxycoccus* and *Trientalis europeaus* as notable species. Dwarf-shrubs such as *Calluna vulgaris, Vaccinium myrtillus* are now surrounded by a sea of *Molinia* indicating that the M25 is likely to have been derived from wet heath by long-term agricultural improvements such as grazing, burning and drainage impacts. In some areas, especially on the deeper peats the M25 grades to M20 (see below).

In more flushed situations (as along stream valleys) the M25 is replaced by **M23 *Juncus acutiflorus – Galium palustre* rush-pasture.** The M23 is also found on previously improved pastures now reverting back to rush-pasture due to the abandonment of drain maintenance and other treatments. The rush-pasture is typically dominated by *Juncus acutiflorus* (or more typically *J. effusus* in reverting pastures) with minor associates in the richer sites being *Filipendula ulmaria, Holcus lanatus, Ranunculus acris, R. flammula* and *Hydrocotyle vulgaris.*

- Acid Grassland dominated by *Festuca ovina, Potentilla erecta, Anthoxantum odoratum, Deschampsia flexuosa and Galium saxatile* that when analysed was the closest match to **NVC U4 *Festuca ovina - Agrostis capillaris - Galium saxatile* grassland.** This habitat is typical of the green knowes that occur throughout the site which are kept open and green by preferential stock grazing. It is also found as small remnants on once improved pastures on the lower ground but these are now reverting to rush-pastures (as on the lower slopes of Outer Hill).

  Where *Nardus stricta* appears in the sward, then the acid grassland has a strong affinity with the **NVC U5c *Nardus stricta-Galium saxatile* grassland.** This however can be regarded as an incidental vegetation type within Cockplay and quickly merges with, and is swamped by, the M25 *Molinia* grassland.

- Blanket and Modified bogs relate in size to the collective Acidic grasslands throughout the site. Hagg Hill is the main area of mire dominated by *Eriophorum vaginatum* blanket bog or "flow" maintaining weak affinities with the **NVC M17 *Scirpus cespitosus-Eriophorum vaginatum* mire**. It is an extensive deep peat community, abundant with *Narthecium ossifragrum* giving the sward a late summer russet appearance. *Rhynchospora alba* is located on, or on the edge of, old drains

now filled with *Sphagnum cuspidatum.* Like the Modified bog class, it has been altered by the introduction of drainage.

To the west of the site in the valley systems, deep ombrotrophic peats (> 1 metre) have developed a distinctive modified bog valley mire vegetation community. It is difficult to assign a distinct and unambiguous NVC type in these areas, largely on account of the anthropogenic effects of drainage, grazing and burning. However, the presence of obligate raised mire species such as *Andromeda polifolia, Rhynchospora alba* and *Vaccinium oxycoccus* alludes to a historically much wetter surface (acrotelm) which was probably akin to the *Sphagnum* rich **NVC M18 *Erica tetralix-Sphagnum papillosum* mire.**

However, treatments such as grazing, drainage and burning have modified the vegetation resulting in the spread of *Eriophorum* at the expense of Sphagna. It is proposed that this management has pushed the NVC M18 towards the much-modified **NVC M20 *Eriophorum vaginatum* mire.** Remnants of the former *Sphagnum*-rich M18 community are now largely confined to the non-functional drainage ditches.

NVC M20 also forms mosaics with M25. The M20 generally picks out areas of flatter topography that has allowed the development of deeper (>50cms) peat areas (e.g. to the north of The Rig).

Other smaller communities appear throughout Cockplay. Tall herb vegetation typified by dense or scattered bracken is typed as the **NVC U20 *Pteridium aquilinum – Galium saxatile* community**. This habitat is mainly associated with burnsides and the lower slopes of the green knowes where the deeper soils favour bracken. The understorey is a mix of *Molinia caerulea, Juncus effusus* and *Sphagnum* spp.

Patches of woodland comprising of small areas of semi-natural woodland occur along the burn systems and is akin to the **NVC W7 *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum* woodland.**

In summary, Cockplay is a fairly simple mosaic of acid grassland, marshy grassland and mire communities simplified by intensive grazing regimes and agricultural improvement including drainage and burning. The anthropogenic nature of these communities makes it difficult to accurately assign some NVC types – particularly the deep peat sites. *Molinia* is the dominant species with the NVC M25 being the overwhelmingly dominant community type.

There has been little change in agricultural activity since the survey was undertaken so the findings of the 2007 survey are still accurate.

4.10. Fauna

4.10.1. Birds

General

As part of the EIA process, a Winter Bird Survey (2007/8) and a Breeding Bird Survey (2008), was undertaken based on the lack of relevant data available from SNH and RSPB. This stance was supported by comments made during pre-scoping discussions with SNH. The accompanying report is included within Technical Annex B. The bird surveys were updated in 2013 to ensure that they still gave a fair representation of the bird usage of the sites. Both reports indicated that the usage will be similar to that found in the detailed survey of 2007/8.

Winter Birds 2007/8

If bird species of woodland or woodland edge habitat are discounted as unlikely to be adversely affected by an extension of woodland cover, the list of species dependant on open ground in winter is short.

The survey was carried out over the winter from November to March surveying the area two days per month from eight vantage points. At each vantage point the flights and times of any targeted species were recorded. During this survey period thirty two hours of observation were recorded. The results of these surveys are in **Table I** – Winter Birds Observation.

Cockplay (32 hours observation time)

Table I – Winter Birds Observation

	December	January	February	March	Total
Hen Harrier	3 obs	0	0	2 obs	5 obs
	(37min)			(30s)	(37min 30s)
Sp/Hawk	0	2 obs	1 obs	0	2 obs
		(22s)	(3min)		(3min 22s)
Buzzard	1 obs	4 obs	13 obs	15 obs	33 obs
	(50s)	(3min 5s)	(44mins 54s)	(39min 40s)	(88min 29s)
Kestrel	5 obs	9 obs	6 obs	15 obs	35 obs
	(28min 2s)	(13min 15s)	(71min 35s)	(66min 20s)	(179min 10s)
Raven	8 obs	1 obs	1 obs	2 obs	12 obs
	(4 min 45s)	(30s)	(5s)	(2min 40s)	(8min)

In addition to the target species a flock of c200 Golden Plover were observed on site in March, presumed to be a pre-breeding gathering.

The survey (See Technical Annex B concluded that Kestrel and Buzzard were likely to experience some loss of habitat due to afforestation but that both species are relatively common in the area and the United Kingdom in General. The single Hen Harrier would experience some loss of hunting habitat but had only used the site occasionally. It indicated that use by the Golden Plover was possibly significant but they were using a much wider area than the site alone, and would still have large suitable areas nearby even if the site was afforested.

The author of this survey checked the site again on the 19th of February 2013 to ensure that the survey was still relevant. His report is in Appendix – Bird surveys. He found that the site was still the same and there was nothing to indicate that the winter bird usage would have altered.

Breeding Birds 2008

An adaptation of the Brown and Shepherd Methodology was used, dividing the site into approximately 2km2 areas that could be surveyed in a single day, resulting in a map of the area annotated with the significant species recorded.

Significant species are those defined as being most at risk from loss of open ground habitats. In this regard Skylark, Curlew and Reed Buntings have breeding populations within the project area. Lapwings were noted to be breeding to the east of the site above Old Irvine, yet Oystercatchers were absent as a breeding species but were observed flying very high above the site.

Red Grouse were recorded during an early visit but were rare over the whole site this was believed to be in relation to the vegetation cover and the localised distribution of heather.

Black Grouse was not recorded on the site during the winter or summer surveys. However the site has historically held black grouse hence its name. The nearest recently active lek is [redacted]km away to the NW it is feasible that if the habitat improved then black grouse could recolonise the area over time.
A Red Kite flew over but did not land on or near the site and is more likely to have been an individual bird passing through.

The bird survey report (See Technical Annex B) concluded that most of the breeding activity was associated with areas with more structural diversity to the vegetation. The dense homogenous vegetation on the slopes were very species poor with very little activity other than the "ubiquitous" meadow pipit. The significant species were generally found where there was some subtle variation such as preferred grazing on steeper ground, flushes or marshy grasslands. In such areas they were notably dense. See **Table J** for the species found of special significance.

Table J - Bird Species of significance within and adjacent to Cockplay.

SPECIES	STATUS	Significance in relation to the Project area	
	Red	Amber	
Skylark	✓		H (UK BAP and LBAP Priority)
Curlew		✓	H (UK BAP and LBAP Priority)
Reed Bunting		✓	H (UK BAP and LBAP Priority)
Snipe		✓	H (UK BAP and LBAP Priority)
Red Grouse		✓	M (UK BAP and LBAP Priority)
Black Grouse	✓		M (UK BAP and LBAP Priority)
Red Kite	✓		L (UK BAP and LBAP Priority)

Status:

- *Red = Species which are globally threatened according to IUCN criteria; whose population or range has declined rapidly in recent years; and those that have declined historically and not shown a substantial recent recovery.*
- *Amber = Species that have an unfavourable conservation status in Europe; whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders and those with internationally important or localised populations.*

Significance: H = High, M = Medium, L = Low

4.10.2. Mammals

Red Squirrel

Cockplay does not contain habitat that would support red squirrels at present. However the site lies adjacent to areas of coniferous plantation with good populations of red squirrel. The Project Officer for Red Squirrels in South Scotland was consulted over the proposed design of the new woodland. There will be a presumption against the planting of large seeded broadleaves where none are already present in favour of the red squirrel conservation programme as these have the potential to attract and support grey squirrel populations. Significant effort has gone into the control of the grey squirrel in the Esk catchment and in the surrounding woodlands. This has allowed the red squirrel to survive in these valley woodlands. However the presence of large woodland with a good mixture of small seeded conifers and broadleaves would help provide a reserve for the red squirrel population and increase their chances of survival.

Badger

The site has five possible setts, mapped by Border Ecology 2008 (Technical **Annex C and E**). The layout of the proposed woodland would serve to expand the preferred habitat and range of food supplies favoured by badgers without causing disturbance to the setts.

Otter

Evidence of Otter (spraint) was also noted by Border Ecology in 2008 at Irvine Burn and Hagg Burn. There were no recorded signs of holts or couches.

Deer

Roe deer are present within and around the proposed woodland development area. Numbers vary throughout the year.

Water Vole

No evidence of Water vole was found adjacent to any of the burn systems. However the development of riparian woodland with rank bankside vegetation will improve the habitat for any developing populations.

4.11. Populations and Communities

The project area is situated in the community ward of Langholm and Upper Eskdale, within the county of Dumfries and Galloway. The town of Langholm is approximately 2 kilometres from Cockplay and has a population combined with Canonbie (2011 census) of 2600.

Although there are no recognised rights of way running through the proposed site there are several permissive paths. Langholm has an enthusiastic walking group who are active in promoting the attractions of the area for country walks. The Langholm Walks Initiative were consulted on their opinion regarding the afforestation proposal. They were interested in the Drove road from Kerr crossroads to Old Irvine becoming a better all weather surface and the prospect of removing some of the gates from the gas pipeline road from Barngleishead over to Grain Head.

The two neighbours other than the existing farming tenants that will be most affected are Kerr Farmhouse and Pingle Estate to the West of Barngleishhead farm at the western edge of the proposal.

The proposal keeps any planting back by 300 m from the Kerr Farmhouse. This planting is low density broadleaf and is set back from the top of the slope to the north of the property. The proposal will not affect the amount of light being received by the property. The nearest visible Sitka Spruce will be over 500 m away.

The proposal is the north of Pingle Farmhouse and will also not affect the light being received by the farm. The nearest planting is over 450 m away and this is low density broadleaf. The nearest Sitka Spruce is over 600 m away.

The proposal lies across four farms. The affect on these farms is described in **Section 6.5.3.**

The Scottish wood-chain now sustains 20,000 jobs and adds around £500M/yr to the Scottish economy (FC2008). Creation of new timber producing forests over the next ten years would have a significant positive impact in sustaining timber production and providing long term confidence for continued investment in the timber processing and wood fuel sector.

Forestry development supports rural development especially in areas where land use options are limited. Forty-four percent of forestry and timber processing related businesses are rurally based, with 15% based in areas categorised as remote rural or very rural (Scottish Government Urban Rural Classification Maps). There is long term potential to further increase the local economic contribution of forestry in remote rural areas. These figures highlight that although forestry is one of the smallest UK employment fields, it is a vital employer within rural communities. The local population in Langholm and Canonbie includes many who source their income from forestry related work. The proposal will create significant employment opportunities for local contractors during it’s establishment phase and later in it’s life once

harvesting commences. It will also help protect the jobs of the existing employed forestry staff on the estate (3).

The report conducted by SAC on behalf of ConFor on the Eskdalemuir Forest has shown that the employment generated by forestry on similar ground to that found at Cockplay is almost identical to that generated by farming. This employment also comes at a far lower cost in terms of subsidy when averaged over the life of the forest. See **Annex D**.

4.12. Cultural Heritage

The Historic Environment comprises archaeological sites, historic buildings, gardens, features or places in the landscape that have the capacity to provide information about past human activity or which have cultural relevance due to associations with historic events. The 'setting' of a historic structure or place can also be important to the way in which they are understood, appreciated and experienced. For archaeological sites, *Planning Advice Note (PAN) 42 Archaeology* indicates the principle of preservation *in-situ* where possible, and by record if loss cannot be avoided.

The Scottish Government has expressed its policy towards the management of change in the historic environment:
'The protection of the historic environment is not about preventing change. Ministers believe that change in this dynamic environment should be managed intelligently and with understanding, to achieve the best outcome for the historic environment and for the people of Scotland. Such decisions often have to recognise economic realities'.

(Scottish Historic Environment Policy, July 2009)

The project area was subject to a thorough archive search and walk over survey that can be viewed in the Technical Annexes (See Technical **Annex E**). The council archaeologist visited the site and inspected some of the findings from the walk over survey and advised on which needed retention. From these exercises it has been confirmed that there are no Scheduled Historic Monuments on the proposed project area and all archaeology referred to is unscheduled. The one Scheduled Historic Monument relating to the settlement at Old Irvine was removed from the proposal boundary along with its buffer area.

The land-use character of the proposed development area is predominantly rough pasture farmland, with occasional areas of improved pasture at Rowantree Sike. Archaeological assessment indicates that there has been a substantial history of agricultural land use of the area from at least the Bronze Age period onwards. This belief is supported by the number of structures representing examples of post medieval rural settlements including several turf walls and old field boundaries.

A number of burnt mounds have been identified. Burnt mounds are accumulations of burnt stone, ash and charcoal and are interpreted as cooking sites generally dating to the Bronze Age. The burial cairns identified around Old Irvine and Barnglieshead are also most likely to date from this period. It has been noted that since the records were last taken by the Royal Commission Inspectorate, the sites are being lost to increasing levels of vegetative cover believed to be in direct response to agricultural improvement techniques. However during the survey six new sites of interest were found.

Historic Scotland and Forests and Archaeology guidelines (FC 1995) require that areas worthy of archaeological conservation are buffered and protected from disturbance by forest operations. The access to, and the landscape context of, such sites should be preserved and enhanced.

4.13. Landscape Assessment

There are no national or regional landscape designations affecting the project area that would impact upon the decision to proceed with the development. However the Dumfries and Galloway Structure Plan contains policies which have a presumption against adverse development that is likely to diminish the landscape character of such areas.

SNH commissioned a series of Landscape Character Assessments (LCA) for the whole of Scotland, broken down by local authority boundaries. The report for Dumfries and Galloway was referred to during the production of the Landscape and visual Assessment to help provide the wider landscape context for this project.

The LCA provides a detailed appraisal of landscape character and makes recommendations on the nature of planting which might be appropriate within specific landscape types.

Within Dumfries and Galloway Landscape Character Assessment (SNH 1998) the proposed scheme falls within Type 18‘Foothills’’ Landscape Character Area and is adjacent to the ‘Upland Fringe’ Landscape Character area. The edges of both types commonly extend into areas of large scale forestry. The ‘Foothills’ is a large scale landscape with rounded hill slopes, subdivided by incised watercourses. The ‘Upland Fringe’ Landscape Character area is smaller in scale, with gently rolling uneven topography.

The vegetation associated with these landscape types is mainly upland acid grasslands with areas of marshy grassland and rush-pasture.

The key drivers of change in these landscape types are, agriculture resulting in the loss of heather moorland, afforestation resulting in the loss of open land and the visual and landscape impacts of windfarm developments. During the course of developing the Local Forestry Framework (LFF), views were expressed that landscape quality had been eroded by extensive single species plantations in the north of the area (LFF 2000).

With regards to forestry, the Landscape Character Assessment, Type 18 'Foothills' states:

Forestry could enhance or at least be appropriate in this landscape. However, the predominant land use is agriculture, and should remain so. There is, however, varying capacity within the identified foothills units, to accommodate forestry and woodlands. Increased afforestation in the Nithsdale, Dalmacallan and Annandale foothills would not prejudice the overall pattern of forestry in the region, and could be associated with adjacent forested foothills. The more sheltered valleys and depressions of this landscape type support and offer opportunities for semi-natural woodland management and for broadleaf planting. Support should be given for proposals that realise these opportunities.

The proposed development of Cockplay from mainly rough agricultural grazing to mixed woodland has been designed with reference to the recommendations of the Landscape Character Assessment, the Landscape Design Guidance for Forests and Woodlands in Dumfries and Galloway and on the Cockplay Landscape and Visual Assessment (See Technical **Annex F**). The viewpoints indicated in **Map 4** were agreed with the Council Landscape Officer.
The Landscape and Visual Assessment has been used to design the shape of external boundaries to help reflect the broad topography of the area. Within these boundaries the planting design plan specifies areas of open space to further diversify the external woodland edge and respond to landform pattern. Open ground and small stands of broadleaves have been designed into roadside edges to enhance the landscape experience of users. Areas of light stocking near watercourses have also been incorporated to develop graded and varied margins, with potential to be attractive to Black Grouse populations.

Internally, areas of light stocking and open ground have designed to integrate archaeological and ecological features as noted in the relevant Technical Annexes. These areas of open ground will have natural shapes and graded margins. They create special variety within the woodland, benefitting visual diversity and improving habitat provision.

Intimate areas of open space and scattered broadleaves will create a varied tapestry with more densely planted areas, creating a structural variety that reflects current design standards. Over time, there will be a significant increase in broadleaved woodland, concentrated along the burns expanding the riparian element.

Planned restoration of three raised bogs at Hollows, Glenzier and Bogrie flows establishing a best practice approach, in conjunction with areas of open space will seek to establish a more effective pattern of land use to balance against the new planting.

4.14. Do-Nothing Option

Part of the ES process is to decide whether the development is in the best interests of the local population, its resident biodiversity and the underlying archaeology. A full review of alternate designs, and options for the site were investigated including the option of no change. In the event that this particular new woodland project did not go ahead, the site would continue to be used as Inbye and outbye agricultural grazing, however its efficacy to continue to support this regime will denude over the coming years without regular maintenance or intervention. This would subsequently bring with it a long term financial liability.

Alternative types of woodland cover were also looked at. Planting the area with native woodland would not enable the estate to meet it's objectives of creating long term employment opportunities or provide an alternative source of income from agriculture.
Although the Do-nothing approach would allow the land to remain open it would not meet four of the five objectives for the land.

5. Description of Proposal

The planting proposal map is appended to this ES (**Map 2**). Here the proposed development is summarised. The objective is to establish mixed woodland incorporating extensive areas of open space..

The area statement is as follows:

Table K - Area Statement

Category	Species	Area	UKFS Category	UKFS Category Area	%	UKFS Requirement
Sitka Spruce	SS	328.94	Main Species	328.94	65.0%	Max 65%
Norway Spruce	NS	50.41	Secondary Species	52.96	10.5%	Min 10%
Scots Pine	SP	2.55	Secondary Species			
Native Broadleaves	NBL	24.73	Native Broadleaves	32.96	6.5%	Min 5%
Unplanted	UP	74.62	Open Ground	91.33	18.0%	Min 10%
Native Broadleaves/Open Ground Mix (8.23 of NBL and 16.71 of UP)	NBL/OG	24.94				
Existing Broadleaves	**OL**	**1.81**				
Total		**508**		**506.19**		

The proposal is planned to reflect best practice in woodland establishment and ensure a sympathetic response to archaeology, landform and nature conservation values as identified in the relevant Technical Annexes. In this respect the proposed scheme takes account of concerns raised during the consultation process about the balance of selected tree species that the emphasis should move away from blanket single species plantations. The proposed design exceeds the requirements of the UK Forest Standard (2011) with respect to species diversity.

5.1. Purpose of Development

Buccleuch Estates Ltd wishes to establish a mixed woodland over a gross area of 508 hectares of former agricultural grazings. The aim is to provide an alternative source of income and employment to that currently provided by agriculture. The commercial nature of the proposed woodland would also provide income in the future to help fund the management of the non-commercial woodland on the estate as grant support for the management of these woodlands declines.

5.2. Land use

The main historic land use has been the grazing of domestic stock, both sheep and cattle. Agricultural improvement, to increase the carrying capacity of the land, has included drainage of wetlands and pasture improvement to create inbye and areas of semi-improved acidic grasslands. Most of this improvement has now been lost.

5.3. Alternatives to the Present Proposal

Buccleuch Estates Ltd recognises the inherent limitations of the natural resources of this site. It considers that the only alternative to the present proposal is to keep the land under open grazings in a very uncertain and difficult economic climate for livestock farming. The livestock farming on this site is extremely dependant on subsidy which is currently declining and under constant review. The uncertain future of livestock farming combined with the financial resources required to maintain the area is not considered to be justifiable in the long term.

A change of planting model to the creation of large native woodland is not deemed viable as it will not meet the objectives set for the scheme, namely the creation of an alternative source of income to sheep and cattle farming. Whilst new native planting would deliver on several of the biodiversity objectives it is not likely to create an economic return or provide long term employment opportunities for the local population.

Wind farms have recently become a worthy and incentivised alternative to agriculture or forestry in upland areas. Although the proposed location holds an upland position, Buccleuch Estates Ltd currently has no plans to take any land out of agricultural or forestry use. It therefore does not see this avenue as an alternative land use consideration.

5.4. Establishment techniques

5.4.1. General

The establishment will have to meet all relevant Scottish government guidelines. In addition Buccleuch Estates holds Forest Certification through an independent body to ensure all it’s forestry management activities meet the requirements of the UK Woodland Assurance Standard.

5.4.1.1. Protection

The proposed area will be stock fenced to exclude neighbouring sheep and cattle. It is not considered necessary to deer fence the area proposed for planting as the surrounding deer population density is quite low. Deer damage will be limited by effective management of the local deer population in association with neighbouring landowners and within the context of the agreed deer management plan for the surrounding estate. The estate already has an effective resource in place for this purpose. The layout of the planting design has been done in conjunction with the deer controller to enable the adequate control of the deer population over the full life of the forest.
The more sensitive and palatable broadleaf species will be protected in 1.2 m tubes to ensure rapid establishment.

5.4.1.2. Ground Preparation

Rapid establishment and hence secure carbon sequestration will be assisted by appropriate ground preparation. The appropriate ground preparation is guided by the soil survey and topography and Technical Bulletin 119 – Cultivation of Soils for Forestry (1999). The soil survey has indicated that the predominant soil type to be planted is peaty gley. Small areas of peaty podzols and surface water gley are also present.. These soils are also associated with tussocky molinia vegetation. Therfore the preferred method will be shallow ploughing. Where this is not possible, for technical or environmental reasons, mechanical mounding, hand screefing or hand-turfing will be employed. Shallow ploughing will be employed in preference to mounding as a ground preparation technique on the shallow slopes in order to provide sufficient drainage. However this will only be undertaken where this meets with the agreement of FCS and current guidelines. These works will provide suitable planting positions and ensure good early establishment and growth.

Care will be taken to protect water quality with strict adherence to the Forest and Water Guidelines and the Water Framework Directive – Water Environment (Diffuse Pollution) (Scotland) Regulations 2008. No ploughing will take place within 20 metres of main water courses (Irvine, Hagg and Hall Burns, all tributaries of the Rivers Esk and Sark) or within 5 metres of minor burns. Nor will ploughing take place on map areas of peat greater than 0.45 metres depth (See Map 5). Plough lines will have breaks in the furrow at regular intervals to prevent excessive water collection and run-off. The ploughing will be shallow double throw of no greater depth than 30cm. The plough depth will be set to a 20cm depth which is the optimum compromise between soil disturbance and creating a ribbon of sufficient weight to compress the bulky molinia vegetation and prevent perched planting positions. On slopes over 5% the plough will be lifted creating breaks at a maximum of 30m intervals. Unbroken buffer areas will be left adjacent to drains. This will prevent excessive water collection and

lower the risk of associated erosion which may lead to diffuse pollution. The areas within the buffer zones where broadleaved woodland is to be planted will be either screef planted or hinge mounded with an excavator.

All drainage will be laid out to comply with the Forest and Water Guidelines and the Water Framework Directive. The drainage will be marked on site and mapped prior to any ground preparation starting.
The exclusion areas for the Badger sites will also be marked on site and mapped prior to any site works commencing.

Known archaeology will be protected within pockets of open ground in agreement with Historic Scotland and the Local Authority archaeologist. The recommendations presented within the archaeological survey will be used to establish the amount of open space required. This will be protected from any machinery movements during the establishment operations by adequate marking out, site plans and supervision of operations.

5.4.2. Coniferous woodland

The main commercial species, at 65% of the area will be Sitka spruce. Norway spruce and Scots pine will make up a further 10%.

The conifer area will be managed through the establishment period to achieve a minimum average stocking density of 2,500 trees per hectare at year five.

The conifer species have been kept back from the water courses as per the guidance in the Forest and Water Guidelines and Water Framework Directive.

5.4.3. Semi-natural Woodland

Choice of species to be planted as new semi-natural broadleaf woodland is dependant on the pre-existing open ground NVC types as per the guidance given in Forestry Commission Bulletin 112 on Creating New Native Woodlands.

Due to the uniformity of the site the best fit for all the native woodland areas is W4 Downy birch/purple moor grass. (Source Ecological Site Classification for Forestry).
All trees for the semi-natural areas will be sourced from seed of local upland provenance. Plants grown from seeds collected from Native seed zone 109 will be utilised as far as possible with plants from zones 108 and 204 being used in the absence of zone 109 stock. The species mix will be and Downy Birch 60%, Alder 20%, Goat Willow 10% and Eared

Willow 10%. Large seeded broadleaves have been excluded on advice from the Red Squirrel Officer.
The areas marked as NBL will be planted at an average of 1100 stems / hectare. The planting will not be at a regular spacing but will make use of the local microsite. However the appearance will be of fully stocked woodland.

The areas marked as NBL / OG will be effectively 34% NBL and 66% open ground. These areas will have groups of trees numbering between 10 and 50 interspersed with large gaps. The spacing within the groups will be similar to the pure NBL stands.

The native woodland being created is mainly riparian woodland. This extends to the south to link with the remnant native woodland on the Irvine burn. This will therefore provide linkage and provide a habitat corridor for the future to maximise the environmental gain from the native woodland being created

5.5. Associated works

5.5.1. Forest Roads

The western part of the proposal is currently accessed by weak minor public roads. The route north from the Kerr crossroads is classed as an excluded route. Likewise the road from Barngleishead south east past March Cottage (see **Map 8**). By creating the new woodland at Old Irvine there will be an opportunity to improve the existing drove road to take forestry traffic. This will relieve the minor public road system from the use that would occur when the Kerr plantation is felled. The proposed route for the forest road system is shown on the planting map has been upgraded. The upgrading of the Old Drove Road completed works started by Scottish Water, referred to in the archaeologists report. This road is directly accessible from the A7. The construction of the drove road will save in excess of 34,000 tonnes being transported across the weak public roads to the south. This volume will be coming out in 5-10 thousand tonne blocks from now until 2023. The proposed woodland would not start yielding any timber until almost 2050. The woodland has been designed to be felled in 12 blocks over a 15 to 20 year period. This would spread the traffic flow out to an average of just over 7 thousand tonnes per year through it’s felling phase.

Initially, internal road construction will only be carried out to service planting, maintenance and wildlife management objectives. Upgrading to a standard capable of carrying timber traffic being gradually undertaken as the forest approaches production. Construction of roads will utilise stone excavated from borrow pits as close to the roadline as possible. All work will be carried out in accordance with current regulations and guidelines following

consultation with the relevant agencies and possibly planning permission. The roadlines have been laid out to avoid the areas of greatest sensitivity (deep peat, archaeology, landscape, protected species).

Responsible public access will be facilitated and encouraged through use of the new forest roads, supported by consultation with the Langholm Walks initiative. See **Map 2.**

5.5.2. Public Roads

Both the B7068 and B720 have been classified as “Consultation Routes” with several sections between the two classified as “Excluded Routes” on the Dumfries and Galloway Agreed Route Map for Timber Traffic (FCS 2011). In view of this the Councils Roads Department have asked to be consulted on any impending timber transport operations. The B7068 already serves a number of other commercial forests together with a major quarrying operation at The Grange some 9 km from Cockplay.

6. Assessment, Impact Prediction and Mitigation

As mentioned in Section 1, there are four key and two subsidiary issues identified at the Scoping Meeting and in subsequent correspondence, which could have potentially significant impacts related directly to the establishment of mixed woodland at Cockplay. This section addresses these potential impacts, assesses the degree of significance and any mitigation measures required.

It is the role of the Environmental Assessment to specifically address all biodiversity issues that may arise from a proposed development including its cumulative effect, to ascertain what impact the project may have on the development area.

This section addresses the potential impacts upon the open ground habitats through the cessation of open grazing, presents the predicted changes to the vegetation should afforestation be recommended. Then lastly assesses the magnitude and degree of significance and any mitigation measures required following that decision. Protocols developed by the Institute of Ecology and Environmental Management (IEEM) will be used to achieve this.

6.1. Key Issue 1a: Ecology - Habitats

This section should be read in conjunction with Technical Annex A: Vegetation Resource.

6.1.1. Potential Impacts

- Loss of Open ground habitat
- Reduction in extent of acid grasslands, marshy grassland/rush pasture and raised/blanket bog.
- Providing habitat linkage for riparian woodlands.

6.1.2. Baseline Information and Survey

Species data, UK BAP, LBAP, Nationally rare/scarce and Red Data Book species from Dumfries and Galloway Environmental Resources Centre covering the project areas plus a 500metre buffer zone. Phase 1 NVC vegetation survey 2007

6.1.3. Assessment of Impacts on Marshy & Acid Grasslands and Blanket & Modified Bog

The dominant vegetation types subject to the proposed afforestation are marshy grassland/rush pasture, acid grasslands and blanket and modified bogs. The largest vegetation community across the proposed scheme are rush pastures. Acidic grassland and bogs cover an additional area of over 150 hectares. Although difficult to accurately assign NVC types due to the underlying soil types, intensive grazing and agricultural improvements, the best affinity for it's rush pasture lies within NVC M25 *Juncus acutiflorus-Galium paluste* rush-pasture and M23 *Molinia caerulea Potentilla erecta* mire. These two communities blend in and out without discrete boundaries and share several of the main associated species.

The acid grassland is akin to NVC U4 *Festuca ovina-Agrostis capillaries-Galium saxatile* grassland, while the bogs are more akin to M17 *Scirpus cespitosus- Eriphorum vaginatum* mire, M18 *Erica tetralix-Sphagnum papillosum* mire and M20 *Eriphorum vaginatum* mire.

Purple moor-grass and Rush Pasture

Purple moor-grass and rush pasture is subject to a UK and Local Habitat Action Plan and holds National and International context. Key communities of purple moor grass vegetation fall within Annex 1 of the Habitat and Species Directive e.g. Molinia grasslands on calcareous soil). This key habitat refers to a mixture of purple moor grass in fen meadow situations which would exclude the Cockplay area from consideration.
Objective 1 of the Local Habitat Action Plan aims to "ensure no net loss in area or reduction in quality of purple moor grass and rush pasture in Dumfries and Galloway" though it concedes that "the total extent in Dumfries is not accurately known, but there is at least 65ha". The Cockplay survey alone mapped over 750 hectares of marshy grassland of the M23 and M25 types. This indicates a problem of interpretation or definition as to what constitutes marshy grassland of the M23 and M25 types which is further compounded by the lack of accurate up to date data for the region. The areas mapped within these two types are considered poor representations of the priority NVC classes due to their extensive alteration through agricultural processes and over grazing. Therefore the areas covered by the survey do not represent good examples of the habitat as described and promoted for protection in the Local Biodiversity Action Plan. They do not form any part of the four known designated site examples and are therefore not considered part of the extent recorded. Any loss of area to the Cockplay woodland development would not affect the total extents noted in Dumfries and Galloway.

Acid Grassland

Acid grassland is also subject to a UK and Local Habitat Action Plan within the Dumfries and Galloway LBAP. Objective 1 of the Local HAP aims to “ensure no net loss in area or reduction in quality of important areas of acid grassland to forestry and other land uses”.

Acid grassland has also declined as a result of agriculture and afforestation progression with 21% loss in habitat recorded between 1940 and 1980 (National Countryside Monitoring Scheme). However it remains “one of the most extensive semi-natural habitats in Britain” (Dumfries and Galloway LBAP). At a UK scale the estimate is 1,200,000 hectares in the uplands with 743,000 being in upland Scotland (LBAP). The area of acid grassland within Dumfries and Galloway is not known. In view of this, no estimate can be given of the area the resource at Cockplay represents at a regional scale and therefore no quantification can be given to indicate the impact of afforestation on this habitat.

This habitat most akin to U4 *Festuca ovina-Agrostis capillaries-Galium saxatile* grassland, frequents the green knowes that occur throughout the site kept open by preferential stock grazing. Small remnants were found in some of the previously improved pastures on the lower ground but are now reverting to rush pastures. This supports the considered belief that the grasslands were derived from rush pasture origins through agricultural interventions.

The small species poor pockets in association with their origins further reduced in species content through long term grazing are becoming swamped by the M25 *molinia* grassland. They do not form part of an “important area of acid grassland”, in the sense implied by the Dumfries and Galloway LBAP, at a regional, national or international scale. They are considered to be of local importance only.

Blanket mire

Blanket mires have declined as a result of agricultural intensification and afforestation techniques, with a 36% loss to young plantation recorded between 1940 and 1980 (National Countryside Monitoring Scheme).

The areas of bog on the site fall into two categories Blanket bog and Wet modified bog, both of which have been altered by agricultural interventions. Hagg Hill is the main area of blanket bog. Its closest affinity lies within the M17 *Scirpus cespitosus- Eriphorum vaginatum* mire classification, with extensive deep peats and abundant swards of russet coloured Narthecium ossifragrum. The deeper peats in the valleys to the west, give way to a distinctive valley mire vegetation community. It is difficult to assign a distinctive

unambiguous vegetation class to this area due to the anthropogenic effects of drainage, grazing and burning, the modified M20 *Eriphorum vaginatum* mire is the best fit. However the presence of mire species alludes to a historically much wetter surface more akin M18 *Erica tetralix-Sphagnum papillosum* mire, now largely confined to non-functional drainage ditches.

Blanket bog has declined in extent and quality as a result of agricultural modification, drainage, reclamation and afforestation. It is an important habitat internationally with intact examples being listed under Annex1 of the EC Habitat Directive. They are also important habitats for wading birds and black grouse. The LBAP reports that the UK has an estimated 2,210,000ha of blanket bog with 1,759,000ha in Scotland.

The LBAP considers the present day area of Blanket bog in Dumfries and Galloway as being less than 50,000ha. The LBAP does not distinguish between active or modified mire systems. The area at Cockplay may therefore represent 0.2% of the blanket bog resource within Dumfries and Galloway.

While parts of the mire system could be regarded as active, due to agricultural alteration it is not in good condition resulting in the spread of species such as *Eriphorum* becoming more affluent at the expense of *Sphagna* making distinct classification extremely difficult or “inconclusive” (Technical **Annex B** - Vegetation Survey). In addition it covers only a small area and represents a marginal proportion of the overall resource at regional level. It is therefore considered to be of local importance only. However, with appropriate management, as identified in Aim 5 of the LBAP, its quality could be improved through ditch blocking allowing natural processes to take over.

Predicted changes

Changes within these habitats as a result of afforestation can be approximated as follows:

Table L - Predicted changes within NVC U4, M23/25 and M17/18 & 20 as a consequence of afforestation at Cockplay

Habitat	Current area (Ha)	Current Habitat Condition	Predicted area following afforestation	Predicted habitat condition	Approx Change (Ha)	Nature of change
Purple moor-grass and Rush Pasture (M23/25)	757.27	Mainly species poor. Found along flush systems, inundated areas or as part of former improved pastures	355.04	Ungrazed, rank	402.23	Significant at regional scale.
Acid grassland (U4)	78.55	Mainly forming preferentially grazed green knowes	43.07	Ungrazed, rank	35.48	Significant at local scale.
Blanket bog (M17) Modified bog (M18/20)	86.91	Mainly along small valley systems, severely modified by drainage.	86.91	Ungrazed, rank	No change	Improvement following ditch blocking and removal of overgrazing.

The above table predicts the likely significant effects on marsh and acid grassland should this project proceed. The draft planting plan has excluded the areas of blanket and modified bog. The areas of blanket bog that lie within the Barngleishhead farm corridor between the two areas of planting will have their drains blocked to help them revert from modified to true blanket bog.

In summary:

- The area of NVC community U4 will be reduced from 78.55 hectares to 43.07 hectares. The area of NVC Communities M23/25 will be reduced from 757.27 hectares to 355.04ha
- The distribution of these habitats will be reduced and fragmentation may increase.
- The area and distribution of blanket mire will be unaffected, increasing in quality through the implementation of a restoration programme.
- The viability of associated plant species may be compromised (though none are regarded as rare, vulnerable or threatened).

These predicted impacts cannot be mitigated except for the retention and management of examples of these habitats across the site. The structure and species composition of retained examples are likely to alter from the current baseline condition if stock grazing ceases. The mire valley system at Barngleishhead will be fenced out of the scheme to allow for summer grazing and prevent rank vegetation dominating the community. The large areas of blanket bog and molinia to the south of the concept area have been excluded and will remain under agricultural systems.

Acid and Marshy grassland ground layers will be retained within the proposed semi-natural woodland and open space areas. A proposed bog restoration programme will facilitate regeneration by natural processes.

The small amount of remnant riparian woodland on the Hall Burn will be protected from further grazing and reinforced with further native woodland establishment. Both activities meet the Objectives of the D&G LBAP and DGFAWS.

6.1.7. Predicted Impacts of afforestation on main open ground habitats

- Loss or change in structure and species composition of substantial areas of rush pasture and acid grasslands.

- Fragmentation of acid and marsh grassland habitats.

6.1.8. Mitigation

Planting plan ensures retention of 20% of acid and marsh grassland resource.

Blanket and Modified bog to be retained as open ground or improved as part of a restoration programme. A significant area of open habitat has been retained to the south (over 220 ha). This includes over 28 ha of blankets and modified bog.

Riparian woodlands to be retained and expanded upon to build habitat networks, reducing fragmentation.

Ungrazed acid and marsh grassland types will be retained as ground layer below proposed semi-natural woodland.

- By fencing a substantial corridor on Barngleishhead out of the scheme and retaining it in agricultural production linkage has been maintained between the open ground habitats to the north and south.

6.1.9. Statement of Significance

The impact of this project, without mitigation, on the open ground habitats is deemed to have a high magnitude impact. For acid grasslands this is considered to be significant only at the local scale and for marshy grasslands at the regional scale over the medium to long term.

For the riparian woodlands the project is deemed to have a positive medium magnitude impact over the long term and be permanent.

6.2. Key Issue 1b: Ecology – Birds

This section should be read in conjunction with Technical **Annex B**: Bird Surveys

6.2.1. Potential Impacts

- Displacement of birds of open ground habitat by woodland establishment either directly or by fragmentation of remaining habitat

- Disturbance to breeding birds during ground preparation, planting and forest road construction operations

6.2.2. Baseline information and survey

Species data, including legally protected, UKBAP, LBAP, Nationally rare/scarce and RDB species.

Winter bird survey 2007/2008 using vantage points and walk over survey amounting to 32 hours of survey. Additional site check on the 19th of February 2013 to confirm that the survey was still relevant.

Breeding bird survey 2008 (using adapted Brown and Shepherd methodology) amounting to 55 hours survey. The surveyor has provided a report stating that the data obtained in 2008 will still be relevant and there are no reasons to substantiate any meaningful changes in bird assemblages or densities. (see Technical **Annex B**).

Dumfries and Galloway Local Biodiversity Action Plan.

6.2.3. Assessment of Impacts on birds

This section addresses the potential impacts of the project on birdlife in terms of habitat change and operational disturbance. It assesses the magnitude and significance of impacts and also assesses any mitigation measures that may be required.

The negative impacts, should this project be implemented, relate to two factors: direct impacts due to loss of open ground habitats/and or indirect impacts as a result of operational disturbance.

Direct Impacts

For the purpose of this ES, direct potential impacts on birds have been set within the wider context dictated by JNCC (Bates et al 1994), evaluating the ornithological value within Dumfries and Galloway with specific reference to the location of future afforestation. This document rates the 10km square containing Cockplay as being of low ornithological value. The surrounding 10km squares surrounding Cockplay are also rated as having low ornithological value. In Dumfries and Galloway, predominantly to the south and south east of the district, 50 10km squares (58.5%) are rated as of having low ornithological value.

The document supports future afforestation in areas with a low ornithological value, a sentiment consistent with the Dumfries and Galloway Forestry and Woodland Strategy.

With the conversion of approximately 438 hectares of marsh/acid grassland to mixed woodland there is an expectation that there will be a considerable change in breeding populations of Skylark, Curlew and Reed bunting, species that are reliant on open ground as part of their required habitat. With a reduction in the amount of open space, the populations of Skylark and Curlew are expected to be displaced, persist in lower numbers or reduce in the short to long term.

To place the potential displacement in a UK and Dumfries and Galloway context:

Skylark: The British population is estimated at just under 1.8 million territories (BTO). The population has been in decline since the 1970's, particularly in England. However the decline in Scotland has been much less dramatic, showing a slight increase in numbers. The Skylark is listed as being a species of high conservation concern (Red Listed) and a local priority species with the Dumfries and Galloway Local Biodiversity Action Plan.

Curlew: The British population is estimated to be approximately 107,000 breeding pairs (BTO) having suffered a 39% decline in numbers in both England and Wales and 60% in Northern Ireland. There is no data to quantify the population numbers within Dumfries and Galloway though it is regarded as a common species within the Southern Uplands Landscape Character type. Curlew is listed as a species of medium conservation concern (Amber listed) and a local priority species within the Dumfries and Galloway Local Biodiversity Action Plan (LBAP).

It is very difficult to assess the ability of the surrounding areas to accommodate the displaced birds. With 65% of the Dumfries and Galloway Region being classed as suitable open ground habitat there is a reasonable chance that there is an ability to accommodate the displaced birds within the remaining open ground. The work that Buccleuch Estates

have done on the Langholm Moor project (the large area of upland hill ground to the East of Langholm) on predator control is by common opinion increasing the success of breeding pairs in this area (personal comment SNH Project Officer).

The new woodland is likely to result in the increase of species associated with woodland edge such as merlin, Short eared owl and Black grouse. In the longer term birds with associations with coniferous plantations such as Goldcrest and Redpoll may start to utilise the proposed wood. The woodland design will aim to encourage other listed species to the area whilst retaining as much linked open ground as possible to lower displacement figures. Black grouse, a Red Listed species, having both local and National importance, is likely to benefit from the change in landscape. Although not present on the site currently there is an active lek [redacted]km to the NW. They are a species associated with forest edge and the intricate design of the edge in the Western part of the proposal will aims to encourage the species into the area.

Indirect Impacts

Forest operations with care over timings of ground preparation, planting and road construction can avoid any potential impacts on the breeding and winter bird assemblages. Advice within Forests and Birds (FC 1997) should be adhered to with regard to timing of operations and required buffer zones.

Specific attention must be paid to operations programmed during the breeding period between March and August. To ensure compliance with the Wildlife and Countryside Act 1981 and the Nature Conservation (Scotland) Act 2004, Buccleuch Woodlands will apply their own Environmental Policy and Controls to fulfil criteria presented as part of the UKWAS 3.1 accreditation.

6.2.4. Predicted Impacts on Birds

- Displacement of open ground habitat birds species such as Skylark and Curlew. The survey indicates that between 2 and 3 pairs of curlew will be displaced or lost.
- Potential reduction in numbers of Red grouse and Lapwing,
- Increase in birds of woodland and woodland edge habitat,
- Ingress of bird species that inhabit coniferous plantations
- Early plantation stage provides ideal habitat for additional conservation species such as Merlin, Short eared owl and Black grouse.

6.2.5. Mitigation

- Retention of significant open space and reduction in scope of scheme allows for some mitigation to predicted displacement effects.
- Providing a clear wide corridor through the Barngleishhead (western) part of the proposal will prevent separation of the northern and southern open ground habitats outwith the proposed afforestation scheme. This will limit the effect to the populations on the area being afforested. It is unlikely to significantly affect the populations outwith the proposal area.
- Increased predator control on surrounding upland molinia (especially on the Langholm Moors) will and has increased the viability of breeding pairs nearby.
- Follow advice in Forests and Birds (FC 1997) to help avoid operational disturbance at the temporal and spatial level.
- The majority of the proposed afforestation is located on the homogenous molinia dominated ground which held the lowest density and diversity of open ground bird species. The improved pasture to the east of the site above Old Irvine which held the greatest density of Lapwing has been excluded from the afforestation proposal and the previously improved pastures to the south of the Old Irvine – Kerr Drive road have been retained. The retention of the heather ground at a significant scale associated with the modified bogs in the centre of the Barngleishhead block will improve the potential for the re-colonisation of the area by Black grouse from the North West population. It will also allow the red grouse present to be retained.

6.2.6. Statement of Significance

The impact of this project, even with mitigation, on birds requiring open ground habitats is considered to be negative, irreversible and significant at the local scale over the medium to long-term.

6.3. Key Issue 2: Landscape and Visual Assessment

This section should be read in conjunction with Technical **Annex F**: Landscape and Visual Impact Assessment.

6.3.1. Potential Impacts

- Change to landscape and visual character through conversion of open ground to woodland.

- Adverse landscape/visual impacts due to poor landscape design.

6.3.2. Baseline Information and Survey

Dumfries and Galloway Structure Plan.

Dumfries and Galloway Landscape Character Assessment.

Dumfries and Galloway Forestry and Woodland Strategy (DGFWS)

6.3.3. Assessment of Impacts on Landscape and Visual Amenity

There are no national or regional landscape designations affecting the project area at Cockplay. The area is identified in the main issues section of the Eskdale Area of the DGFWS as having significance for open landscapes.
The design has been appraised from viewpoints as requested by the local council landscape officer, using computer generated illustrations set at approximately 20years of age, to assess the potential impact on the landscape.

- Change of landscape Character by afforestation.
  The initial landscape assessment indicated that the area is remote and by the nature of the topography is hidden from much of the wider view. Therefore the change in character would be most noticeable from the minor roads dissecting and bordering the proposal and from the old drove rod from Kerr to Old Irvine. The viewpoints chosen for the design process and the intricate design of the edge of the proposed forest adjacent to these routes has been assessed in the landscape appraisal.
- Adverse landscape/visual impacts due to poor landscape design. The design has been considered from the main viewpoints against the main problems with forest design that have occurred in the past such as highly visible straight edges, lack of landscape fit and lack of diversity.

The overall planting design was developed within the context of the background policy and forest design guidance. In developing the proposals, the visual effects of the archaeological resource and wildlife conservation issues were taken into account. The main points when developing a planting proposal includes site surveys and a photographic record of the current landscape, identification of issues influencing the design of the project, topographical and visual assessment and preparation of a resultant Planting Plan.

Forest margins are a key feature of woodland design. Identified as an important habitat, the design takes into account adjacent forest plantations to ensure that un-natural looking boundaries are not perpetuated. The design will grade the new planting into open ground or riparian habitats to reflect land form influences. Environmental benefits arise through the development of internal and external woodland edge, providing habitat expansion opportunities for ground fauna and flora encouraging bird species such as Merlin and Black grouse to the area.

6.3.4. Predicted Impacts on Landscape

The predicted impact as assessed against the two main issues raised:

- Change to landscape and visual character through conversion of open ground to woodland.

  The predicted impact on the landscape of the proposed scheme as viewed in the landscape as a whole and at distance is viewed as neutral to beneficial. Although the Eskdale Area section of the DGFWS indicates that the area to the south and east of Langholm is important for it's open landscape it does define which areas within this section are key to achieve this effect. From the viewpoint analysis it was evident that the views from the minor roads and the drove road are likely to be the most affected. The view from the Lockerbie to Langholm road to the north and the A7 to the East are either unchanged or insignificantly altered. The proposal is not visible from Langholm.

  The sense of open space has been retained along the minor roads by keeping the planting back from the road edge. Minor topographical changes often linked to soil and vegetation changes have been utilised to increase the diversity along the edges both by position and composition to prevent the effect of a corridor. The large open area through the middle of the Barngleishead block, which fans off the road, allows linkage to the open space present to the north of the proposal area. Similarly the open views up the various riparian corridors from the roads and tracks has been maintained. The open views to the south from the drove road have also been retained by mainly limiting the planting to the north of the track.

- Adverse landscape/visual impacts due to poor landscape design.
  The design process which was led by a qualified landscape architect has avoided any major landscape problems.

  The proposed woodland has been designed in response to the Landscape Assessment, utilising aspect, topography and archaeology to influence the overall design, directing it towards natural boundaries such as habitat and vegetation changes.
  Areas of light broadleaf stocking have also been incorporated to develop graded and varied margins, creating a spatial variety and adding a visual diversity which may also attract woodland edge species such as the extant Black grouse population and a wealth of invertebrates.

  Although the majority of the site will be planted with Sitka spruce due to a combination of topography and the targeted planting of other species the woodland will not appear to have great uniformity. Mixed broadleaves and additional conifer species will be used to develop habitat corridors aiming to reduce fragmentation whilst providing species contrast with the Spruce.

6.3.5. Mitigation

The proposed woodland, designed to conform to current landscape guidelines, will impact positively on the landscape. It will provide a structural and textural diversity to a landscape largely denuded of woodland cover. This scheme will provide a visual, spatial and ecological link to the surrounding landscape whilst presenting the opportunity to preserve and protect notable archaeology and valued habitats that would otherwise have been lost. The woodland layout as designed will reflect and enhance the natural characteristics of the landscape. The detailed planning of the layout of the woodland has mitigated the potential of an alien fit to the landscape.

6.3.6. Statement of Significance

The overall landscape impact of this project is judged to be long-term, beneficial, irreversible and significant.

6.4. Key Issue 3: Archaeology

This section should be read in conjunction with Technical **Annex E:** Archaeology – Data Structure Report.

6.4.1. Potential Impacts

- Loss or damage of archaeological remains by ground preparation, planting, quarrying and track construction including changes in water level.

- Loss, damage or obscuring of archaeological remains by tree growth.

6.4.2. Baseline Information and Survey

Desk study of Scheduled Ancient Monument data compiled by Dumfries and Galloway Archaeological Service based on works undertaken by the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS), and the AOC Archaeology group. Additional information was provided on known archaeological sites and monuments within the proposed development area from Dumfries and Galloway Archaeological Service.

Assessment was made of historical maps and vertical aerial photographs held by National Monuments Record of Scotland (NMRS) and Ordnance Survey (sorties from 2000 and 2001) respectively, were examined to provide information on sites of potential archaeological significance and historic land use development.
Reconnaissance field survey in January 2009 by Rathmell Archaeology Ltd.

6.4.3. Assessment of Impacts on Archaeological Remains

This section of the ES will assess the value of the Historic Environment within the project area in order to identify any potential effects from the proposed development in terms of site preparation works and subsequent woodland development. The specific objectives of the archaeological survey works by Rathmell Archaeology Ltd were to determine the nature, form and extent of the known archaeology. Additionally should it be required, propose areas to be preserved as open ground in future planting schemes. To consider the potential and predicted effects of the development on archaeological sites and propose measures, where appropriate, to mitigate and predict significant adverse effects. This data was checked by field visit with the local council archaeologist and areas worthy of retention agreed.

Ground preparation, road construction and forest machinery can damage archaeological remains as can the development of tree cover which could obscure, cause damage and prevent access to historic sites.

To mitigate any potential for damage during site preparation or loss of interest through tree establishment, all significant archaeological remains have been identified and mapped. These will be protected in line with recommendations presented by Historic Scotland and the local authority archaeological service. Concern was raised by Historic Scotland about the potential change in water table for the ancient monument located to the east of the site above Old Irvine. The afforestation has now been kept back beyond the burn to the west of the site therefore preventing any change to the water table

Table M - Archaeological protection strategy for Cockplay

Sensitivity Rating	Description
High – of National Importance. There are no sites of National Importance within the proposed development area.	All scheduled Ancient Monuments mapped by GIS including 50 meter buffer zone around perimeter.
Medium – of Regional Importance	Important archaeology worthy of protection. Avoid wherever possible. 20m min buffer around sites (in line with forestry guidelines) or SMR nominated buffer, as appropriate.
Low – of Local Importance	Areas where there are archaeological records of features of low sensitivity but where field survey has failed to identify 'Significant' visible remains. 10-20m buffer around site (in line with Forestry guidelines) or SMR nominated buffer, as appropriate.
Negligible/Lesser/Unknown importance	Areas or sites of no intrinsic archaeological significance and little interest.

The above protection strategy has been used to inform the overall design plan for the proposed woodland.

All sites of significant importance, as agreed with Historic Scotland and the local authority archaeologist, and as listed in Technical **Annex E**, will be mapped and clearly marked on the ground prior to any operations being started. The ground preparation operator will be closely supervised by the site manager and both will hold a copy of the archaeological sensitivities map and Forestry and Archaeology Guidelines on protecting archaeological remains. Any additional potential archaeological remains identified by the site manager during the course of marking out or by the machine operator during the course of site preparation operations, will be identified on the ground and the local authority archaeologist consulted with a view to assessing the significance of such sites.

6.4.4. Predicted Impacts on Archaeological Remains

- No impact as all significant archaeological remains will be fully protected and managed within open ground areas.

6.4.5. Mitigation

Scheduled Ancient Monuments:

- **NO** Scheduled Ancient Monuments have been identified within the project area.

Sites of Regional Importance:

- All Regionally Important Sites have been identified and mapped within the project area
- A 20 metre buffer zone has been mapped around each site.
- Buffer Zones will be marked on the ground prior to commencement of operational works.

Sites of Local Importance:

- All Locally Important Sites have been identified and mapped within the project area. Most are either excluded form the proposal or are with designed open ground or open ground/native woodland mix where the sites can be incorporated into the open ground element.
- Following the survey and in consultation with the relevant bodies a number of additional sites will be protected as per the mitigation measure for Regionally important sites.

Other Mitigation Measures:

- Project Manager, machine operators and planters will hold copies of the constraints map showing archaeological exclusion areas and the site supervisor will clearly mark all exclusion areas on site before any works commence as per the Forestry and Archaeology Guidelines.
- All significant archaeological remains will be monitored for self-seeding trees.

6.4.6. Statement of Significance

The impact of this project on the archaeological interest of the site is deemed to be neutral and not significant.

6.5. Key Issue 4: Land Use Balance

6.5.1. Potential Impacts

- Loss of hill grazings
- Loss of agricultural employment
- Loss of agricultural production
- Gain in forestry employment and ground cover
- Supporting Climate Change mitigation through carbon sequestration potentials

6.5.2. Baseline information and survey

- Post scoping information received from SGRIP
- Analysis of baseline employment potential under agriculture and that proposed under woodland management.
- Calculation of livestock units lost due to planting ground.

6.5.3. Assessment of Impacts on Specially Identified Area of Hill Ground

One of the key reasons for Specially Identified Area of Hill Land was to maintain the cycle of upland livestock farming and, by so doing, ensuring a healthy rural economy whilst supporting the rural social fabric. This issue although not addressed directly, was interpreted as falling within the cultural sensitivity of the area that was raised within the scoping process. SGRIPD now take the stance that the Specially Identified Area of Hill Land designation no longer reflects the current agricultural support systems.

They believe that the designation is no longer relevant within the context of new woodland establishment and do not need to be consulted, or provide comment during the planning process.

However the cultural sensitivity has been addressed within this Environmental statement. In terms of agriculture verses woodland rural employment, the figures are predicted to be similar if not slightly positive under woodland management. For agricultural health and productivity to be maintained over the long term, increased economic and agricultural intervention would be required to comply with Good Husbandry Principles as laid down in the Agriculture (Scotland) Act 1948 part 2. The commercial forest area at Cockplay will be managed to provide a sustained yield of timber thereby maintaining, in conjunction with other forests in the area, stable employment. It has been designed to be felled over a 15 to 20 year period providing harvesting and establishment jobs for a significant time period.

With the possible addition of a Forestry Wildlife Ranger to facilitate effective establishment, an overall net employment gain can be anticipated compared to that employed by the current agricultural systems.

Agricultural Production

The table below highlights the use of the site using the industry standard figures for Dumfries and Galloway of 0.15 livestock units per hectare for unimproved hill ground and 1 livestock units (LU) per hectare for upland improved ground.

Table N - Agricultural Production of Farms within Proposal

Farm	Land type	Farm total		Taken by scheme		% removed
		Area (ha)	LU	Area (ha)	LU	
Barngleishhead	Improved	25.8	25.8	0	0	0
	Unimproved	275.2	41.3	163.2	24.5	59.3
Kerr	Improved	3.5	3.5	1.0	1.0	28.6
	Unimproved	138.9	20.8	82.5	12.4	59.4
Old Irvine	Improved	81.9	81.9	5.8	5.8	7.1
	Unimproved	495.3	74.3	264.3	39.6	53.3
Hagg Hill	Improved	1.6	1.6	0	0	0
	Unimproved	254.3	38.1	0	0	0
Total	Improved	112.8	112.8	6.8	6.8	6
	Unimproved	1163.7	174.5	510	76.5	43.8
Grand Total		**1276.5**	**287.3**	**516.8**	**83.3**	**29**

As can be seen from **Table N** above by careful selection of the ground being removed from agriculture the amount of livestock units reduced is only 29% yet the area removed is 40.5%. This is due to the design leaving the more productive improved ground in agricultural production.

Also the larger areas of ground that could not be planted for either environmental or landscape reasons have been designed so that they can remain in agricultural production. The summer grazing of the long strip of intimate deep peat and hard knoll on the Barngleishead area will be beneficial to the vegetation community by preventing the build up of dense biomass producing species. These design considerations are in keeping with the recommendations of the Woodland Expansion Advisory Group (recommendation 3 and 11). The proposal area incorporates 2 working farm units and 2 units that had been let on a seasonal basis. Should the proposed woodland be planted then one of the farm units will be reduced to a retirement unit and the other will incorporate some of the seasonal grazing land to remain a viable unit. Therefore there is no net loss in viable tenancies available. The change is enabled by the reduction of seasonal grazing ground to the market.

No calculation has been done on the reduction of agricultural capacity in the Langholm catchment but as can be seen from the effect on the farms involved, the scale of production reduction will be very small when calculated over the entire catchment.

Climate Change

Agricultural practices are amongst the highest CO_2 emitters contributing to Climatic Change. Processes such as the use of fertilisers, drainage and burning have been noted to have a detrimental effect on the national CO_2 emissions budget. To maintain agricultural productivity at Cockplay, yearly increments of agricultural intervention will be required. With emission reductions being a national target and forestry being a net carbon sink, woodland expansion proposals are seen as a positive step towards mitigating the impacts of Climate change. The areas of deep peat have been excluded from the planting area (see Map 5) thereby preventing excessive carbon loss through the ground preparation phase. The proposal will have a significant net sequestration effect as much of the timber will be utilisable for construction purposes thereby ensuring the carbon sequestered is locked up in products with a long life cycle.

6.5.4. Predicted Impacts

Neutral to slightly positive with regard to rural employment.

6.5.5. Mitigation

None required

6.5.6. Statement of Significance

Overall, the impact of this project in relation to the Specially Identified Area of Hill Land (and thus rural employment) is deemed to be neutral to slightly positive in the short, medium and long term and not significant.

The loss of agricultural production in the scale of the Langholm catchment is deemed to be negative in the short, medium and long term but not significant.

6.6. Key Issue 5: Hydrology

This section addresses the potential impacts of the project on the rivers Esk and Sark including an assessment of the degree of significance and mitigation measures required.

6.6.1. Potential Impacts

- Reduced water quality caused by sediment release from ground preparation for planting or chemicals used to assist tree establishment or weeding.
- Reduced water quality caused by increased interception.
- Reduced water tables affecting resident bird and mammal populations.
- Reduced water yield due to afforestation of the catchment.

6.6.2. Baseline information and survey

- Literature review
- Water Environment (Diffuse Pollution) (Scotland)
- Forest and Water Guidelines

6.6.3. Assessment of Impacts on Water Quality

Water quality can be affected by direct and indirect pollution and silt as a result of erosion and/or poor management. The choice of land use undeniably affects the pollution type and levels expected. Forest establishment techniques and poor road construction could affect the quality in terms of run off and silt capture, where as hill grazing pressures correlate with soil erosion. The use of additional chemicals in forestry however is much less than that of intensive agriculture.

The Water Environment (Controlled Activities) and (Diffuse Pollution) (Scotland) Regulations and Forest & Water Guidelines (2004) will be adhered to throughout the development.

Ground preparation will be a combination of shallow planting and mounding. No deep ploughing will take place at any point within the proposed new woodland boundaries. Good practice in the stopping short of plough furrows from drains and the breaking of furrows at regular intervals will be adhered to. Effective drainage where appropriate will be carried out to further reduce the erosion or run-off potential.

The use of open ground and new riparian woodland will ensure that the watercourses are suitably buffered in the long term. This woodland will also increase the food available for invertebrate life and thereby improve the quality of the water based ecosystem.
The 2 private water supplies have been given an undisturbed buffer of 50m to ensure there is no accidental damage or risk of contamination. See **Map 2.**

6.6.4. Predicted Impacts on Landscape

- Reduced run off in medium to long term compared to baseline. The reduction in water yield to the 3 catchments covered by the proposal are detailed in the table below.

Table O - Hydrological Impact on affected Watercourses.

Catchment Name	Catchment Area (ha)	Area to be planted	% reduction in water yield	% increase in Peak Flow
East Irvine Burn	724	237	6.5%	4.9%
Glenzier Burn	1795	110	1.2%	0.9%
Sark	7235	88	0.2%	0.2%

- Improved biological productivity and channel structure of burns and water will have positive implications for otters and salmonoids.

6.6.5. Mitigation

- All water courses and areas of deep peat (permanently wet areas) to be protected from mounding by implementation of buffer zones.

- Ground preparation and chemical use will comply with Forest and Water guidelines and Water Environment (Diffuse Pollution) regulations.

6.6.6. Statement of Significance

Overall, the impact of this project on the hydrology of the site is deemed to be neutral in the short term but beneficial and significant over the medium to long-term.

6.7. Key Issue 5: Public Access

6.7.1. Potential Impacts

- Loss of/or impeded access to the glens and hill tops.
- Loss of views of open landscapes as a result of woodland establishment.

6.7.2. Baseline information and survey

- Site Visits.
- Scottish Outdoor Access Code
- Liaison with the Dumfries and Galloway Council Access Officer and Chairman of Langholm Walks.

6.7.3. Assessment of Impacts on Public Access

This section addresses potential impacts of the project on public access at Cockplay.

Cockplay has not historically been well used for public recreation on account of the land being extensively used for livestock farming and its distance from Langholm. The change of tenure and direction of land management has created an opportunity to encourage responsible public access.

The proposed mixed woodland will be developed without the need for deer fencing and with the view to ensuring responsible public access and the retention of key views as part of the open ground component. To further this aim, contact was made with the D&G Access Officer and Langholm Walks – a local initiative to foster and promote local routes and walking facilities within the Langholm area.

From these consultations, it is clear that there is little evidence of historic use of Cockplay for walking as mentioned due to its distance from Langholm. There are no way-marked routes and no intention to extend the Langholm Walks initiative beyond the 100 miles of way-marked walks in the Langholm and Eskdale area that have been created over the last 10 years. However the group would welcome the drove road being fenced from livestock and it’s surface improved. This they felt would increase it’s attractiveness for use.

The change of land use and the creation of forest roads and rides will encourage new access opportunities. The outline planting proposals, developed without the need for deer fencing, have been designed to ensure that key views are maintained.

6.7.4. Predicted Impacts on Landscape

- No loss of public access to glens or surrounding hills.
- Enhanced access opportunities.

6.7.5. Mitigation

- No mitigation measures are required.

6.7.6. Statement of Significance

The impact of this project on the public access is deemed to be positive and significant at the local scale.