Moray and Aberdeenshire Forest District

Aultmore

Forest Design Plan

Plan Reference No: FDP 18

Plan Approval Date:

Plan Expiry Date:

FOREST ENTERPRISE - Application for Forest Design Plan Approvals in Scotland

Forest Enterprise - Property

Forest District:	Moray & Aberdeenshire FD
Woodland or property name:	Aultmore
Nearest town, village or locality:	Newmill
OS Grid reference:	NJ442583

Areas for approval

	Conifer	Broadleaf
Clear felling	1062ha	
Selective felling		
Restocking	1120ha	117ha
New planting (complete appendix 4)	None	None

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 31 Jan 2011

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 …… Forest District Manager

Signed …… Conservator

District Moray & Aberdeenshire FD

Conservancy Grampian

Date ……

Date of Approval ……

Date approval ends: ……

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		
Deforestation					Forest quarry	X	2.6
Location and District			Aultmore, Moray & Aberdeenshire (see map page 6)				

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

Section 2 Property details	
Property Name	Aultmore
Grid Reference (e.g. AB 123/789)	NJ 420387
Local Authority	Moray
Nearest Town	Keith

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	

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	M	Surname	Reeve		
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	mark.reeve@forestry.gsi.gov.uk		
Is this the address for correspondence?				Yes	X	No	

Section 6 Applicant's details							
Title		Initials		Surname			
Organisation							
Address							
				Postcode			
Tel No				Mobile			
Fax				e-mail			
Is this the address for correspondence?				Yes		No	

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)	-
b. SSSI's with a Nature Conservation Order (Section 29 of the Wildlife and Countryside Act 1981)	-

c. National Park (NP)	-
d. The Broads	-
e. World Heritage Site	-
f. Scheduled Ancient Monument (SAM)	-
g. an area designated as National Scenic Area	-
h. Area of Outstanding Natural Beauty (AONB)	-
i. “Natura 2000” site – (European network of special areas of conservation and special protection areas under the Wild Birds Directive)	-

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Moray & Aberdeenshire Forest District

Aultmore Forest Design Plan

EIA map - Quarry extension

Scale: 1:2,500 @ A4

Date: September 2013

Quarry extension

FC roads

DNB infected areas

Felled (awaiting natural regen/restocking)

Adjacent woodland

0 25 50 75 100 Meters

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Forest Design Plan Summary

This plan is a review of Forestry Commission Scotland's management of Aultmore Forest near Keith.

The purpose of the plan is to set out the management objectives and prescriptions for the forest for the next ten years in detail, and in more broad terms for the following twenty years, which will fulfil the requirements of the UK Woodland Assurance Scheme.

The main objective for this block is the production of a sustainable timber crop while dealing with the issue of Dothestroma Needle Blight infection of the pine crops. Other objectives for the block are detailed in Appendix 3 – FDP brief (third column).

The occurrence of Dothestroma Needle Blight (DNB) has had a significant impact on the amount and timing of clearfelling in this block. This, along with the very poor soil, has also had an impact on the species choice for restocking. This has dictated that the majority of the area will be restocked with a mixture of Sitka Spruce and Japanese Larch, as a nurse. There is likely to be a significant level of natural regeneration of Lodgepole Pine, which will probably succumb to DNB before it reaches maturity, but will also act as a early nurse species.

Advantage has been taken of the limited areas with better soils to plan the planting of other appropriate species, either for timber production or to increase the biodiversity of the block by planting appropriate native woodland areas.

In the past due to the species composition and wet ground conditions the amount of thinning has been limited. However the change of species enforced by DNB and the improved ground conditions in the second rotation means that a programme of commercial thinning will be undertaken where ever the conditions allow. This will greatly increase the quality of the timber being produced from this block.

Across much of the block Sitka spruce, Lodgepole pine and larch species naturally regenerate freely. This will be used in conjunction with planting to achieve the restock densities required to establish a productive forest. However this does mean that the component of open ground within the plan area will need to be selected very carefully. The areas least likely to naturally

regenerate will be part of the open space component to reduce the ongoing cost of management. These will also be the areas least likely to grow a quality timber crop.

1.0 Introduction

Refer to Map 1: Location.

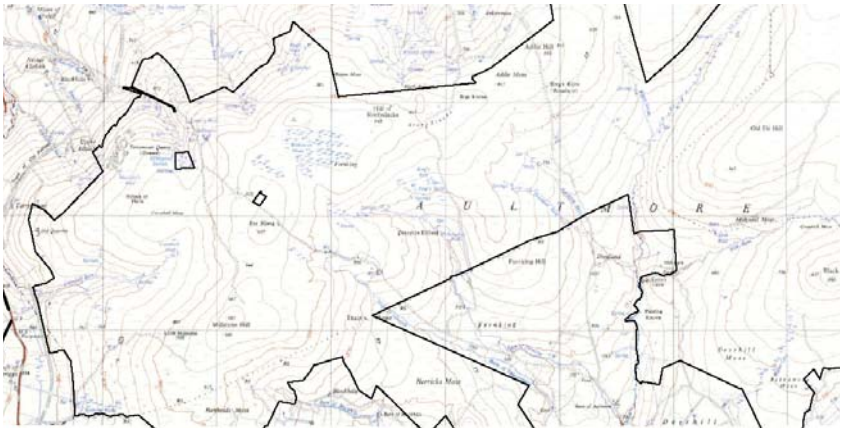
1.1 Setting and context

Aultmore FDP area is situated in the extreme east of Morayshire at NJ447585, and is approx 7 kilometres south of the port of Buckie and 8 kilometres north of Keith. It lies between the B9016 and B9018.
The plan covers a total area of 2415 hectares. The block is surrounded by farmland and is fairly visible within the local Morayshire countryside.

The existing design plan is characterised by very large clearfells (up to 100ha), mostly in response to a windfarm application. This planning application has still not been approved and this FDP is being drawn up working on the assumption that the windfarm will not go ahead. If the planning application is finally approved this FDP will need to be reviewed.

1.2 History of the forest

Aultmore was originally a peat moorland and was planted between 1961 and 1973, so it is just starting to come into production. The species mix is dominated by Sitka spruce and Lodgepole pine.



1957 Ordnance Survey map extract– Aultmore not yet planted.

In the past some of the area was used as a firing range and unexploded ordinance has been found on site during operations, especially during the original ploughing of the site.

Peat cutting used to take place at various locations across the block. However at the current time only one area still remains active. This is cut on a very small scale for personal use by a local resident. See map 2 - Key features for location.

2.0 Analysis of previous plan

The previous FDP was approved in May 2001 and was therefore due to expire in May 2011. However an extension was obtained as the results of the windfarm planning application were expected. This issue has still to be resolved so this FDP is being drawn up working on the assumption that the windfarm will not go ahead.

The existing plan is very brief, with little detail; however the main objectives stated are included in the table below, along with the progress made to date on their achievement and how this will be carried forward into this new plan.

The previous design plan was characterised by very large clearfells (up to 100ha).

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)**
Climate Change	Medium	Investigate the potential of Aultmore for renewable energy production from a wind farm	Plans for a wind farm agreed and approved by local planning office.	**2** – Planning application submitted but not yet approved by local planning office.	Produce current FDP on assumption that wind farm will not be approved. If the proposal does get approval during the life of this plan an early review will be required.
Timber	High	Maintain a sustainable level of timber production including felling of SLP crops.	Post fell figures recorded in SRP tally with those produced in PF.	**3** – Majority of felling coupes identified in FDP completed.	This will continue to be a major driver in the new plan. Identify coupes where DNB is a major issue and programme these for early removal through a change of felling dates, provided other objectives are not seriously compromised.
Business development	Low	Improve landscape value with well designed coupes.	Landscape value assessed as low but improved by management of coupes as per FDP.	**3** – Majority of felling coupes identified in FDP completed. Some areas of retention (mostly larch) not felled.	All coupes will be planned to maintain and where possible enhance how the FDP area fits with the landform and surrounding landscape. The areas of larch retention will be reviewed to establish their acceptability in landscape terms.
Community development	Low	Continue community involvement through liaison over FDP.	Enhanced relationships between FCS and local communities.	**2** – Details of community responses to consultation included in consultation record.	The relationship and consultation with local communities will be maintained during this FDP process but there will be little opportunity to increase it.

Access & health	Low	Continue current level of informal recreation on site.	A well-managed forest that encourages usage by the public.	**3** – Informal access has continued and increased to a small degree.	There will be no provision for any additional recreational facilities in the FDP. Informal access will be maintained under the auspices of SOAC.
Environmental quality	Medium	Increase provision of open space.	Open ground designation applied at levels appropriate to site conditions, concentrating on areas of deep peat, and recorded in FDP.	**1** – No areas of deep peat yet cleared and retained as open ground.	Potential candidates for open ground habitat to be surveyed to assess their current status and suitability for restoration.
Biodiversity	Medium	Establish permanent habitat networks.	NR designation applied at levels appropriate to site conditions and recorded in FDP.	**3** – Sites identified as NR recorded in FDP and GIS layers. Work plans produced and operations undertaken to manage sites as appropriate.	Ensure the current NR labels are appropriate to crop and site conditions. Those not appropriate will have designation changed. Additional areas found to be suitable will be designated if site objectives are met by NR prescriptions.

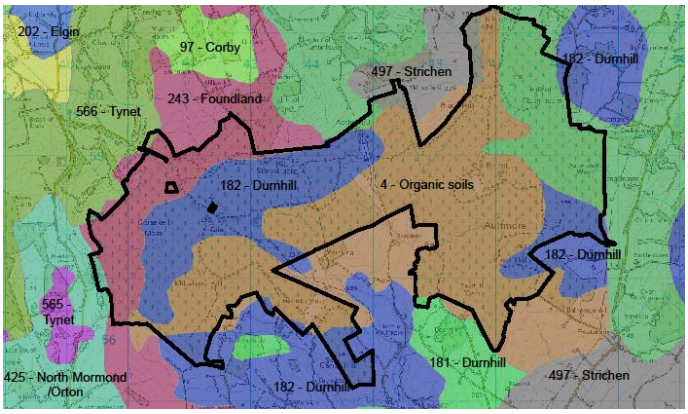
3.0 Background information

3.1 Physical site factors

Refer to Map 2: Key Features.

3.1.1 Geology, Soils and topography

Geology - According to the British Geological Survey Geological Map of the UK the majority of this forest design plan area is underlain by the sedimentary rocks of the Appin and Grampian groups, constituents of the Dalradian Supergroup, consisting of slate, phyllite and mica-schist. These tend to lead to the production of soils with medium nitrogen availability.
A very small area of the south eastern corner is underlain with igneous intrusions of granitic and syenitic rocks. These also produce soils with medium nitrogen availability.

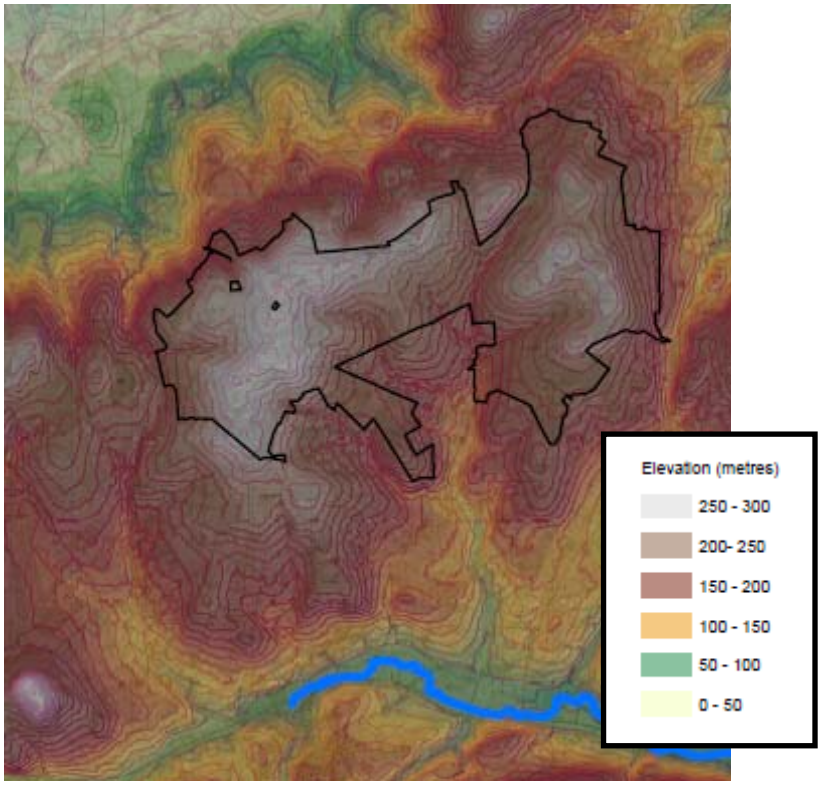


Soils - The Soil Survey of Scotland map reveals the soil associations underlying Aultmore shown in the map above.
The Organic soils that underlie about half of the block are made up of Blanket peats.
The Durnhill (182) association comprises peaty podzols with some freely and imperfectly drained humus iron podzols and gleys. The 181 association is dominated by peaty gleys, with some humus gleys and peat.
The Foundland association to the far west of the block is a mix of humus-iron podzols with some brown earths, peaty gleys, peaty podzols and peat.

The FCS "Report on a soil survey of Aultmore Forest" completed in 1971 states that "the most important feature of the soil group distribution in Aultmore is the comparatively large percentage of Calluna-dominated blanket peats and peaty phases of soils, at comparatively low elevations". It goes on to conclude

that "the chief current silvicultural problem…is the urgent correction of NP [Nitrogen and Phosphate] deficiency in SS planted extensively…in low-ratio mixtures with LP, and sometimes SP, on nearly all soil types…" This is obviously an issue we do not wish to repeat so the choice of species appropriate to the soil types and an appropriate nurse mixture will be an important decision.

Topography – The topography of the design plan area is principally that of a smooth plateau with gentle undulating convex features of peat filled saddles, flats and hollows. The elevation runs from about 150 metres to 300 meters at the top of Aultmore.
The block is located on a ridge of higher ground running approximately east west. The northern aspect of the ridge faces the coast at Buckie. The southern face overlooks Strath Isla, and its associated river. The main drainage systems are represented by narrow steeper sided burns. The gulley bisecting the block towards its eastern end is the source of the Burn of Aultmore, which runs down to the River Isla and thence to the Deveron, an important local salmon fishery.



Topology of Aultmore

3.1.2 Water

Aultmore is the source of several minor watercourses. Those flowing down the northern face of the ridge join with other tributaries to form the Burns of Tynet, Cairnfield and Buckie. They all form part of the Banff coast catchment area.

The tributaries flowing down the southern face eventually feed into the River Isla, which forms one of the main rivers in the Deveron catchment area.

Due to its remote location Aultmore does not pose a major threat to the quality of the surrounding river systems, but its impacts on water quality will still need to be taken into account when planning operations.

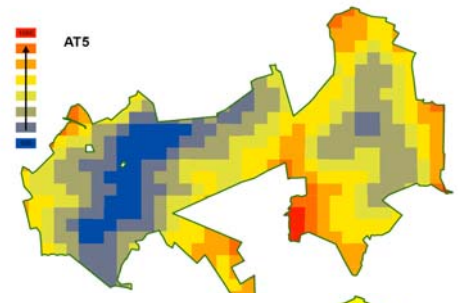
The north eastern corner of the block is situated within a critical load exceedance square with the remainder of the block in the adjacent square. Therefore this plan will seek to reduce the potential for further acidification of all watercourses leaving this block.

3.1.3 Climate

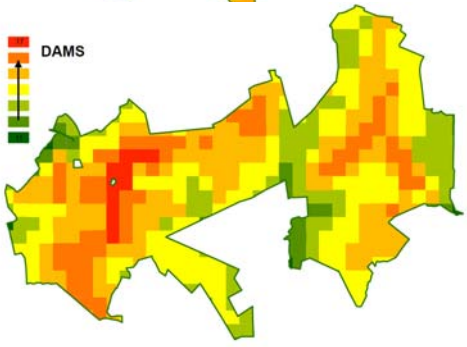
The climate data for the design plan area is obtained from the Ecological Site Classification system (ESC).

The results of interrogating this system gave the following data.

AT5	DAMS	MD
922 - 1080	11 - 17	69 - 104

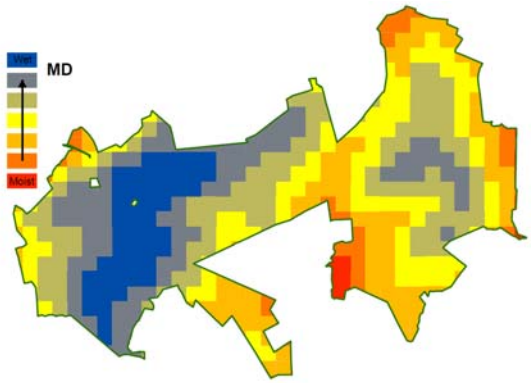


AT5 is the accumulated total of the day-degrees above the growth threshold temperature of 5º, which provides a convenient measure of summer warmth. The results for AT5 place these blocks in the "cool" zone.



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 of 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.

3.2 Biodiversity and environmental designations

There are currently no environmental designations in place over Aultmore.

The only FCS priority species known to be resident in these blocks is the Red Squirrel, which is also a LBAP species. Pine Martin, another LBAP species are also present.

There are a number of badger setts on the boundary of the block that will be protected during operations.

There have been sightings of Goshawk, Osprey, Capercaillie and Hen Harriers in the block but there are currently no confirmed nest sites.

Wildcat have been sighted in the block. Therefore a general walk over survey will be undertaken as per "Forest operations and wildcats in Scotland" guidance note prior to any operations that could affect wildcats.

3.3 The existing forest

3.3.1 Age structure, species and yield class

Age Structure

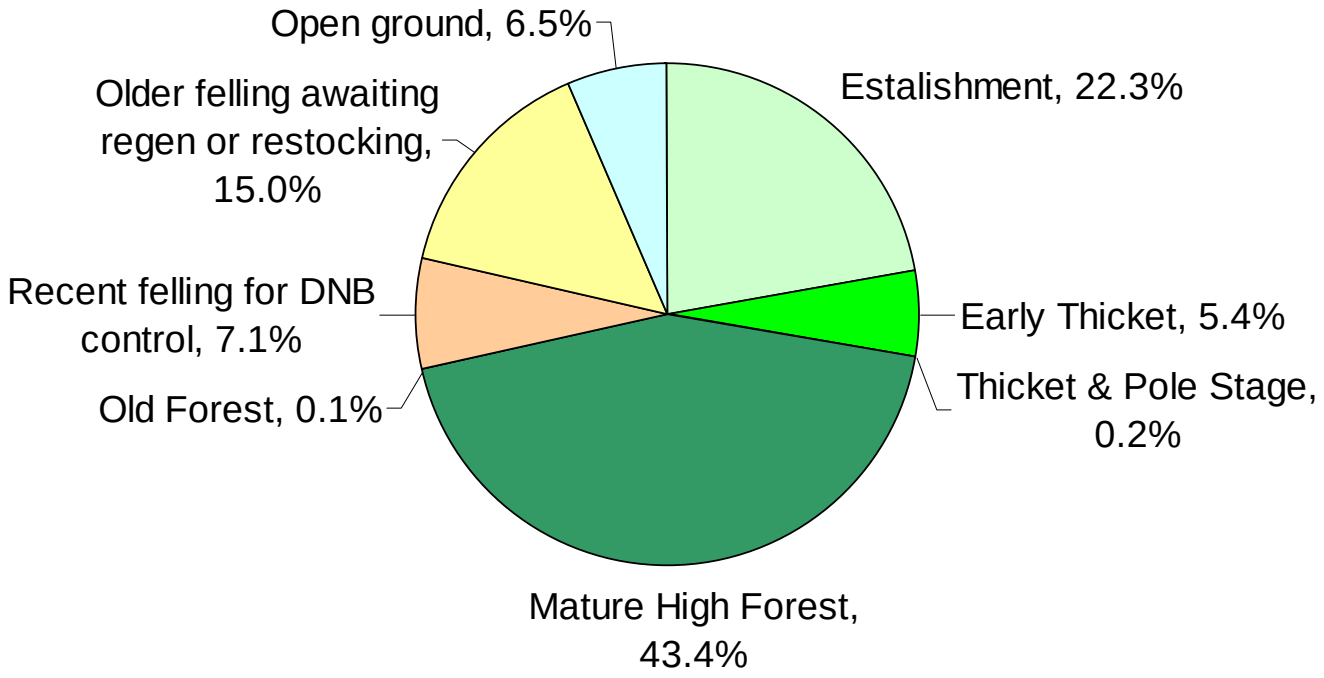
The majority of the design plan area is currently covered with mature high forest. This is due to the current rotation just coming to its economic maturity. A programme of felling and restructuring has been started, hence the areas of establishment and others awaiting restock. However there are currently almost no old forest areas.

The programme of restructuring to create a more diverse age structure in future rotations will continue however the current DNB infection has lead to more areas being felled than would usually occur.

Also the area of older felling awaiting regeneration or restocking is higher than would usually be expected. This is due to large areas being felled in preparation for the proposed windfarm, which is still to gain full planning approval. These areas will continue to be monitored for natural regeneration and where it does not occur

Opportunities to retain areas to create old forest will be taken where crop and soil types are appropriate.

Ages of Trees (years)	Successional Stage	Area (ha)	%
0 -10	Establishment	536	22.3%
11 – 20	Early Thicket	129	5.4%
21 – 40	Thicket & Pole Stage	5	0.2%
41 – 60	Mature High Forest	1049	43.4%
61+	Old Forest	2	0.1%
	Recent felling for DNB control	172	7.1%
	Older felling awaiting regen or restocking	362	15.0%
	Open space	157	6.5%



Species

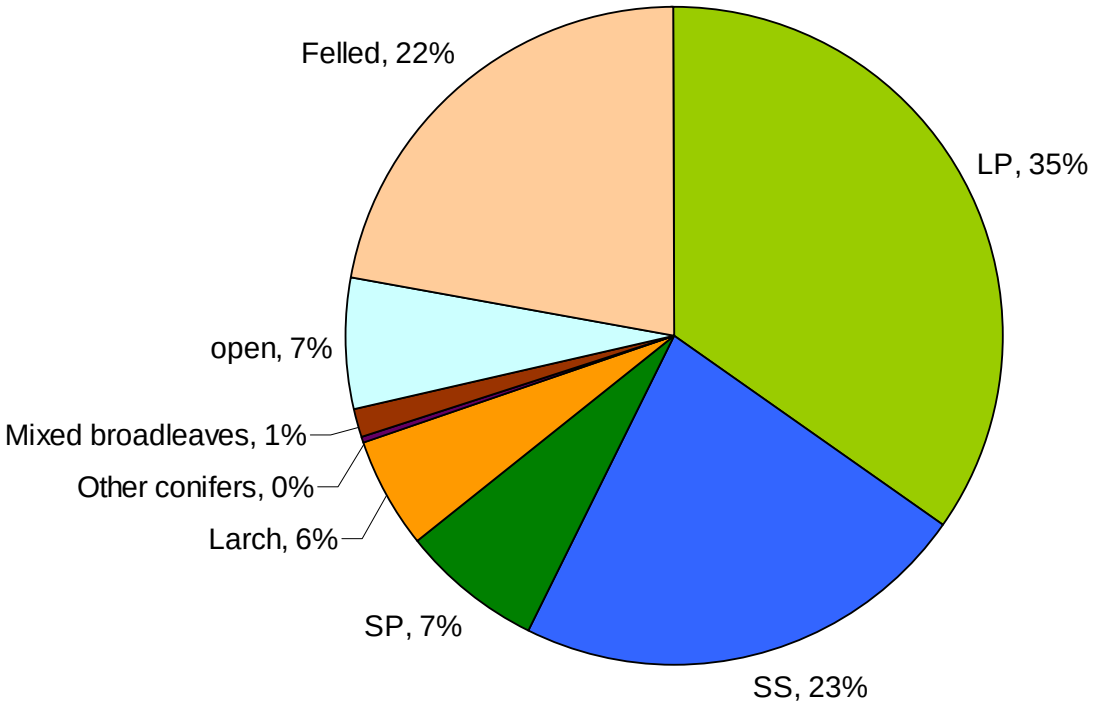
Approximately a third of the plan area is stocked with Lodgepole Pine, both planted and naturally regenerated. This was originally planted due to the poor soil conditions across much of the block. This percentage will fall as it is felled to help control DNB.

Sitka spruce accounts for just over a fifth of the total forest area, again both planted and naturally regenerated.

The remainder of the area is stocked with a limited range of species.This lack of species diversity is due in most part to the poor soil conditions, and thus the limited range of species suited to the conditions, and the fact that this is only a first rotation block so the diversity has not yet been developed.

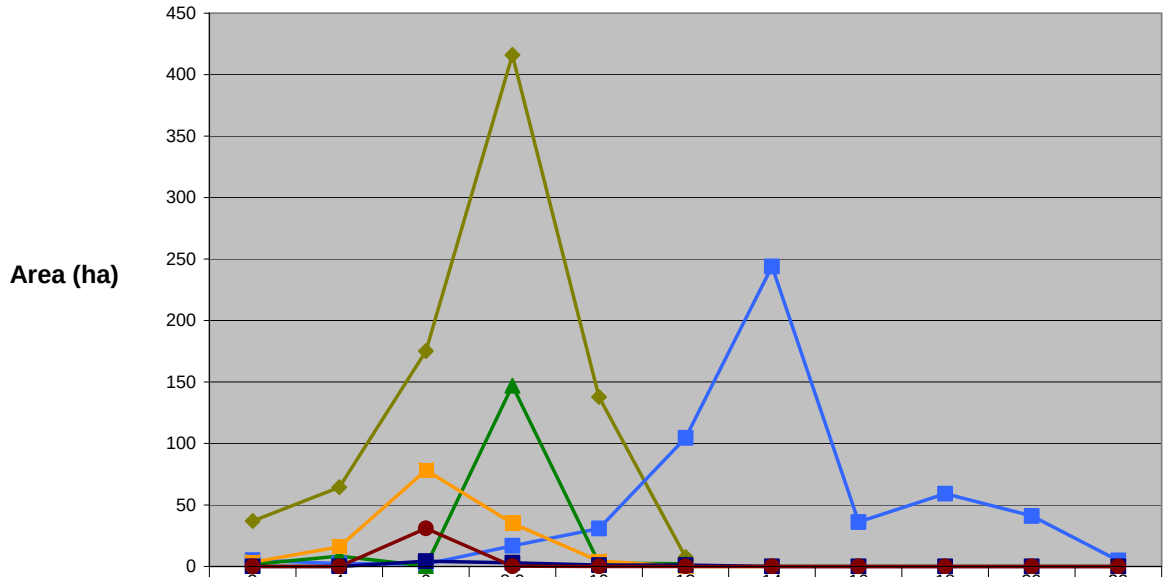
Permanent open ground is a small component of the block mostly due to the amount of natural regeneration present. Areas with the highest biodiversity value as open space will be identified and added to this percentage. Transitional open space will be a major component (a fifth) of this block due to the large areas of Lodgepole pine felled and planned for future felling due to DNB infection control.

Species	Area (ha)	Percentage
Lodgepole Pine	838	35%
Sitka Spruce	547	23%
Scots Pine	162	7%
Larch	137	6%
Other conifers	9	0%
Mixed Broadleaves	31	1%
Open	157	7%
Felled (awaiting regen or restocking)	534	21%



Yield Class

The yield classes for the various species do not vary greatly, as would be expected across a block with such similar soil types. There are few crops, except Sitka spruce, with yield classes greater than 12. This is mainly due to the poor soil conditions. The average yield class is about 8.



	2	4	6	8.0	10	12	14	16	18	20	22
Lodgepole Pine	37	64	175	416	138	8					
Sitka Spruce	5	2	2	17	31	105	244	36	59	41	5
Scots Pine	2	8	0	147	3	2					
Larch	3	16	78	35	4	0	0	0	0	0	0
Other conifers	0	0	4	3	1	1	0	0	0	0	0
Mixed broadleaves	0	0	31	0	0	0	0	0	0	0	0

3.3.2 Access

Access both to and within the whole of this FDP area is good. The A96 runs to the south of the block and the A98 run to the north. The block has a good forest road network throughout. However some of these roads currently require maintenance and this need will continue throughout the period of the plan given the volume of DNB infected lodgepole pine to be felled. Therefore the quarry at the western end of the block needs to be extended to allow the necessary quantities of materials to be won. (See EIA determination request - page 3 onwards)

3.3.3 LISS potential

There are no areas of this design plan currently showing potential for management under LISS (Low Impact Silvicultural Systems).
This is a silvicultural management approach whereby the forest canopy is maintained at one or more levels without clear felling. Under LISS there are no clearfell areas larger than 2 ha.

The main species in Aultmore are Sitka spruce and Lodgepole pine that have not been appropriately thinned in the past. This makes them currently unsuitable for LISS management. This situation is likely to change in the next rotation. There is prolific natural regeneration of Sitka Spruce, Lodgepole Pine and some Larch species however the soil conditions is some areas mean that the regular thinning required for successful LISS will cause unacceptable levels of ground damage. Where the ground conditions allow and timely and regular thinning can be sustained the LISS approach will be used provided it fulfils the objectives of the site.

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.

Material	End product	Percentage
Short roundwood	Chip board, Orientated strand board (OSB), Paper	60%
Short log	Pallets & slats	10%
Log	Construction	30%

The vast majority (95%) of this production is sold into markets in the north east of Scotland, with very little travelling more than 50 miles to the processing facility.

The main change to this is likely to be the increase in material going into the local fuelwood market. There are currently two plants in Moray and one in Aberdeenshire with approval and these will be looking for a combined volume of approx 350,000m^3 per year.

3.4 Landscape and land use

3.4.1 Landscape character and value

Scottish Natural Heritage, in partnership with local authorities and other agencies have carried out a National Programme of Landscape Character Assessment. This programme aims to improve knowledge and understanding of the contribution that landscape makes to the natural heritage of Scotland. It considers the likely pressures and opportunities for change in the landscape, assesses the sensitivity of the landscape to change and includes guidelines indicating how landscape character may be conserved, enhanced or restructured as appropriate.
These assessments are considered during all FDP reviews and where appropriate all efforts are made to follow the guidance given, where it matches with current FCS policy.

The design plan area is covered by Scottish Natural Heritage Landscape Character Assessment No101, Moray and Nairn, produced in 1998 by Turnbull Jeffrey Partnership.

All of the FDP area falls within the 'Uplands' Landscape Character Type. The uplands include a wide range of Landscape Character Areas from the rolling foothills bordering the coastal plain, to plateaux and hills around 600m in height. The Landscape Character Area in this case is 'Upland Farmland.' This is a large area of land lying to the east of the River Spey, between the Coastal Farmland and Open Uplands.

Aultmore viewed from the east showing the areas typical landform.

The landform of this area comprises broad, gently undulating slopes. These are cut by gently graded valleys, and punctuated by distinctive hills such as Knock hill. Woodlands cover a smaller proportion of the land here compared to the west of Moray and they are less integrated within the farmland.

The future felling and restocking of forests is considered a key issue in the report and it gives the following guidance:

'A strategy for the felling and restocking of both FE (Forest Enterprise) and privately owned forests and plantations of an appropriate scale and form/texture, should be devised and implemented to reduce the existing harshness of plantation when compared to the gently undulating landform.'

3.4.2 Visibility

The visual amenity of Aultmore is limited in the context of the local area. The views from the main roads are foreshortened. However the face above Enzie is moderately sensitive. This area will need consideration during the planning of the future felling coupes. However this will only be one such consideration. The need to remove large areas of DNB infected lodgepole pine and therefore the retention of none infected crops will greatly limit the amount of landscape planning that can be undertaken.

Face of Aultmore viewed from Enzie direction.

3.4.3 Neighbouring land use

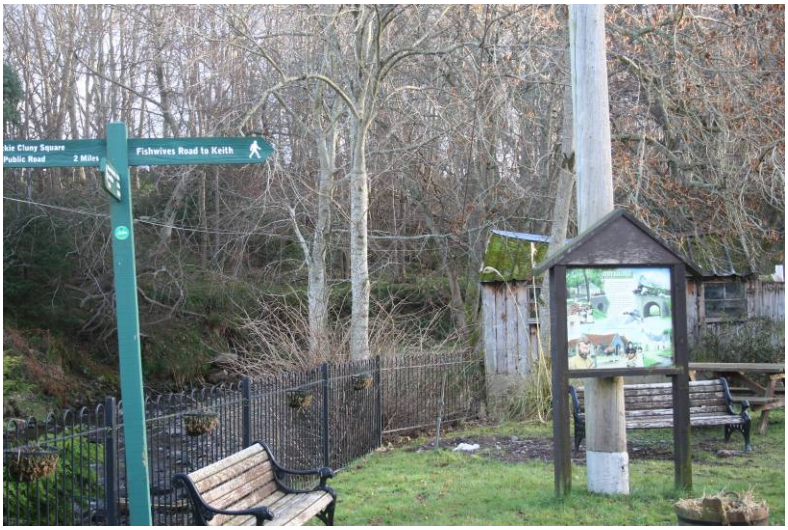
Land use around the woodlands in the plan area is predominantly small scale agricultural of pasture and rough grazing with some heathland on the higher areas. There are also some areas of privately owned woodland.

There are large areas of FCS forest close by with Whiteash within 1 kilometre to the west and Ordiquish beyond that.

3.5 Social factors

3.5.1 Recreation

There are no formal recreation facilities provided in Aultmore. However informal car parking takes place at Rosebank in the north, Balnamon in the south and Allaloth to the west . This is mostly used by locals for dog walking. Core path KT01 Drybridge to Keith runs through the block from north to south. (See map 2 – Key features)



Direction post and interpretation board for the core path in Drybridge.

3.5.2 Community

There are no distinct settlement areas adjacent to the woodlands in this plan. Communities are made up of scattered homes and farms rather than specific villages. Occasionally a group of houses occurs, such as at Glen of Newmill and Drybridge but this is the exception.

The forest does not have a strong community usage except for informal recreation.

The FDP area sits on the boundary of four community council areas, Rathven & Arradoul, Cullen & Deskford, Lennox and Strathisla. All 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 Aultmore but 60 non scheduled monuments are located and recorded in the design plan area. Information on the sites is stored in the Forestry Commission S.M.R. sheets for the block. This information will be used when work plans are put together for all the operations that are to take place in the plan period.
Of all of the sites only one, Tor Sliasg Bronze Age cairn, is of regional interest. (See map 2 – Key features)

Tor Sliasg bronze age cairn

Gateside farmstead

3.6 Pathogens and diseases

The major factor affecting the whole of this forest block is Dothestroma needle blight (DNB).
DNB is an economically 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. DNB 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.

More recently the disease has caused significant damage and death to Lodgepole pine and Scots pine. Due to the extent and severity of the disease on these species there are restrictions on the planting of all pine species on the National Forest Estate.
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.

This is currently the major issue affecting the decisions made in Aultmore and how we are going to manage our silviculture to reduce its effects on future crops.

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 2012
- 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

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

Forests & People

- 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

Soils

- Control of Pesticides Regulations 1986
- The Waste Management Licensing Regulations 1994
- European Soil Charter

4.0 Analysis and Concept

Refer to Map 4: Analysis and concept.

Theme	Issue	Analysis	Concept
Climate change	Renewable energy	Soil conditions are very poor across most of the block.	Utilise species suitable to the site conditions to supplying the local fuelwood market.
	Adapting to climate Change	There are areas suitable for conversion to Natural Reserves to increase carbon capture.	Manage identified areas to create a habitat that requires no further intervention.
	Flood & catchment management	Due to the soils and underlying geology water pH is low.	Opportunity to manage riparian areas to create naturalised woodlands that have the least impact on water pH.
Timber	Timber supply	Current crop age and condition allows a planned programme of production to be undertaken across the area.	Following clearfell operations select and plant species appropriate to the site conditions to maintain the highest level of productivity across the area.
	Timber quality	The ground conditions, species and previous policies have limited thinning across most of the area.	Undertake thinning in subsequent rotations to improve timber quality wherever possible.

	Hardwood timber	There are currently very limited areas of existing broadleaves.	Opportunity to increase the hardwood resource and grow broadleaves at commercial spacing on appropriate sites with the aim of producing fuelwood.
Business development	Tourism	The plan area provides a positive contribution to the local landscape.	Plan and undertake all operations to increase the positive contribution by increasing the diversity of species and age class.
Community development	Community engagement	There is currently a very low level of community involvement within the plan area.	Continue current level of involvement with the various user communities to maintain their interest in the area.
Access & health	Recreation	There is currently limited provision for informal recreation activities in the plan area.	Maintain the level of provision at its current level.
Environmental quality	Soil, water & air quality	Much of the soil quality across the plan area is very poor and water quality is important.	Increase the area managed under species appropriate to the soil conditions and least damaging to water quality.
	Landscape	The plan area provides a positive contribution to the local landscape.	Opportunity to progress the naturalisation of woodlands where appropriate to increase their landscape value.

Biodiversity	Species & habitats	Priority species are present within the plan area.	Plan management regimes and operations to improve the ecological value of the plan 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 Aultmore as much of the area as possible will be thinned in order to improve the timber quality. However many of the current crops have passed their first thin window and are therefore to old and unstable to start thinning. However provided the soil conditions are suitable all young crops will be thinned in the future. If the areas of mature larch that are being retained are windfirm enough they will also be thinned. This will be discussed and decision reached during the workplan process. In the future the Sitka spruce will be thinned on a 7 year cycle and the Scots pine and larch species will be on a 10 year cycle.

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 becoming more common.

There are no sites within the design plan area suitable to be managed under LISS at the present time. However there is the possibility that future rotations could be suitable, as demonstrated by the amount of natural regeneration seen through out much of the block. However the wet soil conditions could make the repeated thinning operations required for LISS unsustainable, due to the potential level of ground damage. If this is the case LISS will not be used and clearfelling will need to be the chosen system. However this decision can not be made at this stage and will be deferred to future plan reviews when we have experience of thinning or attempting to thin, the various sites.

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 DNB infected crops in this plan area can be harvested while they still have some usable timber 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 Hen Harriers 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.

The clearfelling of the DNB coupes in the first two phases will produce approx 236,250 tonnes of produce which will leave the forest via the two main access points onto approved haulage routes. (See map 5 – management)

Entrance	Phase 1 (2013 – 2017)	Phase 2 (2018 – 2022)
East (Balnamoon)	117,000m³OB	4,000m³OB
West (Allaloth)	100,000m³OB	-

5.2 Future Habitats and Species

Refer to Map 7: Future habitats and species.

Restocking

In common with the majority of FCS estate, most restocking in the FDP 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 abiatis.* 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 sooner if monitoring, using the Forest Research *Hylobius* Management Support System, shows that it is safe to do so. Refer to the district fallow policy for details.

The species choice for restocking has been guided by the use of the ESC decision support system. This highlighted that for the majority of the block the choice of suitable species is very limited due to the soil nutrient regime being "very poor". The issue of DNB highlighted earlier has also had a very limiting effect on our available choice of restock species. Therefore the main restock species will be Sitka Spruce with a Japanese Larch nurse crop. In some instances enough natural regeneration of these species, along with Lodgepole Pine will mean that planting is unnecessary. However as the Lodgepole Pine is likely to succumb to DNB before reaching maturity we will ensure there is sufficient Sitka Spruce and Japanese Larch to form a final crop.

Where replanting is necessary the mixture will be approximately 50:50 SS and JL. This will be in an intimate mixture to provide the necessary nursing effect for the SS.

There are a few exceptions where the soil nutrient regime is better. All these areas will be taken advantage of to plant other species to increase diversity. However some of these areas are too small and intimately mixed to be map, therefore the final decision on the appropriate planting species or mixture will be taken by the forester on the ground. Any deviations from map 7 (Future habitats and species) will be handled as per the agreed tolerance table (see appendix 2).

Sites that are currently recorded as felled but not yet restocked will be surveyed with plots using the FMM4 protocol. The results of this 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. See map 7 (Future habitats and species) for an indication of where natural regeneration has been observed and therefore where more is expected.

The assumption is that areas designated for broadleaves will be planted at commercial spacing (5000 stems per ha) and managed for fuelwood production. The sites will require ground preparation and possibly deer fencing. Thinning will also be carried out as appropriate for the crop and the final objective. The decision not to plan at a commercial spacing will be based on a lack of good access to the site for ongoing maintenance operations. The forester on the ground will take the site-specific decisions, with their intimate knowledge of the individual sites.

Much of the areas have been concentrated along the riparian zones which have been increased to 50m as per consultation reply from Richie Miller, Senior Biologist for the Deveron, Bogie & Isla Rivers Charitable Trust (see appendix 4 for consultation reply and map 7 for the future habitats and species).

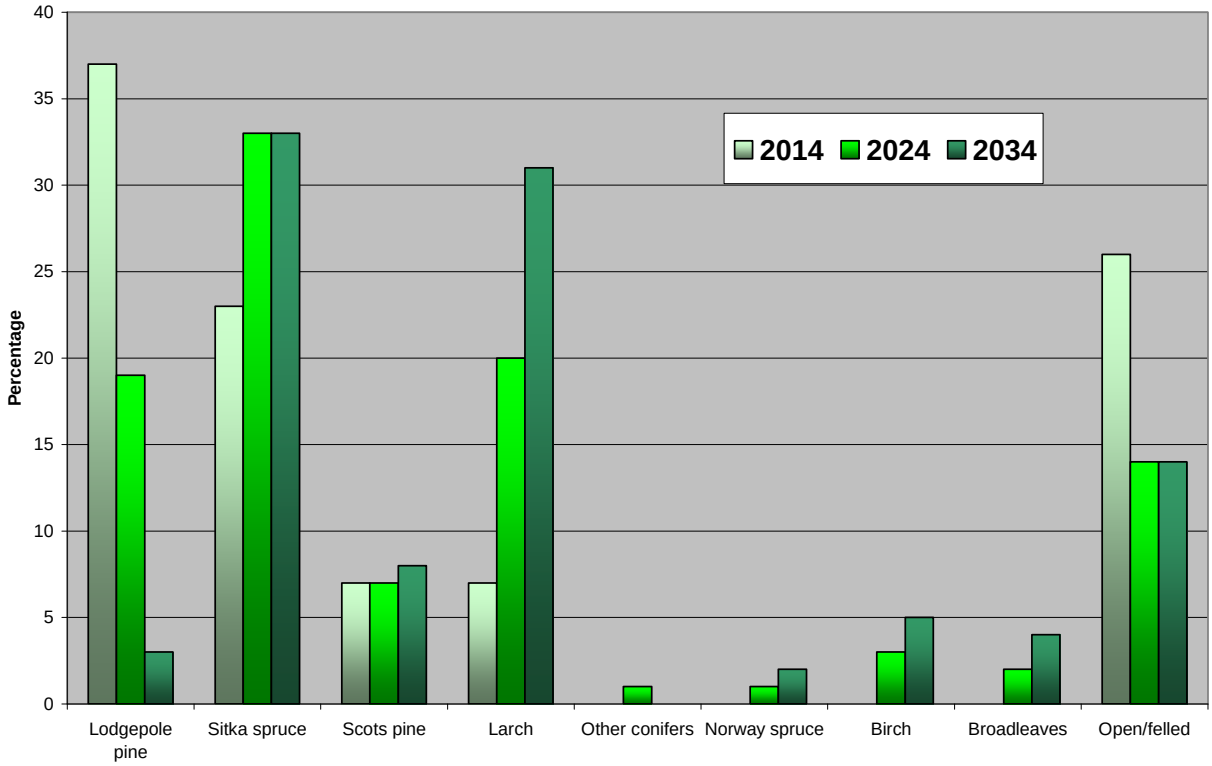
Non Commercial Areas

Areas not considered for commercial management will include permanent woodland habitats which will require monitoring to ensure they deliver the required biodiversity benefits expected from these areas. Non-desirable species, such as non-native conifer regeneration, may require removal. These

areas are concentrated along the existing larch belts which are being retained for structural diversity while a lot of the block is being felled to remove DNB infected crops.

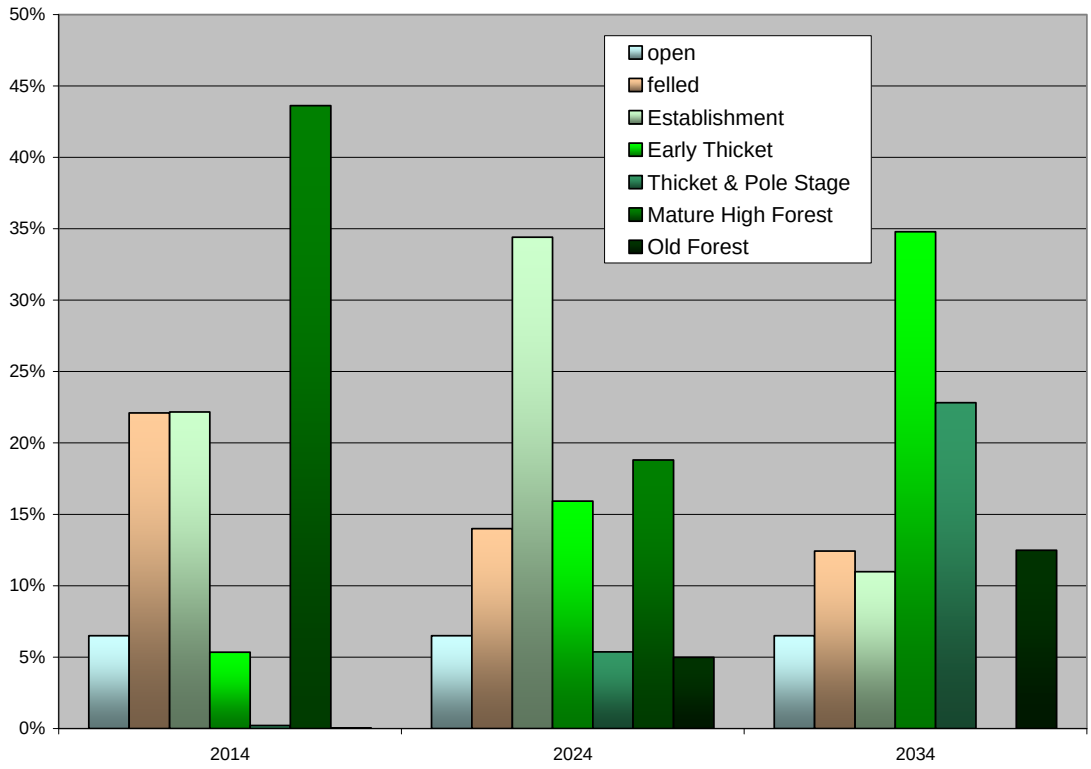
5.3 Species tables

Species	Current species	Projected species 2024	Projected species 2034
Lodgepole pine	37%	19%	3%
Sitka spruce	23%	33%	33%
Scots pine	7%	7%	8%
Larch	7%	20%	31%
Birch	0%	3%	5%
Norway spruce	0%	2%	2%
Broadleave	0%	2%	4%
Open/felled	26%	14%	14%



5.4 Age structure

Age of trees (years)	Successional stage	Current age structure	Projected age structure 2024	Projected age structure 2034
0 - 10	Establisment	22%	34%	11%
11 - 20	Early thicket	5%	16%	35%
21 - 40	Thicket & pole stage	0%	5%	23%
41 - 60	Mature high forest	44%	19%	0%
60+	Old forest	0%	5%	12%
Open	Open/felled	29%	21%	19%



5.5 PAWS restoration

There are no PAWS in this design plan area.

5.6 Management of open land

Areas designated as permanent open space will be limited to the very wettest areas, where work may be carried out in increase their water holding capacity by creating small damns if the landform makes this viable. This should create more areas of open water, even if they are only seasonal. In these areas the wetness of the soil should help to limit tree regeneration but in all other areas the amount of conifer natural regeneration makes the creation and maintenance of permanent open habitats financially and practically unrealistic. However there will be a network of transitional open space between the felling and establishment operations. These will provide suitable feeding and breeding habitat for hen harriers and other species.

Area of wet ground used for permanent open space. Note natural regeneration (in foreground and on far bank) on the drier areas.

5.7 Deer management

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 prepare for each Deer Management Unit and are the responsibility of the Wildlife Ranger Manager.

5.8 Access

The only access issues that needs to de addressed in the period of this plan is the expansion of the quarry and the subsequent maintenance of the forest roads, as detailed in section 3.3.2.

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 clearfells 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 the vast majority of all restock sites with certain limited exceptions.

DNB Blight will be addressed differently according to the level of the 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.

1	Below 30% infection Below 10% mortality
2	Below 30% infection 10% mortality
3	Below 30% infection 10 to 15% mortality
4	Below 30% infection 15% to 20% mortality
5	Below 30% infection 20% and above mortality
6	Over 30% infection 20 to 30% mortality
7	Over 30% infection 30 to 40% mortality
8	Over 30% infection 40 to 50% mortality
9	Over 30% infection 50 to 75% mortality
10	Over 30% infection 75% and above mortality

From this the priorities for felling are as follows:

Highest: Categories 6 & 7 - Once crops reach category 8 and higher there is a marked reduction of marketable products. Categories 6 & 7 still produce high proportion of timber before its value drops significantly.

Medium: Categories 8, 9 & 10 - Due to recent fuelwood markets crops at category 8 are now merchantable and operations can break even. A high proportion of crops at level 9 & 10 will not get to roadside due to the trees disintegrating during the felling process.

Low: Categories 5 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 FDP 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 uncertainty of the planting of all pine species on or close to previously infected sites planting programs will need to be amended to include replacement species suitable for the site conditions. As per map 7 (Future habitats and species) where sitka spruce and larch mixtures dominate.

5.10 Critical Success Factors

- Undertake the planned thinning programme in order to increase the quality of the timber within the plan area.
- Continue to manage the spread of DNB through clearfelling and subsequently restocking with appropriate less susceptible species.
- Undertake the felling coupes as programmed to deliver the landscape improvements intended.
- Undertake the expansion of the quarry to win more road maintenance materials on site.
- Continue with the maintenance of the forest road network to allow forest operations to be successfully completed.

Appendix 1 – Consultation record

Statutory Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Moray Council – Gary Templeton	05.01.11 By email	No response to date		No response
	09.04.13 By Autoplay CD	26.04.13 By email from Ian M Douglas Moray Access Manager	"Public Access Rights under the Land Reform (Scotland) Act 2003 applies to all of the woodland and management should take account of this. This access is generally taken informally along existing access tracks and involves relatively low numbers of people in what is a relatively remote area… The Clashmaddin Cycle Trail is signed and promoted through the woodland area and this	Core path shown on key features map. All operation will be undertaken with reference to SOAC.

			also needs to be considered as part of the plan."	
Scottish Natural Heritage – Jennifer Heatley	05.01.11 By email	10.01.11 By email	"Aultmore Forest does not overlap with any designated sites and management of the woodlands should not impact on any designated sites." "..refer back to the environmental statements for the wind farm proposal.."	No response
	09.04.13 By Autoplay CD	23.04.13 By email	"We are supportive of your plans to retain and restore areas of permanent open ground, especially in wet areas which can contribute to carbon capture through peat formation. We also support proposals to improve habitats for protected species currently using the site and for biodiversity value in general. This includes your proposals for riparian	No response

			planting of native broadleaves which will also help with water quality and flood management issues."	
Scottish Environment Protection Agency – Bevis Winter	05.01.11 By email 09.04.13 By Autoplay CD	No response to date No response to date		No response No response
Royal Society for the Protection of Birds – Ian Francis	05.01.11 By email 09.04.13 By Autoplay CD	11.01.11 By email 28.05.13 By email	"..we have very little to say about Aultmore! It's not a forest that we know much about.." "RSPB Scotland does not wish to raise any significant issues regarding the proposals."	No response No response
Lennox Community Council	05.01.11 By email 09.04.13 By Autoplay CD	01.02.11 Meeting with Michael Reid No response to date	Species choice given current predictions for climate change.	Showed how we use ESC to choose species suitable to the site and how different potential future climate change scenarios are built into the model. No response

Cullen & Deskford Community Council	05.01.11 By email 09.04.13 By Autoplay CD	No response to date No response to date		No response No response
Rathven & Arradoul Community Council	05.01.11 By email 09.04.13 By Autoplay CD	No response to date No response to date		No response No response
Strathiala Community Council	05.01.11 By email 09.04.13 By Autoplay CD	No response to date No response to date		No response No response

Aberdeenshire Council Archaeology – Moira Greig	05.01.11 By email 09.04.13 By Autoplay CD	05.01.11 By email 16.04.13 By email	"There is a high possibility that any future felling could expose unrecorded archaeology of prehistoric date, such as hut circles. For farmsteads and other buildings please ensure that any trees growing on or within structures are carefully removed and the roots treated. Buffer zones should be maintained around all recorded features. Forestry guidelines and Archaeology should be adhered to at all times." Make reference to the UKFS Forests and Historic Environment Guidelines.	Appropriate pre operation surveys will be undertaken and the results recorded in the appropriate work plan. All operations will be planned and undertaken to adhere to the latest good practice guidelines including 2011 UKFS Forests and Historic Environment Guidelines.
Fochabers Crown Estate - Rachel Bromby	05.01.11 By email	No response to date		No response

	09.04.13 By Autoplay CD	No response to date		No response
Moray Sled Dog Association	05.01.11 By email 09.04.13 By Autoplay CD	No response to date No response to date		No response No response
Moray Equestrian Access Group	05.01.11 By email 09.04.13 By Autoplay CD	08.01.11 By email No response to date	"..parking opportunities for trailers are limited." "..old entrances to the forest should be protected and retained whenever march fences are renewed."	No additional recreational facilities will be provided in the FDP area due to its low level of use. No response

The Deveron, Bogie & Isla Rivers Trust - Robin Vasey & Richie Miller	05.01.11 By email	13.01.11 By email	"The Aultmore burn situated within the forest is an important component of the river Isla." "..within areas of the Aultmore burn where the forestry plantations are close to the riparian zone these trees are removed and planted sympathetically with local deciduous species." "..existing 'log-jams' are removed to allow the free passage of migratory fish." "the Deveron is priority catchment for SEPA to combat diffuse pollution and any restructuring of forestry to help with this goal would benefit all."	All riparian areas will be identified and tree cover appropriate to the site conditions will be planned to enhance the biodiversity value of water courses within the plan area.
	09.04.13 By Autoplay CD	09.05.13 By email	See copy at appendix 4	Met with Richie Miller on 11.07.13 and amended restock to give 50m buffer of broadleaves on watercourses.

Newmill Renewables		29.05.13	"I am writing from Newmill Renewables, a Community Interest Company which runs a wood pellet district heating system in Newmill which supplies heat to the local hall and primary school… One aspect we may be looking at in the future is setting up a local wood fuel project for the Newmill/Aultmore area as a mechanism to provide local wood fuel and create training and employment opportunities – as well as reduce the transport costs of wood fuel. If we went down this route we would then be interested in discussing with the FC harvesting local timber for wood fuel. We have no comments to make about the proposed plan at present but merely wanted to introduce ourselves."	Email passed to operations colleagues.

Appendix 2 – Tolerance table

	Adjustment to felling coupe boundaries	Timing of restocking	Change to species	Windthrow response	Changes to roadlines	Designed open space
FC Approval not normally required	1.0ha or 5% of coupe – whichever is less.	Up to four planting seasons after felling.		Up to 1.0ha.		Location of temporary open space e.g. deer glades if still within overall open space of design.
Approval by exchange of letters and map	1.0 to 4.0ha or 10% of coupe whichever less.		Change within species group e.g. conifers, broadleaves.	1.0 to 4.0ha if mainly windblown trees. >4.0 to 6.0ha in areas of low sensitivity.	Additional felling of trees not agreed in plan Departures of >60m in either direction from centre line of road.	Increased of 0.5 to 2ha or 10% whichever is less
Approval by formal plan amendment	4ha or 10% of coupe.	Over four planting seasons after felling.	Change from specified native species. Change between species groups.	>6.0 ha.	As above depending on sensitivity.	More than 2ha or 10%. Any reduction in open space in sensitive areas. Colonisation of agreed open space

Appendix 3 – FDP Brief

As part of the national forest estate this plan will contribute to the seven key national themes in the Scottish Forest Strategy. The objectives for this plan area are:		
National theme	**District strategic plan**	**Forest Design Plan Objective**
Climate change	Renewable energy	**Woodfuel** – Utilise lower quality timber and DNB infected material. 15 – 20 years of production in current crop plus DNB material will provide significant levels of production. **Windfarm** – Plans agreed but not yet approved by local planning office. Produce current FDP on assumption that wind farm will not be approved. If the proposal does get approval during the life of this plan a review will be required.
	Adapting to climate Change	**Restore moorland areas –** Survey areas with potential for restoration to establish level of degradation. If suitable site identified plan for restoration. **Forest habitat networks** – Review and enhance gulley systems and link to other open ground habitats.
	Flood & catchment management	**Riparian woodland** – Some of the more major burn gulleys have potential to link with areas of riparian woodland of FCS land holding. Establish suitability and plan for enhancement where practicable.
	Carbon sequestration	**LISS** – Not appropriate in the design plan area due to soil conditions and crop stability issues.
Timber	Timber supply	**Thinning** – Continue to thin areas currently under a thinning regime. Current non-thin areas beyond thinning window. Plan larger area into thinning regime during next rotation by timely first and subsequent thinnings.
	Timber quality	**Species choice** – Select and plant appropriate species for site type according to results of ESC assessments. Appropriate stocking densities to achieve good quality timber must be maintained. **Thinning** – Undertake thinning where possible to increase quality of timber supply.

	Timber transport	**Transport** – Use preferred timber haulage route to minimise potential damage to public roads.
	Hardwood timber	**Niche marketing** – Limited scope for hardwood management for local woodfuel supplies due to lack of broadleaf resource. Increase broadleaf area by planting and regeneration of appropriate species and manage for future production of fuelwood.
Business development	Skills	**Local contractors** – Currently no local contractor base. Remain open to potential to develop local contractor base providing secondary opportunities for energy production and additional added value markets (turnery, firewood etc).
	Tourism	**Landscape value** – Low landscape value across most of block except north west face. Deliver a positive contribution to the landscape of the area by increasing the diversity of species and age class in accordance with SNH landscape character assessments.
	Income diversification	**Woodfuel** - Exploit opportunities for woodfuel, see Renewable Energy section above
Community development	Community engagement	**FDP process** – Consult with both statutory and non-statutory consultees during FDP process Undertake community consultation with local interest groups i.e. Moray Equestrian Access Group, Moray Sled Dog Group. **Local communities** – Consult with all relevant Community Councils.
	Learning	**Forest visits** - Forest design plan area not currently suitable for educational visits or 'What's on Events'.
Access & Health	Recreation	**Planned maintenance** – No formal facilities so no maintenance required. Informal access will be maintained under the auspices of SOAC.
	Making access easier	**Core paths** – Work with Moray Council to maintain core path.
Environmental quality	Soil water & air quality	**LISS** – Not appropriate in the design plan area due to soil conditions and crop stability issues.
	Landscape	**LISS** – Not appropriate in the design plan area due to soil conditions and crop stability issues. **Naturalisation of woodlands** – Progress the naturalisation of woodlands where appropriate, taking into account site, species and silvicultural context.

Biodiversity	Species & habitats	**Forest habitat networks** – Review and enhance gulley systems and link to other open ground habitats. **Priority species** –Red squirrel, Goshawk, Scottish Crossbill, Wildcat and badgers have all been recorded within the FDP area. Improve the ecological condition and habitat quality for these species where appropriate.
	Ecosystems	**Species & HAP** – Restore moorland areas. Survey areas with potential for restoration to establish level of degradation. If suitable site identified plan for restoration. **Deer management** – Maintain, and review annually, a deer management unit plan to achieve timber production and ecological objectives.
	Designated sites	No designated sites with the plan area.

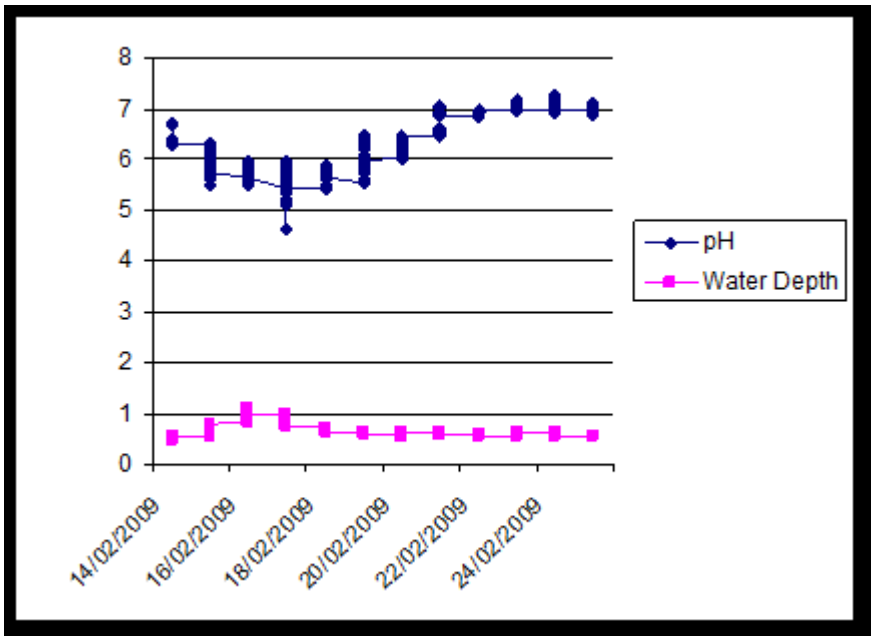
Appendix 4 - Deveron, Bogie & Isla Rivers Charitable Trust consultation reply

Dear Mr Reeve,

Thank you for the opportunity to comment on the latest draft plan for Aultmore forest. Obviously our main focus is the running watercourse within and close to the site and our comments will be focused on these, but we note the information on biodiversity and public access. From the maps contained in the auto play CD provided, it shows that there is significant felling planned in phase one (2013 onwards) adjacent to the southern face watercourse such as the Aultmore, Fernking, Thievesbush and Garral. We support this and would encourage if possible that further planned riparian felling, in future phases, is brought forward. With regards to future restocking I'm sure this will be done in conjunction with the Forest and Water Guidance 2011 and a suitable riparian buffer will be implemented, but in this case we request FCS implements the largest buffer available(>50m) due to acidification worries we have. This request is due to the findings of some research we carried out in the Aultmore catchment from 2011 onwards.

The Aultmore Burn is one of the largest tributaries of the river Isla. We have monitored salmonid densities throughout this watercourse on consecutive years and have concluded that the production of salmon and trout parr is not at the levels you would expect from the habitat available. We decided to take action in January 2009 and installed a set of constant monitoring equipment to investigate the possibility that the water quality and in particular the pH of Aultmore, may be the factor restricting parr production. The eggs of Atlantic salmon can fail to hatch if exposed to pH 4.0-5.5 at the stage in which the embryo has developed eye pigment. The enzyme chorionase (the enzyme required to dissolve egg membrane) needs a high pH to work efficiently. Thus the malfunction of this enzyme effectively causes the embryo to remain trapped within the egg. The project (graph 1) has shown that after prolonged periods of rain, when the water depth of Aultmore increases, the pH can occasionally reach levels that are detrimental to salmon ova, mainly we expect due to the poor buffering capacity of the local soils and rocks and possible potential exacerbation from the effects of climate change and the riparian forestry.

Graph 1 – Extract from Aultmore pH Data (Feb '09)



It is noted that there may also be some considerable felling operations if the Aultmore windfarm was to go ahead, again we ask that possible acidification worries within the catchment and increased sediment delivery is taken into account when the operations are planned and executed.

We look forward to hearing from you.

Regards, Richie Miller

Senior Biologist

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Appendix 4 - Forest Enterprise Scotland Phytophthora ramorum Outbreak Management Team

Summary of the FES strategic response to the outbreak Nov 2013

Introduction

Phytophthora ramorum is now present across Scotland in broadly two outbreaks from respectively Argyll to Angus and from Galloway to the A74 corridor. The "Argyll outbreak" is proceeding slowly killing relatively few trees for reasons that are far from clear, but likely to be owing to a dry summer last year in Argyll in possible combination with genetic factors of the EU1 strain of *Phytophthora ramorum*. In stark contrast, the "Galloway outbreak" has spread extremely fast and is quickly killing the majority of larch trees in infected areas. The work done last year under Control Orders may arguably have worked in the Argyll outbreak, but did not work in Galloway, where environmental conditions and possibly genetic factors of the EU2 strain of *Phytophthora ramorum* are more suitable for rapid spread. It is not clear if the rate of spread and mortality will continue eastward at the same pace, given that in general, eastern climates are far less suitable to *Phytophthora* species.

The Galloway Forest Park and the NFE to the west of the Park is considered fully infected and surveys have identified that the expansion front is expanding eastward and northward. An Infected "Red" Zone has been identified as a broadly between two roads; west of the A713 and east of the A76, which links Dumfries and Ayr. Forestry Commission Scotland Conservancies are issuing Control Orders for all identified *Phytophthora ramorum* infections of larch outside of the infected zone. There will be no proactively enforced Control Orders in the infected zone because the infected larch trees are mainly expected to die before they can all be practicably felled and currently symptomless individuals are nevertheless already infected. However, Control Orders will be reactively applied to any felling of larch in the infected zone, which is undertaken by landowners, including FES. This is to ensure the proper control of the supply chain for infected sawlogs and short roundwood prior to appropriate treatment of the bark.

The Forest Enterprise Scotland response on the National Forest Estate, in summary

See table below

	FES response	**Rationale**
Key drivers: **The law**	We will: 1. endeavour to comply with all Control Orders with felling outside the infected "red" zone 2. fell, or otherwise make safe any excessively hazardous dead trees.	These actions are required of all landowners by law and should ensure public safety and the control of the disease, insofar as this is achievable.
Discretional drivers: **Best practice**	**We will:** 1. Consider felling stands of larch towards the east and north within the infected "red" zone, if pace of spread suggests this will be worthwhile.(In 2013 the disease outpaced this measure in southwest Scotland) 2. Fell other priority dead and dying larch stands in the red zone 3. Rehearse planning scenarios	1. This is designed to reduce the density of windborne spores in uninfected areas upwind. Removal of the taller trees is the priority in respect to spore dispersal 2. This as a means to address: - future health and safety issues concerning dead trees along public roads and in areas of high public use. - address the most serious public recreation and landscape issues - recover timber, prioritised in order of value as a means to assist in the funding of other work in response to the disease. 3. We need to anticipate a

	outside the infected zone. The identification of key forest roads for upgrade or construction is the priority. These roads projects may be added to or replace approved business plan roads in the event that extensive areas of larch are found to be infected in 2014 and beyond.	possible rapid expansion of the disease in the east and north next year, as has happened with the EU2 strain in Galloway and the EU1 strain in Wales this year.
Key constraints: **Finance** **Markets** **Other resources**	**We will;** 1. identify what resources can be redirected from within the FES business plan to resource our response, and engage with FCS if this proves inadequate. 2. Focus any fell to natural recycle effort on control order areas, and review in due course how to best regenerate young dead stands in the red zone. 3. Maximise the volume of larch we sell to the limits of UK market capacity and assist in the further development and expansion of export markets by; • working with existing timber contract holders to increase the proportion and total volume of larch in those contracts. • having undertaken an "expressions of interest" exercise to identify the scope for new larch markets (mainly standing sale). 4. Concentrate direct production teams on dealing with the disease, and also work to increase the standing sales harvesting resource 5. Over 13/14 and 14/15 plant existing larch nursery stock in eastern areas of low bioclimatic risk.	1. We will aim to sustain business plan net harvesting income by balancing increased volume production against the higher net costs of working infected larch. 2. Felling to natural recycle is very costly and spores from shorter trees are less widely dispersed than spores from tall trees. 3. We recognise that: • the home market for larch timber is finite. • we share the market with the private sector • we are required to maintain demonstrably fair standards of competition • exports are needed in order to address the prospect of market saturation in the UK 4. Direct production teams are a flexible and skilled resource, but they are few in number and geographically skewed in their distribution. 5. An informed risk based approach to utilise a significant investment in

	6. We will not sow any further larch, which will result in at least a one year gap in availability. Review with PSS annually before any sowing is required until the ultimate distribution of the disease becomes clearer. We will ensure that the supply chain for larch seed/plant production is not dismantled.	nursery stock. 6. Avoids producing larch stock that cannot be used. One year gap will not break supply chain.