

Moray and Aberdeenshire Forest District

Rosarie and Greenhills 2015-2024

Land Management Plan



Plan Reference No: LMP 14

Plan Approval Date:

Plan Expiry Date:

Rosarie & Greenhills Land Management Plan 2015-24

FOREST ENTERPRISE - Application for Forest Design Plan Approvals in Scotland

Forest Enterprise - Property

Forest District:	Moray & Aberdeenshire FD
Woodland or property name:	Rosarie and Greenhills
Nearest town, village or locality:	Mulben
OS Grid reference:	NJ37454927

Areas for approval

	Conifer	Broadleaf
Clear felling	148	1.5
Selective felling		
Restocking	138	88
New planting (complete appendix 4)		

1. I apply for Forest Design Plan approval*/~~amendment approval~~* for the property described above and in the enclosed Forest Design Plan.
2. * I apply for an opinion under the terms of the Environmental Impact Assessment (Forestry) (Scotland) Regulations 1999 for afforestation* /deforestation*/ roads*/ quarries* as detailed in my application.
3. I confirm that the initial scoping of the plan was carried out with FC staff on

January2014

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 consultation and scoping has been carried out with all relevant stakeholders over the content of the of the design plan. Consideration of all of the issues raised by stakeholders has been included in the process of plan preparation and the outcome recorded on the attached consultation record. I confirm that we have informed all stakeholders about the extent to which we have been able to address their concerns and, where it has not been possible to fully address their concerns, we have reminded them of the opportunity to make further comment during the public consultation process.
7. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed Signed

Forest District Manager Conservator

District Moray & Aberdeenshire FD Conservancy Grampian

Date **Date of Approval**

Date approval ends:

Rosarie & Greenhills Land Management Plan 2015-24



Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Environmental Impact Assessment

Determination Enquiry Form

Complete this form to find out if you need consent, from the Forestry Commission (under the EIA Regulations 1999), to carry out your proposed work.

Section 1 Proposed work							
Please put a cross in the box to indicate the type of work you are proposing to carry out. Give the area in hectares and where appropriate the percentage of conifers and broadleaves.							
Proposed work	cross	Area in hectares	% Conifer	% broadleaves	Proposed work	cross	Area in ha
Afforestation					Forest roads	X	616meters*30meters wide= 1.8ha
Deforestation					Forest quarry		
Location and District			Rosarie & Greenhills, Moray & Aberdeenshire				

Please attach map(s) showing the boundary of the proposed work and also give details of the operations.

Section 2 Property details	
Property Name	Rosarie & Greenhills
Grid Reference (e.g. AB 123/789)	NJ37454927
Local Authority	Moray
Nearest Town	Mulben

Section 3 Applicant's category (please put a cross in one box)				
PE	Personal occupier		PU Public ownership	X
BU	Business occupier		OT Other	
VO	Voluntary organisation		CT Crofting tenant	

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Section 4 Applicant's type (please put a cross in one box)			
LS Lessee		OW Owner	X
TE Tenant		TR Trust	

Section 5 your agent or woodland manager's details					
Title	Mr	Initials	I	Surname	Walker
Organisation	Forestry Commission Scotland				
Address	Moray & Aberdeenshire FD,				
Portsoy Road					
Huntly			Postcode	AB54 4SJ	
Tel No	01466 794161		Mobile	07990 802879	
Fax	01466 794986		e-mail	lain.walker@forestry.gsi.gov.uk	
Is this the address for correspondence?			Yes	X	No

Section 6 Applicant's details					
Title		Initials		Surname	
Organisation	Forestry Commission Scotland				
Address	Moray & Aberdeenshire FD,				
Portsoy Road					
Huntly			Postcode	AB54 4SJ	
Tel No	01466 794161		Mobile		
Fax	01466 794986		e-mail		
Is this the address for correspondence?			Yes	X	No

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Section 7 Sensitive Areas: Give the area of the proposal that is covered by any of the following designations	
Sensitive Area as listed in “Schedule 2” of the 1999 EIA Regulations Area (ha)	Area in hectares
a. Sites of Special Scientific Interest (SSSI) or Proposed Sites of Special Scientific Interest (PSSSI)	N/A
b. SSSI's with a Nature Conservation Order (Section 29 of the Wildlife and Countryside Act 1981)	N/A
c. National Park (NP)	N/A
d. The Broads	N/A
e. World Heritage Site	N/A
f. Scheduled Ancient Monument (SAM)	N/A
g. an area designated as National Scenic Area	N/A
h. Area of Outstanding Natural Beauty (AONB)	N/A
i. “Natura 2000” site – (European network of special areas of conservation and special protection areas under the Wild Birds Directive)	N/A

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Forest Design Plan Summary

This plan is a review of Forestry Commission Scotland's management of Rosarie and Greenhills Forest which is located by Mulben. The purpose of the plan is to set out management objectives and prescriptions for the forest for the next ten years in detail, and in more broad terms for the following period, which will fulfil the requirements of the UK Forest Standard.

The main priorities/objectives of this plan are as follows: -

- The production of high quality timber.
- Expanding broadleaf resource in order to help reach 20% national target.
- Improving functional habitat networks.

1.0 Introduction

Refer to Map 1: Location.

1.1 Setting and context

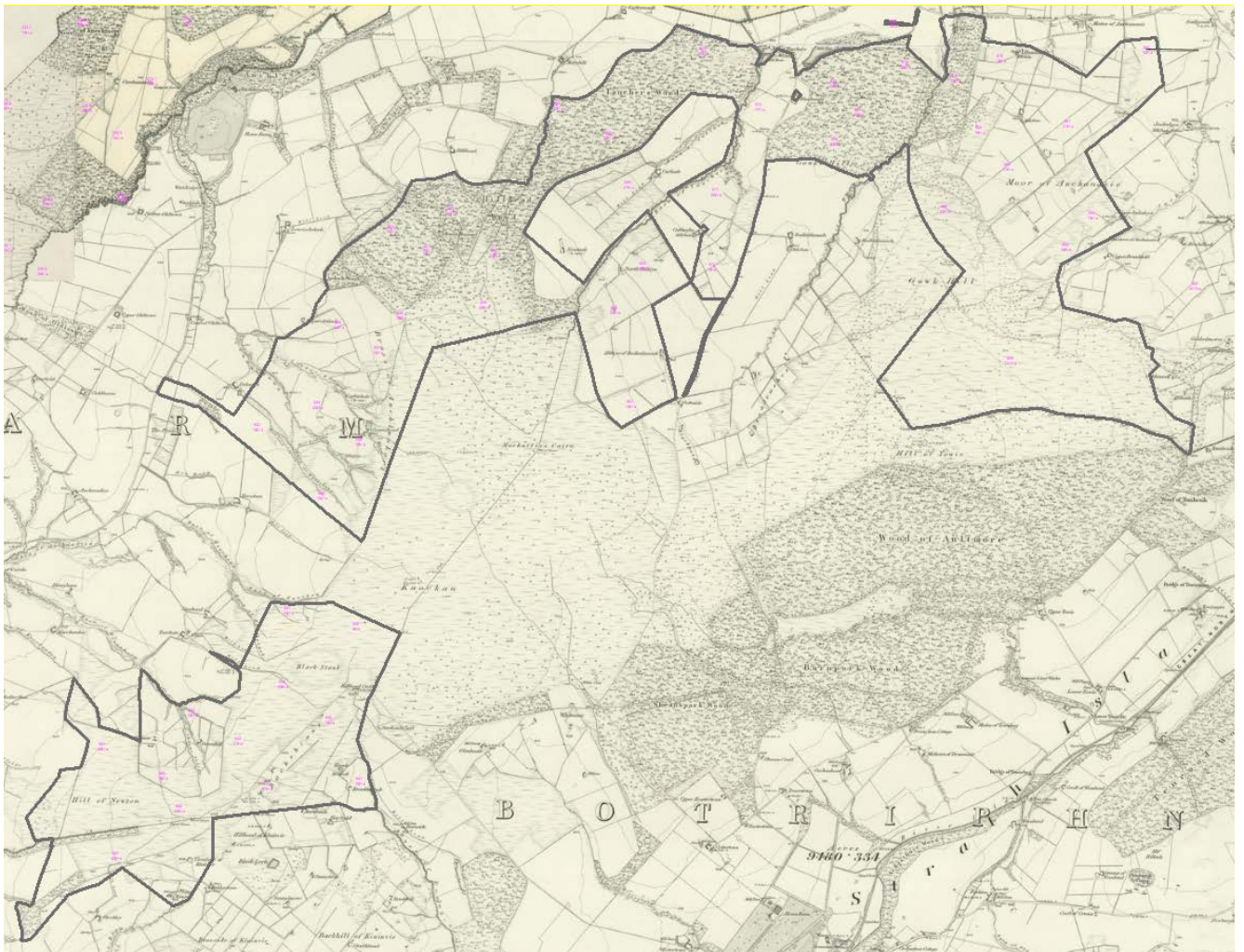
Rosarie and Greenhills are located near Mulben with the area largely being rural with a low population. The block covers a total area of 980ha with the main accesses being taken from the A95 Keith to Craigellachie road. The forests are predominantly coniferous, of plantation origin with Sitka Spruce currently being the primary species. The forest is located in an upland farmland landscape, which lies to the east of the river Spey between the Coastal Farmland and Open Uplands.

It is of relevance to this plan that new planting sites at Curlusk and Broadfield both border this forest, indeed Curlusk is entirely surrounded by Rosarie forest, and a separate land management plan will be completed for these two sites. The forest is important to both the Drummuir and Botriphnie Community Trust and the Strathisla Community Council.

1.2 History of the forest

Reference to OS 1 inch 1856-1891 maps shows that the current area was largely moorland apart from Taucher & Hillhead wood and Ardoch Wood, which were located on the lower slopes of Rosarie. In the past it is likely a large area of the current forest would have been moorland grazing habitat with scattered remnants of Scots Pine, as is seen on the adjacent moorland. Afforestation of Rosarie and Greenhills has mainly occurred in the forties and fifties and restructuring is now well underway.

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1856-1891, 1inch, 1st edition OS map of Scotland gives an image of the forest prior to large scale planting.



2.0 Analysis of previous plan

The previous FDP was approved in March 2005 and was therefore due to expire in 2015. In order to review the design plan previous objectives have been compared to the current district objectives.

Theme	Priority (in current approved plan)	Objective (in current approved plan)	Management Indicator	Progress to date 1- Nominal progress 2- Some progress 3- Progress as per FDP	Proposed action (in this plan)
Production	High	Sustainable timber production managed mainly as clearfell & restock in order to restructure a largely mature forest, which is prone to windblow.	Timber production	2- Felling and restocking has occurred as per the design plan, however the forest now has a number of large conifer areas reaching maturity which are now at risk of wind blow.	The felling of mature forest will need to be prioritised, in order to optimise both production and restructuring of the forest.

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		<p>The future forest should have increased diversity of habitats and species, where species choice should suit the site.</p>	<p>Species diversity-</p>	<p>2- Conifer diversity is largely limited to Sitka Spruce and Scots Pine, which makes the forest potentially vulnerable to disease; however there is a wide array of site conditions available for species diversification.</p> <p>1- There are a variety of site conditions suitable for planting broadleaves, which are currently at less than the 5% UK forest standard.</p>	<p>Increase diversity of conifer species through use of ecological site classification.</p>
		<p>Planned Road</p>	<p>Roads</p>	<p>3- Planned roads have been constructed as planned and this</p>	<p>Increase productive broadleaf component of the forest with particular emphasis on establishment on the better soils.</p> <p>New roads will be identified as part of this plan.</p>

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				includes the new road in Rosarie associated with the Hill of Towie wind farm.	
Healthy	Med	Employ appropriate CCF systems to retain stable mature stands of pine, larch and spruce.	LISS	2- A number of areas are showing signs of instability due to ground conditions and wind blow.	Only use stable sites for LISS and manage unstable areas as clearfell.
		Enhance riparian corridors	Riparian networks-	1- Riparian habitats are largely associated with conifers where the forest overall has a small proportion of broadleaves. Little management to date.	Increase broadleaf component of the forest with particular emphasis on establishment on the better soils.
		Appropriate	Glentauch	2- Consideration was given to how	Naturalise watercourses

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		management around Glentauchers water supply	ers Distillery	to manage operations in proximity to distillery, however there was little in the way of naturalising this area.	associated with Glentauchers distillery in order to improve catchment area.
Cared For	Med	The conservation of archaeological sites.	Archaeological sites-	3- Archaeology protected as per Historic Scotland guidelines.	Management of archaeology sites will continue to follow guidelines.
Accessible	Med	The provision of an open and accessible forest area for a wide variety of recreation pursuits.	Recreation-	3- The recreation hub for the area is located in Whiteash and Ordiquish, otherwise access is taken through Scottish Outdoor Access Code.	Recreation is not a high priority within the forest where resources will be concentrated in the neighbouring Ordiequish and Whiteash forests which have mountain biking and a variety of trails.
Treasured	Med	Provide better	Landscape	1- The forest has	Identify open

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		integration between the forests upper margins and adjacent moorland in appropriate areas.	/moorland habitat	limited integration with the moorland on the higher slopes and in general little open space.	space for forest/moorland integration through landscaping, in order to meet 10% UK Forest Standard.
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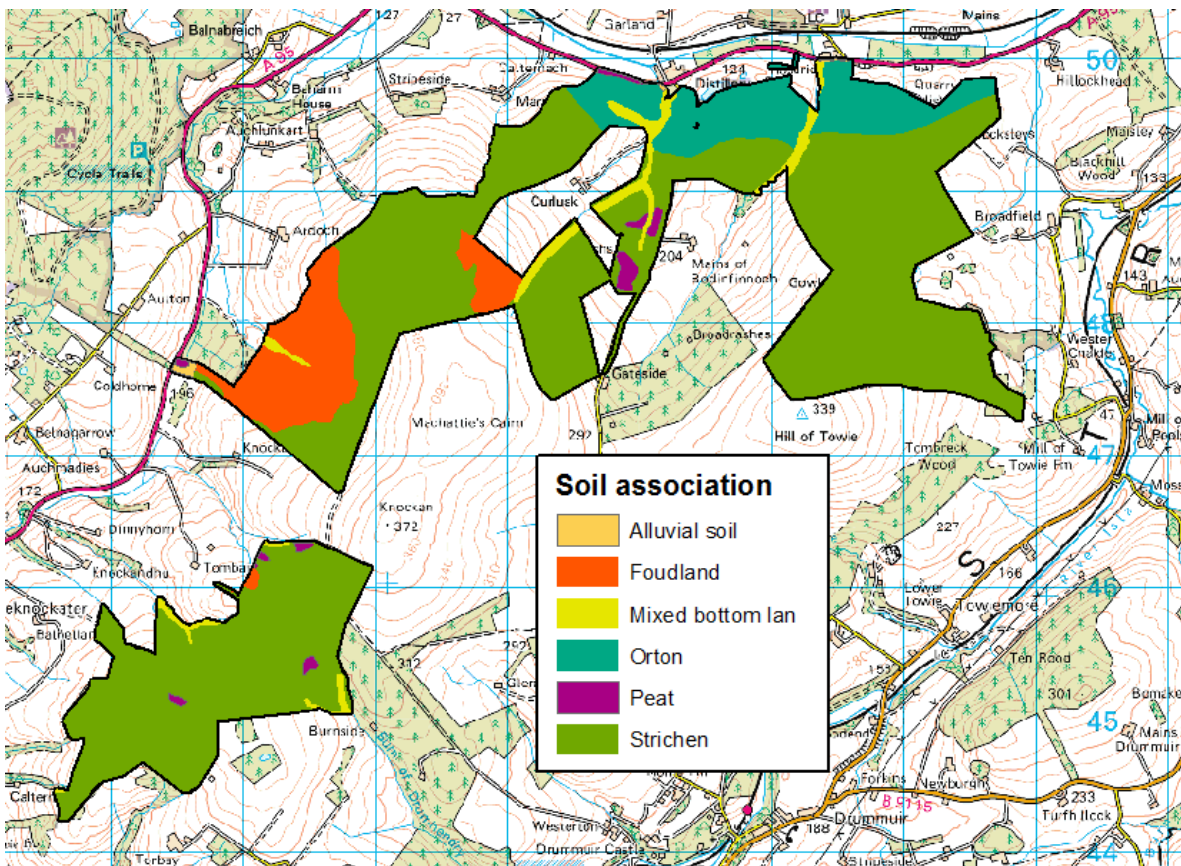
3.0 Background information

3.1 Physical site factors

Refer to Map 2: Key Features.

3.1.1 Geology, soils and topography

Geology - The solid geology underlying the site is composed mainly of quartzite on the hilltops with black graphitic schist lower down the slopes. These are overlain almost entirely with drift deposits of locally derived boulder till about 0.9 to 1.5m in depth thinning out towards hill tops. These tend to lead to the production of soils with medium to low nitrogen availability.

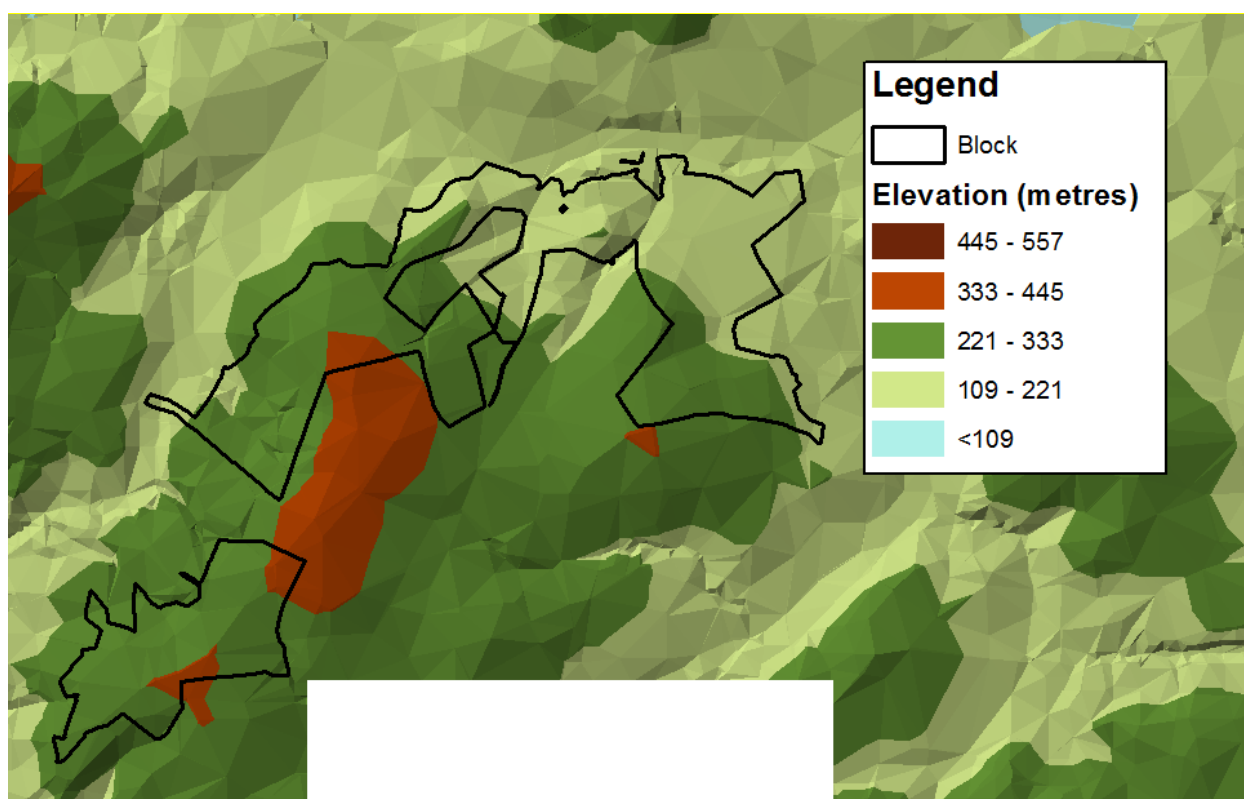


Soils - The Soil Survey of Scotland map reveals the soil associations underlying Rosarie and Greenhills as shown in the labelled map above. This translates to the forest mainly being made up of humus iron podzols, peaty

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podzols, gleys, humus gleys, peaty gleys, non calcareous gleys and some brown forest soils.

Topography – The topography of the design plan area is that of a forest largely spread across the northern side of a number of hills which are dissected by a number of small glens. The elevation runs from about 120 metres in the glens to 350 meters at the top of the hill. This is illustrated below where the hill tops are highlighted as brown and the valleys as light green.



3.1.2 Water

The forest falls within both the **Deveron** and **Spey** water catchment areas.

The **Deveron** catchment has several designations relating to the importance of its waters which, coupled with a range of diffuse pollution effects, make restoring and protecting it a high priority. The River Deveron is a drinking water protected area (DWPA), providing drinking water for 60,000 people in the Aberdeenshire area. The river has also been designated as a Salmonid Water under the Freshwater Fish Directive. Areas of the catchment are included in a Nitrate Vulnerable Zone and the entire catchment has been designated as an Urban Waste Water Treatment Directive Sensitive Area.

The **Spey** is designated as a SSSI and a SAC along with some of its tributaries such as the Fiddich (SAC). The SAC relates to the importance of the rivers for the internationally important Local Biodiversity Action Plan Species (LBAP) Atlantic salmon, Freshwater Pearl Mussel, Sea Lamprey and Otter.

The Spey is tremendously important for the economy, the local community and the environment of Strathspey and Moray. It is renowned for its purity and is of both national and international importance for its salmon rod fishery, whisky distilling industry and its wildlife. It provides for major domestic and industrial water supplies, as well as a challenging environment for outdoor pursuits. For these reasons a catchment management plan was prepared in 2003 which “sets out a strategic framework for the wise and sustainable use of the water resource, and for the protection and enhancement of water quality and natural heritage within the River Spey catchment”.

Management objective 8.1 of the catchment plan is to “develop a vision for the contribution of woodlands to management of the catchment while promoting and supporting good woodland management practice.” Woodlands are to contribute “towards the objectives of integrated catchment management, addressing both ‘nativeness’ and landscape issues while also benefiting the local economy, communities and recreation interests” and woodland managers should “implement restructuring and appropriate scale silviculture, including continuous cover forestry within the catchment where appropriate”.

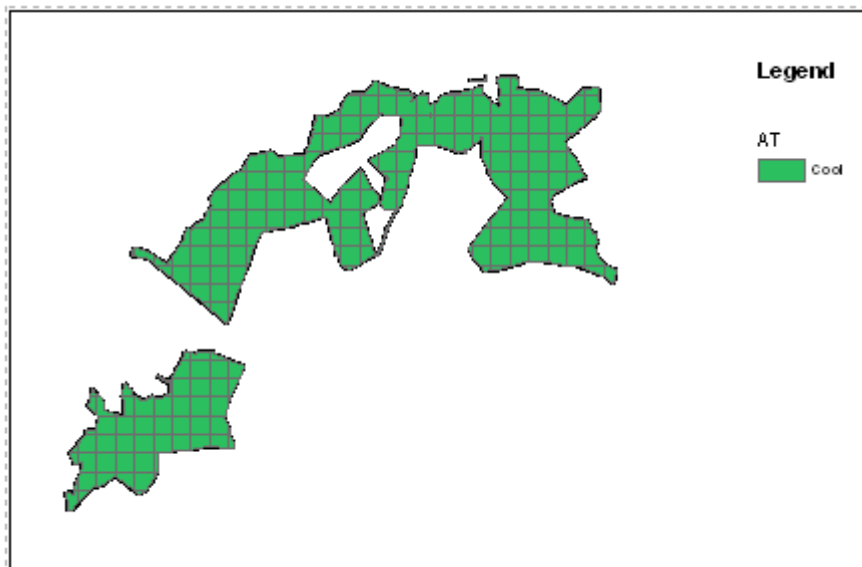
Rosarie and Greenhills forest provides a source of water for Glentauchers distillery for both the whisky making and coolant processes. This distillery is located to the north of the forest founded in 1897. The distillery has three spirit stills and three wash stills, with a total production capacity of 4,500,000 litres (990,000 imp gal) of pure alcohol per year.

3.1.3 Climate

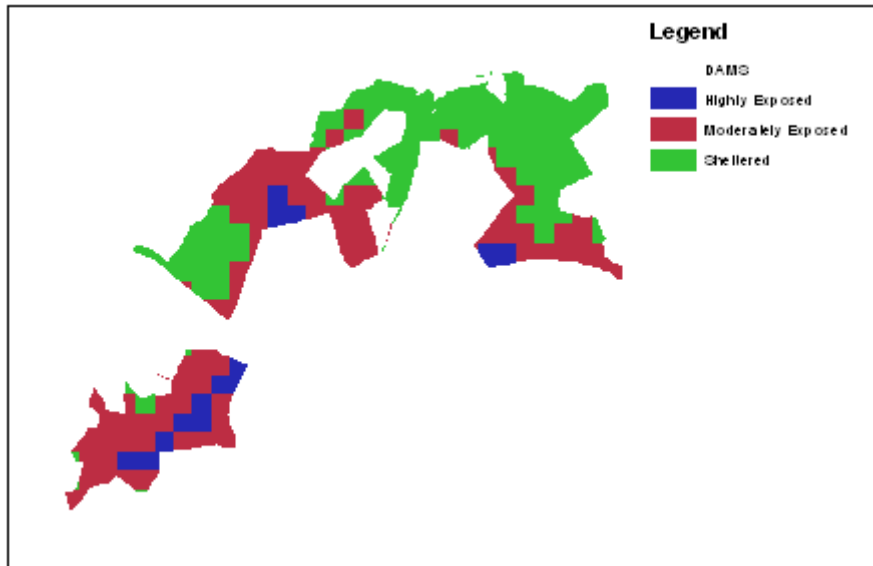
The climate data for the design plan area is obtained from the Ecological Site Classification system (ESC).

The results of interrogating this system gave the following data.

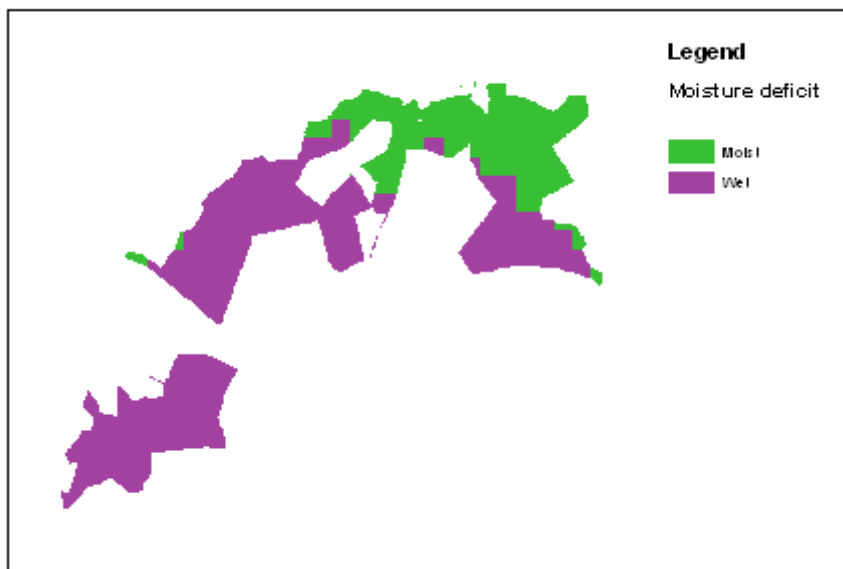
	AT5	DAMS	MD
Min	944	6	68
Max	1112	16	116



AT5 is the accumulated total of the day-degrees above the growth threshold temperature of 5°, which provides a convenient measure of summer warmth. The results for AT5 place these blocks in the “cool” zone.



DAMS is the Detailed Aspect Method of Scoring. This represents the amount of physically damaging wind that forest stands experience in the year. The range of DAMS is from 3 to 36 and windiness is the most likely limiting factor to tree growth at higher elevations in Britain.



MD is the Moisture Deficit for the area. Moisture deficit reflects the balance between potential evaporation and rainfall and therefore emphasises the dryness of the growing season (rather than the wetness of the winter or whole

year). These results place the blocks on the boundary of the “moist” and “wet” zones.

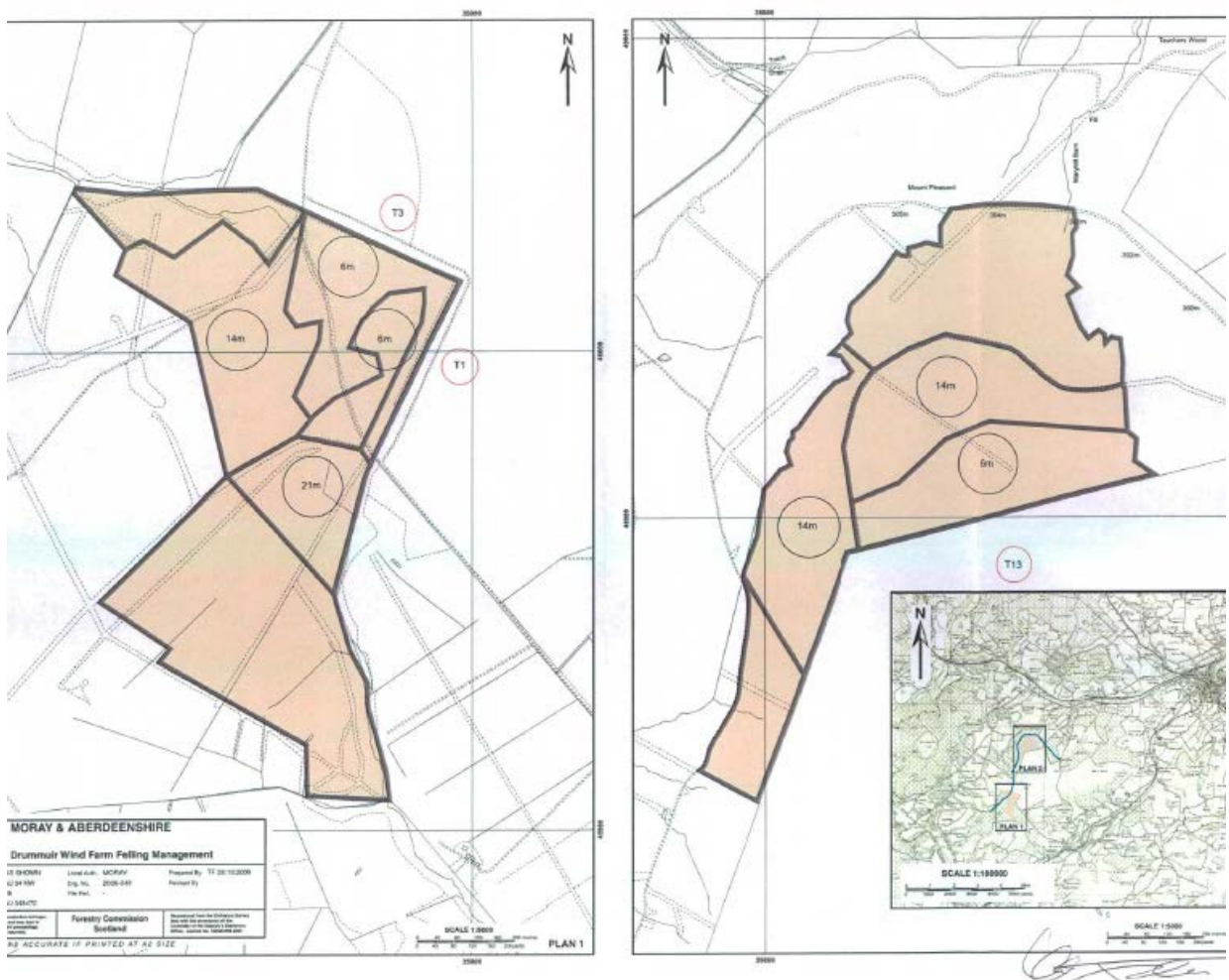
These results will be used to help assist in the choice of tree species for restocking in this FDP. Each tree species has tolerances for these and other factors and they can be used to identify species suitable for the site conditions.

Further information on these criteria and the application of ESC can be found in Forestry Commission Bulletin 124 - An Ecological Site Classification for Forestry in Great Britain.

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Renewables-

The Drummuir wind farm is located to the south of this forest block, and this comprises 21 turbines each rated at 2.3MB with a total height to tip of 100m. There is an associated felling agreement currently in place between the Forestry Commission and the developer and it is their responsibility to fell trees reaching threshold height and compensate the Forestry Commission accordingly. This agreement imposes no actual restriction on what can be planted and due to poorer growth rates on these higher slopes, it is likely that there would only be limited felling required in the future, which would likely fall within areas associated with a forest/heathland transitional zone. In the future there is a possibility of the current wind farm being expanded where this would likely be associated with a further felling agreement.



3.2 Biodiversity and environmental designations

Rosarie and Greenhills are not associated with any environmental designations although its watercourses are tributaries of the Spey and the Deveron (See section 3.1.2).

The forest has red squirrels which is a UKBAP species, this species is one of the six key species identified in the FCS Biodiversity Action Plan, although it is relevant to note however that Rosarie & Greenhills is not a stronghold. The adjacent moorland is an important habitat used by Raptors and also historically by Black Grouse.

3.3 The existing forest

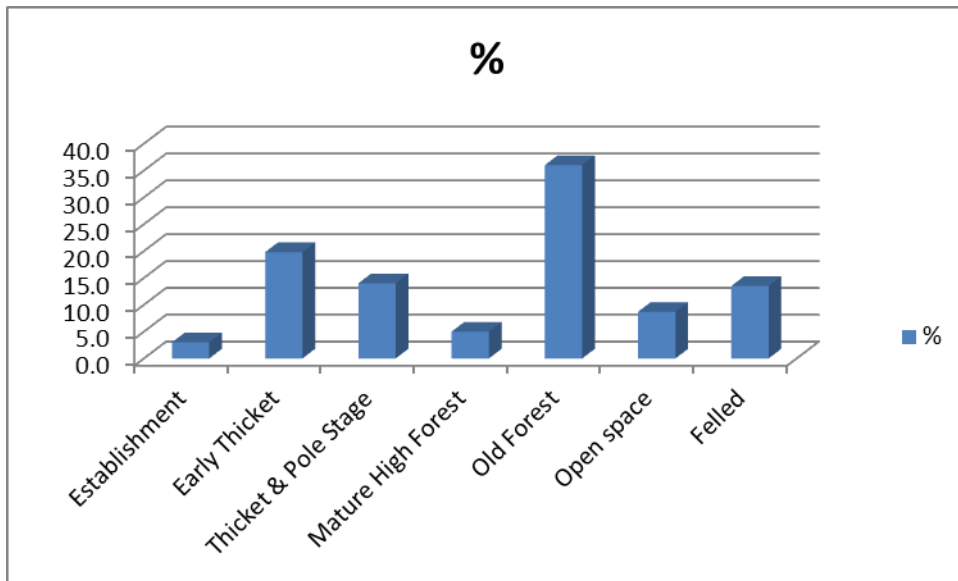
3.3.1 Age structure, species and yield class

Age Structure

A large area of the forest is classed as old forest which is due to the current rotation just coming to its economic maturity. A programme of restructuring to create a more diverse age structure was started in the previous plan and needs to continue.

Ages of Trees (years)	Successional Stage	Area	%
0 - 10	Establishment	29.4	3.0
11 – 20	Early Thicket	194.0	19.8
21 – 40	Thicket & Pole Stage	137.2	14.0
41 – 60	Mature High Forest	49.0	5.0
61+	Old Forest	352.8	36.0
	Open space	85.3	8.7
	Felled	132.3	13.5
	Total	980.0	100.0

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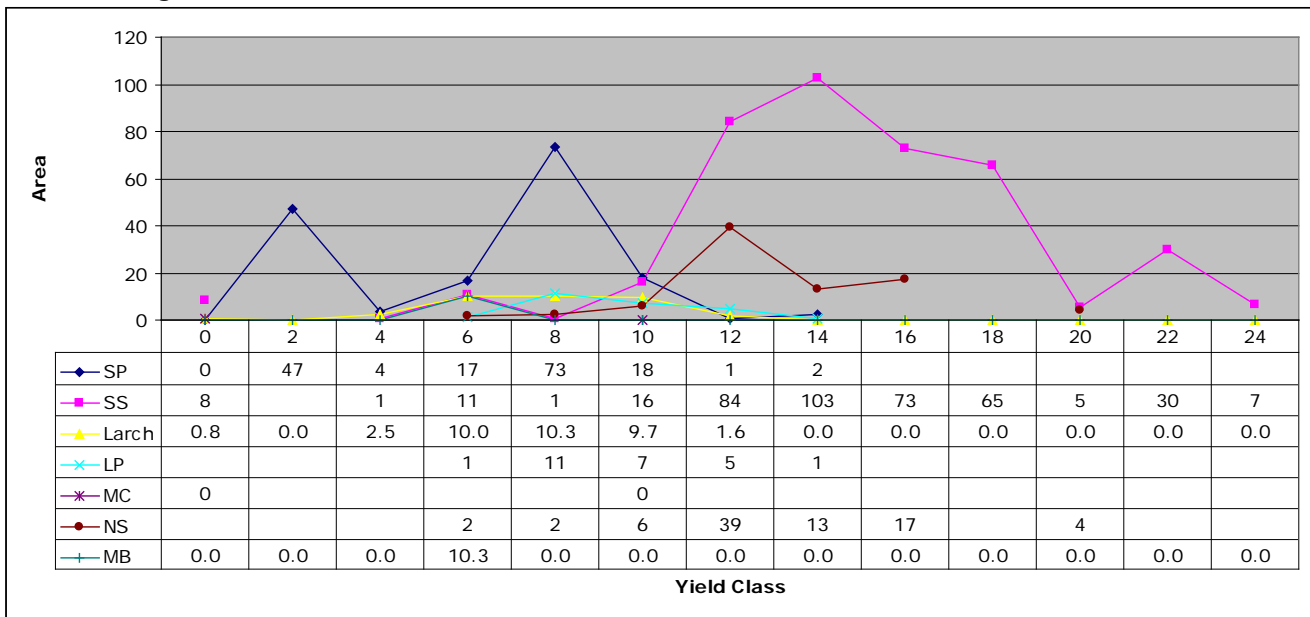
Species

Forty four percent of the plan area is stocked with Sitka Spruce. The next main components are Scots Pine and Norway Spruce at 16% and 9% respectively. The remainder of the area is stocked with a range of other conifers and it is worthy to note that broadleaves only make up 1.1% and that open space is currently below 10%.

Species	%
Sitka Spruce	44.0
Scots Pine	16.7
Norway Spruce	9.0
Lodgepole Pine	3.0
Larch	4.0
Broadleaves	1.1
OPEN	8.7
Felled	13.5
	100.0

Yield Class

The table below shows the current yield classes available for the species planted. In general high yield classes are limited to Sitka Spruce. Other species offer lower yields but there are multiple benefits associated with the slower growing timber including denser stronger timber.



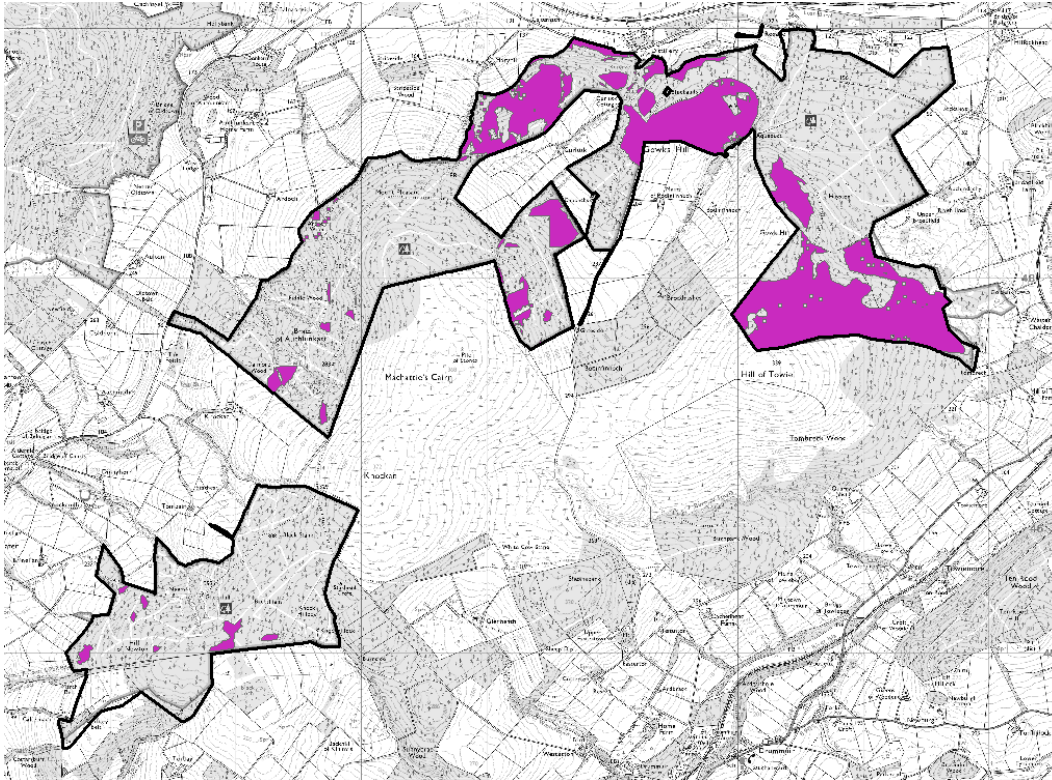
3.3.2 Access (See map1)

The A95 runs to the north and west of the block and the B9014 runs to the east and south. The minor road C55H, which links the A95 and B9014 is an agreed route for timber transport off the A95 as far as Gateside. Any accesses directly onto the A95 should be discussed with Bear Scotland. Moray council roads department are one of the consultees for this plan (see Appendix 1, Consultation record). In general Rosarie has a reasonable roads network whereas there is scope for improvement in Greenhills in order to provide for harvesting operations.

3.3.3 LISS potential

This management approach is defined as: 'Use of silvicultural approaches whereby the forest canopy is maintained at one or more levels without clear felling.' Under LISS there are no felling areas larger than 2 ha. The current areas designated as LISS are generally limited to Pine species and the map

below shows areas with some potential. However, site visits have shown that several of these areas are largely wet and prone to wind blow.



3.3.4 Current and potential markets

The current breakdown of the timber being harvested from this design plan area across the range of sites, species and ages is shown in the table below.

Current Market	End product	Percentage
Short roundwood	Chip board, Orientated strand board (OSB), Paper	80%
Fencing	Posts & rails	0%
Short log	Pallets & slats	10%
Log	Construction	10%

The vast majority (95%) of this production is sold into markets in the north east of Scotland with processing facilities less than 50 miles away.

The main change to this is likely to be the increase in material going into the local fuelwood market and the production of hardwood timber, in the longer term. There are currently two biomass plants in Moray and one in

Aberdeenshire with approval and these will be looking for approx 350,000m³ per year.

3.4 Landscape and land use

3.4.1 Landscape character and value

With reference to the Moray and Nairn landscape assessment carried out by SNH, Rosarie and Greenhills lies within an area categorised as Upland Farmland. This is a large area of land lying to the east of the Spey, between the Coastal Farmland and Open Uplands. The landform of this landscape character area comprises broad, gently undulating slopes rising in close proximity to the coast, cut by gently graded valleys to the higher lands of the Open Uplands, and punctuated by distinctive conical hills.

Although woodlands exist, these cover a smaller proportion of land than the Rolling Farmland and Forest Character Area, and are less integrated within the farmland, forming large scale coniferous plantations of uniform colour and height to the western edge of the Character Area, on the fringes of the Spey valley. Smaller scale geometrically shaped young coniferous plantations are also prominent on higher hill slopes, forming an abrupt edge to semi improved pastures and moorland. The few areas of native woodland that exist tend to be small isolated pockets associated with individual farmsteads.

For forestry it is recommended that there is a strategy for felling and restocking which is at an appropriate scale and form/texture, which reduces the existing harshness of plantation when compared to the gently undulating landform. Where there are geometric issues they should be ameliorated by selective felling, extensions of the planted area and the grading of the margins.

An interesting development for Rosarie & Greenhills will be the land management plan that is developed for two new two new Forestry Commission sites "Curlusk and Broadfield" which are both in proximity to the forest, and will need to integrate into a largely conifer edge. This obviously will improve geometric edges where Curlusk represents an opportunity to plug a hole in the middle of the forest whereas woodland expansion on Broadfield would be beneficial for reducing the harshness of the existing plantation and providing a softer edge down to the Isla.



“Curlusk (red) and Broadfield (blue) will increase the size of the forest and improve geometric edges”

There are other opportunities to improve how the forest sits in the landscape through better integration of the forest/heathland edge on the upper margins where there is currently a distinct forest and heathland boundary. There may also be possibilities to pull the forest edge back from the A95.

3.4.2 Visibility

There are views of the forest from the surrounding area, where the forest is largely seen as forming large scale coniferous plantations of uniform colour and height. There is a tendency for the eye to be drawn towards the Drummuir wind farm, which sits on some conical hills to the south.

3.4.3 Neighbouring land use

The land surrounding the lower boundaries of the forest is predominantly agricultural. Moorland is located on the higher slopes and there are a number of small to medium sized areas of woodland bordering the forest in various places. Part of the Drummuir estate which borders the forest to the south is leased and currently hosts Drummuir wind.

3.5 Social factors

3.5.1 Recreation

The forests are relatively quiet, being situated away from main arterial transport routes and major conurbations. Users of the forest are drawn mainly from local communities. Strategically the main hub of recreation in this area is Ordiequish and Whiteash forests, where there are a variety of mountain biking and walking trails.

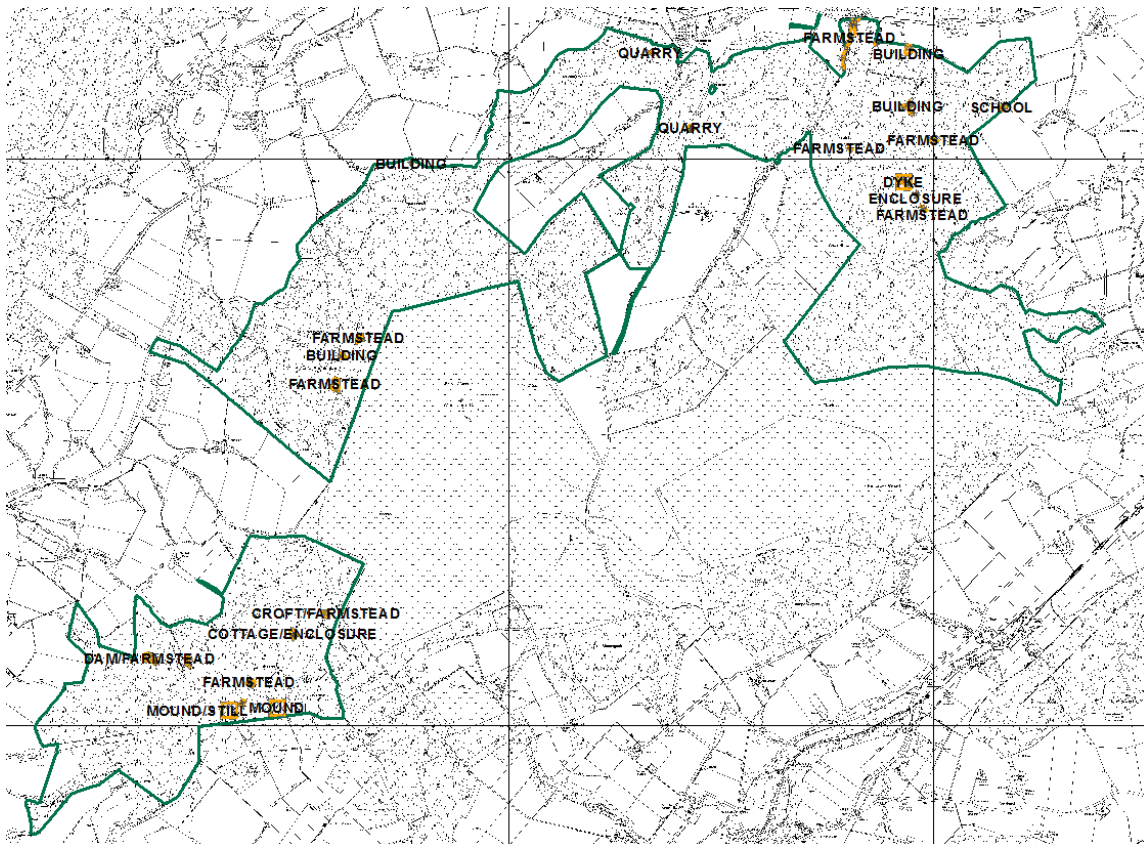
3.5.2 Community

Keith is the largest nearby settlement located a few miles to the east of the forest, and there is the small settlement of Mulben to the north, otherwise the forest is associated with scattered homes and farms. The forest does not have a strong community usage except for informal recreation.

The land management plan area sits on the boundary of two community council areas, Strathspey and Strathisla. Both have been consulted about the contents of this plan and their comments are recorded in the consultation record, Appendix 1.

3.5.3 Heritage

There are no scheduled monuments in Rosarie and Greenhills, however 25 non-scheduled monuments are located and recorded in the forest area. These mainly relate to 19th century settlements and the map below outlines the locations of the various sites.



3.6 Pathogens and diseases

Dothistroma needle blight (DNB)

A major fungal pathogen affecting the woods within Moray & Aberdeenshire forest district is *Dothistroma Needle Blight*. This is an economically very important disease affecting a number of coniferous trees, in particular pines. The disease has a world-wide distribution but until recently was mainly of concern in the southern hemisphere. In much of the world, including Britain, it is caused by the fungus *Dothistroma septosporum*. *Dothistroma Needle Blight* causes premature needle defoliation, which results in the loss of timber yield and, in severe cases, tree mortality. Since the late 1990s the incidence of the disease has increased dramatically in Britain, particularly on Corsican pine, and, since the beginning of the new millennium, in Lodgepole Pine. Due to the extent and severity of the disease on these species there is now a five-year moratorium on the planting of Corsican and Lodgepole Pine on the National Forest Estate. More recently the disease has also been reported in Scots pine. Although significant damage in this species is yet limited, Scots Pine (including

young plantations and regeneration) needs to be monitored intensively in order to manage the disease (See Section 5.9).

Reasons for the increase in incidence of this disease are unclear but could be due to increased rainfall in spring and summer coupled with a trend towards warmer springs, optimising conditions for spore dispersal and infection. Such conditions may become more prevalent in Britain over the next 20 years if current trends in climate change continue.

On the National Forest Estate disease management is currently focused on silvicultural measures to reduce inoculum loads and the use of alternative, less susceptible species in future rotations. Current FC policy for dealing with the existing scale of *Dothistroma Needle Blight* is to fell infected stands within the shortest time frame possible, in order to minimize the risk of infection to the surrounded uninfected pine crop on both public and private land.

Phytophthora ramorum

Phytophthora ramorum is the Oomycete plant pathogen known to cause the disease Sudden oak death. The disease kills oak and other species of tree and had devastating effects on the oak populations in California and Oregon as well as also being present in Europe. Symptoms include bleeding cankers on the tree's trunk and dieback of the foliage, in many cases eventually leading to the death of the tree. *P.Ramorum* also infects a great number of other plant species, significantly woody ornamentals such as *Rhododendron*, *Viburnum* and *Pieris*, causing foliar symptoms known as ramorum dieback or ramorum blight. Such plants can act as a source of inoculum for new infections, with the pathogen producing spores that can be transmitted by rainsplash and rainwater. *P.ramorum* was first reported in 1995, and the origins of the pathogen are still unclear but most evidence suggests it was repeatedly introduced as an exotic species. Very few control mechanisms exist for the disease, and they rely upon early detection and proper disposal of infected plan material.

Any infection of *Phytophthora ramorum* is of relevance to the continued management of the forest, but Larch infection is of particularly concern due to the wide scale outbreak in the Scotland. Protocols are in place if there was an outbreak for the removal of infected species and for alternatives for restocking. Any suspicions of outbreak need to be reported immediately:- treehealthscotland@forestry.gsi.gov.uk

3.7 Statutory requirements and key external policies

This Forest Design Plan has been drafted to ensure that planning and operations functions comply with the following legislation and policies:

Biodiversity

- Conservation (Natural Habitats) Amendment (Scotland) Regulations 2007
- Nature Conservation (Scotland) Act 2004
- Wildlife and Natural Environment (Scotland) Act 2011
- Land Reform (Scotland) Act 2003
- The Water Environment and Water Services (Scotland) Act 2003
- Water Environment (Controlled Activities)(Scotland) Regulations 2011
- UK Woodland Assurance Standard 2008
- UK Forestry Standard 2011 – Forests and biodiversity, Forests and water
- Deer (Scotland) Act 1996

Climate Change

- The United Nations Framework Convention on Climate Change
- The Kyoto Protocol
- EC Directive 2003/87/EC
- Climate Change (Scotland) Act 2009
- UK Forestry Standard 2011 – Forests and climate change

Historic Environment

- Ancient Monuments and Archaeological Areas Act 1979
- Planning (Listed Buildings and Conservation Areas)(Scotland) Act 1997
- Treasure Trove Scotland
- UNESCO World Heritage Convention
- European Convention on the Protection of the Archaeological Heritage Valetta 1992
- UK Forestry Standard 2011 – Forests and historic environment

Forests & People

- Forestry Act 1967
- Control of Substances Hazardous to Health Regulations 2002
- Employers Liability (Compulsory Insurance) Act 1969
- Equality Act 2010
- Gangmasters (Licensing) Act 2004

- Health and Safety at Work Act 1974
- Management of Health and Safety at Work Regulations 1999
- Occupiers' Liability (Scotland) Act 1960
- Provision and Use of Work Equipment Regulations 1998
- Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
- The Highways Act 1980
- UK Forestry Standard 2011 – Forests and people, Forests and landscape

Soils

- Control of Pesticides Regulations 1986
- The Waste Management Licensing Regulations 1994
- European Soil Charter
- UK Forestry Standard 2011 – Forests and soil



4.0 Analysis and Concept

Refer to Map 4: Analysis and concept.

Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
Healthy (Medium)	We are committed to high quality silviculture and, increasing, to using alternatives to clearfelling.	Moray & Aberdeenshire District has a high proportion (30%) of woodland cover managed under low impact silvicultural systems, which is a figure we want to maintain as a minimum.	There is an area which has had seed trees marked, however elsewhere LISS areas are showing signs of instability, especially on areas which have soft ground conditions and limited brash availability.	Only use stable sites for LISS and manage unstable areas as clearfell.
	We will help the Estate adapt to climate change and become more resilient to pressure.	The District will continually make good use of Ecological Site Classification to closely fit species to sites, and take into account the anticipated effects of climate change. (One	Conifer diversity is largely limited to Sitka Spruce and Scots Pine, which makes the forest potentially vulnerable to disease; however	Increase diversity of conifer species through use of ecological site classification.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		important possible effect is that some Sitka spruce sites could become more susceptible to drought.)	there are a wide array of site conditions available for species diversification.	
Productive	We aim to provide at least three million cubic metres of sustainable softwood timber every year.	The District will maintain a sustainable annual softwood timber production of 350,000 cubic metres over bark standing.	The forest has a number of large conifer areas reaching maturity which are now at risk of wind blow.	Restructure the mature forest through prioritised felling, whilst balancing landscape with wind firmness.
	We intend to manage at least a quarter of our expanding broadleaf woodlands to produce quality hardwoods and woodfuel.	The District will adhere to its local broadleaf strategy. This includes increasing our productive broadleaf resource by planting a further 700ha by 2019.	There are a variety of site conditions suitable for planting broadleaves, which are currently at less than the 5% UK Forest standard.	Increase broadleaves component of the forest with particular emphasis on establishment on the better soils.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
	We will support the Scottish Government's woodland expansion policy.	During the plan period, we will consult on, and thereafter implement, agreed land management plans for all extant acquisitions, including Corniehaugh/Woodfold, Mains of Ittingstone, Upper Tullochbeg, Curlusk, Broadfield, Culdrain and Waulkmill.	Rosarie and Greenhills provides a largely conifer edge to Curlusk and Broadleaf, where both are linked by riparian corridors.	Maintain largely conifer edge but take opportunities to naturalise riparian linkages which border Curlusk and Broadfield.
Cared For	We are committed to maintaining the best open habitats in good ecological condition.	<p>The District will continue to review all open ground management on a regular basis to ensure it is appropriate.</p> <p>We will ensure that all our Land Management Plans take into</p>	<p>The forest has limited integration with the moorland on the higher slopes.</p> <p>Glentauchers distillery sources water for distilling</p>	<p>Identify open space for forest/moorland integration through landscaping, in order to achieve a minimum target of 10% open space within the block in line with the UK Forest Standard.</p> <p>Naturalise watercourses associated with</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		consideration the requirements of the Water Framework Directive.	from streams emanating from the forest.	Glentauchers distillery in order to improve catchment area.

5.0 Forest Design Plan Proposals

5.1 Management

Refer to Map 5: Management.

Thinning

See Map 6 – Thinning.

Wherever possible the district will continue to maximise the area managed through thinning and utilise staff/contractor base to further develop professionalism and thinning expertise. FCS policy assumes that all productive conifer crops will be thinned. The only exceptions are where:

- Thinning is likely to significantly increase the risk of windblow;
- A single thinning operation is likely to require an unacceptably large initial investment in relation to the potential benefits due to access or market considerations; and
- Thinning is unlikely to improve poorly stocked or poor quality crops.

In Rosarie & Greenhills as much of the area as possible, will be thinned in order to improve the timber quality. The main limiting factors to the thinning of the crops in this block are areas which have missed the thinning window, and are now therefore unthinnable. Where Lodgepole pine occurs in mixtures with other crops, and is infected with DNB, it will be targeted for removal during thinning operations.

All thinning decisions will be guided by Operational guidance Booklet No 9 'Managing thinning' and the recent district Thinning Plan.

Low Impact Silviculture (LISS)

The main silvicultural system employed in British forestry is 'patch' clearfelling followed by planting or, occasionally, natural regeneration. However, management under LISS is now becoming more common and there are numerous environmental benefits associated with this practice. After analysis of the forest it has been identified that a number of areas will need to be removed from LISS due to unsuitable species, wind blow and soft ground conditions. On the positive side there is a more stable area for LISS already marked out for seed trees which should be retained (See Appendix4). In the

future with better species selection through the ecological site classification and early thinning, the situation should improve in the next rotation.

Clearfell

As stated above the main silvicultural system employed in British forestry is 'patch' clear-felling followed by planting or occasionally natural regeneration. In order that the timber in this plan area is harvested before the onset of windblow on these poor soil conditions clearfell will remain the most appropriate silvicultural system.

Although clear-felling can appear to have a negative impact on landscape and habitat it still an important management system.

Clear-felling, to a degree, mimics natural disturbances such as fire or windblow in a forest and as such allows the forester to alter the even aged structure of the canopy over a relatively short period of time. The adoption of a 'fallow' period before restocking, or natural regeneration establishment, also creates transient open habitat that is exploited by several species such as voles, deer and raptors such as Kestrel, Buzzard and Goshawks in this area.

Where possible the scale of clearfells will be in keeping with the scale and topography of the local landscape. Therefore in some instances large clearfells will be appropriate in terms of scale.

5.2 Future Habitats and Species

Refer to Map 7: Future habitats and management.

Restocking

In common with the majority of FCS estate, most restocking in the LMP area has traditionally taken place within two years of sites being clearfelled. However, many seedlings were badly damaged or killed by an endemic forest pest known as the Large Pine Weevil, *Hylobius abietis*. This species lays its eggs in deadwood/stumps on clearfell sites and the emerging adults feed on the bark of young trees, often with devastating effect on newly planted conifer crops.

Previously this damage was countered by the planting of seedlings treated with insecticide, followed by 'top-up' spraying of the trees during spring and summer. However Forestry Commission is committed to a policy of chemical reduction on the national forest estate, in line with current European Union directives on chemical use, which has had a significant effect on the way we manage this pest.

From 2008 FCS has introduced a default four-year fallow period for clearfell sites. This allows for the *Hylobius* population to peak and then drop to acceptable levels before restocking is carried out. Fallowing has been shown in studies to be the most effective method of establishing trees without intensive chemical input. Although the default fallow period is four years, restocking may take place before then if site monitoring is implemented, and the Forest Research *Hylobius* Management Support System shows that it is safe to do so.

In this particular plan the occurrence of DNB will have an impact on species choice in some areas. In light of advice from Forest Research, the Forest Enterprise Management Board has placed an ongoing moratorium on the planting of pure stands of Lodgepole pine (interior and coastal) on areas which have been infected. The Alaskan provenance of Lodgepole Pine is approved for planting, and it can be used at the discretion of the District. Similarly, the District has decided that although the moratorium on planting Scots Pine in infected areas within the immediate vicinity (500 metre zone) has been lifted for the whole district we will continue to assess whether it is appropriate to plant Scots Pine on specific infected sites within the 500 metre zone, where reasons range from a site being inappropriate for other species to the site being historically a pine site. This decision of taking a cautious approach to re-plant pine in former infected DNB- areas has been made due to the fact that the impact of DNB on Scots Pine hasn't been clearly determined yet, and natural regeneration on young Scots pine trees show symptoms of the disease in some areas.

Species choice in the design plan area is principally guided by production and this explains the large planned conifer component of the forest, which is largely made up of Sitka Spruce and Scots Pine. However, in order to take account of potential diseases, it has been deemed preferable to diversify conifer species through making good use of the Ecological Site. This has resulted in making better use of soil nutrient levels where Douglas Fir, Hybrid Larch and Norway Spruce will be planted on the better soils, and elsewhere on the poorer soils, further diversification will be achieved through the establishment of Japanese Cedar, Noble Fir and Serbian Spruce.

Further diversification will also be achieved through increasing the area of broadleaf's, where this will allow the forest itself to surpass the 5% UKWAS threshold and also contribute to both national and forest district policy objectives, which are seeking to increase broadleaf tree cover from the current 8% of woodland cover to around 20%. Commercial management will range from the production of birch, alder, willow, and/or aspen on wet sites for fuel wood (and quality timber, if possible), to the production of high quality timber of oak and beech and other broadleaf species on drier and nutrient-richer sites. It is important to note that planting of large seeded broadleaves is acceptable in regards to red squirrels as the forest is not a red squirrel stronghold and also because there are currently only minimal existing linkages which could be advantageous for grey squirrels. Establishment of broadleaves will have multiple benefits which include production of timber, naturalisation of watercourses as well as the benefits of improving the water catchment for the local Glentauchers distillery. In regards to the future integration of the new planting sites Curlusk and Broadfield, the forest will seek to improve interlinking riparian areas.

Restocking will be undertaken, or regeneration will be managed to achieve a spacing that will allow a commercial approach. This will usually be 2500 and in some cases higher (stems per hectare) if quality timber is the objective.

It is important to note that this plan will act as a guide for species choice, based on soil, climate and other data, however the operational foresters will make the final decision based on the characteristics of individual sites. Where this may result in a major change from the plan, consultation with the appropriate staff and external bodies will be instigated before a final decision is made.

Sites that are currently recorded as felled but not yet restocked will be monitored, where the results will inform the decision as to whether enhancement planting, with species appropriate to the site, is required for successful establishment or if waiting for additional regeneration will produce a stocking suitable for timber production. The final decision and subsequent enhancement planting, if necessary, will be carried out within 10 years of the felling date.

Non Commercial Areas

Areas not considered for commercial management will include permanent woodland, riparian areas and managed open habitats.

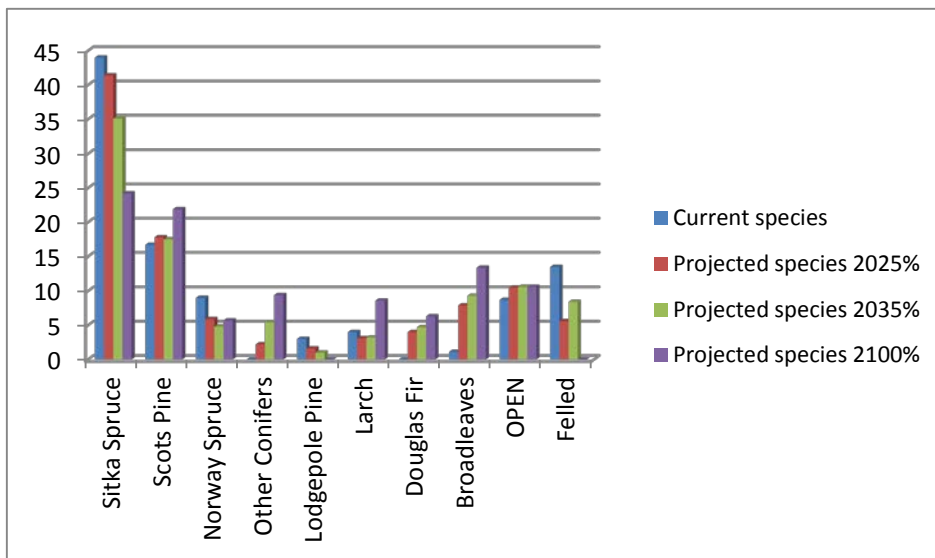
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Permanent woodland and riparian areas will require monitoring to ensure it is delivering the required objectives. Non-desirable species, such as non-native conifer regeneration, may require removal.

Forest/heathland transitional areas may require management to maintain their integrity and value.

5.3 Species tables

	Current species	Projected species 2025%	Projected species 2035%	Projected species 2100%
Sitka Spruce	44	41.4	35.1	22.1
Scots Pine	16.7	17.8	17.5	19.9
Norway Spruce	9	5.9	4.8	5.7
Other Conifers	0	2.2	5.4	7.4
Lodgepole Pine	3	1.6	1	0
Larch	4	3.1	3.2	7.6
Douglas Fir	0	4	4.7	5.8
Broadleaves	1.1	7.9	9.3	13.4
OPEN	8.7	10.5	10.6	10.6
Felled	13.5	5.6	8.4	7.5
	100	100	100	100

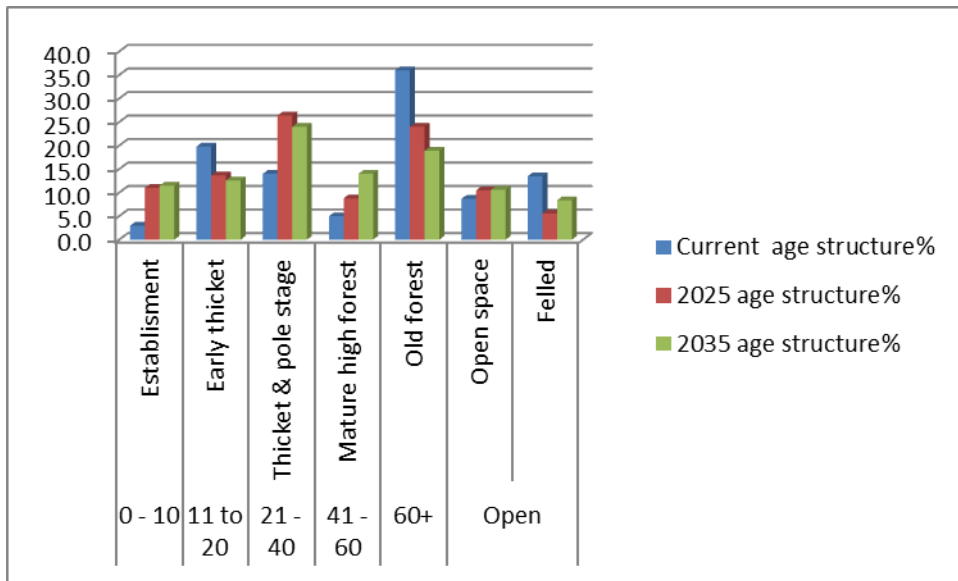


The table above shows how species composition of the forest is changing over time. It is important to note that in the future Sitka Spruce is reducing from 44% to 35.1% in 2035, and this will have an impact on the annual yield class of the forest due to the high yield classes associated with this species.

Through evaluating yield classes for the different species, it is calculated that in 2035 there will be a gross reduction in timber production of approximately 5% of current production levels. However, it is important to stress that the justification for these changes is to improve the forest's resilience to future disease and to contribute to both national and local broadleaf targets (See **Section 4** Analysis & Concept and **Map 7** Future Habitats and Species Map).

5.4 Age structure

Age	Successional stage	Current age structure%	2025 age structure%	2035 age structure%
0 - 10	Establishment	3.0	11	11.5
11 to 20	Early thicket	19.8	13.7	12.6
21 - 40	Thicket & pole stage	14.0	26.4	24
41 - 60	Mature high forest	5.0	8.8	14
60+	Old forest	36.0	24	18.9
Open	Open space	8.7	10.5	10.6
	Felled	13.5	5.6	8.4
		100.0	100	100



5.5 PAWS restoration

There are no PAWS in this design plan area.

5.6 Management of open land

The best use of open space within the forest was identified as a forest heathland transitional area, which would have benefits for moorland species as well as landscaping. Elsewhere open space was used to maintain linkages between some existing open areas and also to take the forest back from the main road.

5.7 Deer management

Specifically for this area roe deer are found along with the occasional red, where currently & historically browsing has been at the lower end of the spectrum (~5 deer per 100ha). However, the wildlife team still recommends establishing broadleaf areas with deer fences, as there are limited existing broadleaf areas and they would be browsed by choice by the deer.

Wild deer on the National Forest Estate (NFE) are managed in accordance with the Scottish Government's strategy "Scotland's Wild Deer a National Approach" and under the auspices of the Code of Practice on Deer Management.

The strategy and Code of Practice takes recognition of the fact that Wild deer are an asset, an integral part of Scotland's biodiversity and provide healthy food and recreational opportunities. The challenge of managing wild deer originates in a need to balance the environmental, economic and deer welfare objectives of the Scottish nation with the objectives of private landowners for forestry, agriculture, sporting and other forms of land use.

The principal legislation governing the management of deer in Scotland and hence on the NFE is the Deer (Scotland) Act 1996.

It is therefore FCS deer policy to;

- Prevent adverse deer impacts on commercial tree crops and the wider habitat. In doing so to carry out deer culling in an exemplary and humane way.
- Work closely with relevant organisations and neighbours to make sure that there are integrated deer management plans which seek to recognise the interests of all parties.
- Take opportunities to optimise income from venison from sporting where this does not conflict with our primary objective of maintaining deer impacts at an acceptable level, in line with Quality Meat Scotland accreditation in the form of The Scottish Quality Wild Venison (SQWV) Assurance Scheme
- Take all practicable steps to slow down the expansion of deer species into areas where they are not currently present.

All deer management will be carried out in accordance with OGB 5 - Deer management.

The aim is to manage deer density safely and humanely at a level which is consistent with acceptable impacts on forests and other habitats. This is likely to be at a density level of 5 to 7 deer per 100 hectares.

Deer cull plans are prepared for each Deer Management Unit and are the responsibility of the Wildlife Ranger Manager.

5.8 Access

There are plans for a new forest road in Greenhills to improve access. These are shown on map 9 – Planned Roads.

5.9 Pathogens

Hylobius can cause extensive feeding damage to young trees used to restock clearfell sites but damage is often highly variable. Previously it has not been possible to predict damage and so insecticides have been routinely used to protect the trees to try to safeguard this valuable young crop. However, on clear-fells where *Hylobius* numbers are low this treatment may be unnecessary and conversely when numbers are very high the treatment may be unable to protect the trees. Both of these situations result in losses in valuable resources.

The *Hylobius* Management Support System (MSS) is based on a simple monitoring protocol using billet traps to measure *Hylobius* numbers on individual clearfell sites. The numbers recorded are used, with other information entered into the *Hylobius* MSS software, to determine the best way to manage clearfell sites for successful, cost effective and environmentally friendly restocking. This Support System will be used on sites identified for monitoring in May and August or both depending on the felling year.

Dothistroma Needle Blight will be addressed differently according to the level of current infection in the crop. The severity of infection and crop symptoms produced range from the dropping of a couple of yield classes to high levels of mortality within the stand. The levels of mortality is the key concern as once dead the integrity of the tree quickly deteriorates to a state where it can not successfully be harvested. Categorisation of infected crop will allow us to prioritise the harvesting of such areas.

The following scale and categorisation has been agreed upon:

		Mortality (%)		
Needle retention (years)	Defoliation (%)	<20	20 - 40	>40
>2.25	0 - 25	1	2	4
1.51 – 2.25	26 – 50	2	3	4
0.76 – 1.50	51 - 75	3	4	4
<0.75	>75	3	4	4

From this the priorities for felling are as follows:

Highest: Category 4 - Once crops reach category 4 there is a marked reduction of marketable products. Category 3 still produce high proportion of timber before its value drops significantly.

Medium: Category 3 - Due to recent fuel wood markets crops at category 3 is now merchantable and operations can break even.

Low: Categories 2 and below – Once the higher level infection crops have been addresses the prioritisation will move to the lower classes taking into account factors such as rate of infection, area felled already etc.

This has lead to the following action plan for dealing with DNB infection:

- Prioritise infected areas to be felled by swapping felling coupes of non infected crops in the current program.
- Include into thinning operations the felling of any infected crops within the area to minimise costs. Amendments to the forest design plan will be required as specified in the tolerance table for felling such areas.
- Reassess badly affect blocks and consider if a full review is required.
- Due to the moratorium on planting CP and LP on all sites and SP on previously infected areas, plus a 500m buffer zone, planting programs will need to be amended to include replacement species suitable for the site.

Phytophthora ramorum

Any infection of *Phytophthora ramorum* is of relevance to the continued management of the forest, but Larch infection is of particularly concern due to the wide scale outbreak in the Scotland. Protocols are in place if there was an outbreak for the removal of infected species and for alternatives for restocking. Any suspicions of outbreak need to be reported immediately: - treehealthscotland@forestry.gsi.gov.uk.

5.10 Critical Success Factors

- Undertake felling and restocking within sensible periods to allow for continued restructuring of the forest.
- Planting of broadleaves and diversification of conifer species in order to meet species diversity targets.
- Undertake the planned thinning programme in order to improve crop quality.
- Construct the planned forest road to allow the currently inaccessible coupes to be managed.
- Maintain forest/heathland transitional areas.



Appendix 1 – Consultation record

Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Moray Council- Roads	14/3/14	19/3/14	You will already be aware that the Agreed Route Maps exist, and the C55H is an agreed route off the A95 as far as Gateside. For any accesses directly onto the A95 you should discuss with BEAR Scotland.	The Forestry Commission use agreed haulage routes and consults with Bear Scotland over ongoing operations.
Moray Council- Planning	14/3/14	None	N/A	N/A
Moray Council- Archaeology	14/3/14	22/4/14	There are a considerable number of archaeological sites recorded on the SMR which should be taken into consideration in drawing up the forest plan. The SMR is available online at: - https://www.aberdeenshir	All archaeology is protected as per Historic Scotland guidelines.

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			e.gov.uk/smrpub/moray/default.aspx	
Scottish Natural Heritage	14/3/14	24/3/14	<p>The only key issue for us with regards to the forests are their position within the catchment of the River Spey and proximity to some of the tributaries of the River Spey SAC. This is predominantly something that needs to be considered when planning and carrying out felling operations, track upgrades, drainage etc. It's important to minimise the risk of operations negatively affecting water quality water.</p> <p>I don't hold any species records for these areas but would anticipate there to be a typical range of species within the area. You might want to check</p>	<p>Operations will be carried out as per best practice where forest and water guidelines are followed. Otherwise a number of riparian areas will be improved through removal of conifers and the establishment of broadleaves and open space. RSPB will be consulted on in regards to this land management plan</p>

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			for any raptor/woodland grouse records with the RSPB.	
Royal society for the protection of birds	14/3/14	20/3/14	<p>I have checked our records and there are records of black grouse leks in the area of the forest design plan. Any sympathetic restructuring and management during the felling and restocking of the forest to maintain and enhance the habitat diversity in the landscape could therefore be beneficial.</p> <p>Some generic comments on habitat enhancement that may be appropriate for black grouse are: -</p> <p>Retaining and creating as much open ground as possible. The management of open ground can be</p>	<p>A major part of the plan is to improve the forest heathland transitional zone which has both landscaping and moorland habitat benefits. Potential black grouse habitat will be created through thinning, as this will result in more suitable ground conditions. Increasing the broadleaf component of the forest will provide potential food sources for black grouse at different time of the year.</p>

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			<p>important in creating nesting cover and brood rearing areas for black grouse. The aim should be to create good heather cover for nesting with a canopy cover of less than 40%, preferably 20%. Open areas and the presence of scrub of any extent will benefit a range of species including hen harrier by creating feeding habitat.</p> <p>Creation of suitable nesting habitat, for example, thinning of trees around wet, flushed areas within the forest or at the forest fringe to encourage the growth of ground vegetation. Linking the open ground to wet areas and where suitable ground vegetation like heather</p>	

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			<p>and blaeberry occurs or is likely to recover is likely to provide the greatest benefit as it can provide an important brood rearing area for chicks as well as food plants such as cotton grass, sedges and rushes.</p> <p>The retention and /or introduction of native broadleaves such as willow, birch and rowan may be beneficial as they can provide important food sources for black grouse at different times of the year.</p> <p>The quality of the habitat for black grouse can be improved, if there are opportunities to block old drainage channels and ditches to reinstate wet flushes. Young broods feed exclusively on</p>	

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			<p>invertebrates, which reach their highest densities in damp, flushed areas.</p> <p>Consideration should be given to marking existing or new deer fences. Marking may not be necessary on all lengths of fence.</p>	
<p>Scottish Environmental Protection Agency</p>	<p>14/3/14</p>	<p>1/4/14</p>	<p>Detail any new felling and planting and utilise low impact silviculture where possible. Also any new infrastructure such as roads would also need to be highlighted.</p> <p>Haughs Burn (WB ID 23180) is at bad status due to phosphorus from mixed farming- the plan should highlight that extra care will be taken with any phosphorus fertiliser</p>	<p>New planting/felling/roads are outlined in Maps 5-9. Watercourses will be managed as per the forest and water guidelines where there is a drive to increase broadleaves and habitat networks. Invasive species will be removed during forestry operations. There are no identified deep peat sites and any wetland areas would be protected as per the Water Framework Directive. Any forest waste</p>

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			<p>application or potential for phosphorus release in the large Rosarie forestry block (on the north flank of the Hill of Towie, extending to the B9103) which is the catchment of the Haughs Burn. The Burn of Aldernie (WB ID 23073) is at poor status- the Greenhill forestry block on the Hill of Newton is in the catchment of this waterbody. Both the River Isla (source of Keith, WB ID 23181) and the River Fiddich (downstream of Dufftown, WB ID 23072) are both at moderate status.</p> <p>The applicant should be aware that there are a number of water abstractions within the</p>	<p>operations would be undertaken after consultation with SEPA. Scottish Natural Heritage has been consulted with in regards to this plan. The Glentauchers distillery has been consulted with in regards to this plan and they will be informed prior to any operations that could impact on their works.</p> <p>All forest activities to be carried out as per Section 3.7 Statutory requirements and key external policies.</p> <p>No specific invasive species issues identified.</p>

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			<p>forest area related to the nearby distillery. The operator should take particular care not to impact on these abstractions and it would be advisable for them to contact the distillery directly prior to any works.</p> <p>Any invasive species such as Japanese Knotweed, Giant Hogweed and Himalayan Balsam would need to be managed. Forest management should enhance the potential of forests to protect society and the environment from the various effects of climate change, where this is particularly relevant to peat land and other wet lands. There is a requirement to conform to SEPA' guidance</p>	

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			<p>management of forestry waste and pollution.</p> <p>We expect forest activities to be carried out following the best practice guidance outlined in the Forest Standard Guidelines and other relevant best practice management such as the forest and water guidelines.</p>	
Historic Scotland	14/3/14	No response	N/A	N/A
Scottish Wildlife Trust	14/3/14	No response	N/A	N/A
Spey Fisheries Trust	14/3/14	20/3/14	It was indicated during the Spey Mouth forest consultation that there were no issues.	N/A
Drummuir and Botriphnie community trust	14/3/14	No response	N/A	N/A
Strathisla community council	14/3/14	No response	N/A	N/A

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Drummuir estate	19/3/14	25/3/14	There is scope to carry out marched fencing as well as increasing native tree species along with open space.	Liaison about fencing is now ongoing between Drummuir estate and Moray & Aberdeenshire FD. The plan will increase both broadleaves and open space for landscaping, habitat networks & forest district broadleaf/open space targets (See Map 7- Future Species & Habitats)
Moray Equestrian Access Group	14/3/14	15/3/14	I think the level of usage in this forest by horse-riders is now very low since the closure of the livery yard/riding centre at Maggieknocketer a few years ago. I suspect that usage by walkers and cyclists is also low. Access is limited to the forest roads - there are few other green roads	Rosarie & Greenhills is not a priority for recreation within the district, where strategically this is focussed on Ordiequish and Whiteash. However, it will still be possible for horse riders and bikes to access informal tracks and roads according to the Scottish Outdoor Access Code. Broadfield and Curlusk which are recent acquisitions will be dealt with in a separate land

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
			<p>and tracks that are accessible. There are a number of tracks that have not been maintained in a high level state.</p> <p>You will be aware that FE recently bought Broadfield farm, NJ398487. I hope that in your design plan you can create some access linkage onto Broadfield, perhaps from the recently extended forest road to the west, as well as reopening the blocked track described above.</p>	<p>management plan, but will both likely be low priority in regards to recreation for the same reasons outlined above.</p>
Crown Estate	14/3/14	No response	N/A	N/A
Delfur Estate	14/3/14	No response	N/A	N/A

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Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Glentauchers distiller	14/3/14	20/3/14	Requested to be sent final plan in order to feed back.	Final plan sent for consultation.
RES	14/3/14	10/4/14	Hill of Towie 2 is at planning stage.	No issues until planning permission is granted and agreements made with Forestry Commission.
Smith Gore	14/3/14	20/3/14	Have no management interest in this forest.	N/A
Forest Research	14/3/14	14/3/14	We only a biosoils plot which can be reinstated if necessary if these sites are ever assessed again, so there are effectively no constraints to your management in the area.	No constraints for this plan.

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Appendix 2 – Tolerance table

	Adjustment to felling period	Adjustment to Felling coupe boundaries	Timing of restocking	Change to species	Windthrow clearance	Designed open space	Changes to roadlines
Approval by formal plan amendment	Advance felling of unapproved coupe into current 10 year plan	>4.0 ha or 10% of coupe.	Over 4 planting seasons after felling	Change from specified native species, Change between species group.	> 4.0 ha in sensitive areas. >6.0ha in low sensitivity areas.	More than 2ha or 10% Any reduction in open space in sensitive areas Colonisation of open areas agreed as critical	As above in high sensitivity areas.
Approval by exchange of letters and map	Felling moved into previous or subsequent 5 year period	1.0 ha to 4.0 ha or 10% of coupe – whichever is less			1.0 ha to 4.0 ha – if mainly windblown trees in sensitive areas 1.0ha to 6.0 ha – if mainly	Increase of 0.5ha to 2ha or 10% - whichever is less Any reduction in open space	Additional felling of trees not agreed in plan. Departures of > 60m in either direction from

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					windblown trees in areas of low sensitivity		centre of line of road in low sensitivity areas.
FC Approval not normally required	Fell date can be moved within 5 year felling phase where separation or other constraints are met.	1.0 ha or 5% of coupe area – whichever is less.	Up to 4 planting seasons after felling	Change within species group e.g. Evergreen conifers; broadleaves.	Up to 1.0 ha	Location of temporary open space, e.g. deer glades, if still within overall Open Space design Increase by 0.5ha or 5% of area – whichever is less	No greater area to be felled than originally proposed Departures of < 60m in either direction from centre of line of road



Appendix 3 – FDP Brief

Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
Healthy (Medium)	We are committed to high quality silviculture and, increasing, to using alternatives to clearfelling.	<p>Moray & Aberdeenshire District has a high proportion (30%) of woodland cover managed under low impact silvicultural systems, which is a figure we want to maintain as a minimum.</p> <p>Thinning to improve timber quality will be our preferred option and we will work with our staff and contractors to further develop skills in this area. We will maintain a District Thinning Plan and will aim to thin a</p>	<p>(a) There is an area which has had seed trees marked, however elsewhere LISS areas are showing signs of instability, especially on areas which have soft ground conditions and limited brash availability.</p> <p>Thinning is the standard prescription apart from areas that are unsuitable.</p>	<p>Only use stable sites for LISS and manage unstable areas as clearfell.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		minimum two-thirds of the forested area. Outputs will be approximately 120,000 cubic metres annually.		
	We are exploring how to best steward the carbon resources locked up in the Estate's trees and soils.	The District will adopt a low impact silvicultural system where feasible to minimise the impact of ground preparation and felling, and follow Forest & Water Guidance and Forest Soils Guidance 2011. Moray & Aberdeenshire District will supply approximately 5,000 cubic metres annually for the domestic firewood market, and 10,000 cubic metres annually for biomass to reduce the requirement for hydrocarbons.	As per (a) Strategic	No specific objective. No specific objective.
	We will help the	The District will	Conifer diversity is	Increase diversity of

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
	Estate adapt to climate change and become more resilient to pressure.	<p>continually make good use of Ecological Site Classification to closely fit species to sites, and take into account the anticipated effects of climate change. (One important possible effect is that some Sitka spruce sites could become more susceptible to drought.)</p> <p>The District will manage Dophistroma needle blight in lodgepole pine during the period of this plan and, by reducing inoculum levels, will seek to safeguard Scots Pine woodlands, particularly in Speyside/Deeside and on the Moray Coast at Culbin.</p>	<p>largely limited to Sitka Spruce and Scots Pine, which makes the forest potentially vulnerable to disease; however there are a wide array of site conditions available for species diversification.</p> <p>DNB infection is monitored through intensive and extensive surveys.</p>	<p>conifer species through use of ecological site classification.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>We will manage continue to work with partners to reduce the risk of flooding due to a changing climate. Areas at risk include Donnottar Wood, the Deveron and Fochabers burn.</p>	<p>The forest is associated with flooding along the access road to Curlusk which is due to water flowing down the hillside associated with the new planting site at Curlusk . This issue will need to be addressed as part of the Curlusk and Broadfield land management plan.</p>	<p>No specific objective.</p>
	<p>We are committed to dealing with invasive plants and animals that threaten habitats and biodiversity.</p>	<p>Moray & Aberdeenshire District is at the forefront of efforts to reduce the impact of grey squirrels in the area. We are particularly committee to reducing their presence around Aberdeen and along the watercourses of the Dee and Don.</p>	<p>Strategic</p>	<p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>We will continue to work with partners to destroy Japanese knotweed (especially in the Spey catchment) and to help eradicate giant hogweed (in Deveron catchment).</p> <p>The District will continue to help monitor and control mink in the Don, Dee and Deveron river catchments.</p> <p>An active rhododendron control programme will be maintained with the aim of removing all mature bushes by 2015, and eradicating rhododendron completely by 2018.</p>	<p>Strategic</p> <p>Strategic</p> <p>Strategic</p>	<p>No specific objective.</p> <p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
Productive	We aim to increase the contribution of National Forest Estate to the economy of Scotland and its regions, and recognise the potential of the Estate to assist transition to a low carbon economy.	Moray & Aberdeenshire will continue to actively look for business development. These include renewable energy (at Clashindarroch and Fetteresso) and commercial recreation.	(b) There is a felling agreement in association with the Hill of Towie wind farm. This stipulates that there is a height restriction for a specific area, however this agreement imposes no actual restriction on what can be planted and due to poorer growth rates on these higher slopes, it is likely that there would only be limited felling required in the future, which would likely fall within areas associated with the forest/heathland transitional zone. rosarie & Greenhills	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		We will maximise brash and stump recovery where it is economic and environmentally viable to do so.	is not part of the current renewable development opportunity. Strategic	No specific objective.
	We aim to provide at least three million cubic metres of sustainable softwood timber every year.	The District will maintain a sustainable annual softwood timber production of 350,000 cubic metres over bark standing.	The forest has a number of large conifer areas reaching maturity which are now at risk of wind blow.	Restructure the mature forest through prioritised felling whilst balancing landscape with wind firmness.
	We intend to manage at least a quarter of our expanding broadleaf woodlands to produce quality hardwoods and woodfuel.	The District will adhere to its local broadleaf strategy. This includes increasing our productive broadleaf resource by planting a further 700ha by 2019.	There are a variety of site conditions suitable for planting broadleaves, which are currently less than the required 5% UK Forest Standard.	Increase broadleaves component of the forest with particular emphasis on establishment on the better soils.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		Where economically viable, we will actively manage our broadleaf resource to secure silvicultural improvement and commercial return.	Strategic	No specific objective.
	We will market timber in ways that encourage value adding and create additional jobs in manufacturing and processing, while recognising the benefits of contributing to local economic activity, especially in more fragile rural areas.	<p>To optimise recovery and income streams, timber will be marketed to best match demand, including parcelling firewood and potential biomass material.</p> <p>A high proportion of timber production (70%) will be marketed within medium or long term contracts to ensure market stability and to encourage processors to invest in maintenance and upgrades.</p>	<p>Strategic</p> <p>Strategic</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
	the estate where this is consistent with environmental objectives.	<p>land of grazing quality will be made available for lease or grazing licence.</p> <p>The District will maintain a starter farm at Upper Tullochbeg and look after further opportunities during the period of this plan. We will ensure that any agricultural-quality land that is acquired will be managed productively, pending land management decisions, in accordance with Woodland Advisory Group protocols.</p>	<p>associated with Rosarie and Greenhills forest.</p> <p>Curlusk and Broadfield are two acquisitions in proximity to Rosarie & Greenhills, and a separate land management will be undertaken for them.</p>	No specific objective.
	We aim to realise the Estate's renewable energy potential, while achieving a	The District will facilitate the development of windfarms that have planning consent.	See (b)	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
	reasonable balance with other objectives.	<p>Subject to grid connection dates and planning approvals we will also help the progression of windfarms with a view to optimising returns during the period of this plan. Initial sites will include Huntly, Speyside and Fetteresso.</p> <p>The District will consider community wind and hydro opportunities on the National Forest Estate.</p>	<p>See (b)</p> <p>See (b)</p>	<p>No specific objective.</p> <p>No specific objective.</p>
	We will work with partners to find new ways to harness our natural and cultural heritage and develop the Estate's potential for tourism.	The District work with Visit Scotland, local authorities, local tourism organisations, volunteers and businesses to capitalise on visitor attractions at Cambus o' May, Culbin, Gallows Hill	Strategic	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>(Dunnottar), Mither Tap (Bennachie); thus benefiting the local economy.</p> <p>We will continue to work with the Bennachie Centre Trust and Bailies of Bennachie to maintain and develop Bennachie as an important local visitor destination.</p> <p>We will develop Land Management Plans within the Cairngorms national Park that reflect and contribute to the objectives of the Forest and Woodland Framework.</p>	<p>Strategic</p> <p>Strategic</p>	<p>No specific objective.</p> <p>No specific objective.</p>
	We will support the Scottish Government's woodland expansion policy.	Through appropriate acquisitions, we will help deliver Scottish Government woodland expansion targets in accordance with the	Curlusk and Broadfield are two acquisitions in proximity to Rosarie & Greenhills, and a separate land	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>Woodland Expansion Advisory Group report.</p> <p>During the plan period, we will consult on, and thereafter implement, agreed land management plans for all extant acquisitions, including Corniehaugh/Woodfold, Mains of Ittingstone, Upper Tullochbeg, Curlusk, Broadfield, Culdrain and Waulkmill.</p> <p>A portfolio analysis of existing holdings will identify woodlands for disposal, with a view to generating income to purchase and establish new forests.</p>	<p>management will be undertaken for them.</p> <p>Rosarie and Greenhills provides a largely conifer edge to Curlusk and Broadleaf, where both are linked by riparian corridors.</p> <p>Strategic</p>	<p>Maintain largely conifer edge but take opportunities to naturalise riparian linkages which border Curlusk and Broadfield.</p> <p>No specific objective.</p>
Treasured	We want to encourage local people to get	Land management plans will be developed in consultation with	Consultation process undertaken to gather relevant information	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
	involved in using and managing local estate woodlands, so we will actively engage with local communities and be open to work in partnership.	<p>local communities, in accordance with our consultation strategy, to take into account local views that add value and provide benefits.</p> <p>We will continue to work with local groups (e.g. Bailies of Bennachie, Dunnottar Woodland Park Association, Friends of Durris Forests) and develop partnerships with others.</p>	<p>for this land management plan.</p> <p>There are no groups identified for developing a partnership with.</p>	No specific objective.
	We will continue to use the Estate as a place for volunteering and gaining employment skills.	We will provide a mid-year student placement in each business year, and participate in the Modern Apprenticeship programme to provide opportunities for up to two apprentices every two years.	Strategic	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		We will work with third sector organisations who provide development and recuperation opportunities for adults, and maintain a register of volunteers so suitable projects can be progressed as volunteering experiences.	Strategic	No specific objective.
	We are committed to creating more uniquely special places across the Estate and to delivering benefits to an increasingly diverse range of Scotland's people.	Moray & Aberdeenshire District will promote our key sites at Bennachie, Culbin and Roseisle as special places and maintain the highest standards of recreational management to maximise the opportunities for their responsible use. To enhance the visitor experience, we will continue to make	Strategic The local recreation hubs are located are Ordiequish and	No specific objective. No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>visual and environmental improvements around priority visitor recreation sites and along major tourist routes.</p> <p>We will continue to work in partnership with the Huntly Nordic Ski Club and the Huntly Nordic & Outdoor Centre on the ski trail network within Clashindarroch Forest. This forest has some of the best snow-holding capabilities in Britain for forest skiing and is enjoyed by a wide range of Nordic skiers.</p> <p>Visitor experience plans explore how we</p>	<p>Whiteash, whereas recreation in Rosarie & Greenhills is low priority within the forest district.</p> <p>Strategic</p> <p>Strategic</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>best interpret special places to add value to visitor's appreciation and understanding of these locations and their management. We will prepare management plans at Quarrel Wood, Blackhall (Scolty), and Culbin.</p> <p>The District will encourage an inclusive approach to the enjoyment of the forest resources by continuing to work with partners such as Greenfingers and the Fieldfare Trust to ensure facilities are fit for purpose.</p>	Strategic	No specific objective.
	We recognise the value of the Estate as a place for research and development of best	Moray & Aberdeenshire District will support appropriate research programmes (e.g. Aberdeen University	Strategic	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
	practice.	<p>research programme), including those with a focus on developing mitigation measures against Dophistroma needle blight.</p> <p>The District will, subject to resources, seek to be an exemplar of best practice in all aspects of our management delivery.</p>	Strategic	No specific objective.
Accessible	We will continue to invest available resources into high quality facilities that encourage and help visitors experience and enjoy the outdoor environment.	We will continue to review our facilities and prioritise resources to ensure they continue to deliver a safe, high quality product at key locations (such as Bennachie) to meet the needs of local people and visitors in accordance with priorities informed by our visitor surveys.	This forest is not a priority for recreation where the hubs are strategically located elsewhere.	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>Our staff will continue to be responsive to visitor needs, learn and develop their customer focus and facility management skills, and continue to improve our marketing (including on-line information) and promotional work. This will include working closely with Visit Scotland and other local partners.</p>	Strategic	No specific objective.
		<p>Moray & Aberdeenshire District will welcome approaches from third party recreation providers where their proposals are compatible with our management objectives. This will include looking at possible third-party sponsorship</p>	Strategic	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		opportunities at Blackhall.		
	We will continue to encourage use of the Estate for health benefits and outdoor learning.	<p>The District will work with local private and public sector education leaders to encourage the use of the forest as a learning and physical activity resource through the forest schools programme.</p> <p>We will continue to promote the use of the National Forest Estate for a wide range of</p>	<p>Strategic</p> <p>Strategic</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>events and activities, including competitive sports, leisure activities and learning opportunities. We will publish a newsletter, maintain our annual Christmas tree sale and develop our 'What's on' programme.</p> <p>We will also continue to improve our permission system to reduce potential conflicts between different users and encourage healthy activity and sport on foot, bike and horseback (and by any other method consistent with rights afforded under Part One of the Land Reform Act 2003).</p>	Strategic	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
	<p>Through our Woods in and Around Towns (WIAT) programme, we aim to provide more opportunities for more of Scotland's people to enjoy high-quality countryside, and find health, education, skills and community involvement benefits.</p>	<p>We will maintain high standards of management at established Woods in and around towns (WIAT) sites (e.g. Countesswells and Dunnottar) and consider opportunities for further development.</p> <p>We will continue to explore opportunities to extend the provision of woodland cover,</p>	<p>This site is not relevant to WIAT</p> <p>Strategic</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>facilities and services in and around Aberdeen City, and reactivate the partnership approach at Quarry Wood, near Elgin.</p>		
Cared For	<p>We are restoring around 85% of areas on ancient woodland sites to largely native species- the remaining areas will be enhanced through our management.</p>	<p>Moray & Aberdeenshire District will have 38% of plantations on ancient woodland sites (PAWS) in active restoration within the plan period, with an overall aim of achieving 53% of sites fully restored to native woodland. This is lower than the national target because a number of large sites (e.g. Blackhall and South Drumtochty) have conflicting</p>	<p>The forest's ancient woodland that is 'long established and of plantation origin- 2b'.</p>	<p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		objectives, including the management of sites for red squirrels, historical landscapes and high recreational use.		
	We aim to increase broadleaf tree cover from the current 8% of woodland cover to around 20%	<p>The District will expand its commercial broadleaf resource wherever viable to contribute to the 20% national target.</p> <p>Existing broadleaf woodland will be surveyed to ensure there is an accurate record. We will ensure an active programme of bringing these areas into District management.</p> <p>There will be a programme of fencing and culling to reduce the effects of deer grazing and browsing</p>	<p>The forest currently has ~1% broadleaves and there is another objective in place to counter this issue.</p> <p>Strategically broadleaf areas are being surveyed and will be brought back into management if required.</p> <p>Broadleaves are now only being planted in sensible areas where fencing is financially practicable. Culling</p>	<p>No specific objective.</p> <p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		on the broadleaf resource to allow the production of commercial quality broadleaf timber.	is undertaken on a strategic level.	
	We are committed to maintaining the best open habitats in good ecological condition.	<p>The district will contribute to the developing policy of sand dune restoration where it is relevant to Culbin and Lossie forests, and will progress any agreed prescriptions during the plan period.</p> <p>We will pursue favourable condition status (where practicable) for designated open ground sites, including Culbin, Hill of Towanreef and Spey Bay, in accordance with plans agreed with Scottish Natural Heritage.</p>	<p>Strategic</p> <p>Strategic</p>	<p>No specific Objective</p> <p>No specific Objective</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>The District will continue to review all open ground management on a regular basis to ensure it is appropriate.</p> <p>Grazing licences may be used, where appropriate, to maintain or enhance open ground habitats (e.g. Blackmiddens and Mortlach Moss).</p> <p>We will work to the Peat Policy and Lowland Raised Bog Strategy and look for opportunities to protect and enhance carbon</p>	<p>The forest has limited integration with the moorland on the higher slopes.</p> <p>No grazing areas identified within the forest.</p> <p>There is no deep peat or lowland raised bog areas identified within the forest.</p>	<p>Identify open space for forest/moorland integration through landscaping, in order to achieve a minimum target of 10% open space within the block in line with the UK Forest Standard.</p> <p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>rich soils. We will continue reinstatement work at Gowmoss and the Moss of Cairnty while looking for further sites as forest plans are reviewed.</p> <p>We will ensure that all our Land Management Plans take into consideration the requirements of the Water Framework Directive.</p> <p>We will ensure that our management of woodlands within Cairngorms national Park will contribute to the objectives of the Cairngorms Nature Action Plan 2013-2018</p>	<p>Glentauchers distillery sources water for distilling from streams emanating from the forest.</p> <p>Strategic</p>	<p>Naturalise watercourses associated with Glentauchers distillery in order to improve catchment area.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		and cairngorms Forest and Woodland Framework.		
	We will identify particularly vulnerable species for which the National Forest Estate is important and take specific conservation action.	<p>Moray & Aberdeenshire District is one of only four with populations of capercaillie. We will manage the relevant forests in Deeside and Speyside in accordance with best practice guidance to minimising disruption and enhancing habitat where practicable.</p> <p>We will employ a best practice approach to ensure that raptors are safeguarded and enhanced by beneficial</p>	<p>There are some historic sightings of Capercaillie, however they are no longer present or a priority within this forest.</p> <p>Forest operations will protect wildlife as is required by the law. Where possible nesting sites will be</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>silvicultural management. There will be a particular emphasis on goshawks and red kites.</p> <p>We will safeguard the current limited juniper resource in Cambus o' May and Strathdon, and will consider appropriate opportunities for expansion in Clashindarroch and new acquisitions.</p> <p>Red squirrels exist throughout much of the District and there are a number of stronghold sites. We will safeguard existing populations through beneficial management and by supporting a</p>	<p>maintained where they fall within low impact silvicultural systems.</p> <p>Strategic</p> <p>Red squirrels are a priority species for the Forestry Commission, however the forest is not a red squirrel stronghold.</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>cull programme to constrain the populations of grey squirrels in the Aberdeen area and along the watercourses of the Don and the Dee. We will also work to maintain habitats suitable for red squirrels with particular emphasis on the Deeside corridor.</p>		
	<p>We will safeguard archaeological sites through our planning and management, and recognise special places and features with local cultural meaning.</p>	<p>We will continue to update the Forester GIS Heritage Module with new discoveries, and will commission archaeological survey where necessary.</p> <p>We will continue to undertake conservation management, condition monitoring and archaeological recording at significant historic assets.</p>	<p>Archaeology updates done as required by conservation team.</p> <p>The forest does not have any priority sites, only unscheduled monuments, and management complies with</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>We will continue to work with stakeholders to develop, share and promote best practice historic environment conservation management.</p> <p>We will ensure our significant designated heritage assets are managed according to Monument Management Plans agreed with Historic Scotland.</p> <p>We will continue to hire an archaeological specialist to carry out checks of all work sites of archaeological interest.</p>	<p>Historic Scotland guidelines.</p> <p>As above</p> <p>As above</p> <p>Standard practice</p>	<p>No specific objective.</p> <p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		The District will work particularly closely with Bennachie Centre Trust and Bailies of Bennachie to interpret the cultural interest in Bennachie.	Strategic	No specific objective.
Good Value	We will seek a diverse range of income sources to underpin the cost of managing the Estate, and we will continually look for ways to achieve best value in delivery of public benefits.	Moray & Aberdeenshire District will work constructively with developers to secure renewable energy programmes which fit with other management objectives.	See (b)	No specific objective.
		Following fair and open tenders, we will develop relationships with recreation and tourism related businesses for	The forest is currently not identified strategically as an area for developing recreational business	No specific objective.

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		<p>commercial recreational opportunities which can be accommodated on the Estate and which contribute to other management and policy objectives.</p> <p>We will continue to charge for car parking at current sites where charges are levied in a way that is considered commensurate with short and longer stays. The proceeds will contribute to the upkeep of recreation and tourism facilities and services.</p> <p>The District will optimise the return to the public purse from estate development, such as land sales,</p>	<p>relationships.</p> <p>No car park charging in this forest.</p> <p>Strategic</p>	<p>No specific objective.</p> <p>No specific objective.</p>

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Theme- priority	Key Commitments	District specific Action	Analysis	Proposed Action
		of the evolving lights vehicles policy.		

Appendix 4 – LISS prescriptions

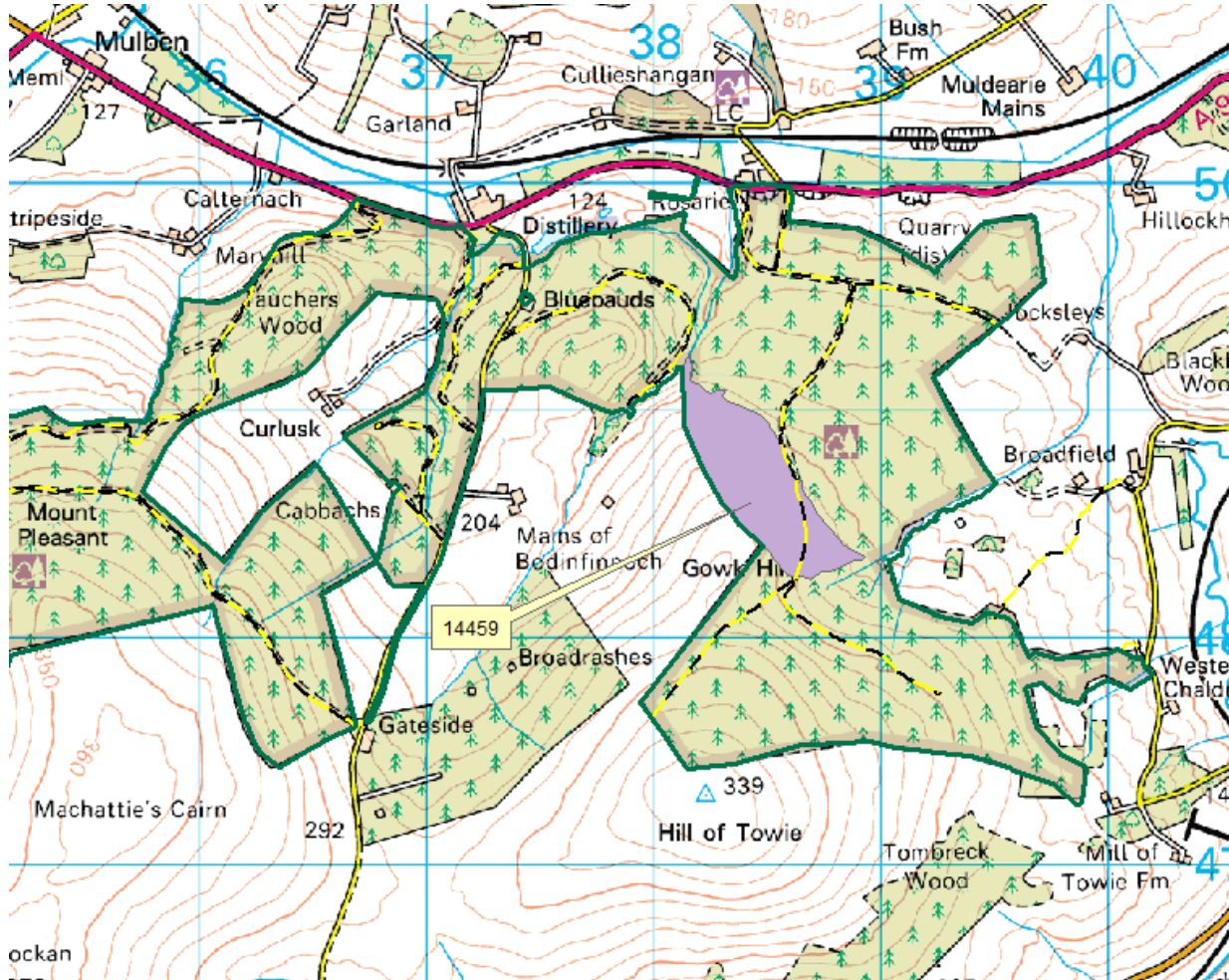
Coupe no. (See map 1 below)	Management objective/Reason for selection	Long-term structure* and desirable species	Age Trans. period and return time (years)	Regeneration and ground flora	Observations (e.g. likely barriers to achieving objective)	Next treatment required**	Proposed monitoring	Other useful information
14459	Environmental- Area will minimise ground damage.	Simple SP 70% Open 30%	55-60 100 7	Various vegetation including grass and heather.	Will need to wait for Scots Pine regeneration.	Seed trees marked so continue to thin as standard.	Thinning control/site visits.	Seed felling scheduled in 2055. Part of coupe falls within heathland/forest transitional area. Area already has seed trees already marked.

* Continuous cover stands: simple = 1 or 2 layers in canopy structure; complex = 3 or more layers in canopy structure

** Presumption will be that regeneration will be natural, unless otherwise stated.



Map1 shows LISS area: -



Appendix 5 – LISS management

LISS is an approach to forest management in which the forest canopy is maintained at one or more levels without clearfelling.

The word 'approach' is important because:

- we are not following a system;
- there are no standard prescriptions; and
- flexibility is important – to take advantage of opportunities as they arise.

Any preconceived ideas about systems of managing forests can act as a 'straight jacket' to thinking about CCF.

Stands that have been regularly thinned are more likely to be successful with CCF. Crown thinning will be undertaken when transforming stands to CCF rather than low or intermediate types, as used in plantations. The basis of crown thinning is to remove competition from around selected trees (Frame trees), even if the trees to be removed are as big. Using crown thinning usually increases the average tree size, so there is potential for more income.

There are two main types of structure:

- Simple – in which there will be one or two canopy layers of trees
- Complex – where there are three or more canopy layers of trees

1. Transformation of a young (<40 yrs) stand to a simple structure

The objective is to achieve reasonably even regeneration of the desired species and then remove the canopy in a number of thinnings.

Early crown thinning will be heavier (10-20%) than management table intensity and aim to develop 100 equally distributed 'frame' trees per hectare.

'Frame' trees are well-formed dominant trees with good crowns at reasonably even spacing.

When the trees begin to cone (see table 1 below) stands will be thinned to the basal areas shown in table 2 to develop good conditions for regeneration to establish.

If/when natural regeneration occurs it will be more variable than on a planted site, giving more variability in age, density and species.

Canopy removal will aim to maintain a leader-to-lateral ratio of >1 in the regeneration (see figure 1), generally this will be achieved using the basal areas in table 2.

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The final removal of the overstorey may not involve all the trees depending on management objectives and windthrow considerations (green tree retention). If natural regeneration is only partially successful in terms of number and species mix planting will be undertaken. Planting will be concentrated so the location of trees is known and they can be maintained. This will be by using a minimum of 16 trees in distinct group with the trees planted at 1.5 m x 1.5 m to form robust groups. If natural regeneration has been completely unsuccessful and CCF is still seen as appropriate planting will be undertaken to form the new canopy layer. Before planting the stand will be thinned to the basal areas for 'seedling growth' in the table 2. The felling and extraction of the canopy trees will be considered when deciding where to plant. Planting will be at 2500 trees per hectare in a well-defined pattern so they can be found for subsequent maintenance. 'Blanks' will be left when the planting position is close (<1 m) to canopy trees. This should ensure restocking compliance with OGB 4, as the area under the canopy is not part of the net area. Attention will be paid to site preparation, vegetation management, plant quality and reducing the impact of mammals to make sure of successful establishment. In general opportunities for site cultivation will be constrained by the overstorey. If the established crop is between the ages of 20 and 40 years, a transformation period of up to 50 years is expected.

Table 1. Species seed production details.

Species	Age of first good seed crop	Age of max seed production	Interval between good seed crops (yrs)
Sitka spruce	25-35	40+	3-5
Scots pine	15-20	60+	2-3
Douglas fir	30-35	50+	4-6
European larch*	25-30	40+	3-5
Japanese larch*	15-20	40+	3-5
Hybrid larch*	15-20	40+	3-5
Western hemlock	25-30	40+	2-3
Corsican pine	25-30	60+	3-5
Lodgepole pine	15-20	30+	2-3
Norway spruce	30-40	50+	**
Noble fir	30-40	40+	2-4
Grand fir	35-45	40+	3-5

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Table 2. Basal area guidance for natural regeneration

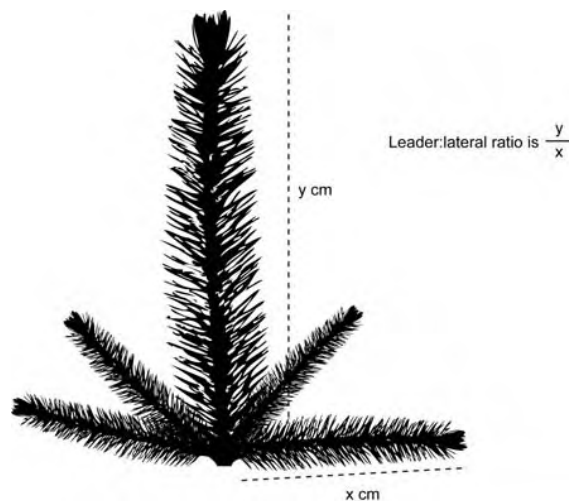
Species/ group	Shade tolerance of seedlings	BA (m2 ha-1) Establishment*	BA (m2 ha-1) Seedling growth**
Larches	Intolerant	20-25***	15-20
Pines	Intolerant	25-30***	20-25
Sitka spruce	Intermediate	30-35	25-30
Douglas fir	Intermediate	35-40	30-35
Norway spruce	Tolerant	40-45	35-40
Western hemlock	Tolerant	40-45	35-40

* On moderate to fertile sites where vegetation regrowth will be faster and more severe the BA for establishment will be increased.

** Seedlings and saplings are growing well under a canopy when the ratio of the length of the leader to the length of laterals in the upper whorl is ≥ 1 , as shown in figure 1.

*** Stands of larch and pine at these basal areas will usually have well-developed ground vegetation layer and control or cultivation will be needed to start regeneration.

Figure 1. Leader-to-lateral ratio.



2. Transformation of a young (<40yrs) stand to a complex structure

The objective is to create a wider dbh range than under a simple system by:

- retaining small trees; and
- encouraging fast growth of selected frame trees

The pattern of regeneration will be different to a simple structure, and will be arranged in groups that only cover up to 20% of the area at any one time.

Up to 50 'Frame' trees will be selected per hectare and these will be crown thinned so as to keep as many small trees as possible.

'Frame' trees are stable, well-formed dominant trees. They may need to be present on the site for a long time; spacing should be 'clumpy' and not regular. Stable trees will have a larger diameter for a given height.

The stand will be thinned to a residual basal area of about 18-25 m² per ha for larches and pines, and 25-35 m² per ha for spruces and Douglas fir. The choice within this range will depend upon the site and the balance between the overstorey and any regeneration. If there is little or no regeneration a higher value will be chosen to provide suitable conditions for seedlings to establish. If there is enough regeneration, which needs to be released, then a lower value will be favoured. The aim at each thinning is to remove enough trees to achieve the chosen residual basal area.

If there is too much regeneration thinning will be concentrated on releasing the best regeneration and attempting to hold it back in other areas.

Planting in complex structures will be considered to increase chances of success.

Trees will be planted in canopy gaps of 0.1 ha minimum size.

Trees will be planted in half the area of the gap in the centre.

Close spacing (1.5 m x 1.5 m) will be used to make the groups robust. For example, when planting a canopy gap of 0.1 ha 200 trees will be planted at 1.5 m spacing on half the area in the middle of the gap. Close spacing will ensure rapid canopy closure and planting only half the area ensures minimal competition from the canopy trees, allowing opportunities for natural regeneration and increasing operational access.

3. Transformation in older (>40yrs) stands

Transformation of stands older than 40 years may be possible, especially on wind-firm sites, but the opportunity to steer the development of the young stand in thinning has been lost. The main implications of this are:

for simple systems there will be reduced opportunities for developing the crowns of 'Frame' trees and the window for natural regeneration is reduced. Therefore more 'frame' trees will be retained and a longer regeneration period used.

in complex systems the main risks are that 'Frame' trees will become too large to be marketable, and the stand will still be quite uniform when windthrow starts. The aim is to establish groups of regenerating seedlings under an irregular overstorey while older trees are progressively felled.