## Dumfries and Borders FD

# Beattock Composite

## Land Management Plan

V1.2

Approval date:

Plan Reference No:

Plan Approval Date:

Plan Expiry Date:

We manage Scotland's National Forest Estate to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

Our land management plans bring together key information, enable us to evaluate options and plan responsibly for the future. We welcome comments on these plans at any time.

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**FOREST ENTERPRISE – Application for Land Management Plan Approvals in Scotland**
Forest Enterprise – Property

| | |
|---|---|
| Forest District | Dumfries & Borders Forest District |
| Woodland or property name | Blacklaw, Greskine, Longbedholm, Rivox and Earshaigs |
| Nearest town, village or locality | Beattock |
| OS Grid Reference | NS 029 060 |
| Local Authority | Dumfries & Galloway |

| Areas for approval | Conifer | Broadleaves |
|---|---|---|
| Clear felling | 957.25 | 9.49 |
| Restocking | 518.57 | 35.93 |

1. I apply for **Land Management Plan** approval for the property described above and in the enclosed Land Management Plan
2. I apply for an opinion under the terms of the **Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for road building** as detailed in my application
3. I confirm that the initial scoping of the plan was carried out with FC staff in 2015
4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard
5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included.
6. I confirm that agreement has been reached with all of the stakeholders over the content of the design plan and that there are no outstanding issues to be addressed. Copies of consultee endorsements of the plan are attached.
7. I undertake to obtain any permissions necessary for the implementation of the approved plan.

Signed ..... Signed .....
Forest District Manager Conservator
District: Dumfries and Borders Conservancy: South Scotland

Date: ..... **Date of Approval**: .....

**Date approval ends**: .....

UKWAS summary sheet

| Description | Percentage of forest block | Location of data |
|---|---|---|
| Restock main conifer species | 57* | Forester restock layer |
| Restock other conifer species | 11* | Forester restock layer |
| Open space | 19* | Forester restock layer |
| Mixed broadleaves | 4* | Forester restock layer |
| Managed for conservation/biodiversity (NR, MI) | 9 | Forester management layer |
| Long Term Retentions | 2 | Forester management layer |
| Natural Reserve | 1 | Forester management layer |

- * Figures as per year 2027 based on 3671 ha

EIA Determination form to be inserted once completed/received.

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# Summary of Proposals

This Land Management Plan is the review of the north block of the Forest of Ae, which has previously been part of the larger Ae Composite Forest Design Plan. There has been steady progress on the felling and restructuring programme throughout the previous design plan however the forest blocks are suffering from wind damage.

This composite plan incorporates the forest blocks of Greskine, Rivox, Longbedholm, Earshaigs and Blacklaw.

The principle factor of the plan is continued timber production and maintaining the principle species as Sitka spruce. There are areas identified as “treasured” and these are of higher importance for landscape, habitat and biodiversity where timber productivity will be of much lower importance.

The design of the Greskine Bank will be of key importance in the “treasured” area as this is the “Gateway to Scotland” and is the first close-up view of Scottish Forestry experienced by motorists on the M74 when travelling north from England.

Coupe shape for current and future felling is of key importance as this will have an impact on wind stability of both the current crop and the future forest. This plan will introduce the concept of hill top coupes and planting design with future harvesting operations in mind, rather than just replanting the existing shapes.

A key challenge of the plan is to fulfil the requirements of UK Forestry Standard and UK Woodland Assurance Scheme whilst planning practical operations that will not cause significant wind damage risk to the current rotation.

# 1.0 Introduction:

## 1.1 Setting and context

The Beattock composite Land Management Plan incorporates the five forestry blocks knowns as Greskine (841 ha), Rivox (979 ha), Longbedholm (441 ha), Earshaigs (1157 ha) and Blacklaw (254 ha), which are situated at to the north of the “Forest of Ae” These five forest blocks have a combined total area of 3672 hectares. This plan represents the second plan revision for Earshaigs and the third revision for Greskine, Rivox, Longbedholm and Blacklaw. The forest blocks are predominately first and second rotation conifer forests, which have undergone some felling and restructuring during the previous plan periods.

The Beattock composite covers an area which is predominately a large reserve of softwood timber and the majority of the crop is Sitka spruce. The softwood reserve has a high financial value however there has been significant wind blow across the blocks with the remaining crops also being susceptible to further wind damage.

The main access points to the forest blocks are off the Greenhillstairs road (Blacklaw), B7076 at Greskine, B7076 at Middlegill (Longbedholm & Rivox), Auchencastle (Longbedholm) and the Crooked Road (Earshaigs). There is a key timber access for south Earshaigs along the Annandale Link Road which join the A701 south of Beattock.

Soils range from brown earths in the low ground to ironpans, surface-water gleys and bogs in the higher ground. Exposure is an issue across much of the composite area with high wind classes indicating that tree stability is an issue. This has been demonstrated by the high levels of wind damage experienced in recent years and this is an issue that needs to be addressed.

There is informal access throughout the composite area and the Southern Upland Way passes through four out of the five blocks. Recreational use is encouraged on the National Forest Estate (NFE) and will not be restricted other than for operational safety.

All operations will be carried out to the internationally recognised forestry standard as required un the UK Woodland Assurance Scheme (UKWAS) and Forest Stewardship Council (FSC).

These forest blocks are part of the Dumfries and Borders Forest District and is certified by the Forest Stewardship Council (FSC). Certified woodlands are subject to regular audit by an independent audit body against the requirements of UKWAS. UKWAS is the independent certification standard for verifying sustainable woodland management in the UK.

## 1.2 History of the forest

The forest blocks that make up the Beattock Composite were originally planted between 1949 and 1990, with the majority of planting between 1970 and 1990. The Beattock Composite area is a mixture of first, second and third rotation crops, although the age class distribution is dominated by planting in the 1970s and 1980s.

The principle use of the forest has been timber production, there is a history of recreational use by the public, particularly in Earshaigs, and other organised events such as car rallies. The Southern Upland Way runs through part of the forest, along with several other Core Paths, a Countryside trail horse trail, and 7stanes MTB tracks.

## 1.3 Planning Context

The management of the Forestry Commission Scotland's NFE (National Forest Estate) is guided by Scottish Forestry Strategy (SFS) 2006, Strategic directions and the Forest District Strategic Plan.

Relevant issues under the SFS and Dumfries and Borders Forest District Strategic Plan Key Themes are identified in the design brief.

# 2.0 Analysis of previous plan

## 2.1 Aims of previous plan and achievements

The Ae composite plan covered a much larger area (9380 ha) too large and complex to cover all the issues relating the blocks individually. The blocks within the Beattock composite are quite different from the blocks to the south as they range from the 'treasured area' along the motorway corridor to the highly productive areas of Earshaigs and Rivox. Covering too large an area by one plan tends to over-generalise the outcome and results in dilution of some of the more localised issues relating to the individual blocks.

The Ae forest composite looked at:

- Economic – Design plan to maintain commercial productivity.
- Sustainability – continue established restricting process, with expectation that it will take two rotations to fully complete.
- Biodiversity – develop biodiversity by creating a forest that can sustain a population of red squirrels and identify and manage Ancient Woodland Sites.
- Recreation – increase opportunities for walking, cycling, riding and active sports, encourage more use of the forest by a wider range of people and improve the quality of forest visits.
- Landscape sympathy – woodland shapes relate to the landform, diversity should gradually change with elevations, upper margins should shade out scrub and gorse in open ground, and conserve character of granite hills and open summits.
- Archaeology – scheduled and unscheduled monuments will be managed following expert guidance and will be protected during all forest operations.

The above objectives were to be met through a programme of felling and restocking operations. The felling programme in the previous plans was optimistic and was subject to a number of revisions during the plan approval period due to wind damage in stands that were not scheduled for felling. The restocking programme has been carried out following the previous plans with only a few amendments to the distribution of broadleaved species and designed open space.

## 2.2 How previous plan relates to today's objectives

The previous plans made reference to the risks of windblow and acknowledged that the restructuring operations would increase the risk to remaining stands. The level of wind damage within the forest resulted in amendments to the plan in order to schedule the clearance of wind-blown

timber in preference to the felling of the more wind-firm stands. Many of the felling coupes identified in the previous plan are no longer appropriate.

The restocking programme introduced more wind-firm shapes and this is a principle that must be continued. The future crops will need to be both wind-firm and fit with the landscape, particularly in the areas of high visibility, to fulfil the objectives. The forest design under the previous management plan did not attempt to follow the landscape to reduce the impacts of wind damage or plan for the phased felling of restocked areas in the future. The new approach of introducing hill top coupes will be vital in order to improve the stability of the future forest.

Species choice needs revision as the previous plans included larches and Lodgepole pine. The Dumfries and Borders District has taken the decision that larch will not be planted for the next 10 years due to the risk of infection by phytophthora.

# 3.0 Background information

## 3.1 Physical site factors

### 3.1.1 Geology Soils and landform

The rock type beneath the forest blocks are a mixture of sandstone and mudstone, which are oriented in strips running south west to north east.

There are a range of upland soils types within the Beattock Composite plan area. The predominant soil types are Peaty Gleys along with low nutrient unflushed bogs and peats, as well as Podzols and ironspan soils. More sheltered areas include brown earths and gleys. The majority of soils are low nutrient and high moisture content, which is characteristic of upland soil types.

The landform is classed as Dumfries and Galloway Foothills, Foothills with forest and Southern upland in the Scottish Natural Heritage Landscape Character Assessment. The landform is very steep in the M74 corridor and opens out to rolling hills at higher elevation, where the majority of the forest lies. The landform ranges from medium-scale in the M74 corridor to landscape-scale at higher elevation, at the extremes of the visual range of the motorway.

### 3.1.2 Water

The forest blocks have a large number of watercourses running through them and some of these watercourses are water supplies for the neighbouring properties. The felling and restocking will be designed following the Forest and Water Guidelines and all operations will be carried out in accordance with current best practice.

Flood risk is an issue that has become very relevant over the past few years. The Scottish Environment Protection Agency (SEPA) flood risk maps for the area shows a number of watercourses which have medium to high flood risk and further downstream there are vulnerable areas such as Annan. Consideration to the water environments will be made as part of this plan.

SEPA has River Basin Management Plans (RBMP) for watercourses. The Beattock composite area is covered by the Solway Treed river basin district management plan, which was uploaded in 2015 in collaboration with the Environment Agency. The management plan seeks to achieve 273 of 321 water bodies that to good condition status by 2027. This management plan will help to address some of the issues by improving riparian zones by

removing first rotation conifers and increasing the mixture of open ground and broadleaved species. The Solway-Tweed RBMP is a high-level document covering a large geographic area however none of the water bodes in the composite area are highlighted as having water quality worse than the 'good' category.

A small area of Rivox falls within the catchment of Daer Reservoir, as noted on the constraints map. A buffer zone of at least 20 metres has been left between the White Burn and the restocked Sitka spruce in accordance with the required made by Scottish Water. Scottish Water will also be notified ahead of operations commencing within the catchment area.

### 3.1.3 Climate

The varied topography of the forest blocks is also reflected in the range of climate. The more sheltered valley which forms the M74 corridor is warm and moist, which contrasts to the cool, wet and highly exposed upper elevation area of the site, in which the majority of the forest is situated. Wind is a significant factor on the more exposed part of the site and the majority of the blocks fall in to Windthrow Hazard Class (WHC) 5 or 6. The climate map shows the Detailed Aspect Score (DAMS) for the composite area and the higher the DAMS score, generally the higher the wind risk although individual trees species and soil type further influences that actual risk.

## 3.2 Biodiversity and environmental designations

The forest blocks have a large diversity of wildlife and the previous plans sought to develop the biodiversity potential. Red squirrels are a priority species for FCS and are also included in the Local Biodiversity Action Plan (LBAP). One of the previous objectives, which is being continued in this plan is the creation of a forest for red squirrels, which will be achieved through the careful selection of suitable tree species.

The forest is also an important habitat for Black grouse (which is an FCS Priority Species), Goshawk, Owls, Nightjars, Otters and Badgers.

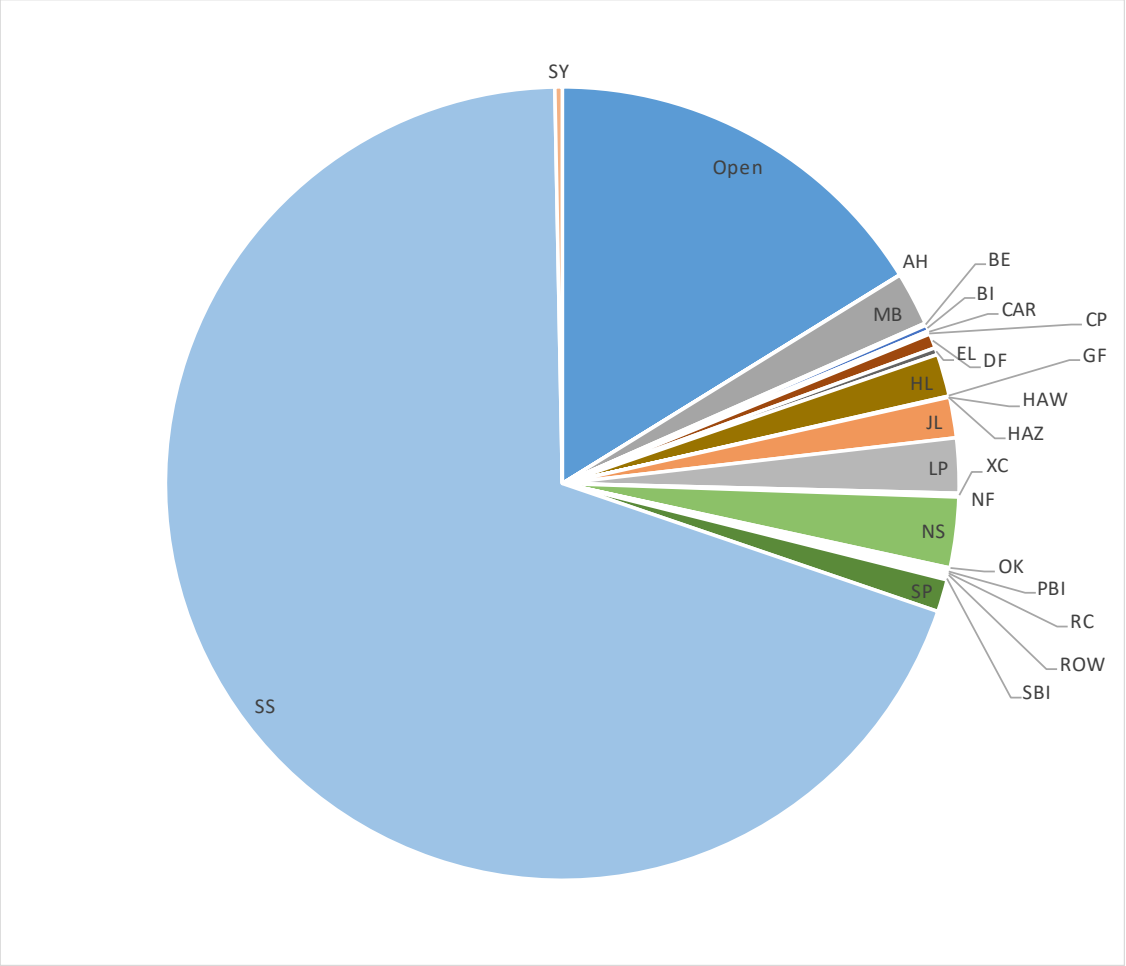
## 3.3 The existing forest:

### 3.3.1 Age structure, species and yield class

The tables below show the current species group distribution and age structure. The pie chart shows the principle species composition of the five forest blocks, with a clear dominance of Sitka spruce.

| Species Group | Area (hectares) | Proportion of total |
|---|---|---|
| Sitka spruce | 2535 | 69% |
| Other Conifers | 408 | 11% |
| Mixed Broadleaves | 126 | 3% |
| Open Ground | 602 | 16% |
| Total | 3671 | |

| Age class | Area (hectares) | Proportion of planted area |
|---|---|---|
| 0-10 | 1074 | 35% |
| 10-20 | 409 | 13% |
| 21-40 | 453 | 15% |
| 41-60 | 1070 | 35% |
| 60+ | 63 | 2% |
| Total | 3069 | |




The current distribution of age and species reflects the high level of Sitka spruce planting throughout the 1970s to 1990s. This has resulted in large parts of the forest reaching economic maturity at the same time and a large area of the forest is now ready for harvesting.

### 3.3.2 Access

The forest blocks have a very good internal road network with established links to the B7076, A701 and wider public road network. Some road upgrades and improvement work will be required for harvesting but only a few areas will require additional road infrastructure to be created, these are shown as planned roads on the Management Map.

The A701, B7076 and Greenhillstairs road are all approved timber transport routes under the Timber Transport Forum. The Dumfries & Galloway regional group has classified the Crooked road as Excluded as this road is not suitable for timber haulage. Due to the extent of the existing internal road network and the access points on to approved route, there will be no requirement for timber haulage along the Crooked road. The internal forest

road network and access points are shown on the road network and access points map.

Historically all timber from Earshaigs would have been hauled down the Crooked road, however the construction of the Annandale link road between Stiddriggs (to the south of Earshaigs) allows timber from Earshaigs and neighbouring blocks to the south, to be hauled directly to the A701. This route was implemented around the time of the wind farm in Stiddriggs and Queensberry as well as a new bridge linking Earshaigs and Rivox. This bridge allows timber from the north of Earshaigs to be hauled to the B7076 at Auchencastle, also bypassing the Crooked road.

Public access, apart from motorised vehicles, is not restricted and the public make use of the forest for recreational purposes. There is an informal parking area at Earshaigs and this is popular for recreation users. The Southern Upland Way passes through Greskine, Rivox, Longbedholm and Earshaigs along with additional Core Paths in Rivox and Earshaigs.

### 3.3.3 Low Impact Silvicultural Systems (LISS) potential

The majority of site is not suitable for LISS management due to exposure and the high risk of wind damage. The Greskine and Longbedholm blocks offer the best opportunities for LISS management where there are steeper slopes which offer more shelter. The steepest part of Greskine limits the application of LISS management due to the extremely high cost of harvesting operations.

### 3.3.4 Current and potential markets

The forest is planted primarily for commercial timber production and this is unlikely to change due to the limited species suitability for much of the area. The current markets comprise of the sawmilling and paper producers in South Scotland and Northern England. There is potential for smaller material to benefit from the increased demand for biofuel which is a developing market, again offering potential in south Scotland and northern England. There are some small opportunities for the forest blocks to offer other resources to markets outside of the timber industry, such as venison.

The Scottish and northern English timber markets have a higher demand for Sitka spruce compared to other species. This demand has been built over the past decades as a result of owners planting Sitka spruce for its high yield and an industry reacting to the availability of those logs. It will take time for sawmills to adapt to other species and species other than Sitka spruce will, for the foreseeable future, have a smaller place in the market. It is therefore commercially sensible to continue with Sitka spruce being the primary species in the composite area.

## 3.4 Landscape and land use

### 3.4.1 Landscape character and value

The landscape is varied from the very steep in the M74 corridor and opens out to rolling hills at higher elevation, where the majority of the forest lies.

Landscape Design Guidance for Forests and Woodlands in Dumfries & Galloway written by Forestry Commission, D&G council and SNH offers the following quotes and guidance.

- Woodland shapes should relate strongly to the landform, with irregular, interlocking patterns. These shapes should apply both to overall woodland form and to the patterns of species and open ground within them.

- The scale of planting should increase with elevation, with larger elements at higher elevations grading down to smaller scale on lower slopes. The proportion of planted to unplanted and the proportion of species components within woodlands should respect the 'thirds rule'.
- Diversity should gradually decrease with elevation, with more complex patterns on lower slopes. Crags, screes and rocky outcrops should remain visible within woodlands and upper margins should grade out to scrub and gorse on open ground.
- New woodlands should be designed to reflect specific site character, retaining elements of diversity and a balance with unplanted ground.

### 3.4.2 Visibility

Visibility of the site is varied, from very highly visibility on the M74 to almost invisible from anywhere outside the forest. The motorway corridor, which includes parts of Greskine, Longbedholm and Blacklaw is highly visible and an estimated 30,000 vehicles pass these blocks on the M74 each day (*Traffic Scotland.org)*. This also forms the 'Gateway to Scotland' as the forest blocks and surrounding hills are the first close up view of this type of landscape in Scotland when travelling north from England. The B719 'Greenhillstairs road' which passes Blacklaw give visibility to much of Blacklaw and across to the some of the higher elevation parts of Greskine and Longbedholm. Parts of Earshaigs and Longbedholm are visible from Beattock and some of forest is visible from the 'Crooked road' which runs west from Beattock to the southern end of the Earshaigs block. The views of the forest from the 'Crooked road' are mostly at a landscape-scale.

Other parts of the forest will be visible by recreational users and with the Southern Upland Way passing through Greskine, Rivox, Longbedholm and Earshaigs, the middle and north west parts of the forest will be visible by recreational users.

### 3.4.3 Neighbouring land use

The surrounding land to the north and west is open hill land with some livestock grazing. The land to the south of Earshaigs is forestry and forms more of the Ae forest. Greskine, Rivox and Longbedholm encircle a separate forest block which is not managed by FES. Blacklaw is bounded to the north by forest and south east by open hill ground. There are a number of farms and other properties around the edges of Earshaigs and Beattock lies 3 kilometres to the east.

## 3.5 Social factors

### 3.5.1 Recreation

Recreation is mostly informal and occurs throughout the forest. The main area for recreation is in Earshaigs, where there is an informal car parking area on the Crooked Road. The Southern Upland Way passes through Greskine, Rivox, Longbedholm and Earshaigs.

### 3.5.2 Community

The forest lies to the north and west of Beattock. There is some community interest in the forest, but this is limited to the number of people who travel to the forest for recreational purposes as it is not immediately adjacent to the village. The forest area is covered by the Moffat & District and Kirkpatrick Juxta Community Councils.

### 3.5.3 Heritage

There are currently 4 scheduled and 53 unscheduled archaeology sites within the forest area. Operations will be managed following any expert advice received and in accordance with the Forest and Archaeology Guidelines. The locations of the scheduled monuments are noted on the Management map and all monuments are shown on the concept map.

## 3.6 Statutory requirements and key external policies

United Kingdom Forest Standard (UKFS)
All operations will follow internationally recognised forestry standards in accordance with the United Kingdom Woodland Assurance Scheme (UKWAS) and Forest Stewardship Council (FSC).
Scottish Forestry Strategy
Scotland NFE and strategic directions
Dumfries and Borders FD strategic plan
Dumfries and Galloway Council Forestry and Woodland Strategy
Timber Transport Forum Agreed Routes
Scottish Power Energy Networks (SPEN)

# 4.0 Analysis and Concept

## 4.1 Analysis

### 4.1.1 Primary aims

**Productive**

- Recognise the areas contribution to income for the NFE.
- Recognise the areas contribution to the local and national timber processing sectors.
- Recognise local proximity to timber processing plants and wood fuel markets
- Recognise potential impact of timber transport and use agreed routes including the new Annandale Timber haul route.
- Forestry and timber processing creates jobs, plan to maintain productivity into the future.
- Potential for small proportion of productive broadleaves in areas that facilitate management

**Healthy**

- Opportunity to redesign the forest to better mitigate against the threat of increased wind with permanent (and independent) coupe shapes.
- Design forest to become more resilient to pressure from climate change including species diversity and structural diversity.
- Locking up carbon in peat and timber
- Water quality benefits of forestry
- Tackle invasive threats to the forest including high risk of Phytophthora
- Manage deer populations to levels to allow tree establishment.
- Climate change is increasing moisture deficit and data indicates that the site is suitable for at least one further rotation of Sitka spruce

**Treasured**

- Recognise the importance of the landscape contribution along the A74(M) corridor, essentially making a visual gateway to Scotland.
- Consider forest design to give strong and stable visual identity to Scotland's productive forest.
- The openness and remoteness of the landscape is appreciated and treasured by many.

### 4.1.2 Secondary aims

**Cared for**

- Restoration of Ancient woodland sites (shown on AWS plan).
- To help diversify and support biodiversity increasing broadleaved species would be appropriate (productive broadleaves and permanent native broadleaves)
- Open habitats to be identified and protected (Survey 2016)

- The western edge of Beattock composite is an important Black Grouse Habitat.
- The large conifer forest is a home for red squirrels.
- Identify and protect scheduled and unscheduled ancient monuments.
- Protect water quality and consider downstream users.
- Bolster natural reserves and minimal intervention riparian areas with use of long term retentions.

**Good value**

- Manage the forest with professional and competent staff and contractors.
- Manage the forest to UKFS standard and maintain UKWAS certification.
- Collaborating with neighbours/land managers including Annandale estates.
- Maintain an effective forest road network to efficiently deliver timber objectives.
- Maximise income from timber and non-timber forest products.

**Accessible**

- Develop the area surrounding the Southern Upland Way to provide a more aesthetically pleasing environment.
- Aim to maintain open access throughout the forest on waymarked routes, core paths, countryside trails and informal routes.
- The development of the LMP should cross reference the Ae Master Planning exercise.

## 4.2 Design Concept

| Theme / Analysis (see section 4.1) | Design Concept |
|---|---|
| **Productive** Large area suited to high yielding productive forestry | Plant fast growing species for timber production, Sitka spruce will remain the largest component.<br><br>Recognising that wind is a key limiting factor on rotation length and designing layout and rotation length to avoid windblow where possible. Limit thinning to the very best sites.<br><br>Plan rotation lengths and felling age to maximise return. Design the future forest (the restock) to maximise the financial return whilst working within UKFS. |
| **Healthy** Exposed non thin area heavily affected by windblow in the first rotation. | Plan resilient coupe shapes that can be managed independently into the future. Ensure resilient edges.<br><br>Use ESC to plan the right species for the right site.<br>Increase species diversity where it helps meet multiple management objectives. |
| **Treasured** Highly visibly sensitive lower slopes adjacent to the motorway and railway. | Create an aesthetically pleasing landscape along the A74(M) corridor, "Gateway to Scotland".<br><br>Consult with community and stakeholders during development of the plan and beyond.<br><br>Create habitat for red squirrels. |
| **Cared for** Some existing native woodlands around riparian zones with great potential to develop permanent habitat networks | Increase the NBL to 5% in line with UKFS.<br><br>Restore ASNW.<br><br>Create Natural Reserves of 1% of conifer woodland.<br><br>Design the forest to support Black Grouse and Red Squirrels.<br><br>Identify and protect heritage features. |
| **Good value** | Plan effective timber transport routes for extraction from the future forest. |
| **Accessible** Southern Upland Way passes through remote area of forest. | Design the forest to best support and enhance the various public access routes leading throughout the forest including the Southern Upland Way. |

## 4.3 Potential tree species and structure

| Tree species | Current forest species % | Potential future forest % | Reason for proposed change |
|---|---|---|---|
| Sitka spruce | 62 | 56 | Diversification to increase resistance to the effects of climate change, pests and disease. |
| Permanent open space | 20 | >10 | Permanent open space must be a minimum of 10 % to meet UKFS |
| Mixed broadleaves | 2.3 | >5 | Improves the landscape through variety in colour and shapes. 1% productive. |
| Norway spruce | 2 | 4 | Adds diversity while still producing a valuable timber |
| Douglas fir | 0.6 | 1 | Adds diversity while still producing a valuable timber |
| Western Red Cedar | 0 | >0.5 | Adds diversity while still producing a valuable timber |
| Larch | 3 | 4 | Adds diversity while still producing a valuable timber<br><br>FCS and Dumfries and Borders Forest District current policy, larch species will not be planted for the first 10 years of the land management plan due to the current risk from Phytopthora. |

# 5.0 Land Management Plan Proposals

## 5.1 General prescriptions

Section 5.1 covers the prescriptions and issues that affect the whole composite area. Individual block prescriptions are detailed in sections 5.2 to 5.6.

### 5.1.1 Management Types

**Low Impact Silvicultural Systems (LISS)**
Much of the composite area is unsuitable for LISS management due to higher levels of exposure and poorer soil types. Areas, particularly along the northern section of the motorway corridor in Greskine, are suitable for LISS in terms of soils and climate, however the steepness of the ground, high voltage powerline and the cost of undertaking forestry operations in this area prevent the implementation of LISS management.

LISS management will help to increase the diversity of the woodland blocks both in terms of species distribution and age class. The trees in the LISS area are semi-mature and a continued thinning cycle will continue to develop the crowns of the retained trees as well as open up opportunities for young trees to grow and develop.

Additional areas for LISS management will be possible in the future following restructuring of the first rotation. Species choice in key areas, such as the motorway corridor will be important to enable the future selection of LISS coupes.

**Clearfelling (CF)**
The vast majority of the composite area will be managed through phased clearfelling. This is key to the principle management aim of timber production within the forest blocks which are mostly planted with fast-growing coniferous species. The age class structure will be broken up through scheduled coupe clear felling with the principle aim of either 5 years between adjacent coupes or 2 metres of height growth. Restocking can be delayed in order to allow adjacent crops to reach 2 metres.

Clearfelling coupe size and shape will be in proportion to the landscape as far as possible with large scale coupes in the larger-scale parts of the forests with the coupe edges following the landform, and smaller coupes in the lower valley.

The significant levels of wind damage across the composite area will have an on-going impact on the implementation of the clearfelling schedule, and

in some places coupe separation will be a challenge. In these areas (shown on the coupe adjacency map), some coupes will have to be felled prior to the 2 metres (5 years) growth to avoid significant wind damage. Where separation cannot be achieved through phased felling, we will adjust the restock years accordingly, which over the next rotation will provide the separation recommended in the UKFS. Allowing vulnerable stands to knowingly blow is not a sensible management decision as timber value is lost, operational costs are higher and harvesting wind-blown stands is a higher risk operation for forestry workers. This is particularly relevant where coupes have suffered significant wind damage and have to be cleared to prevent the loss of timber quality.

Where possible, coupes have been designed to follow resilient shapes, so that the impact of harvesting on remaining coupes will be reduced. Where this is not possible (as detailed above), restocking will introduce these resilient shapes so that one large coupe now becomes several smaller and wind-firm coupes in the next rotation. This concept is explained in section 5.1.3.

**Long term retention (LTR)**
Areas have been identified where older crops can be kept for longer than the usual rotation length. These areas have been selected due to the improved tree stability which is a result of a more sheltered climatic area and/or better soils. LTRs allow for increased coupe separation and offers benefits for biodiversity and landscape where there has been large-scale felling.

**Natural Reserve (NR)** areas have been identified at the district level in order to give 1% natural reserves in plantation conifers across the whole Dumfries and Borders district. These areas are identified where nature conservation and biodiversity are the highest priority and there will be no requirement for management intervention.

**Minimum Intervention (MI)**
These are to be left to develop in a similar way to the natural reserves however they are of a lower priority conservation areas and some management will be permitted. Typically, these areas are in riparian zones with native species but they will require some form of active management to enhance their value, such as additional planting or removal of exotic conifer species to develop the habitat network.

**Open / other**
Designed open space within the forest is a very important part of the overall restructuring design. Areas such as hill tops which offer biodiversity benefits and landscape enhancement have been previously identified and felled and will be maintained. The shape of open space will need to follow the landform and where natural regeneration of exotic coniferous species has occurred, this can be removed if it is impacting on the benefits of open space.

Removal of such trees is most sensible once individuals have established as browsing pressure may offer a natural control mechanism. This will be done when more than 25% of regeneration reaches 2 metres in height. Some areas, such as along the high voltage powerline, will require routine tree clearance to maintain a clear corridor for non-forestry purposes.

The use of **open** ground habitats between coupes is essential to allow crop edges to develop resilience against exposure so that they are not susceptible when a neighbouring crop is felled in the future.

### 5.1.2 Future habitats and species

The vast majority of the Beattock composite area will be planted with productive conifers species to continue commercial forestry. Although the principle aim is to maintain softwood production, with the primary species being Sitka spruce, there will be an increase of species diversity across the forest blocks with the proportion reducing to *57%* in 2027 of the total area (down from 69% currently).

Native woodland habitats are designed throughout the woodland and this is a practice that has continued from the previous land management plan.

The choice of species depends largely on the species suitability to the site and the Ecological Site Classification (ESC) has been used to inform the choices made. It should be noted that ESC is a tool used for modelling the predicted suitability of a species based on soil type and climatic data and does not take management targets or other factors, such as landscape into account.

Management objectives have identified the motorway corridor and the Crooked road as ‘treasured’ area. These areas have been prioritised for diverse conifer species whereas the higher, more exposed areas which occupy the larger-scale landscape have been priorities for productive Sitka spruce.

In accordance with FCS and Dumfries and Borders Forest District current policy, larch species will not be planted for the first 10 years of the land management plan due to the current risk from Phytopthora. This is unfortunate for landscaping as larch give a diverse range of autumn colours. Larch species have been included from years 11-50 but the implementation of this is dependent on review of the disease and risks in the future.

Similarly, the spread of Dothistroma may effect Lodgepole pine and Scots pine. Lodgepole pine can still be planted, but only as a nurse for Sitka spruce on sites with deep peat, Scots pine can be planted so long as the stock is clear of Dothistroma.

| See climate map for zones within Beattock composite area | | | | Sheltered, moist and warm | Moderately exposed, moist and cool | Moderately exposed, wet and cool | Highly or severely exposed, wet and cool |
|---|---|---|---|---|---|---|---|
| Climate zone (on map) | | | | A | B | C | D |
| AT5 | | | | > 1200 | 600 – 1200 | 600 - 1200 | 600 – 1200 |
| MD | | | | 90 - 120 | 90 - 120 | < 90 | < 90 |
| DAMS | | | | < 13 | 13 - 16 | 13 - 16 | > 16 |
| | | SMR | SNR | e.g Motorway corridor | Either side of the Crooked road, east Earshaigs | Central Earshaigs, Rivox Greskine, and longbedholm | West Earshaigs, Rivox and Greskine |
| 1 | Brown | 5 | 3 | SP, NS, DF, WRC, WH, NF, [EL, JL] | NS, RC, WH, NF | | |
| 3 | Ironpan | 6 | 1 | | SS, SP, RC, [JL] | NF, SS, RC | SP, (SS), [JL] |
| 4 | Podzol | 5 | 1 | SP, NS, WRC, WH, NF, [EL, JL] | RC, SP, SB, [JL] | RC, SB, SS, [EL, JL] | SP, (SS), [JL] |
| 7 | Surface water gley | 3.5 | 3 | SP, NS, (DF on drier sites) WRC, WH, NF, [EL, JL] | NS, SS | NS, SS | SS |
| 8 | Juncus bog | 2.5 | 3 | RC, (SS) | | SS | SS |
| 9 | Molina or flushed blanket box | 2.5 | 2 | RC (SS) | | SS, RC, SP, [JL, EL] | SS |
| 10 | Sphagnum bog | 2.5 | 1.5 | SS | | SS | SS |
| 11 | Blanket bog | 3.5 | 1.5 | | SS/LP* | | |

[] = From year 11 onwards
() = lower preference species
* LP is nurse species only

In order to deliver a diverse forest for the future, a range of species other than the core of Sitka spruce will be planted where site conditions allow and productivity is good. The table above has used the ESC as a guide to the species that could be used instead of Sitka spruce, based on the estimated >60% suitability (i.e. species is very suitable to site). Limiting factors in the central and western parts of the composite area mean that Sitka spruce will remain as the dominant species. Most diversity will be focused on the 'treasured' areas of the motorway corridor and the Crooked road, which are also the areas with lower exposure and comparably better soils.

The key principle species are:

DF Limited suitability but potential for planting on the slopes in Longbedholm, Greskine and Blacklaw where suitability is the highest.

NS Important species as an alternative to Sitka spruce and suitability is mainly limited by wind exposure. Opportunities to plan across

| | |
|---|---|
| | the composite area on intermediate sites. The ESC model suggests a far more restricted range that has been shown by previous experience so DAMS will be the key indicator for the species. |
| WRC | Suitable in parts of the composite area as it can tolerate wetter soils and higher levels of exposure. |
| NF | Suitable across much of the composite area and a useful alternative to Sitka spruce for timber production although timber quality is lower so extent will be limited. |
| WH | Suitable across the east and central parts of the composite area and offers diversity to spruce or pine. |
| SP | Alternative species where other conifers are less suitable. Limited in extent due to lower productivity. |
| SS | Planted to maintain a high-level of timber production and where other species are far less suitable. Suitability in the central and western parts of the composite area is far higher than other species. |
| Larch | Good alternative species to SS and it can tolerate wetter soils. Included in future forest design from year 11 in accordance with the current practice of the Dumfries and Borders District |

Suitability of the species is likely to be maintained for the next rotation despite the predicted changes to climate. Damage to stands caused by severe weather is likely to change in the future, particularly an increase of extreme winds, and the design of the forest has been focused on matching the best species to the sites in order to meet the management objectives and also to design a resilient forest through the early planning of future coupe design.

Design of hill top coupes is important for the future reliance of the forest to extreme winds that are likely to continue and potentially increase in severity in the future. The design of the hill top coupes works with the landscape to give a more organic shape to the woodland and increase the width of rides between the coupes. The coupe design gives the future coupe shape and the gaps between will result in a more wind-firm edge being created around each coupe. This means that future phased felling will have a lower impact on the forest as the removal of one coupe will not adversely increase the exposure of the remaining coupes to wind damage and coupes can be felled independently.

Broadleaves will be planted for biodiversity, landscape and environmental benefits. The opportunities for productive broadleaves are limited as the areas that are more suited tend to be the more difficult site to conduct forestry operations. There will be some areas of productive broadleaves however these are limited to the sheltered area along the motorway corridor in Longbedholm and Greskine.

Native broadleaved species will be chosen based on their site suitability which depends on soils and climate, as well as management objectives. The area of native broadleaved woodland will be increased to a minimum of 6% net by the end of 2037 across the Beattock composite area as a whole. These habitats will typically follow the riparian corridors with a mixture of native mixed broadleaved woodland and open ground.

Any areas identified as mixed broadleaves in the previous plan which is lacking density will be brought up to specification by 2020.

| Site | Management objectives | Species |
|---|---|---|
| Peaty, ironpan and gleyed soils with higher exposure | Riparian<br>Black grouse<br>Red squirrels | Downy birch<br>Willow<br>Alder<br>Rowan<br>Hawthorn |
| Better soils with lower exposure | Riparian woodland<br>Red squirrels | Sliver birch<br>Rowan<br>Hazel<br>Willow<br>Hawthorn<br>Alders<br>Oak<br>Aspen |

### 5.1.3 Restructuring

The composite as is currently a mixture of first and second rotation crops which have mostly been planted over the past 50 – 60 years. The restructuring process is a way of moving from the monoculture homogenous forest block which covers the landscape to a structurally diverse forest, both in species and age. This also gives the opportunity to identify and retain crops that have wider benefits beyond timber and create habitat networks for the future. Past mistakes in planting and species selection can be corrected through the restructuring process in order to better meet multi-benefit management objectives.

The restructuring process across the composite has its challenges, particularly in the more exposed areas of the blocks. Past planting and restocking has not been sympathetic to the landscape and generally felling and restocking coupes have not been spaced out sufficiently to give wind-firm edges. Large parts of the forest blocks are similar age and this will have a significant impact on the coupe separation process. Recent clear felling operations in Rivox have shown that neighbouring blocks are very susceptible to wind damage when clearfelling occurs and this is generally

forcing felling of larger areas than are ideal in order to reduce the impact of wind damage. Much of the composite area is at, or reaching economic maturity, these areas are susceptible to wind damage and felling operations will only increase this risk. Larger felling and restocking coupes will fit well in the landscape so this will help to reduce the overall risk of wind damage.

Due to the potential instability of some of the remaining stands due to windblow, it will not be possible to retain a number of coupes until the adjacent restocked coupes have reached 2 metres of height. Where it is not possible to meet the 2 metre (5 year) separation at felling, this will be imposed at restocking which in the medium term will give the separation recommended in the UKFS. The coupe adjacency map highlights those coupes where separation issues have been addressed by adjusting the restock year accordingly, thus creating the desired restructuring in the next rotation.

The motorway corridor offers a far more sheltered area with more diversity of species and opportunities. This area will be managed through a range of management types as previously discussed and restocking will be increasingly diverse.

### 5.1.4 Operational Access

There are 4 main road access points what serve the western blocks of the composite area, which are shown on the management map and these link the internal forest road network to the B7076, which is an approved route for timber haulage. In additional, the Annandale link road gives direct access between the A701 and the internal forest road network through Stiddriggs, which lies to the south of Earshaigs. This allows timber from Earshaigs to be taken south to the public road network rather than having to go through the northern blocks of Rivox and Longbedholm. The recent improvements to the internal road network mean that no timber will be taken down the Crooked Road, which is unsuitable to timber haulage. The access points for timber haulage and the internal road network are shown on the road network and Access Points map.

Blacklaw is a separate forest blocks and is served by a single forest road. The access at the north of the block opens to the Greenhillstairs road, which is an approved route for timber transport, is the only point for timber extraction. There is no road construction planned within Blacklaw as part of the FDP approval.

The composite area has a good existing road network, however a number of short extensions are required to reach out-lying coupes in order to keep a off-road timber extraction by forwarder to an economic maximum of approximately 1000 metres. The proposed roads required in the next 10 years are shown on the management map. These proposed roads avoid any

significant environmental impact on landscape, habitat, heritage and water and have been designed with the assistance of the Forestry Commission Civil Engineers.

There are a number of active quarry sites and these are also marked on the management map. The plan is to continue to utilise these sites for the planned road construction but all marked quarries will remain below 1 hectare in size. Any tree felling that is required for quarry operations forms part of the LMP approval.

### 5.1.5 Thinning Plans

Thinning will be implemented on commercial crops where there is a silvicultural benefit to the crop to improve timber quality or there is a need to help deliver wider management objectives. Although it is presumed that all crops will be thinned, there are limitations on operations as a result of soils and wind exposure. Generally thinning will be on a 5-year cycle and only be undertaken on mineral soils with a DAMS of less than 17.

### 5.1.6 Species distribution and age class

The species mixture across the composite area will reduce the dominance of Sitka spruce, in accordance with UKFS and UKWAS requirements and the design brief. This will reduce to 57% at the end of the 10 years of the LMP and is projected to reduce slightly further at the end of 20 years. The proportion of broadleaves and open ground will increase, although there should be a limit on the amount of open ground in future LMPs to avoid an overall reduction of planted area.

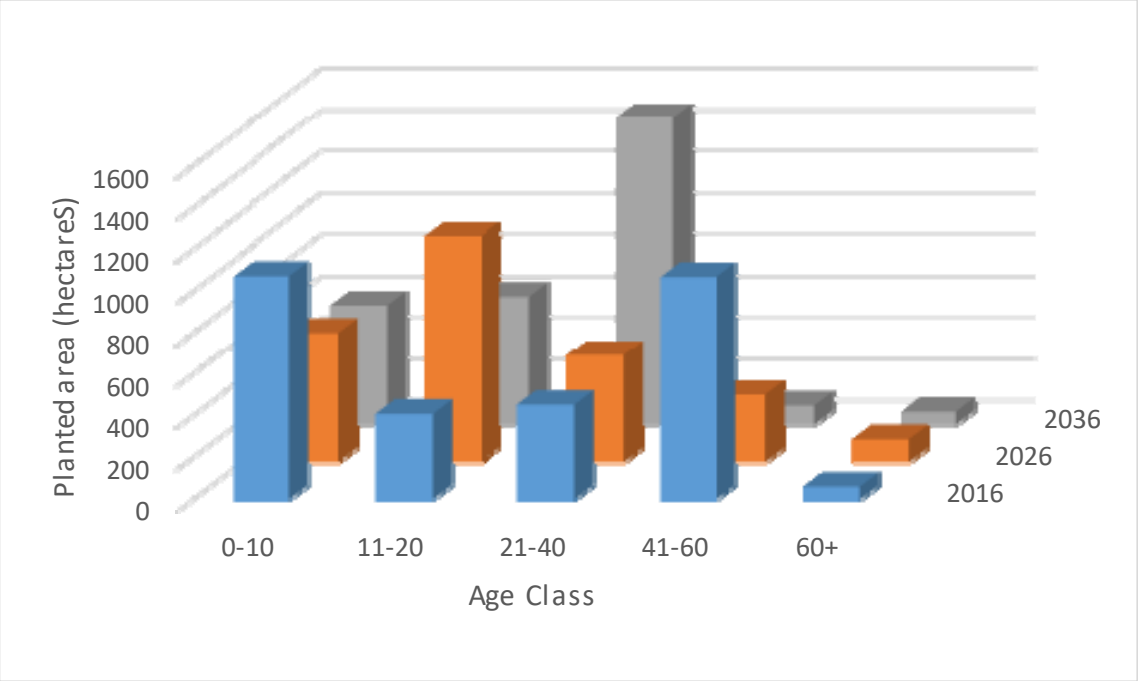
Species distribution for each block are shown in section 5.2 to 5.6 below.

| Species Group | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| Sitka spruce | 2109 | 57% | 2129 | 58% |
| Other Conifers | 402 | 11% | 494 | 13% |
| Mixed Broadleaves | 153 | 4% | 222 | 6% |
| Open Ground | 697 | 19% | 743 | 20% |
| Fallow | 314 | 9% | 88 | 2% |
| Total | 3671 | | 3671 | |

The age class districting of the forest at year 10 will be weighted more heavily in the lower age classes, mostly due to the large areas that are being felled at a similar time as a result of the age of the current crop. This distribution is expected to balance out across the younger three classes at year 20.

| Age Class | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| 0 - 10 | 625 | 23% | 579 | 20% |
| 11 – 20 | 1088 | 41% | 621 | 22% |
| 21 – 40 | 515 | 19% | 1481 | 52% |
| 41 – 60 | 324 | 12% | 94 | 3% |
| 60 + | 111 | 4% | 65 | 2% |
| Total (planted) | 2661 | | 2841 | |

The graph below shows the age class distribution at 2017, 2027 and 2037.




### 5.1.7 PAWS restoration

There are four areas identified on the Ancient Woodland Inventory as Ancient of Semi-Natural origin (ASNO). Previous management plans have identified these as areas for restructuring with broadleaves and this has been carried forward in to this plan. One of the natural reserves in north Greskine includes an area of ASNO woodland and the district has decided to maintain the current tree cover rather than fell and restock this stand. This will be less damaging to any longer-established flora and fauna compared to felling this coupe.

### 5.1.8 Management of open land

Open ground within the composite area is mostly used for splitting the coupes in to resilient shapes for future crop stability and modifying the edge so that it fits that landscape rather than the geometric legal boundary. The intimate mixture of broadleaves and open ground will give an important habitat network, particularly along watercourses. Other areas will give improved habitat for black grouse such as the coupes in the south west of Rivox.

Areas where open ground have been increased, which has resulted in a loss of planted ground are on the western edge of Rivox, tops of hills in Earshaigs and the high elevation outer edge of Greskine. The rationale behind this is: growth rates are low in these areas, particularly in the lower and wetter areas (Rivox) and the quality of timber is very poor; wind susceptibility is high and opening up of future coupes allows increased stability for successive crops; re-design the forest edge to follow a more natural shape rather than the geometric legal boundary.

Black grouse habitat has been implemented along the western edge of Rivox and Earshaigs where the topography offers shelter for a more diverse range of tree species. This habitat has been created through a mixture of open ground, diverse conifer and mixed broadleaved planting; this approach will be continued in the neighbouring coupes where there is sufficient shelter for more diverse tree species to establish. This area has been chosen as it is within 1 km of a known lek site. Mixed broadleaves of birch and willow will be planted along with rowan, hawthorn, blackthorn and some juniper. From year 11, planned larch restocking will be of benefit in the future as grouse favour the buds in spring.

Opening up the moth of riparian systems and valleys can also encourage grouse to forage deeper into the forest and this can be achieved through the lower density planting of broadleaves (50% with open ground) along the riparian zones.

### 5.1.9 Deer Management

The deer management for the five forest blocks are covered by the Ae main block Deer Management Unit (DMU), which includes as further 8 forest blocks.

Deer Management is currently being undertaken through a short term contract in Greskine; Rivox and Blacklaw are let as Deer Management Permissions to recreational stalkers; and Earshaigs and Longbedholm are managed by the FES Wildlife Rangers.

Key
The Key Targets for deer control are:

- less than 10% leader browsing damage by deer on all P1 to P5 year coupes.
- no more than 25% of coupes to have more than 10% browsing impact to leading shoot.
- ensure Stocking Density targets of 2,500 trees per ha are met.
- additional conservation, riparian zone and continuous cover forestry related targets to meet across all forest blocks.

Currently the three-year average impacts recorded on P1 restock area within the DMU is <10% so the management objectives are being met for the whole DMU.

With deer management objective currently being met, additional protection is not currently required. However, as the proportion of broadleaves and vulnerable conifer species increases further measures may be required. Tubing of broadleaved trees remains an option as these are more susceptible to deer damage. Deer fencing is not an economic option across much of the composite area due to the size and complexity of the coupes as

well as the varied topography. However, it may be used around the areas of productive broadleaves in Longbedholm and Blacklaw if the deer population poses a large enough risk to successful establishment.

### 5.1.10 Public Access

The Southern Upland Way runs through all the forest blocks (except Blacklaw) and the planting design has maintained open space along the route for recreation use. Any long-term impact on the Southern Upland Way as a result of planned forest operations will be discussed with the Dumfries and Galloway Access Officer so that any closures and/or diversions can be implemented as required.

There are several core paths that run through the composite area, including the Southern Upland Way and Annandale Way. The area around the Crooked Road experiences the highest informal use due to the relative ease of access and opportunities for car parking. Forest entrances will be kept tidy to allow for car parking and all appropriate signage will be used on operational sites to warn the public of forest operations.

Public access is encouraged across the NFE and this is managed under the Scottish Outdoor Access Code.

### 5.1.11 Heritage Features

There are two scheduled ancient monuments within the composite area and a number in close proximity. There are no clear fell operations planned in that will affect these sites after 2030.

A number of unscheduled sites across the composite area. These areas will be protected during forest operations. Any new sites that are found will be mapped, recorded and protected from operations. Information will also be passed to the Dumfries and Galloway Council archaeologist.

### 5.1.12 Flooding

There are some potentially vulnerable areas to flooding downstream e.g. Annan. Restructuring of the Beattock composite forest is progressing well and will soon become a normalized forest and as such felling will have a very low impact on the downstream flooding particularly given that the river catchment area above the risk flood areas is so large. Also all operations will be managed to the UK forest standard and this includes increasingly using streamside buffers to help manage the water and slow the flow of water off the forest.

## 5.2 Greskine Forest Design Plan

The management coupe types are diverse within Greskine with every type used.

**Clearfelling** will be carried out in the higher altitude and more exposed areas where wind is the critical factor. There are limited opportunities to diversify the management type for the commercial crops as the exposure and soil type has a significant effect on crop stability. Coupe size and shape is larger for clearfelling as the forest is at the landscape scale. Coupes attempt to follow the landform to reduce the visual impact although past management and wind damage has altered the shape of coupes from the ideal, particularly on the western edge which has limited shelter from the winds from the west.

**Natural reserves** have been identified in two areas on the Greskine Bank. The lower reserve is highly visible from the motorway corridor and will form an important habitat network in the future. The upper reserve is less visible but will offer continued tree cover in the higher elevation parts of the site where the surrounding coupes are manged through clearfelling.

The Greskine bank, which is a prominent view from the motorway corridor has a mixture of management types. The commercial conifer crops will be managed by **clearfelling** whereas the streamsides and open areas will be managed on a **minimal intervention** basis. The clearfelling choice has been made over LISS due to the high cost of operations on such as steep area of ground and the trees are in an untidy state due to past wind damage. Although the area has a high number of access roads, these are not all up to specification for harvesting operations and there would be significant cost additional cost to upgrade and maintain them for continued use through LISS operations for a relatively small area and potentially low income. Future species on the Greskine Bank will be broadleaves and these will be managed on a minimal intervention basis. This change is planned over a number of felling phases so there is a gradual change of species in small coupes so that there is not a harsh impact on the landscape.

The high voltage power line corridor, which will be increased to 70 metres in width (35 metres either side of the line) and the gas pipeline corridor are to be managed as **open** ground with no tree species being permitted within the corridor. Active management will be required to remove self-seeded trees in accordance with the agreements covering the utility infrastructure. Other open ground areas will be identified to enhance habitat, improve the stability of future crops and assist the design on the forest to fit in to the landscape with a more sympathetic approach.

Species group and age class distribution of Greskine at 2027 and 2037 (indicative only)

| Species Group | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| Sitka spruce | 435 | 52% | 460 | 55% |
| Other Conifers | 71 | 8% | 107 | 13% |
| Mixed Broadleaves | 48 | 6% | 72 | 9% |
| Open Ground & Fallow | 288 | 34% | 202 | 24% |
| Total | 842 | | | |

| Age Class | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| 0 - 10 | 130 | 23% | 153 | 24% |
| 11 – 20 | 264 | 48% | 129 | 20% |
| 21 – 40 | 98 | 18% | 307 | 48% |
| 41 – 60 | 42 | 8% | 38 | 6% |
| 60 + | 20 | 4% | 12 | 2% |
| Total (planted) | 554 | | 640 | |

## 5.3 Rivox Forest Design Plan

The majority of Rivox will be managed using the **clearfelling** management type. Rivox occupies the central upper region of the Beattock composite area and has suffered high levels of wind damage in the recent past. Parts of the block have already been felled and restocked however previous clearfelling coupes have resulted in exposed edges of remaining crops being highly susceptible to wind damage. These remaining coupes are being significantly damaged by the wind and coupe separation following UKFS is not possible so the approach in section 5.1.3 will be applied.

Two areas of **natural reserve** have been identified, these will be retained in perpetuity and allowed to naturally develop to enhance the biodiversity value of the forest block.

**Minimal intervention** area follow the streamsides between clearfell areas to maintain a habitat network and allow some more ‘natural’ development of the stream edges. These will also create a link between the open hill and the ‘treasured’ motorway corridor.

The design of the restocking coupes is critical for future felling operations as wind-firm coupe design that follows the landform is essential to prevent a

repeat of the current issues when phased felling for subsequent rotations is implemented.

Species group and age class distribution of Rivox at 2027 and 2037 (indicative only)

| Species Group | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| Sitka spruce | 710 | 73% | 672 | 69% |
| Other Conifers | 59 | 6% | 77 | 8% |
| Mixed Broadleaves | 21 | 2% | 22 | 2% |
| Open Ground & Fallow | 189 | 20% | 209 | 21% |
| Total | 979 | | 979 | |

| Age Class | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| 0 - 10 | 134 | 17% | 88 | 11% |
| 11 – 20 | 382 | 48% | 135 | 18% |
| 21 – 40 | 145 | 18% | 531 | 69% |
| 41 – 60 | 84 | 11% | 0 | 0% |
| 60 + | 44 | 6% | 17 | 2% |
| Total (planted) | 790 | | 770 | |

## 5.4 Longbedholm Design Plan

The Longbedholm block is similar to the Greskine block as it has a mixture of coupe types as it has a mixture of landform and high value land along the motorway corridor.

The higher elevation, more exposed but less visible areas will be managed on a **clearfelling** basis. Much of the current rotation has already been felled and there are only a few coupes that are still to be harvested. The steeply sloped ground facing the motorway corridor has some areas of clearfelling identified where it will not be possible for this rotation to be managed by any other management type without the risk of significant damage from wind. Streamsides and broadleaves areas from previous restocking operations will be manged using the minimal interventions management type to allow habitat networks to develop and improve the biodiversity value.

Areas of Longbedholm that have been previously clearfelled that are adjacent to the proposed phase 1 felling coupes were restocked in 2015. The proposed phase 1 felling is not scheduled for another 4 years, therefore there will be a sufficient age gap ahead of felling the next coupes in compliance with UKFS.

The area to the south east of Longbedholm, which surrounds the northern side of the hotel, has a diverse mixture of conifer and broadleaved species which were planted in the early half of the last century. The subcompartments closest to the motorway are to be managed using **LISS** to maintain the tree cover and these are mainly conifer species with some elements of broadleaves where soils and climatic shelter are suitable for this management approach.

The other side of the area will be managed by **minimal intervention**. This management type has been chosen as these subcompartments are mostly broadleaved species and the limited management will allow the trees to develop into a more natural habitat.

Species group and age class distribution of Longbedholm at 2027 and 2037 (indicative only)

| Species Group | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| Sitka spruce | 207 | 47% | 212 | 48% |
| Other Conifers | 82 | 19% | 78 | 18% |
| Mixed Broadleaves | 35 | 8% | 62 | 14% |
| Open Ground & Fallow | 116 | 26% | 89 | 20% |
| Total | 441 | | 441 | |

| Age Class | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| 0 - 10 | 18 | 6% | 70 | 20% |
| 11 – 20 | 130 | 40% | 18 | 5% |
| 21 – 40 | 119 | 37% | 183 | 52% |
| 41 – 60 | 14 | 4% | 54 | 15% |
| 60 + | 44 | 14% | 28 | 8% |
| Total (planted) | 325 | | 352 | |

## 5.5 Earshaigs Forest Design Plan

The Earshaigs block is similar to the Rivox block, generally occupying higher elevation and high exposure areas. The majority of the block will be managed following the **clearfelling** management type as the predominant land use is commercial forestry and the crops are either suffering, or at risk from wind damage. The west Earshaigs area has suffered a high degree of wind damage and the large felling coupes are required in order to efficiently fell the trees without loss of timber through harvesting-induced wind damage. Future forest coupes will be smaller and allow better phasing of felling at the end on the next rotation. The phasing of these felling coupes has attempted to follow the age and height guidelines of the UKFS however the risk by wind damage has meant that this will not always be achievable and this is identified on the coupe adjacency map. The age structure of Earshaigs is beginning to be diversified through phased felling with some areas having already been felled. Compartments in the southern part of the block are slightly younger to mid-rotation so these have been identified for felling in phases three (2026 – 2030) and four (2031-2035) which further breaks up the age structure of the forest. This is particularly important where the Crooked road passes through the forest as this has been identified as a ‘treasured’ area and the landscape value of the forest is higher.

The restocking of coupe 23089 has been delayed as part of the Harestanes Windfarm planning approval for short-eared owl habitat loss mitigation, with this coupe scheduled for restock in 2021. This has resulted in a knock-on effect with the neighbouring coupes as these will not be felled or restocked following the separation requirements. The two neighbouring coupes 23081 and 23074 are both scheduled for felling in phase two to avoid separation issues and to retain stands of older trees in the area.

Areas that follow streamsides or where broadleaves have been planted following previous management felling are to be managed as permanent native woodland under minimal intervention to allow these areas to develop habitat networks and diversity; again some of these areas are within the ‘treasured’ area along the Crooked road.

Species group and age class distribution of Earshaigs at 2027 and 2037 (indicative only)

| Species Group | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| Sitka spruce | 601 | 52% | 629 | 54% |
| Other Conifers | 153 | 13% | 195 | 17% |
| Mixed Broadleaves | 41 | 4% | 57 | 5% |
| Open Ground & Fallow | 362 | 13% | 276 | 24% |
| Total | 1157 | | 1157 | |

| Age Class | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| 0 - 10 | 285 | 36% | 269 | 30% |
| 11 – 20 | 232 | 29% | 282 | 32% |
| 21 – 40 | 95 | 12% | 323 | 37% |
| 41 – 60 | 182 | 23% | 2 | 0% |
| 60 + | 1 | 0% | 6 | 1% |
| Total (planted) | 795 | | 881 | |

## 5.6 Blacklaw Forest Design Plan

The Blacklaw block is comparably small however it has similar diversity to the Greskine and Longbedholm blocks. There has been a number of clearfelling operations in the past which has felled much of the block and there are only four **clearfelling** coupes to be felled. All the clearfelling coupes are on the higher elevation ground where wind damage is the critical factor. The landscape is medium to large and medium to larger felling coupes are approximate.

The two coupes 43005 and 43006 will be felled in relatively quick succession due to the ongoing wind risk. Whilst this will have no adverse effect on the landscape, restocking will be staggered to meet the recommendations of the UKFS.

**Minimal intervention** areas have been identified following previous restocking which follow the streamsides and areas of broadleaves, in accordance with the management of the other blocks.

One **natural reserve** at the southern tip of the block has been identified and this has an old block of Scots pine and surrounding open ground. This

area will be left to develop naturally and it will hopefully develop in to a 'natural' looking edge of the woodland with high biodiversity and landscape value.

Species group and age class distribution of Blacklaw at 2027 and 2037 (indicative only)

| Species Group | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| Sitka spruce | 154 | 61% | 154 | 61% |
| Other Conifers | 36 | 14% | 36 | 14% |
| Mixed Broadleaves | 8 | 3% | 8 | 3% |
| Open Ground & Fallow | 55 | 22% | 55 | 22% |
| Total | 252 | | 252 | |

| Age Class | Area in 2027 (hectares) | Proportion of total | Indicative area in 2037 (hectares) | Proportion of total |
|---|---|---|---|---|
| 0 - 10 | 58 | 29% | 0 | 0% |
| 11 – 20 | 79 | 40% | 58 | 29% |
| 21 – 40 | 58 | 29% | 138 | 70% |
| 41 – 60 | 1 | 1% | 0 | 0% |
| 60 + | 1 | 0% | 2 | 1% |
| Total (planted) | 197 | | 197 | |

## 5.7 Critical success factors

Main critical success factors for plan development are:

- Resilient coupe shapes
- Redesign of Greskine Bank
- Maintained timber production
- Successful Deer management
- Diversification of species and structure in the Treasured areas

# Appendix I: Land Management Plan Consultation

## Consultation Methods

Consultation with Statutory bodies was carried out by correspondence only and is an ongoing process. The record below reflects the responses received to the 30th September 2015.

A public consultation meeting was held on 24th August 2015 at Beattock Village Hall between 2pm and 7pm. This gave an opportunity for the community to view and make comments on the proposals in an informal 'drop in' environment. On display were the FDP design plan brief and a map showing the forest blocks on an aerial photograph.

On-going consultation is also via the FCS website at http://scotland.forestry.gov.uk/managing/plans-and-strategies/land-management-plans/1212-beattock-composite

Further consultation was undertaken by the South Scotland Conservancy as part of the Land Management Plan approval process.

## Consultation Record

| Consultee | Date contacted | Date response received | Issues raised | Forest District Response |
|---|---|---|---|---|
| FCS arranged a public consultation drop in at Beattock village hall to seek community views and give the public the opportunity to see the approach to the 10 year Forest Design Plan review.<br>On display was the LMP design brief and Ariel photo map. | 24th August 2015 2pm to 7pm | On the day | 15-20 people attended the meeting at various times.<br><br>People were generally interested in seeing our plans and overall agreed with the design brief for the forest focusing on the two areas of the composite: the 'M74' corridor for landscaping and biodiversity; and the resilient productive forest area above and behind the visible area from the motorway and railway line.<br><br>However, several people brought our attention to the importance, to them, of the corridor of forest along the 'crooked road'. They viewed this as important for local | |

| Consultee | Date contacted | Date response received | Issues raised | Forest District Response |
|---|---|---|---|---|
| | | | landscaping and low level recreation access as well as some biodiversity around the ponds. People suggested this area could be an extension of the 'treasured' area and link into the 'M74 corridor'. | |
| RSPB | 31 August 2015 | 2 September 2015 | Black Grouse<br>Nightjar<br>Raptors | Request for further details on Black Grouse data |
| Ewan McBride | | 23 August 2015 | Tree species | Acknowledgement by email |
| Ross Gemmell | | 25 August 2015 | Publicity along the Crooked road | Passed information to recreational staff |
| Amanda Hutchinson – Scottish Water | | 2 December 2016 | Drinking water protected areas (further details below) | Restock design amended and notifications to be made as required. |
| Dr Kevin Grant - Historic Environment Scotland | | 18 November 2016 | LMP has potential impact on four Scheduled Monuments | Monuments recorded in GIS and buffer zones will be maintained. |
| A Nicholson – D&G Council | | 19 January 2017 | Site MDG9415 (Canmore 81444) does not appear on the maps | Site is recorded in GIS but too small to be clearly seen on LMP maps given the scale. All site will be protected during operations. |
| Robert Green – D&G Council | | 30 November 2016 | Impact on roads during timber haulage operations | Contact to be made as appropriate |

RSPB

| Issue Raised | Impact on LMP | Measures to be taken | Notes |
|---|---|---|---|
| Welcomed inclusion of Black Grouse as species for consideration for habitat management. | Species selection, planting and designed open ground density to improve habitat for Black Grouse | Design restock species and open ground to improve the habitat along the east side of Earshaig and northern edge of Greskine. | Data available for the east side of Earshaigs and northern edge of Greskine. One area of Rivox, which is close to the edge of Earshaigs has already been re-designed for Black Grouse habitat. Other opportunities nearby to improve the habitat through future re-design will be investigated. |
| Records of nightjar in Earshaig block. | Consideration for planning clear felling coupes and restocking species. | Earshaig will have clear fell blocks and increased designed open ground and native broadleaves. | District staff do not agree that the nightjar is present in significant numbers and that population is limited. There are other forest blocks to the east of Blacklaw where nightjars are present. |
| Aware that sensitive raptors are in the vicinity. | No specific requirements | Follow guidance to improve habitat for raptors | Noted. |

Ewan McBride

| Issue Raised | Impact on LMP | Measures to be taken | Notes |
|---|---|---|---|
| Uses Greskine for recreation. Would like to see increased mixtures of fir and deciduous trees. | Include diverse tree species. | Consider suggested trees species when planning restocking. | Areas of Greskine and Longbedholm that are identified as 'treasured' will be restructured with more diverse species.<br><br>ESC will suggest if species are likely to be suitable. |

Scottish Water

| Issue Raised | Impact on LMP | Measures to be taken | Notes |
|---|---|---|---|
| Part of Rivox block falls within the Daer Catchment. | Require suitable buffer zone between Sitka spruce restocking and the White Burn. | Restocking will be at least 20 metres from the watercourse. | Daer Catchment shown on a supplementary map to the Design and Context map. |
| Request to notify Scottish Water ahead of operations commencing within the catchment. | Request noted. | Notification to be given ahead of operations. | |
| Contact Scottish Water in the event of any pollution events. | If such events occur. | Follow contact procedures to notify Scottish Water | |

Historic Scotland

| Issue Raised | Impact on LMP | Measures to be taken | Notes |
|---|---|---|---|
| LMP has potential to impact on four Scheduled Monuments. | Sites identified on plans and appropriate measures to be taken. | Operations to be carried out in accordance with *Forest and Historic Environment* guidelines and maintain a minimum of 20m buffer zone | Stansheilrig homestead etc., (site index 4057) monument is out with FES ownership. No operations will take place within the scheduled area. |

D&G Council

| Issue Raised | Impact on LMP | Measures to be taken | Notes |
|---|---|---|---|
| HER site MDG9115 (Canmore 81444) NT 0160 0540 not shown on plans | Site must not be impacted on through operations | Location recorded in GIS and no operation will affect the site. | Site it too small to be clearly shown on the plans at the scale required for the LMP. |
| Other sites should be ground-checked and marked on operational plans to avoid damage | Sites identified on plans and appropriate measures to be taken. | Operations to be carried out in accordance with *Forest and Historic Environment* guidelines. | |
| Timber haulage on B7076 and B719, which are Agreed Routes. Request for FES to contact Team Leader Maintenance and Programming. | Timing of operation could be affected by Council maintenance programmes | FES to contact Team Leader Maintenance and Programming. | |

## Consultation correspondence

The following pages are copies of the correspondence between FES and the consultees.

# Appendix II: Tolerance Table

| | Adjustment to felling coupe boundaries | Adjustment to felling coupe boundary | Timing of restocking | Change to species | Change to road lines | Windthrow response |
|---|---|---|---|---|---|---|
| FC Approval not normally required | Fell date can be moved within a 5 year period. Where separation or other constraints are met | 1.0ha or 10% of coupe area – whichever is less | 2 planting seasons after felling. Restocking within 2 years +/- of year 2 For Shelterwood area stocking assessment by year 4 and beat up in 5th growing season | Change within species groups e.g. evergreen conifers or broadleaves. Underplanting of CCF areas with species indicated on the FDP. | | Up to 0.5 ha |
| Approval by exchange of letters and map | | 1.0ha to 5ha or 10% of coupe area- whichever is less | | | Additional felling of trees not agreed in plan. Departures of >60m in either direction from centre line of road | |

# Appendix III:

# Summary of Mid Term Reviews of Previous Plans

## Blacklaw (2008 to 2018) - review carried out on 09/01/14

| | |
|---|---|
| Amendments | One amendment sought and approved for windblow clearance. |
| Felling | Some recouping and reallocation of felling dates across the block to avoid overfelling due to windblow.<br><br>Coupe 43009 (due for felling) discovered to be already felled and restocked with SS prior to existing plan. Good example of the benefits of these Mid Term Reviews. |
| Thinning | Thinning assessment carried out across whole block, thinning completed. This has introduced more windblow than if it had not been thinned. Thinning rule set has been amended to reduce or remove delayed thinning beyond the optimal window. |
| Restocking | Coupe 43009 should be NS but was planted with SS prior to existing plan. Replant with NS at end of current rotation. |
| Road programme | Current roads are in good condition and fit for purpose. |
| Has the implementation of the plan to date met the stated objectives? | Yes |
| Are the aims and objectives of the plan still appropriate? | Yes |
| Do proposals for the remainder of the 10 year approval meet the current objectives, standards and country vision? | Yes |

| | |
|---|---|
| Observations | A larch plan was considered in light of approaching Phytophthora. If necessary, remedial action will involve felling/extraction and mulching of younger crop. Current road infrastructure will suffice. |
| Summary | 'Existing plan requires some adjustment but within the scope of exchange of letter or formal amendment as defined by CSM06' |

## Earshaigs / Longbedholm / Rivox / Greskine (2006 to 2016) - review carried out on 18/12/12

| | |
|---|---|
| Amendments | A number of amendments approved including windblow clearance, quarries, and roads. |
| Felling | Delivered as per plan. Extra areas cleared of windblow, especially in Greskine. Adjacency issues identified between Rivox and Earshaigs FDP blocks - avoid in future plans. Generally the first phase felling seems to be appropriate and so felling can continue as per plan for the next 5 years. Retention of NS around Holmshaw proved unsuccessful in part, due to windblow. |
| Thinning | Little evidence of thinning in last 5 years. Previously thinned areas are overdue subsequent thinning. Efforts on higher ground in Rivox would have been better focussed on lower ground. |
| Restocking | Random coupe checks suggested the correct species was being established following felling. Some SS natural regeneration also supporting restocking. Planting generally being undertaken 3 to 4 years after felling - ideally look to reduce. Habitats appear to be planted with appropriate broadleaved species. Good evidence of beating up and drains maintenance. |

| | |
|---|---|
| Road programme | Road conditions are good, safe and adequate. |
| Has the implementation of the plan to date met the stated objectives? | Yes. Delivery of the plan has largely been a success. |
| Are the aims and objectives of the plan still appropriate? | Yes. 1.Production 2.Environment 3.Public access |
| Do proposals for the remainder of the 10 year approval meet the current objectives, standards and country vision? | Consideration should be given to using alternative conifers in the more favourable sites to increase diversity and resilience of the forest. |
| Observations | |
| Summary | 'Existing plan requires significant change to the proposals or the timing of these which will require revised submission'. |

## Broadleaves

The above Mid Term Reviews (MTR) did not flag any particular issue with broadleaves restocking success. However, there are now known areas where broadleaf restocking has not been successful in contributing to the 5% minimum UKFS target.

The areas of unsuccessful broadleaf restocking was assessed in early 2017 using field based surveys, and a revised map was produced of where establishment of broadleaves needs to be targeted – this in turn informed the species and future habitats map. The review looked at the issues of resources and silviculture to improve restocking success. For the latter, the broadleaf riparian areas were reviewed to target areas lower in elevation and on better soils, removing unrealistic areas which would be unlikely to succeed. For resources broadleaf areas were enlarged and focused on areas more easily protected from deer pressures. An example of this is a recent decision to fence Coupe 41238 to ensure protection of the broadleaves planted here attracted extra £12,000 funding approved by the FMO for FES for a deer fence to protect 12 Ha.

Monitoring of the broadleaves across the blocks will be carried out at year 1 and 5 post planting alongside FES OGB4 restocking surveys for commercial conifers.