Forestry and Land Scotland
Coilltearachd agus Fearann Alba

Kemnay Woods

Land Management Plan

2025-2045

This plan sets out the strategic direction for management over the next 20 years and provides details of the operations proposed in the first 10 years.

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

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

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Kemnay Woods
Land Management Plan

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1. Introduction and summary

1.1 Location

Kemnay Woods are situated near Inverurie, see Map 1- location. They are made up of the following blocks.

Block	Area (ha)	Acquired
Balbithan	131	1953
Roquharrold	35	1927
Cairnton	42	1927
Aquhythie	62	1947
Cottown	37	1947
Aquorthies	31	1939
Pitcaple	38	1946
TOTAL	377	

Aquorthies and parts of Balbithan have been forest since 1840 with the rest of these blocks being planted from 1929 onwards. Included in the Cairnton area above is an outlying block of 2.09ha called Leschangie- see maps 30-32. This is a research site retained following sale of Leschangie Forest.

1.2 The site

The various blocks vary in elevation from 65m above sea level in Balbithan to 183m in Aquorthies. The soil types are generally well drained with brown earth and podzols being most common. Balbithan is mostly podzolic and dominated by heather and blaeberry ground vegetation with one section of gley along the main riparian zone. Roquharrold, Aquhythie, Cottown, Pitcaple and Aquorthies are mostly brown earth with Cairnton mostly gley soils in the low lying flatter areas. Maps 7-9 show the soil types.

Balbithan is dominated by well thinned scots pine. Pitcaple is mostly felled due to cleared windblow from Storm Arwen in 2021. The remaining blocks are very mixed forests with spruce, firs, larch and a large component of beech. All blocks have suffered windblow damage from Storm Arwen with some areas being cleared.

1.3 Certification

The management of the woodland is certified and at all times we will adhere to the UK Woodland Assurance Scheme (UKWAS)

1.4 Key Issues

- Existing windblow damage
- Stability of future stands
- Minimal LISS management to date
- High recreation and amenity use
- Climate change resilience

1.5 Proposals in Brief

- Fell- felling will focus on windblown areas and a potential expansion of the quarry at Aquhorthies. There is no felling in the second phase due to the large scale clearance that has already been undertaken to clear windblown areas already.
- Thin- thinning will be undertaken in the blocks at the same time as clearfelling, this makes the operations more efficient in utilising roading and stacking areas and machine movements. Thinning will be conventional thinning in uniform stands, in the LISS stands existing gaps will be expanded and the basal area reduced under canopy to encourage natural regeneration.
- Restock- restock will seek to diversify tree species and create a forest that is more resilient to climate change in the future.
- New Road Construction- there are no new roads planned, however the road network in some blocks will need substantial upgrade to allow timber lorry access.

1.6 Timing

The plan presents in detail the management, felling, thinning and restocking proposals for the next 10 years (2025-2035). These are the approved coupes for the plan. Longer term management of the forest is given for context and to indicate direction of travel and long term objectives.

1.7 Consultation and Further Information

The draft plan has been consulted with statutory stakeholders as detailed in Appendix 1 – Consultation Record. Neighbouring landowners, local stakeholder groups and the community council were also consulted by letter and signs in the forest. For further information on the plan please contact:

enquiries.east@forestryandland.gov.scot

2. Forestry Scotland Regulatory Requirements

2.1 Summary of Planned Operations

Proposed Operations	2025 – 2035
Felling	25.4ha
Thinning	337ha
Restocking	49.3ha
New Road Construction	475m
Road Upgrade	830m

2.1.1 Proposed Felling in Years 2025-2035

Proposed Phase	Area to be Felled (ha)	Proportion of Woodland Area (%)
2025- 2029	25.4	6.7
2030 -2034	0	0

Details of Clearfell by Coupe for phase 1

Coupe Reference	Species 1	Area (ha)	Species 2	Area (ha)	Species 3	Area (ha)	Species 4	Area (ha)	Total Area (ha)
27776	SS	4.33	SP	1.93	BE	1.98	MB	0.45	8.69
27598	SS	9.92	BI	0.84	HL	0.52	DF	0.12	11.40
27867	JL	2.15		0		0			2.15
27338	WH	0.79	DF	0.39		0			1.18
27339	DF	0.74	BE	0.11		0			0.85
27567	MC	1.12		0		0			1.12

Changes in Age Class over plan period

Age of Trees	Growth Stage	Age class % 2025	Age class % 2035	Age class % 2045
0-10	Establishment	11.8	22.7	6.1
11 - 20	Thicket	5.5	1.7	22.7
21 – 40	Pole	29.0	25.8	7.1
41 - 60	Maturing High Forest	4.3	6.9	20.8
61+	Old High Forest	36.4	36.2	36.6
Fallow	N/A	6.4	0	0
Open Space	N/A	6.7	6.7	6.7

2.1.2 Proposed Thinning in Years 2025-2035

Proposed Phase	Area to be Thinned (ha)	Proportion of Woodland Area (%)
2025-2029	206	59
2030-2034	131	38

Coupe Reference	Programme Year	Species 1	Area (ha)	Species 2	Area (ha)	Species 3	Area (ha)	Open Area (ha)	Total Area (ha)
27002	2025	SP	78	SS	71	MC	42	15	206
27010	2028	SP	57	HL	3			71	131

2.1.3 Proposed Restocking in Years 2025-2035

Proposed Phase	Area to be Restocked (ha)	Proportion of Woodland Area (%)
2025- 2029	49.3	13.1
2030 -2034	0	0

Proposed Restocking by Coupe

Coupe Reference	Programme Year	Species 1	(ha)	Species 2	Area (ha)	Total Area (ha)
27865A	25/26	Scots Pine	10.6	Sycamore	10.6	21.2
27865B	25/26	Sycamore	4.0			4.0
27338A	27/28	Mixed Broadleaves	1.2			1.2
27339A	27/28	Douglas Fir	0.9			0.9
27598A	26/27	Sitka Spruce	4.3	Douglas Fir	4.3	8.6
27598B	26/27	Sitka Spruce	0.6	Grand Fir	0.6	1.2
27598C	26/27	Mixed Broadleaves	1.3			1.3
27776A	26/27	Norway Spruce	3.9	Sessile Oak	3.9	7.8
27776B	26/27	Douglas Fir	0.5			0.5
27776C	26/27	Mixed Conifer	0.2	Beech	0.2	0.4
27867A	27/28	Scots Pine	1.1	Sycamore	1.1	2.2

Species Change Over Plan Period

Species	Area (ha) 2025	% 2025	Area (ha) 2035	% 2035	Area (ha) 2045	% 2045
Scots Pine	118.7	30.3	128.5	32.8	127.8	32.6
Sitka Spruce	81.8	20.9	72.5	18.5	58.7	15.0
Larch	48.3	12.3	45.6	11.6	45.4	11.6
Beech	32.8	8.4	30.9	7.9	30.9	7.9
Birch	30.1	7.7	29.3	7.5	30.2	7.7
Douglas Fir	12.1	3.1	16.6	4.2	24.1	6.2
Norway Spruce	2.9	0.7	6.8	1.7	11.1	2.8
Sycamore	0.8	0.2	16.5	4.2	17.4	4.4
Mixed Conifer	5.7	1.5	4.6	1.2	4.6	1.2
Mixed Broadleaves	8.2	2.1	14.2	3.6	15.1	3.8
Open/Felled	50.3	12.8	26.4	6.7	26.4	6.7

2.1.4 Access and Roading in Years 2025-2035

Period of Works	Proposed Length for Construction (m)	Proposed Length for Upgrade (m)
2025-2029	475	830
2030-2034	0	0

2.2 Departure from UKFS Guidelines

The LMP seeks to follow the UKFS in all requirements. Adjacency guidance will be followed where possible however windblow damage may prevent this in some instances. These cases will be agreed with Scottish Forestry as part of this LMP.

2.3 Tolerance Tables

Appendix III gives details of the allowable tolerances for plan amendments.

3. Determination

3.1 Deforestation

Deforestation will only occur for the quarry at Aquhythies (1.12ha) and where the Greenlands Hut Circles Scheduled monument will not be restocked (5.55ha). Details of the quarry are in section 3.3. The deforestation of the scheduled monument is detailed in section 9.7.

3.2 Forest Roading

In order to access Roquharold for thinning a new road is proposed as shown on Map 33, there is also an additional turning point required in Aquhythies. Road upgrades will be needed in Aquhythies and Cottown to access the windblown areas left by Storm Arwen. Map 33 Civil Engineering shows the road requirements. There is no roading operations needed in Balbithan or Pitcaple.

3.3 Quarries

There is a current active quarry in Aquhythies forest see map 33- Civil Engineering. This provides all roadstone for road upgrades, maintenance and harvesting facilities for all Kemnay woods. The phase 1 felling coupes to clear up windblown areas require road upgrades and therefore it is expected that this quarry will need to be expanded. For this reason it is proposed to fell 1.12ha of forest adjacent to the quarry to allow quarry expansion. An EIA determination will be submitted separately, prior to any quarry expansion operations beginning.

3.4 Afforestation

There is no afforestation planned in Kemnay Woods.

3.5 Additional Regulatory Requirements

3.5.1 Water Framework

Buffering of commercial crops from water courses and private water supplies will follow current Forestry and Water guidelines. There are no operations within the LMP that would require permission under the water framework directive.

3.5.2 Prior Notification

Prior notification will be sought for the new road construction and turning points to be built.

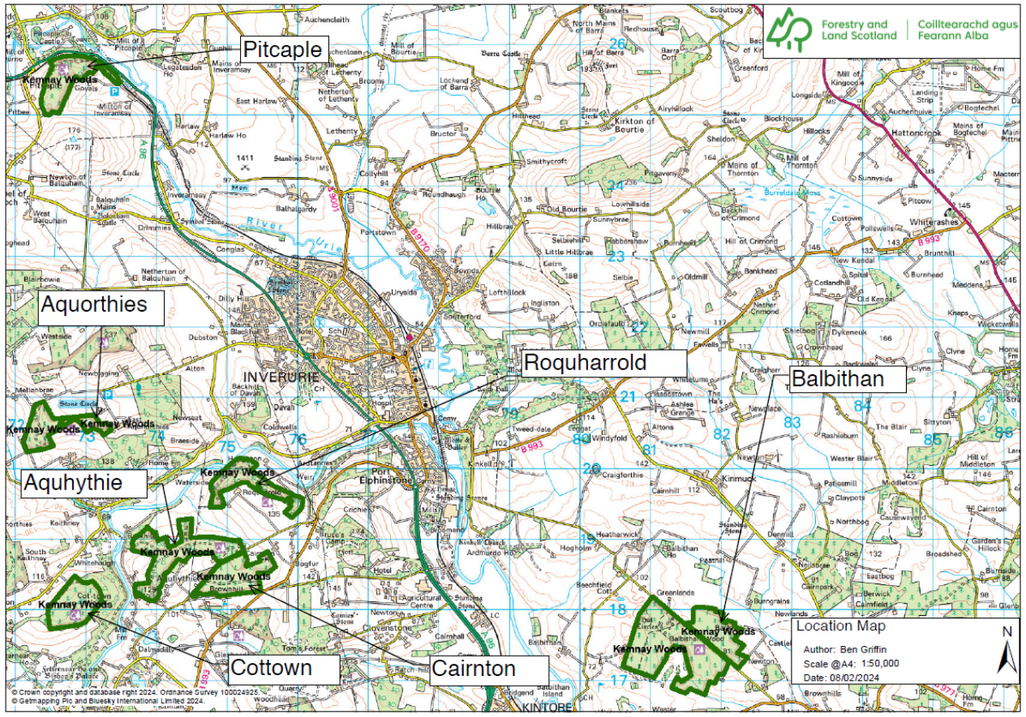
3.5.3 Planning Consent

There are no operations within the LMP that require planning consent.

4. Introduction

4.1 Existing Land Holding

The forest blocks are in sheltered locations with DAMS ranging from 10-13. The forest blocks are mostly underlain with psammite, a metamorphosed sandstone. This has resulted in reasonable well drained soils of medium fertility. Balbithan is mostly podzolic and dominated by heather and blaeberry ground vegetation with one section of gley where the main riparian zone is. Roquharrold, Aquhythie, Cottown, Pitcaple and Aquorthies are mostly brown earth with Cairnton mostly gley soils in the low lying flatter areas.



4.2 Setting and Context

The seven blocks are low lying and within the catchment of the River Don. Most blocks are surrounded by arable farming and some stock grazing. Balbithan is mostly flat and low lying, Pitcaple is a north facing shallow, convex slope. The remaining blocks are on either side of the River Don. The blocks with the greatest visual impact would be Cottown which is visible from Kemnay town looking north and Pitcaple which can be seen (from a distance) from the A96 main road.

The main towns in the area are Kemnay and Inverurie. The forests are well used by local visitors for recreation. There is one formal car park in Pitcaple and visitors often park informally at other forest entrances and laybys.

5. Plan Objectives

5.1 Issues

- Existing windblow damage
- Stability of future stands
- Minimal LISS management

- High recreation and amenity use
- Climate change resilience

5.2 Key Challenges

- Clearing windblow damage could open up the forest to further windblow damage.
- Accessing windblow and LISS thinning will require extensive road upgrades with only one quarry in Aquorthies
- Increasing future stand stability may mean reducing overall productivity due to using slow growing, less desirable tree species.
- Fertile sites could result in dense weed growth following LISS thinning or felling

5.3 Management Objectives

5.3.1 Clear existing windblow

There are existing wind damaged coupes in Pitcaple, Roqharrold and Aquhythie. These are remaining coupes that were blown down in Storm Arwen in 2021. To access these coupes will require at least 800m of road upgrade plus turning and stacking areas and harvesting facilities. This cost is unavoidable but is necessary to salvage value from these windblown areas before the timber degrades any further.

5.3.2 Increase climate change resilience

The forests are very diverse in terms of species and age (see Appendix 2). They are not at risk of flooding or fire. The main risk to these forests caused by climate change would be an increased frequency and intensity of extreme weather events. This was demonstrated by the damage caused by Storm Arwen. Although the DAMS for the forest is low (10-13) they are still vulnerable to extreme wind and rainfall events. As such it is important to increase the resilience to future wind damage to protect the habitats and timber resource.

Approximately a third of the forest is Sitka spruce. Future climate change models suggest that this will become unsuitable in this area of Scotland by 2080 due to a hotter, drier climate. Spruce in Aberdeenshire is already experiencing drought crack and reducing the timber value of these stands. Because of this it would be desirable to reduce reliance on spruce further in these stands and increase the component of other conifers such as Douglas fir, Norway spruce, grand fir and European silver fir.

5.3.3 Encourage regeneration in LISS coupes

The LISS coupes in these blocks have had little intervention in the past 10 years. Balbithan is the exception to this where access for thinning is good and the Scots pine stands in here have had a number of thinnings. LISS coupes will not regenerate unless the basal area is reduced to 15-25 (depending upon the shade tolerance of the regenerating species).

5.3.4 Maintain productive timber stands

Most of the conifer stands are plantations that are producing high yielding trees for timber production. This remains a high priority within these forests. Roqharrold also has a large component of beech plantation in mixture with conifers, these could be able to produce reasonably good hardwood timber in small parcels.

6. Analysis and Concept

6.1 Analysis

Objective	Opportunity	Constraint	Concept
Clear Existing Windblow	• Prioritise coupes to salvage timber value before it degrades beyond recovery	• Over 800m of road to be upgraded with turning points, stacking bays and harvesting facilities needed • Clearing windblow may open the forest up to more wind damage.	• Clearfell the largest coupe in Aquhythie where timber is most viable, then focus on Roqharrold.
Increase climate change resilience	• Felling and windblow clearance present opportunities to build in wind resilience to future crops • Plant tree species suitable for future climate change scenarios	• Establishing more windfirm stands will reduce overall productivity • Trees suitable for future climate may be slower growing therefore extending rotations and reducing productivity • Alternative conifers are more expensive and more difficult to establish than spruce.	• Plant slower growing species at wider spacing along windward edges. • Reduce proportion of spruce in the forest to reduce the risk of drought problems in spruce. Alternatives such as Douglas fir will be used on brown earths and Scots pine where more podzolic conditions exist.
Encourage regeneration in LISS coupes	• Establishing next rotation in LISS coupes through natural regeneration reduces restocking costs • Increasing structural diversity further increases resilience to climate change.	• Risk of windblow when thinning or opening up gaps • Risk of woody weeds establishing if canopy is opened up too much	• Where access is needed for windblow clearance such as Roquharrold and Aquhythie LISS thinning and felling will also be undertaken • Reduce basal areas to 20-25 in larch stands, 25-30 in Scots pine stands and 30-40 in spruce/fir stands. • Clearfell mature western hemlock to reduce chance of regeneration in other stands.
Maintain productive timber stands	• Establish resilient forest stands that will produce timber in the future. • Maintain production of high value, large diameter stems in LISS • Increase hardwood firewood and timber production	• Trees suitable for future climate may be slower growing therefore extending rotations and reducing productivity • Alternative conifers are more expensive and more difficult to establish than spruce. • Limited markets for large diameter conifer logs • Hardwood harvesting is small scale and requires intensive management	• Commercial restocks will be established in 3:3 row mixtures to reduce overall risk, maintain thinning options and maintain high yields. These will be alterative conifers in mixture with sitka spruce on brown earth sites and Scots pine with fast growing broadleaves such as beech and sycamore on podzolic soils. Pure spruce will continue to be planted on the gley soils, common in Cairnton woods. • LISS felling and thinning will produce large diameter logs. In Phase 1 and 2 this should focus on access that will be opened up in Aquhythie and Roqharrold. LISS felling and thinning will also continue in Balbithan where access is good within and outwith the forest. • Once access is improved in to Roqharrold the beech plantations should be thinned to encourage regeneration and improve the future timber quality. • Birch stands that have established well via natural regeneration will be respaced to ensure that the trees continue to increase in girth and will provide future firewood crops. • Planted broadleaf stands, such as those in Cottown will be respaced to favour the planted species such as oak and wild cherry.

7. Long Term Land Management Plan Proposals

7.1 Management

This LMP has been designed in accordance with the guiding principles set out in UKFS and UKWAS to ensure the forest is managed sustainably and considers economic, social, cultural and ecological aspects of the forest. All operations will be undertaken in accordance with UKFS

7.2 Silvicultural Systems

168.6ha of the forest (45%) will be managed under clearfell systems with 158.5ha managed under LISS (42%). The LISS will mostly be uniform shelterwood systems that will seek to expand existing groups and also reduce overall basal area within the matrix. The long term retention areas (23ha) in the forest are retained beyond normal rotation length. These are mostly made up of broadleaf strips and patches which will be retained for habitat reasons, they may also be thinned to improve stand quality over time. Minimum intervention areas are broadleaf areas where we don't expect any thinning to be undertaken. The table below details the management type areas. Please see section 2.1.3 that shows species and open area change over time. Leschangie research stand is a permanent sample plot, as such it will be managed as Long Term Retention to allow stand measurements to continue to be made.

UKFS 5th edition states "10% open ground, or ground managed for biodiversity as the primary objective". All the LTR, MI and most of the open ground is managed for biodiversity reasons. This is over 10% of the forest.

Management Coupe	Sum of Area (ha)	%
Clearfell	168.6	45%
LISS	158.5	42%
Long Term Retention	23	6%
Minimum intervention	22.2	6%
Other/Open land	5.6	1%
Grand Total	376.8	100%

7.3 Operational Proposals

For details of harvesting, thinning and restocking see section 2.1

7.4 Open Land management

The open areas within the forest are wetland/ riparian habitat in Balbithan and a quarry in Aquorthies. There is also an area of failed Sitka spruce forest and open wet areas in the east of Cairnton Wood, this area will be felled with the adjacent mature spruce, drains could be blocked here to raise the water table, creating small pools. The riparian zones are starting to colonise with willow, alder and downy birch at low density. In riparian zones tree cover will be retained at low levels to prevent canopy cover exceeding 50%.

8. Critical Success Factors

- Clear windblown coupes before timber degrades beyond marketability
- Undertake thinning and respacing of broadleaf coupes to improve form and increase volume production
- Establish a suitable density of regeneration of desirable species within the LISS coupes.
- Continue harvesting conifer plantations and restocking resilient mixtures suitable for future climate models.
- Establish more windfirm coupes to reduce windblow damage in the future.

9. Management Prescriptions

9.1 Forest Management Types

All operations will be undertaken in line with UKWAS and UKFS requirements and as set out in FLS guidance. Appendix VI includes links to these documents.

9.1.1 Silvicultural System

Clearfell

Clearfelling in phase 1 will focus on the existing windblown coupes. There are no planned coupes to be clear felled in phase 2 due to the age structure of the forest.

LISS

The cleafell coupes in phase 1 will create access to allow LISS thinning and felling to be undertaken in Phase 2. This will allow continued LISS thinning in Balbithan, Roqharrold and Aquhythie. In Scots pine stands basal area will be reduced to 25-30 m^2/ha, larch to 20-25 and beech to 40. Existing gaps where regeneration is occurring will be expanded to increase light levels and ensure established trees maintain apical dominance and reduce lateral growth.

Felling of Trees in Exceptional Circumstances

FLS will normally seek to map and identify all planned tree felling in advance through the LMP process. However, there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for a separate felling permission due to the risks or impacts of delaying the felling. Felling permission is sought for the LMP approval period to cover the following circumstances:

- Individual trees, rows of trees or small groups of trees that are impacting on important infrastructure (as defined below*), either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage, or impeded drainage.

*Infrastructure includes forest roads, footpaths, access (vehicle, cycle, horse walking) routes, buildings, utilities, and services, and drains.

The maximum volume of felling in exceptional circumstances covered by this approval is 75 cubic metres per LMP per calendar year. A record of the volume felled in this way will be maintained and will be considered during the five-year LMP review.

Trees may be felled without permission if they are of less than 10 cm diameter at breast height (1.3 m); pose immediate danger to persons or property; are completely dead; or are part of Authorised Planning Permission works or wayleave agreements.

9.1.2 Restock / Regeneration

Timing

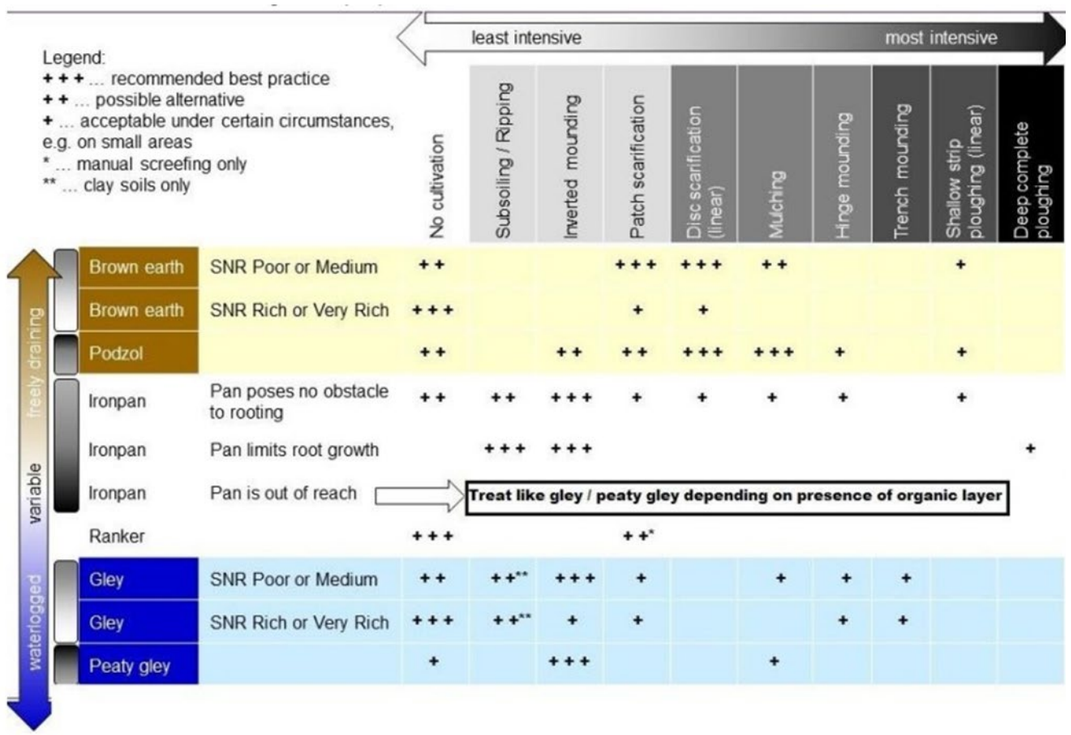
All felled areas will be restocked within two years of felling unless otherwise agreed with Scottish Forestry.

Ground Preparation

The choice of ground preparation for each site will be decided at the operation planning stage by the relevant establishment forester. Ground preparation techniques can vary greatly even across individual sites, so the most up to date advice will be applied at the time of the operation to ensure that soil structure and water quality is preserved whilst also providing an optimal environment for establishment depending on the species and site conditions. Forest and Water Guidelines, UK Forest Standard and UKWAS can all be used to help with the decision making process if required.

Forest Research's **Field Guide to Soil Cultivation** (Jens Haufe, 2019) and Scottish Forestry's **Cultivation for upland productive woodland creation sites** will be referenced where necessary to help aid in the specific choice applied across any restock sites. The below table is a good indication of what ground preparation techniques will be applied, with the "Best Practice" option the target if possible. The majority of restock operations within the plan period take place on intergrade soils, with Ironpans, Podzols and Surface-water Gleys all present, best practice options set out below:

- **Ironpans:** Inverted mounding or no cultivation if site conditions suitable.
- **Podzols**: Disk scarification or mulching if weed competition is high, no cultivation if site conditions suitable.
- **Surface water gleys:** Inverted mounding or no cultivation, depending on nutrient availability on individual sites.



Commercial conifer sites will be mounded and planted at a minimum of 2500 mounds per ha. Where mixtures are specified they will be 3:3 row mixtures. This will allow future thinning operations to favour specific trees. In Balbithan there will be pure Scots pine planted and also Scots pine in mixture with sycamore and beech. The objective here is to create more varied species composition. Thinning of these stands may remove the broadleaf element as early firewood thinning or may favour the broadleaf element if form is proving to be good.

Beatup
Conifer restock sites will be beaten up to achieve 2700 stems per ha with the aim to reach 2500 stems per ha at year 5. Broadleaf sites will be beaten up at 1800 stems per ha in order to achieve 1600 stems per ha at year 5. Where there are mixtures of conifer and broadleaf planted these will be planted 3:3 row mixtures at 2700 stems per ha.

Weed control
Weeds on the felled sites are dominated by fine grasses such as tufted hair grass, Yorkshire fog and creeping soft grass. Although these form a dense sward they will not be a problem for the first 3 years of establishment once these sites are mounded or scarified. The coupes to be clearfelled in Aquythies and Roqharrold are quite fertile and may be colonised by dense bracken, bramble and woody weeds. For this reason these sites will have a maximum of 2 years fallow between felling and restocking.

Respacing
There are a number of areas where dense birch regeneration has established either in discrete patches or mixed in with planted trees. Respacing these sites will favour the planted trees and aim for approximately 2000 stems per ha at year 10.

9.2 Future Habitats and Species

Section 2.1.3 shows the species change over time. This plan will seek to further diversify species and reduce reliance on Sitka spruce which is expected to be less suitable in the future due to climate change.

9.3 Operational Access

The forests all have a good forest road network, however most of these roads have overgrown with weeds and tree regeneration. As such they will need considerable upgrade to allow timber wagon access. It is proposed that where access is required for windblow clearance that these accesses can also be upgraded to allow LISS thinning and felling. All forest blocks have direct access on to agreed timber haulage routes.

The red coupes prioritised for felling are in Roquharold and Aquhythie. To access these coupes the roads will require considerable upgrade with new turning points, stacking bays and harvesting facilities. The investment in this infrastructure will also allow LISS thinning and felling to be undertaken in these blocks. Because of recent felling in Pitcaple and Balbithan there is still good access in to these blocks to undertake thinning and felling.

9.4 Herbivore Management

The main species present in these blocks are Roe Deer. Because of the nature of the woodland being set in agricultural land the deer migrate between the forest and open land so the population is very changeable. The strategy is to keep levels down to a point where restocks are establishing with less than 10% leader damage. Cull levels have been approximately 25 a year and this will remain the same in to the future. Windblow damage has made access for deer management very difficult. Clearing this windblow and providing ATV access on restock sites will aid future deer management and allow stalkers to focus on protecting restock sites.

9.5 Management of Open Ground

See section 7.4 about managed open ground in the plan.

9.6 Public Access

There is generally good access within these forest blocks. The forest roads that have grown over are well used by walkers and cyclists. There are also many informal paths through all the forest blocks. Aquhorthies is well used by local mountain bikers with informal paths within the LISS coupes. There are core paths that run through Aquhythies, Cairnton and Roqharold see Map 28- Recreation. As per guidance core paths will have diversions created where operations prevent access. A managed car park is provided at the entrance to Pitcaple wood which is well used by local visitors. Informal car parking often takes place in laybys and near forest entrances.

9.7 Heritage Features

Our Land Management Planning Process is informed by desk-based assessment, stakeholder consultation and professional archaeological walkover surveys where required.

Our key priorities for archaeology and the historic environment are to undertake conservation management, condition monitoring and archaeological recording at our significant historic assets; and to seek opportunities to work in partnership to help to deliver *Our Past, Our Future: the Historic Environment Strategy for Scotland* and *Scotland's Archaeology Strategy*. Significant heritage features will be protected and managed following the *UK Forestry Standard 5th Edition* (2024) and *UKWAS* (2024). Harvesting coupes, access roads and fence lines will be surveyed prior to any work being undertaken in order to ensure that upstanding heritage features can be marked out and avoided. At establishment and restocking, work prescriptions remove relevant heritage features from ground disturbing operations and replanting. Where appropriate, significant heritage features are recorded by archaeological measured survey, see active conservation management and may be presented to the public with interpretation panels and access paths. Opportunities to enhance the setting of important sites and landscapes will be considered on a case-by-case basis (such as the views to and from a significant designated historic asset).

The *Regional Historic Asset Management Plan* includes conservation management intentions for those designated historic assets in Scotland's national forests. Details of all known heritage features are held within the *Forester Web Heritage Data* (built using national and regional historic environment records) and included within specific operational *Work Plans* to ensure damage is avoided. Designated historic assets, significant heritage features and relevant heritage features will be depicted on all relevant operational maps.

Two scheduled monuments (SMs) are located in Balbithan- see **Map 23**. They are:

- Greenlands hut circles and cairns (SM 12483 / NJ 812 177). A relict Bronze Age landscape of hut circle settlement and surrounding clearance cairns. The investigation of this archaeological landscape is described in Balbithan Wood, Kintore, Aberdeenshire: the evaluation of prehistoric landscapes (Cook 2021).
- Larrick Cairn (SM 12352 / NJ 817 172). A well-preserved small Bronze Age burial cairn.

There are no plans to undertake restoration or interpretation work to these monuments. Greenlands was cleared following windblow, as such it will not be restocked and maintained open. This includes both the scheduled monument area and a 20m buffer around the site. 1.77 ha of standing crop (Scots Pine, Japanese Larch and Sitka Spruce (planted 1954) will be removed during the next group selection within the scheduled monument area and 20 m buffer zone (Scheduled Monument Clearance will be required).

Larrick Cairn is located under a LISS managed Scots pine stand. During thinning operations, the trees within the 20m buffer will be gradually reduced during thinning to create an open buffer.

Map 23 – Balbithan Management depicts those designated historic assets and those significant heritage features which will see active conservation during the plan period (including maintenance in open space)

Map 37 – Balbithan Heritage depicts those designated historic assets and those significant heritage features which will see active conservation during the period planned; and includes notes to aid harvesting operations and restocking (such as areas that have been subject to professional archaeological walkover survey; areas in which previously unrecorded heritage features may be expected; and areas in which previously recorded heritage features have been lost). The Heritage Map demonstrates the presence and / or absence of supporting archaeological information in regard to survival.

Appendix I – Land Management Plan Consultation record

I/1.0 Record of statutory consultation

Stakeholder	Comments	FLS Response	Action
Historic Environment Scotland	SAMs are listed with proposed management	Confirmed that all operations will conform with UKFS	Obtain SMC before operations at Balbithan are undertake at the SAMs. Section 9.1 Updated to reflect need for open ground buffers of 20m assigned for scheduled monument and future habitats map updated to reflect this change. Group selection management type assigned areas surrounding scheduled monuments to allow removal of conifer crop encroaching on buffer zone.
SEPA	No response		
Nature Scot	No response		
RSPB	No response		
Scottish Water	Identified no protected drinking water areas or Scottish Wayer Assets		
Aberdeenshire Council Archaeology	Identified additional archaeological remains that are present, especially in Balbithan		Identify additional archaeological remains and protect them during operations as part of the work plan process. Section 9.1 Updated to reflect need for open ground buffers of 20m assigned for scheduled monument and future habitats map updated to reflect this change. Group selection management type assigned areas surrounding scheduled monuments to allow removal of conifer crop encroaching on buffer zone.
Aberdeenshire Council Tree Officer	Raised awareness of Local Nature Conservation Sites adjacent to FLS land. Concerns about sycamore seeding. Raised concerns about LEPO	Agreed to buffer the LNCS with native broadleaf replanting and forwarded FLS LEPO policy	
Aberdeenshire Council Roads Dept	No response		
Scottish Forestry	Welcomes the direction of travel with the LMP. Raised concern about seeding in to open habitats.		
Fintray Community Council	Welcomes the clearing up of storm damage and restocking. Clearing the SAMs in Balbithan and opening up the riparian habitat. Concerns about paths and car parking at Balbithan.	Visitor Services Manager to respond on paths and car parks. No plans to increase formal paths or car parking facilities.	
Ramblers	Highlighted the new ramblers Scottish paths resource		

I/1.1 Record of public consultation

Public consultation was carried out online by publishing maps and putting up signs in the forest to inform local users. Letters were also sent to local residents to let them know about the LMP consultation. Comments are summarised below. Due to the volume of responses and to protect individuals the comments are grouped by subject rather than name or property:

Subject	Comments	FLS Response	Action
Quarry Extension	Quarry blasting may affect local water supplies and structural problems to buildings	Specialist staff will liaise with properties that are close to blasting sites to discuss problems that have been raised. This does not affect the LMP.	- Contact made with neighbouring properties - Water sources to be ground-truthed and catchment maps created depending on source type - Survey to be carried out by qualified hydrologist and report produced to examine potential impact and mitigations required - Vibrographs to be placed at neighbouring properties prior to blasting if requested
Quarry Extension	Extending the quarry will have a negative visual affect and increase sounds pollution.	Trees in front of the quarry will be retained to reduce visual and sound impact. The quarry is not seen from outside the forest.	Trees retained in front of the quarry.
Quarry Extension	Extending the quarry will increase lorry traffic	This quarry is necessary to provide stone for all Kemnay Woods as such lorries will be needed to transport stone.	
Windblow	Storm Arwen windblow has been left too long and is blocking many recreational trails, other trails blocked by individual trees. Core paths are also blocked.	All remaining windblow damage has been highlighted for clearance in the first 5 years of the plan. Blocked paths should be identified to the recreation teams.	
Deforestation	Felled areas have not been restocked	Weevil populations on restock sites are monitored. Where the populations are high it is common practice to leave sites fallow for 5 years. This reduces the need for insecticide to control the weevils.	
Butterly Habitat	Create glades and wider rides to increase butterfly and moth habitat	When stands are felled and restocked the rides that are left are generally wider than previously to create more windfirm boundaries in the future. These also have the effect of increasing the open habitat for butterflies and moths.	
Dog Bins	Installing dog bins would make the forest cleaner	FLS encourage visitors to remove their own dog waste	
Wetland Habitat	Install leaky dams and create open water in the east of Cairnton forest	This will be incorporated in to the LMP text	Add to LMP text

Appendix II - Supporting Information

II/1.0 The Existing Forestry and Land Holding

Balbithan

This is generally a flat site, it is the lowest elevation of all the blocks and is dominated by podzolic soil. The surrounding land use is mostly improved grazing for cattle and sheep. The forest is mostly made up of mature Scots pine planted in 1954 after it was purchased in 1953. Since then it has been well thinned with some clearfells in 2012-13. Following Storm Arwen in 2021 extensive areas of the forest suffered catastrophic windblow. These areas have been cleared and will be restocked in the next 2-3 years. The remaining 1954 Scots pine is managed using LISS. The Scots pine will now be of an age where it is producing good volumes of viable seed and the LISS management should seek to open up the canopy more and create gaps to encourage Scots pine regeneration. The restock sites will be planted with a mixture of Scots pine and broadleaves to increase species and structural diversity. Access is good within the forest for thinning and felling.

Roqharold, Aquhythie, Aquhorthies, Cairnton and Cottown

These forests are at medium elevation and on gentle slopes. They are mostly brown earth soils with some gley on the flatter areas of Cairnton. The surrounding land is mostly arable agriculture for grain production. The forest are very diverse in species and age including spruce, firs, pine, larch and broadleaves. The blocks are small and access often on third party ownership. There has been felling of the 1st rotation crops in the 1990's but very little since and as such the forest roads are all overgrown. Roqharold and Aquhythie have large areas of windblown damage from Storm Arwen which has not been cleared. Some sections of the mature conifer plantations have been allocated to LISS management however there has been minimal thinning in these areas in the last 15-20 years.

Pitcaple

This block is a convex, north facing slope adjacent to the A96. It is mostly brown earth and podzolic brown earth. The surrounding land use is arable agriculture. The majority of the forest was planted with larch, Scots pine and blocks of spruce in 1950 after being purchased in 1946. Extensive windblow from Storm Arwen has been cleared in 2022. The remaining forest is partially windblown and adjacent to the main Aberdeen to Inverness railway line. The forest road and main access has been upgraded to allow timber harvesting operations.

II/1.1 History of the Land Holding

The Forestry Commission acquired the blocks as indicated below. Most of the blocks had forest cover of some kind in the 1880's which would indicate the age of some of the oldest beech trees in the forest. The oldest plantations in the forest were established in the 1920's.

Block	Area (ha)	Acquired
Balbithan	131	1953
Roquharrold	35	1927
Cairnton	42	1927
Aquhythie	62	1947
Cottown	37	1947
Aquorthies	31	1939
Pitcaple	38	1946
TOTAL	377	

II/2.0 Analysis of the Previous Plan

II/2.0.1 Aims of Previous Plan and Objectives

Objective	Assessment of objective during plan period
CLIMATE CHANGE	
Enrich birch regeneration areas to provide firewood for local markets	Some stands have been respaced
Respace dense birch regeneration to create broadleaved woodland	Some broadleaved stands have been respaced
Increase area managed under LISS	LISS area has increased although LISS management is limited.
TIMBER	
Restock species that are suitable to site and productive	Restocking has been successful although long fallow periods have reduced overall productivity
Thin stands to improve quality, especially beech	Thinning has been undertaken in most stands, although not in the beech
Produce hardwood timber	No evidence of planting or thinning to produce quality hardwood timber.
BUSINESS DEVELOPMENT	
Increase species and structural diversity	Species and structural diversity have been improved. There is still a high proportion of mature stands.
COMMUNITY ENGAGEMENT	
Continue current level of involvement with various user communities to maintain interest.	Level of involvement maintained
ACCESS AND HEALTH	
Maintain the level of recreational provision	Recreation level maintained, some paths blocked by windblow.
ENVIRONMENTAL QUALITY	
Increase LISS area to minimise inputs and maintain productivity	LISS area has been increased
Progress naturalisation of the woodlands to increase landscape value	Low intensity management has increased naturalisation of the forest.
BIODIVERSITY	
Plan management regimes and operations to improve the ecological value of the plan area.	Increased LISS will maintain forest cover and improve ecological value of the forest.

II/2.0.2 How previous plan relates to today's objectives

Climate Change
LISS areas have been increased as much as possible. LISS management requires careful monitoring and measuring. Todays objectives will consolidate the LISS areas though active management. Maintaining broadleaf production for firewood is still important.

Timber Production
Continuing to select species suitable for site type will be important. The new plan will seek to plant more line mixtures of conifer and broadleaf species to provide early thinning's as conifer firewood and improve the quality of future broadleaf stands. Thinning of beech areas is important to improve quality and volume production.

Business Development
The forest is very diverse in terms of species. The nature of the forest soils means there are many options of species. The storm damage has further increased structural diversity which is heavily skewed towards mature stands with 48% of the forest over 60 years old.

Community Engagement
Encouraging buy in from local communities is important as well as neighbouring land owners.

Access and Health
The forest is still well used for recreation on formal and informal trails. The same level recreational provision will be provided.

Environmental Quality
Increasing LISS will reduce the risk of diffuse pollution and maintain habitats for longer. Areas of natural reserve have been agreed in the forest where no management will be undertaken and the forest will return to natural processes.

Biodiversity
Increased LISS areas will improve biodiversity by maintaining a forest habitat, allowing species to move and the same conditions to maintained for longer periods. Riparian habitats will increase connectivity of habitat networks.

II/3.0 Background Information

II/3.0.1 Physical Site Factors

Geology, Soils and Landform

The forests are generally underlain with psammite, a metamorphic sandstone, with occasional basic igneous intrusions throughout. This has provided relatively good drainage and medium fertility for forest soils. Balbithan is dominated by podzolic soils with a patch of gley along the riparian zone. The podzolic soils support a ground vegetation dominated by heather and blaeberry and is mainly planted with Scots pine . Cairnton is the flattest and wettest block which has abundant areas of gley, these soils are mostly planted with spruce and have a ground flora with abundant soft rush and tufted hair grass. The rest of the forest blocks are mostly brown earths that are fertile and well drained.

Roquharrold, Cairnton and Aquhythie are on the south and east side of the River Don and are generally north facing. Cottown is a hill top on the west / north of the River Don and is quote prominent in the landscape. Aquorthies is on the north side of the River Don and is mostly south facing. Pitcaple is on a convex, north facing slope next to the A96.

Hydrology

All these forest blocks are in the River Don catchment, however Roqharrold and Aquhythie are the closest and almost drain straight in to the Don. There are, however very few watercourses in the forests.
When felling and restocking are carried out the UKFS Forest and Water Guidelines (5th Edition) will be strictly adhered to.

Climate

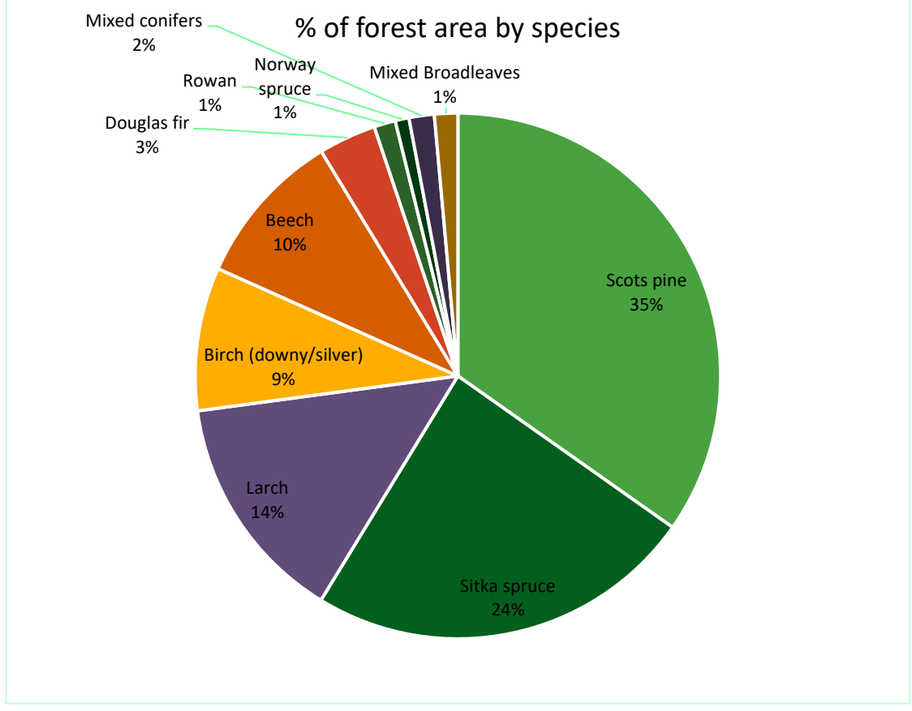
The DAMS for the blocks vary from 10-13, however the extreme winds and northerly direction of Storm Arwen in 2021 created large areas of damage. This was an extreme event and generally the Kemnay Woods are sheltered and low lying.

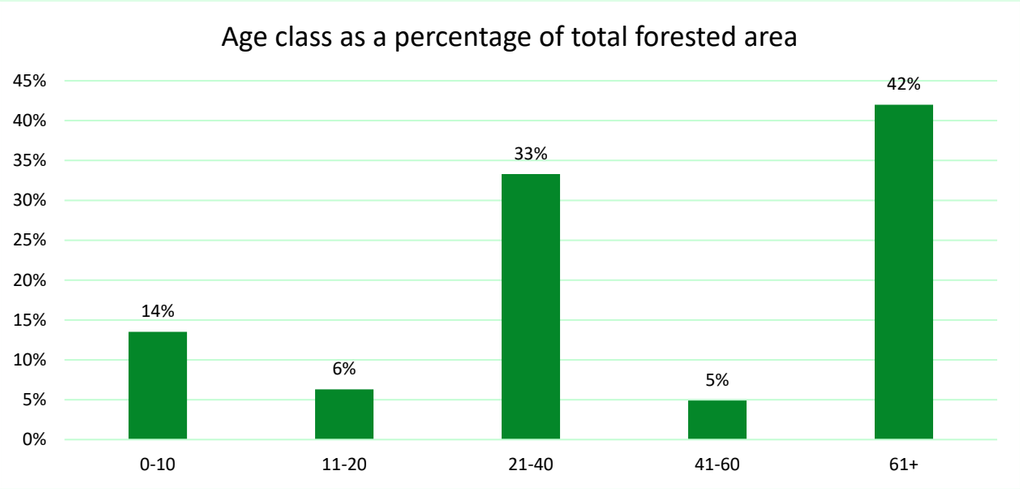
The majority of the forests are classified as cool, moist and sheltered with half of Balbithan categorised as warm, moist and sheltered. The accumulated temperature ranges from 1611 in Balbithan, indicating a relatively warm climate to 1466 at the highest elevation in Aquorthies which indicates the coolest part of the forest. The moisture deficit ranges from 100 at Aquorthies to 116 at Balbithan indicating the Balbithan has less rainfall than the other blocks.

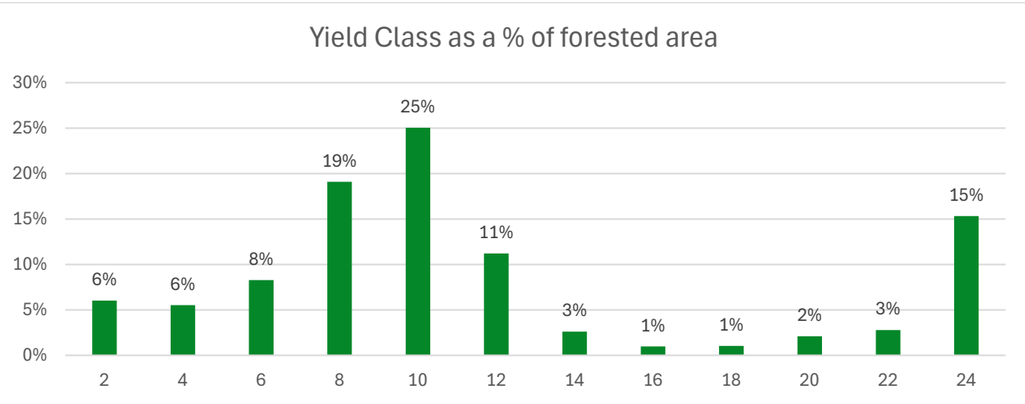
II/3.0.2 The Existing Forest

Age, Structure, Species and Potential Yield

Species	Area (ha)	%
Scots pine	118.7	34.8%
Sitka spruce	81.8	24%
Larch	48.3	14.1%
Birch (downy/silver)	30.1	8.8%
Beech	32.8	9.6%
Douglas fir	12.1	3.5%
Rowan	4.5	1.3%
Norway spruce	2.9	0.8%
Mixed conifers	5.3	1.6%
Mixed Broadleaves	4.9	1.4%
Total	**341.4**	100%







Access
The forests all have a good forest road network, however most of these roads have overgrown with weeds and tree regeneration. As such they will need considerable upgrade to allow timber wagon access. It is proposed that where access is required for windblow clearance that these accesses can also be upgraded to allow LISS thinning and felling. Balbithan has a main public road running through it and minimal forest roads however there are good stacking and turning areas that have been cleared. All forests have direct access on to agreed timber haulage routes.

LISS Potential
DAMS for all forests ranges from 10-13 and as such gives good options for LISS. Balbithan has been well thinned recently but due to poor in forest access the other forests seem to have been delayed. Accessing the forest to clear windblow will create good harvesting access in Roqharold and Aquhythies and allow further LISS thinning and felling.

Thinning Potential
There are a number of stands of spruce planted in the 1990's. These have not been thinned. The thinning window has been missed and these will now need to be left as unthinned/self-thin. There are however stands of spruce and Douglas fir planted in 2003-2006 that should have a first thin. These are in Cottown, Cairnton and Roqharold. Cottown and Roqharold should be thinned at the same time as the windblow is cleared. Cairnton will require the whole block to be thinned including the LISS coupe in order to achieve a suitable volume of timber to justify the access improvements.

II/3.0.3 Land Use

The land use within the forest blocks is mostly productive high forest with felled areas in Balbithan and Pitcaple. The only open areas within the forest are wetland/ riparian habitat in Balbithan, a quarry in Aquorthies and the car park at Pitcaple. There is also a wayleave that bisects Aquhythies that is maintained open by Scottish and Southern Energy (SSE).

II/3.0.4 Biodiversity and Environmental Designations

There are no nature designations within the forest. There is a local nature conservation site between Cottown and Aquhythies. To prevent non-native regeneration in this site native broadleaf buffers will be created at the time of restocking. The main habitat to be managed is the riparian zone in Balbithan, this is regenerating with trees at a low density. In the future if canopy cover increases beyond 50% there may be a need to thin and respace the habitat.

There are no Ancient semi natural woodland (ASNW) in Kemnay Woods. There is, however, a large area of the forest classified as Long Established of Plantation Origin (LEPO). These woods appeared as plantations on old maps and have been continuously wooded since. LEPO has a wide range of conservation value depending upon the age of the stand, the species present and the thinning regime. FLS has made a further assessment of high conservation value LEPO based on native species, thinning regime and age of stand. Map 29- LEPO shows the high conservation LEPO sites. These sites are generally managed as LISS or minimum intervention. There is an area in Roquharold that will be clearfelled, this is necessary to remove the windblown trees, this area will be replanted with Norway spruce and oak with the intention to thin the spruce out over time and create a

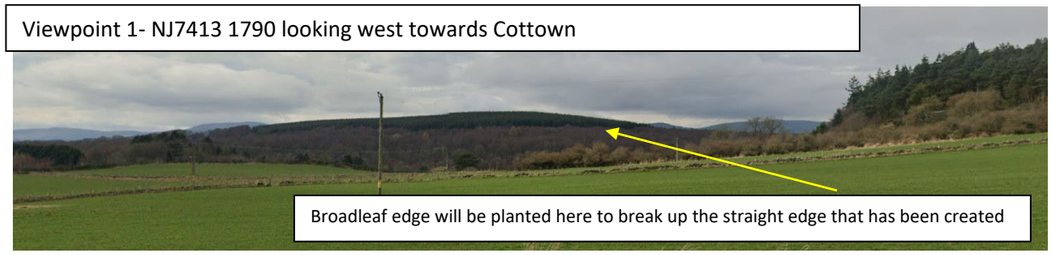
The forests all drain in to the River Don. The river is identified by SEPA as being at high risk of flooding. These flooding levels will threaten residential and business areas of Inverurie. However the proportion of this forest in the catchment is so small that operational impacts will be negligible on the levels of flooding. Maintaining LISS management and reducing fallow periods will reduce the amount of surface runoff and therefore help reduce peak flood flows.

II/3.0.5 Landscape

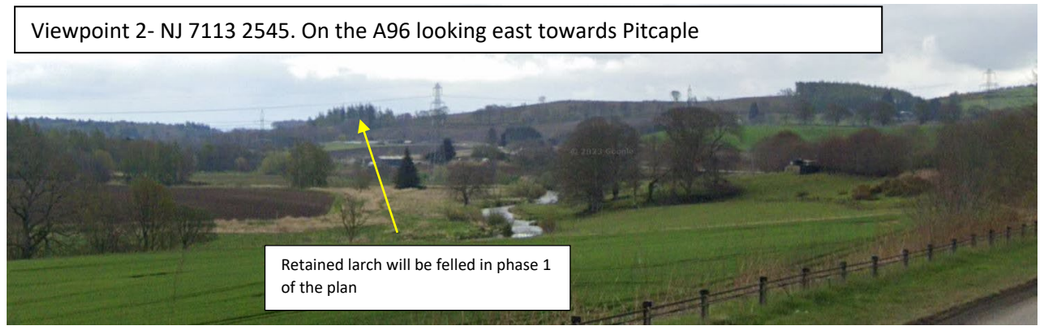
See Map 11- Landscape showing the viewpoints. The Kemnay woods blocks are generally of low visibility in the landscape. The most visible forests are Cottown and Pitcaple. Cottown is visible from Kemnay Village as a crown of conifer plantation on a low, gentle, hill above native woodland- see photo. A move towards more mixed conifer and broadleaf restocks will soften the obvious break in species.

Pitcaple can be seen as a distant view from the A96- see photo. The view of Pitcaple shows the break in the horizon due to the large clearfell. The restock of varied species will break up the skyline and over time will look more natural in the landscape.

Viewpoint 1- NJ7413 1790 looking west towards Cottown



Viewpoint 2- NJ 7113 2545. On the A96 looking east towards Pitcaple



II/3.0.6 Statutory Requirements and Key External Policies

Appendix VI provides all legal and external policies that are relevant to the LMP. This plan seeks permission to fell, thin and restock the areas of forest indicated in the plan. This will be approved by Scottish Forestry to ensure that FLS are adhering to UKFS guidance and principles. The LMP is also assessed by UKWAS auditors in order to ensure that FLS is managing the forest sustainably according to FSC and PEFC certification schemes.

The LMP acts as a vehicle to gain approval for FLS to undertake afforestation, deforestation, new roads and quarries through the Environmental Impact Assessment (EIA) process. Scottish Forestry will assess the LMP to determine if a full EIA is necessary.

Appendix III - Tolerance Tables

EAST REGION TOLERANCE TABLE - 2025

	Map Required (Y/N)	Adjustment to felling period *	Adjustment to felling coupe boundaries **	Timing of restock	Change to restocking species	Changes to roadline	Designed open ground ***	Windblow clearance ****
SF approval not normally required	N	Felling date can be moved within 5 year period where separation or other constraints are met	Up to 10% of coupe area	Up to 2 planting seasons after felling	Change within species group e.g. evergreen conifers or broadleaves	-	Increase by up to 5% of coupe area	-
SF approval by exchange of email and map	Y	-	Up to 15% of coupe area	Between 2 and 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised	-	Additional felling of trees not agreed in plan. Departures of more than 60m in either direction from centre of road	Increase by up to 10% Any reduction in open ground within coupe area	Up to 5 ha
SF approval by formal plan amendment may be required	Y	Felling delayed into second or later 5 year period Advance felling into current or 2nd 5 year period	More than 15% of coupe area	More than 5 planting seasons after felling subject to the wider forest and habitat structure not being significantly compromised	Change from specified native species Change between species groups	As above, depending on sensitivity	More than 10% of coupe area Colonisation of open areas agreed as critical	More than 5 ha

EAST REGION TOLERANCE TABLE - 2025

Tree Felling in Exceptional Circumstances	FLS will normally seek to map and identify all planned tree felling in advance through the LMP Process. However there are some circumstances requiring small scale tree felling where this may not be possible and where it may be impractical to apply for separate felling permission due to the risks or impacts of delaying felling. Felling permission is therefore sought for the LMP approval period to cover the following circumstances: Individual, rows or small groups of trees that are impacting on important infrastructure (ie. Forest roads, footpaths, access routes (vehicular, cycle, equestrian or pedestrian), Buildings, Utilities and services and drains) either because they are now encroaching on or have been destabilised or made unsafe by wind, physical damage or impede drainage. The maximum volume of felling in exceptional circumstances covered by this approval is 75 cubic metres per Land Management Plan per calendar year. A record of the volume felled in this manner will be maintained and will be considered during the five year LMP review.

* Felling sequence must not compromise UKFS in particular felling coupe adjacency. Felling progress and impact will be reviewed against UKFS at 5 year review.

** No more than 1 ha, without consultation with SF, where the location is defined as 'sensitive' within the Environmental Impact Assessment (Forestry) 1999 Regulations (EIA).

*** Tolerance subject to an overriding maximum of 20% designed open ground

**** Where windblow occurs, SF must be informed of extent prior to clearance and consulted on clearance of any standing trees

Appendix IV - Land Management Plan Brief

IV/1.0 Previous plan objectives

Objective
CLIMATE CHANGE
Enrich birch regeneration areas to provide firewood for local markets
Respace dense birch regeneration to create broadleaved woodland
Increase area managed under LISS
TIMBER
Restock species that are suitable to site and productive
Thin stands to improve quality, especially beech
Produce hardwood timber
BUSINESS DEVELOPMENT
Increase species and structural diversity
COMMUNITY ENGAGEMENT
Continue current level of involvement with various user communities to maintain interest.
ACCESS AND HEALTH
Maintain the level of recreational provision
ENVIRONMENTAL QUALITY
Increase LISS area to minimise inputs and maintain productivity
Progress naturalisation of the woodlands to increase landscape value
BIODIVERSITY
Plan management regimes and operations to improve the ecological value of the plan area.

IV/1.1 Strategic Influence

This plan has been written to conform with the following strategies and policies

- UKWAS Certification Standard
- UKFS
- Scotlands Forestry Strategy 2019-2029

FLS Corporate Strategies (https://forestryandland.gov.scot/what-we-do/plans-and-strategies

IV/1.2 Key Issues and Constraints - see section 6.1 for Concept and Analysis Table

IV/1.3 Aims of new plan - see section 6.1 for Concept and Analysis Table

Appendix V – Links to Policy and Guidance Documents

UKWAS Certification Standard

- http://ukwas.org.uk/standard/background-and-purpose/
- http://ukwas.org.uk/wp-content/uploads/2018/05/UKWAS-4-Appendix-References-v1.0-FINAL.pdf

UKFS Standard

- https://forestry.gov.scot/sustainable-forestry/ukfs-scotland

Scotlands Forestry Strategy 2019-2029

- https://www.gov.scot/publications/scotlands-forestry-strategy-20192029/

FLS Corporate Strategies

- https://forestryandland.gov.scot/what-we-do/plans-and-strategies