



ESB Asset Development UK Limited

Millmoor Rig Wind Farm: Timber Volume Assessment

Technical Appendix 17.3: Baseline Forestry Plans

663320

NOVEMBER 2022





RSK GENERAL NOTES

Project No.: 663320

Title: Millmoor Rig Wind Farm: Baseline Forestry Plan

Client: ESB Asset Development UK Limited

Date: 18 November 2022

Office: Glasgow

Status: Final

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Date:	<u>18/11/2022</u>	Date:	<u>18/11/2022</u>

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Date:	<u>18/11/2022</u>

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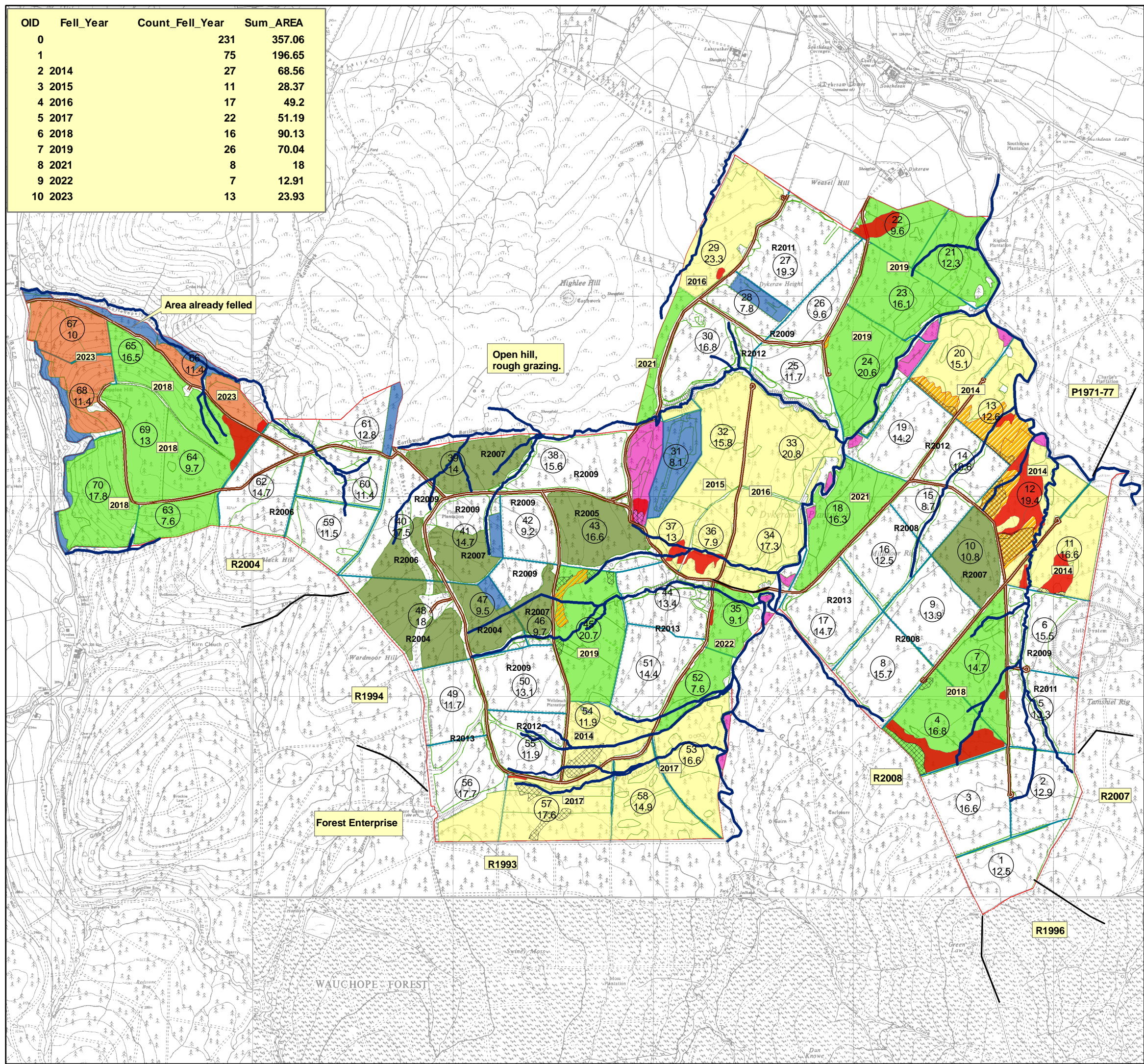
17.3.1 BASELINE TURBINE AREA FELLING PLAN

OID	Fell_Year	Count_Fell_Year	Sum_AREA
0		231	357.06
1		75	196.65
2	2014	27	68.56
3	2015	11	28.37
4	2016	17	49.2
5	2017	22	51.19
6	2018	16	90.13
7	2019	26	70.04
8	2021	8	18
9	2022	7	12.91
10	2023	13	23.93

Dykeraw Forest

SRDP CASE 4886181
Felling Plan 10yr Revision_version1

- Fell_Phase**
- 3 2013 - 2017
 - 4 2018 - 2022
 - 5 2023 - 2027
 - Thinning
 - Natural Reserve
 - Long Term Retention
 - watercourses
 - Windblow 2011
 - Windblow 2013
 - Windblow Dec 2013
 - Road
 - Comp Bdy
 - Ride
 - Legal Bdy



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OS sheets:
 Nt50ne
 Nt50se
 Nt60nw
 Nt60sw

Scale 1:18,500

Amendment 1
12th Feb 2014

UPM
UPM TILHILL

Bank House
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 DG8 6DQ
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17.3.2 BASELINE TURBINE RESTOCK PLAN

Dykeraw Forest

SRDP CASE 4886181

— watercourses

Restock Plan 10yr Revision

RESTOCKSPP

- SS
- SS/NS (1;2)
- NS
- W HEM
- MC (WH (55),NS (30),DF (15))
- BI
- MB
- MB/OG (90/10)
- RES
- RET
- SSSI WOODLAND
- OG
- Legal Bdy
- Road
- Ride
- Right of Way

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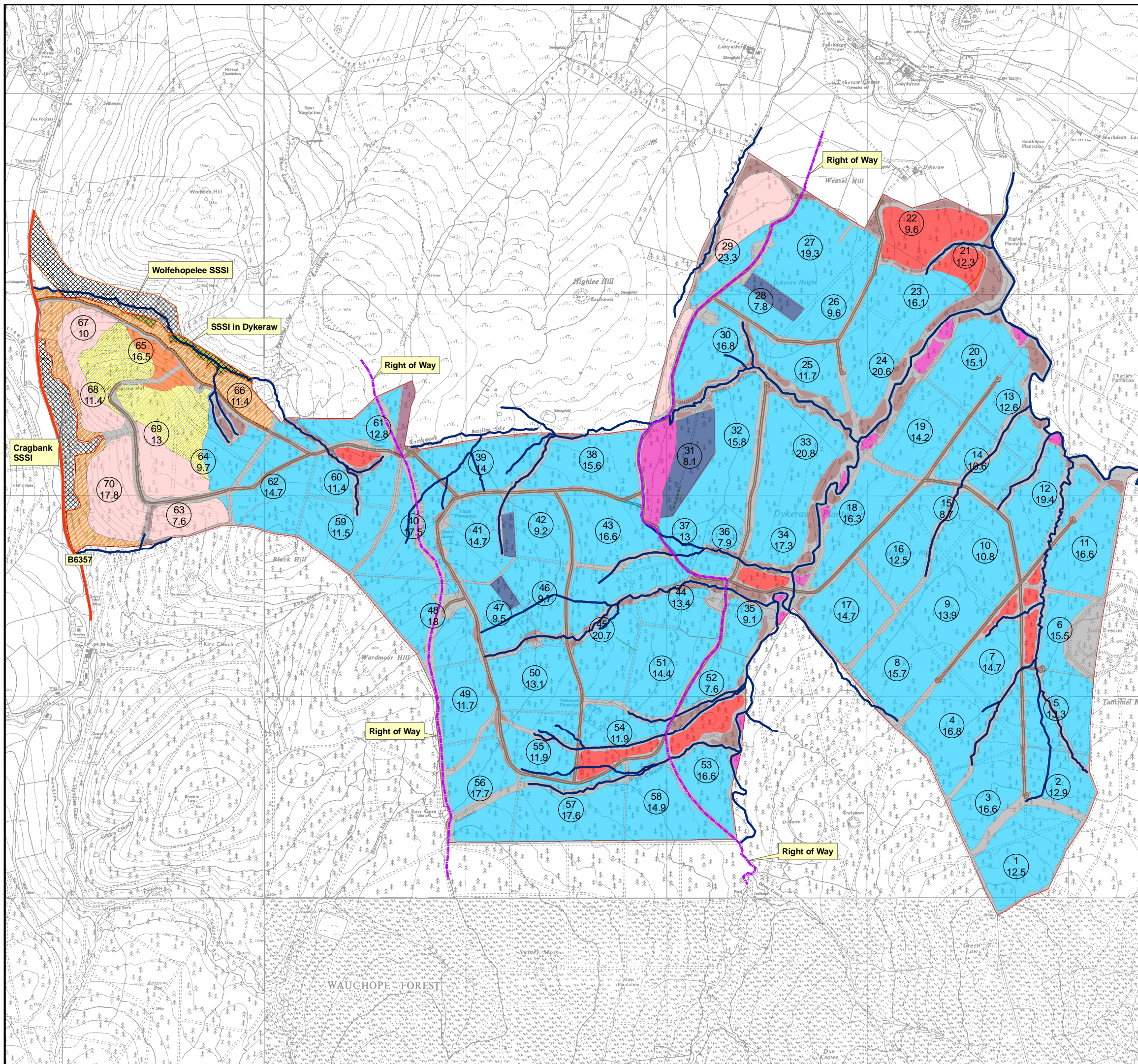


12/06/2013



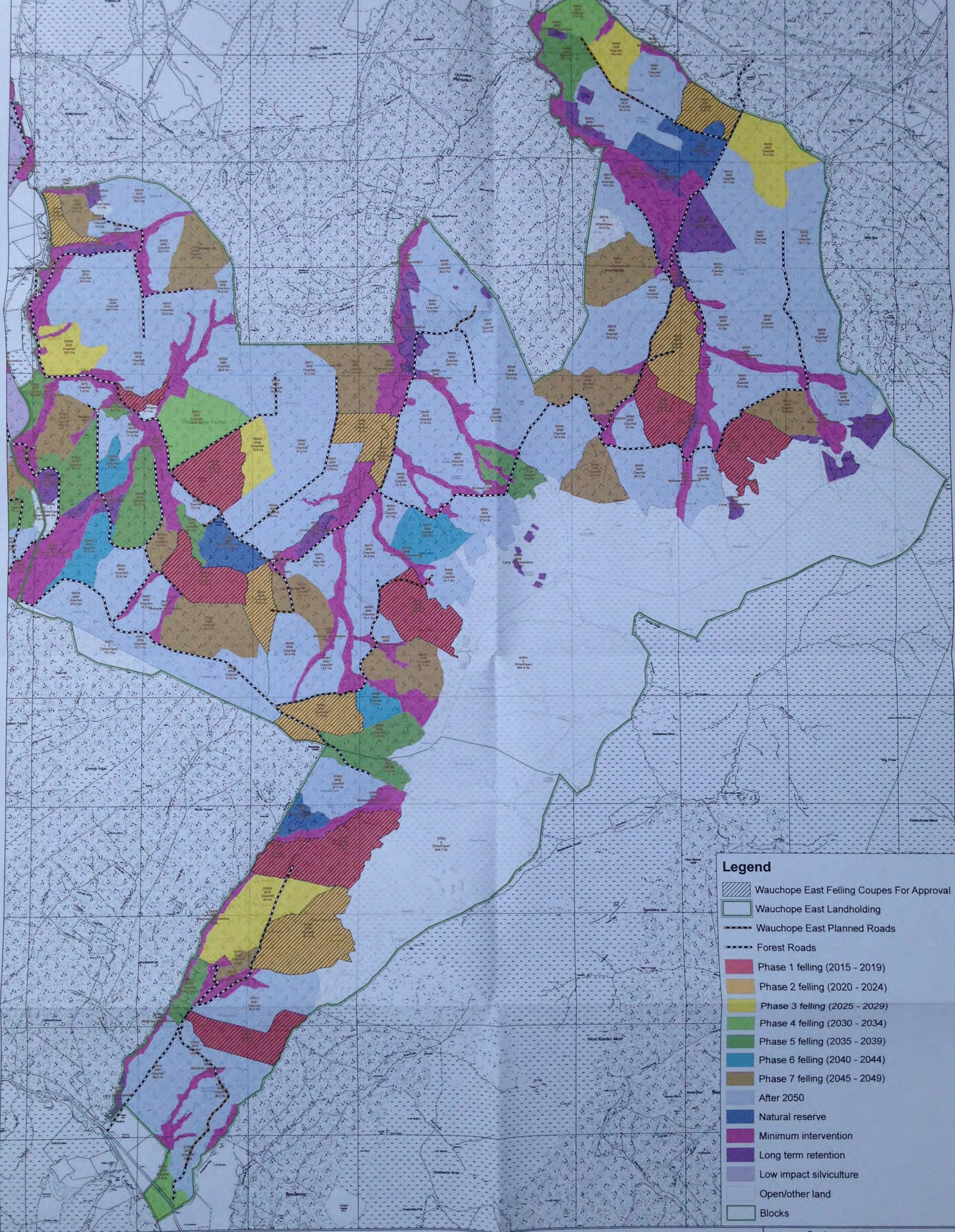
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17.3.3 BASELINE ACCESS AREA FORESTRY DESIGN PLAN



Legend

- Wauchope East Felling Coupes For Approval
- Wauchope East Landholding
- Wauchope East Planned Roads
- Forest Roads
- Phase 1 felling (2015 - 2019)
- Phase 2 felling (2020 - 2024)
- Phase 3 felling (2025 - 2029)
- Phase 4 felling (2030 - 2034)
- Phase 5 felling (2035 - 2039)
- Phase 6 felling (2040 - 2044)
- Phase 7 felling (2045 - 2049)
- After 2050
- Natural reserve
- Minimum intervention
- Long term retention
- Low impact silviculture
- Open/other land
- Blocks

Forestry Commission Scotland
Coimisean na Coilltearachd Alba

Dumfries and Borders F D
Wauchope East Forest Design Plan
Management Map

26/03/2015

Forestry Commission
Map Relevant to

Application
Number FDL226

Signature [Signature]

Date 11/2/2016

Scale: 1:15,000 at A1

0 175 350 700 1,050 1,400
Meters

N
W E
S

Scotland's National
Forest Estate is
responsibly
managed to the
UK Woodland
Assurance Standard

FSC
PEFC

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Map with revised coupe numbers supplied by F.D. 0.



17.3.4 FLS LAND MANAGEMENT PLAN 2015-2025

Wauchope East Land Management Plan 2015 - 2025

Dumfries and Borders Forest District

Wauchope East

Land Management Plan



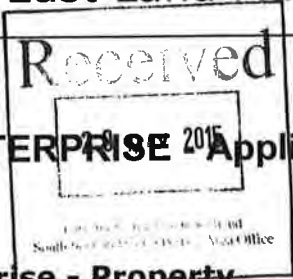
Approval date: *** 14/7/15

Plan Reference No: *****

Plan Approval Date: *****

Plan Expiry Date: ***** 13/7/25

Wauchope East Land Management Plan 2015 - 2025



FOREST ENTERPRISE 2015 Application for Forest Design Plan Approvals in Scotland

Forest Enterprise - Property

Forest District:	Dumfries & Borders Forest District
Woodland or property name:	Wauchope East
Nearest town, village or locality:	Bonchester Bridge
OS Grid reference:	NT62830344
Local Authority district/unitary	Scottish Borders

Areas for approval

	Conifer	Broadleaf
Clear felling	384.0ha	0.0ha
Restocking/Underplanting	485.7ha	38.5ha
New planting (see appendix 4)	0.0ha	

1. I apply for **Forest Design Plan** 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/road building** as detailed in my application.
3. I confirm that the initial scoping of the plan was carried out with FC staff in 2014
4. I confirm that the proposals contained in this plan comply with the UK Forestry Standard.
5. I confirm that the scoping, carried out and documented in the Consultation Record attached, incorporated those stakeholders which the FC agreed must be included.
6. I confirm that agreement has been reached with all of the stakeholders over the content of the design plan and that there are no outstanding issues to be addressed. Copies of consultee endorsements of the plan are attached.
7. I undertake to obtain any permissions necessary for the implementation of the approved Plan.

Signed

Forest District Manager

Signed

Conservator

District Dumfries & Borders

Conservancy South Scotland

Date 22/5/15

Date of Approval 14/7/15

Date approval ends:

13/7/25

Wauchope East Land Management Plan 2015-2025

Summary sheet (UKWAS requirement)

Description	Percentage of Forest block	Location of data
Restock main conifer species	49*	Forester restock layer
Restock other conifers species	19**	Forester restock layer
Open space	24*	Forester restock layer
Native broadleaves	8*	Forester restock layer
Managed for conservation/biodiversity	38 <i>100% Forester Restock.</i>	Forester management layer
Long Term Retentions*	3	Forester management layer
Natural reserve - plantation*	2	Forester management layer
Natural Reserve - AWS*	0	SNH AWS layer cat 1a

*Kielder Head SSSI open space removed from these figures

** LP mixture not included in these figure

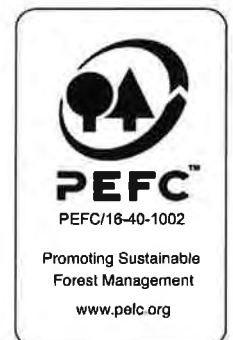
We manage Scotland's National Forest Estate to the United Kingdom Woodland Assurance Standard – the standard endorsed in the UK by the international Forest Stewardship Council® and the Programme for the Endorsement of Forest Certification. We are independently audited.

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.



FSC® C011771

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Promoting Sustainable Forest Management
www.pelc.org

Wauchope East Land Management Plan 2015-2025

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10. Species Composition Map
11. Age Class Map
12. Yield Class Map
13. Year of Mean Maximum Annual Increment Map
14. Current Forest Design Plan Management Map
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16. Analysis and Concept Plans
17. Management Map
18. Future Habitats and Management map
19. Thinning Coupe Map

Summary of Proposals

This is the second review of forest design plans for this area, in the past two decades there has already been significant effort towards restructuring, and this latest plan builds upon that principle. This plan continues to recognise the challenge of diversifying even aged first rotation stands, with the threat of windthrow, and felling shapes and timing have been carefully considered.

The forest will predominantly remain a productive conifer plantation, the main species being Sitka Spruce (around 45% of the forest). Secondary conifer species planned for restocking are Norway Spruce, Scots and Lodgepole Pine. Although Larch does not feature in the first 10 year of restocking, it has remained an important part of future plans, depending on the outcome of the phytophthora ramorum outbreak further West.

The area of native broadleaves in Wauchope East will also increase from 145.8ha in 2013 to 168.1ha in 2025. These will mainly be along riparian corridors and will provide important habitat links in the future.

There is also a proposal to have a small amount of productive birch/Oak plantation in the sheltered valley at Lances Sike and behind the mathematicians quarry

This design plan proposes the construction of 950m of new forest roads, which is required to give an alternative access to Peel and access an area of thinning and future clearfell.

Due to crop stability issues there has been a change to the coupe layout in the forest.

The design plan proposes 384ha of felling, which will produce an estimated 190,000m³ of timber in the first 10 year period. Although clear fell remains the most common management technique, the average coupe size has reduced from 27.9ha to 19.1ha.

Thinning has also been looked at as part of the design plan. There is an estimated 40,000m³ of potential thinning to be removed from Wauchope West in the next 10 years.

Formal recreational facilities within the forest will remain at the same level

The numerous scheduled heritage features within the forest will not be affected by this design plan revision.

The important open habitats that are located in the Kielderhead SSSI should be protected and enhanced by drain blocking and conifer regeneration removal in this 10 year design plan period.

Critical Success Factors

1. The continued stability of the first rotation crops assigned for later phase clearfelling.
2. Adequate protection for softer conifer and broadleaf species to be established
3. Continued riparian zone broadleaf recruitment.

1.0 Introduction:

1.1 Setting and context

This plan covers the operational proposals for the next 10 years of a rolling 35 year plan. The complete outline is attached for context, with supporting maps, long term felling and restocking proposals with relevant tables detailing future age structure and species composition.

This is the land management plan revision of the existing plans for Lethem (2358ha), Peel (669ha), and the Eastern part of Hyndlee (1093ha) totalling some 4120ha. This area includes 905ha of open moor running along the Scottish/English border. The extent of the plan is detailed on the Location Map.

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

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

1.2 History of the site

Prior to afforestation Wauchope East was predominately rough grazing made up of a number of upland farms. This farmland was mainly unimproved grazing but there was some small areas of improved pasture located around the small farmsteads. Dotted throughout the landscape were a number of small farm plantations. The majority of these have been removed during afforestation.

Wauchope East was afforested in 2 stages;

- In the early 1950's, Hyndlee Glen and Wheel Causeway
- In the 1960's, Lethem and Peel.

Strategic timber production was the main objective.

Many of these first rotation coupes have been subsequently felled and replanted with second rotation crops again with timber production as the main objective but increasingly incorporating environmental protection and enhancement.

1.3 Planning Context

The management of Forestry Commission Scotland's NFE (National Forest Estate) is guided by Scottish Forestry Strategy (SFS) 2006, which sets out seven key themes:

- **Climate change**
- **Timber**
- **Business development**
- **Community development**
- **Access & Health**
- **Environmental quality**
- **Biodiversity**

Strategic directions for the NFE are described in 'The role of Scotland's National Forest Estate and Strategic directions for 2013-2016' document. The key themes that link with Wauchope east are;

- Productive
- Healthy
- Cared for
- Good Value

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

2.0 Analysis of previous plans

Lethem, Peel and Hyndlee all expire on 30/6/2015 following an initial extension of two and a half years to the original plans.

2.1 Lethem

Lethem had a large amount of restructuring planned over the 10 years covered by the previous plan, with nineteen clearfell coupes totalling 666.4ha. Fifteen of these coupe has been felled as per design plan, 56030 has been part felled as a Scots pine area was identified as important raptor habitat. Three coupes have not been felled as per the design plan. 56033 is due to be felled in 2015. 56050 has been retained until 2023 due to it being a stable coupe. 55020 has been retained again due to important raptor habitat. This site is not suitable for LTR and has been scheduled for 2024 in this plan.

Restocking was successfully carried out on 11 of these coupes with 5 currently fallow awaiting restocking. These restock coupes will be approved as part of this plan. It should be noted that other than alder and birch softer broadleaves proved difficult to establish without protection. The self-thinning mixtures of SS and LP on the heather sites appear to be working well.

There was some delayed thinning carried out on Charlie's Knowe. This had limited success due to the large areas of windblow that occurred. Thinning in this plan should be correctly timed.

Lethem was previously well roaded with only a three small road extensions built in the last 10 years to access coupes at Charlie's Plantation, Common Laws and Carlin tooth. The road network has had maintenance and upgrades carried out as required.

There has been some drain blocking and re wetting of some of the Kielderhead SSSI Bogs, which has been successfully in recreating bog vegetation.

Recent chainsaw clearance work has been also been carried out on SS regeneration in riparian areas. This will help the continued recruitment of native broadleaves in these areas.

The majority of the long term management objectives of timber production, protecting water quality and enhancing the areas for wildlife through species and age diversification, for the forest still stand.

Despite earlier concerns that there had been too much felling in the management plan area, restructuring has been a success and has delivered a forest that will be more sustainable into the future.

In summary the plan has been delivered with minimal changes

2.2 Peel

Peel also had a large amount of restructuring planned in the last ten years. Four coupes were planned to be felled and restocked totalling 128.8ha. Of these coupes 2 were felled as per plan with coupe 57007 being substituted for coupe 57010 due to lack of road building. Coupe 57014 has been retained due to its stability and windblow in the rest of the forest. Because of this windblow coupe 57003 has been brought forward and felled by amendment. In total some 170.2ha has been felled in the last 10 years. There is windblow throughout the remaining first rotation crops on the exposed slopes of Peel fell which will be addressed in the next plan period

The above coupes have been successfully restocked with species as per the restocking plan. Again mixed native broadleaves have been difficult to establish without browsing protection. There was a problem with wild goats damaging the softer species that were planted in the last ten years.

No thinning has occurred in the plan in the last ten years but will be investigated as part of this plan.

The main access road was fully extended in the last 10 years to allow access to coupe 57003.

In summary the plan has been badly affected by windblow causing sporadic blow throughout large parts of the forest. Careful restructuring will have to be considered as part of the revised plan.

2.3 Hyndlee (East)

As with the other areas within the plan there have been large amounts of restructuring carried out within Hyndlee in the last 10 year 6 coupes have been felled totalling 169ha. Within the plan there were 9 coupes planned for felling.

Wauchope East Land Management Plan 2015 - 2025

Three of these coupes were not felled. Coupe 55035 is scheduled to be felling in 2015, coupe 55040 has been split and re designated as a natural reserve. Coupe 55036 has been split, with the NS element to be retained longer than the current plan.

Restocking has been carried out as per plan in the 6 coupes and similar to the other sites native broadleaves proved difficult to establish without protection.

Successful thinning operations have been carried out at Swire Sike and Moss plantation in the past 10 years. Favourable soils and sheltered sites will be programed as part of this design plan revision.

This area of Wauchope East has the largest amount of recreation interest although the access is on an informal basis following the decommissioning of waymarked paths in this area. People are still encouraged to use the car park at the Cheviot view.

In summary the plan has been successfully implemented in the past 10 years. Thinning is going to be an important part of the plan for the next 10 years.

3.0 Background information

3.1 Physical site factors

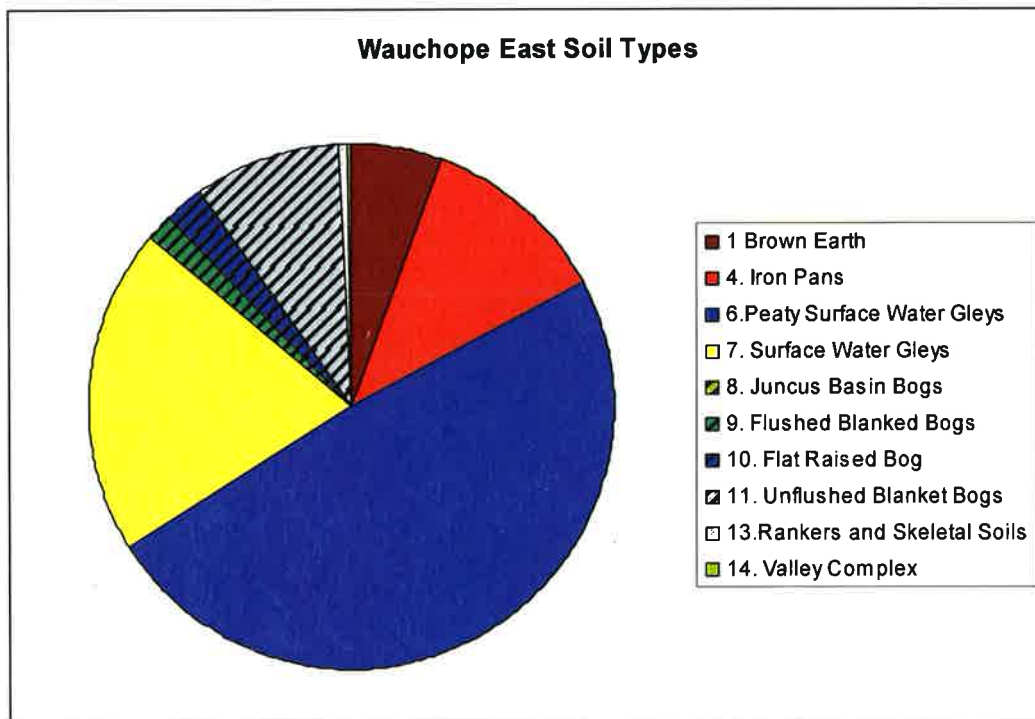
3.1.1 Geology Soils and landform

There is a mixture of bedrocks under Wauchope East. The most dominant being sandstone derived. This covers 77% of the landholding. Greywacke is the second most common bedrock type covering 20% of the forest. There are small intrusions of Andesite and Microgabbro. The micro Gabbro has been quarried at the Meg o the Bairns quarry and provides good quality rock for road building in the area. For further information refer to the BGS Bedrock map.

A detailed soils survey has been carried out on all the forested area. This survey does not extend to the open moor that extends along the Scottish/English border. The following figures, therefore, exclude this area.

Over the forest there is a wide variety soils types. The different types are displayed in the figure 1 below;

Figure 1; Wauchope East Soils Types



Wauchope East Land Management Plan 2015 - 2025

Soil Type	Area (Ha)	Percentage (%)
1 Brown Earth	180.8	6
4. Iron Pans	378.5	12
6. Peaty Surface Water Gleys	1578.2	49
7. Surface Water Gleys	646.6	20
8. Juncus Basin Bogs	3.1	0
9. Flushed Blanketed Bogs	58.8	2
10. Flat Raised Bog	77	2
11. Unflushed Blanket Bogs	291	9
13. Rankers and Skeletal Soils	13.9	0
14. Valley Complex	10.2	0

For spatial reference refer to the FC Soil classification Map.

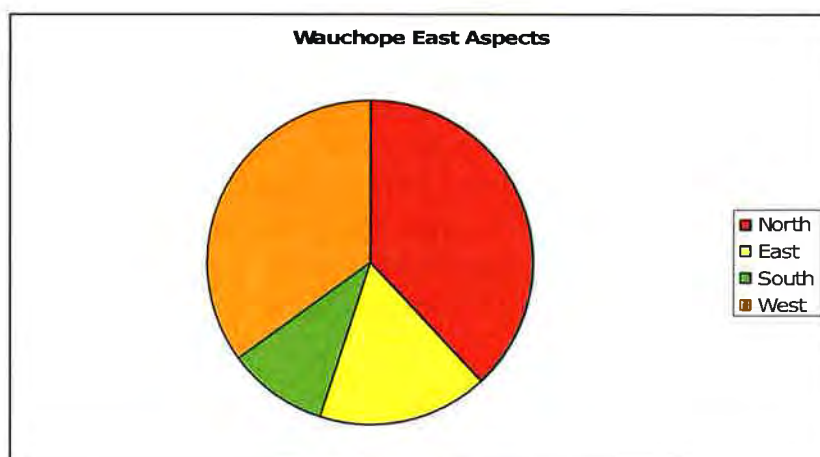
Topography in the forest is generally 2 amphitheatres forming around the Hyndlee and Black Burns. There is high ground to the south east and the national watershed runs along the Needs Law Ridge to the south of the forest. Elevations in the forest range from 200masl in the low ground in the Hyndlee Glen, to 600masl at Peel Fell.

For further information please refer to the Landform analysis plan and slope maps.

Aspects across the forest are split up as illustrated by the figure 2:

Figure 2: Wauchope East Aspects

Aspect	Percentage
North	38
East	17
South	10
West	35



For Spatial reference please refer to the Aspect Map.

The geology, soils and landform within Wauchope East give scope to grow a variety of timber species. Restocking should be carried out using species that are suitable for the soil type and exposure of the site.

3.1.2 Water

Wauchope East falls into 4 catchment areas. For further information refer to the water catchment and supplies map

The Peel section of the forest drains into the Peel Burn then on to the Liddel Water, eventually draining into the Esk and the Solway Firth.

The west of the forest flows into the Hyndlee Burn then on to the Rule Water and River Teviot. This eventually joins the Tweed at Kelso.

The centre and north part of the forest drain into the Raven and Black Burns which flow into the Jed Water before joining the River Tweed.

The open moor surrounding Scrathy Holes flows into the Kielder water and onto the North Tyne and Tyne

SEPA has River Basement Management Plans (RBMP) for the Scottish water courses. The RBMP identifies the status and the threats of each catchment (2008) and promotes management to achieve an overall good status or at least ensure no deterioration in status.

Hyndlee Burn

The current status of this water body is poor with low confidence, and does not reach the required standards for the water framework directive (in 2008). The main reason for this is man made barriers to fish migration (not on FES land). Diffuse pollution is not an issue in this area.

Since the first rotation crops have been removed there has been a much larger area of the forest dedicated to riparian zones around the Hyndlee Burn, which will reduce the risk of siltation in the future.

Liddel Water/ Peel Burn

The current status of these water bodies is moderate with medium confidence. The main pressure on the watercourse is diffuse source pollution. Although only a small amount of the catchment fall within this design plan improved riparian zones planned in this design plan period could help reduce the impact of diffuse pollution downstream.

Jed Water/ Raven Burn/ Black Burn

The current status of these water bodies is good with high confidence. There are no pressures on these water bodies

Large areas of the catchments of these watercourses have been felled and subsequently restocked in the previous design plan. This has resulted in larger areas being dedicated to riparian zones and an improvement of water quality from this catchment. This theme will be continued throughout the Wauchope East forest design plan.

Additional/new riparian buffers will be created at time of first rotation felling and second rotation restocking. These extra buffers will increase the quality of the water in these watercourses.

Water Management

All operations within the forest will adhere to the forest and water guidelines, which will protect aquatic habitats within the forest. Improvements to drain layouts during restocking and road maintenance operations will be carried out to best practice.

Water acidity is not considered to be a problem in this particular area.

An increase in minimum intervention and natural reserves will help maintain tree cover and slow down any run off associated with clear fell management techniques.

Within the forest there are a number of private water supplies. These will be identified and provisions made in the restocking plan protect the area around the supplies.

Barriers for fish migration was stated as the main pressure for some of the watercourses. The most common problem in forestry is hanging culverts on forest roads. Opportunities to remove and replace these will be taken during scheduled road maintenance operations.

3.1.3 Climate

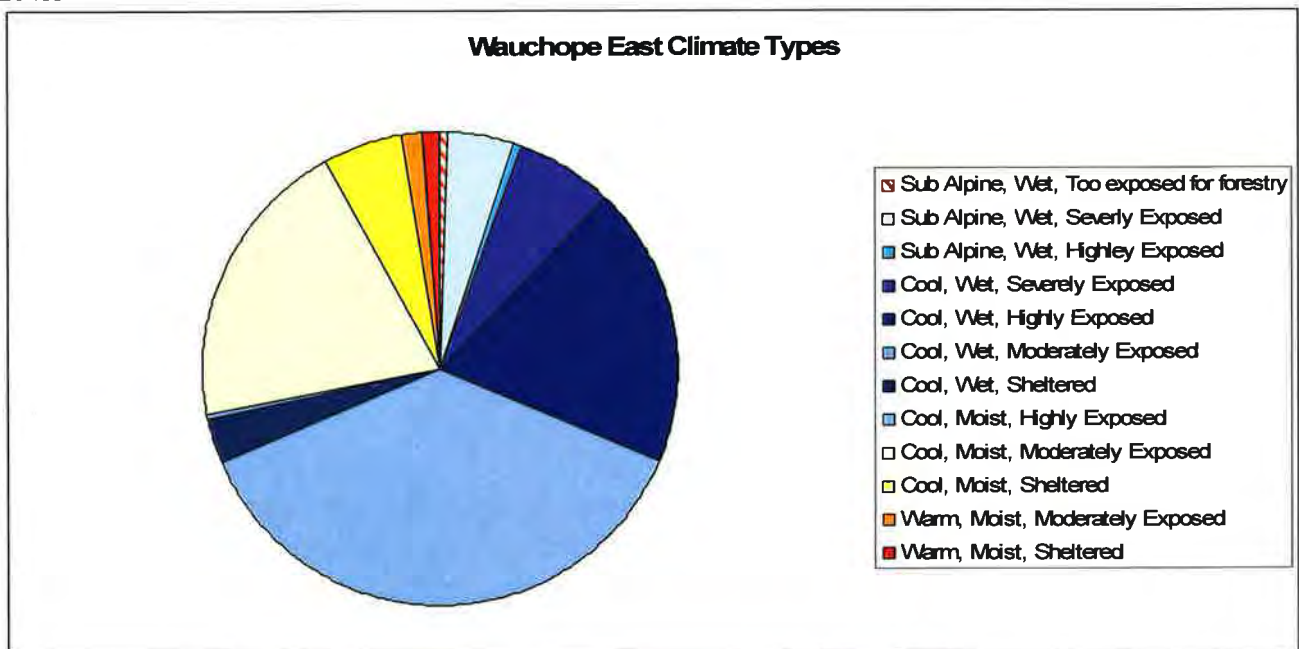
Current climate

Wauchope East offers a variety of different climate types ranging from sub alpine, wet too exposed for forestry, to warm, moist, sheltered. The breakdown in terms of areas of this climate zones are illustrated on the figure 3.

Wauchope East Land Management Plan 2015 - 2025

Figure 3: Wauchope West Climate

Zones



Climate Zone	Area (ha)
Sub Alpine, Wet, Too exposed for forestry	22
Sub Alpine, Wet, Severly Exposed	179.1
Sub Alpine, Wet, Highley Exposed	27.9
Cool, Wet, Severely Exposed	272.4
Cool, Wet, Highly Exposed	786.4
Cool, Wet, Moderately Exposed	1530.2
Cool, Wet, Sheltered	126.4
Cool, Moist, Highly Exposed	14.2
Cool, Moist, Moderately Exposed	821.5
Cool, Moist, Sheltered	229.9
Warm, Moist, Moderately Exposed	54.3
Warm, Moist, Sheltered	43

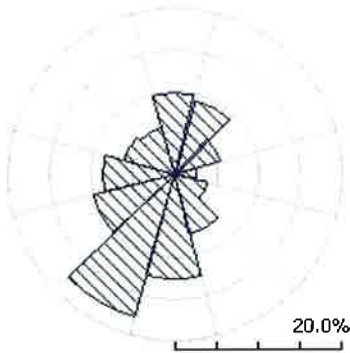
The climatic zones will have to be considered when planning restock species in the forest. For further spatial information please refer to the Climate Scores Map.

The Detailed Aspect Method of Scoring (DAMS) give a wide range of scores as would be expected for a forest of this size. The most sheltered valley bottoms have a DAMS score of less than 10, whereas the tops of the hills have DAMS scores of over 22. In terms of area 2727.8ha or 66% of the forest is theoretically thinnable, with DAMS scores of 16 or less. In reality the actual thinnable area will be less due

Wauchope East Land Management Plan 2015 - 2025

to access, soils and slope constraints. For further information please refer to the DAMS scores map.

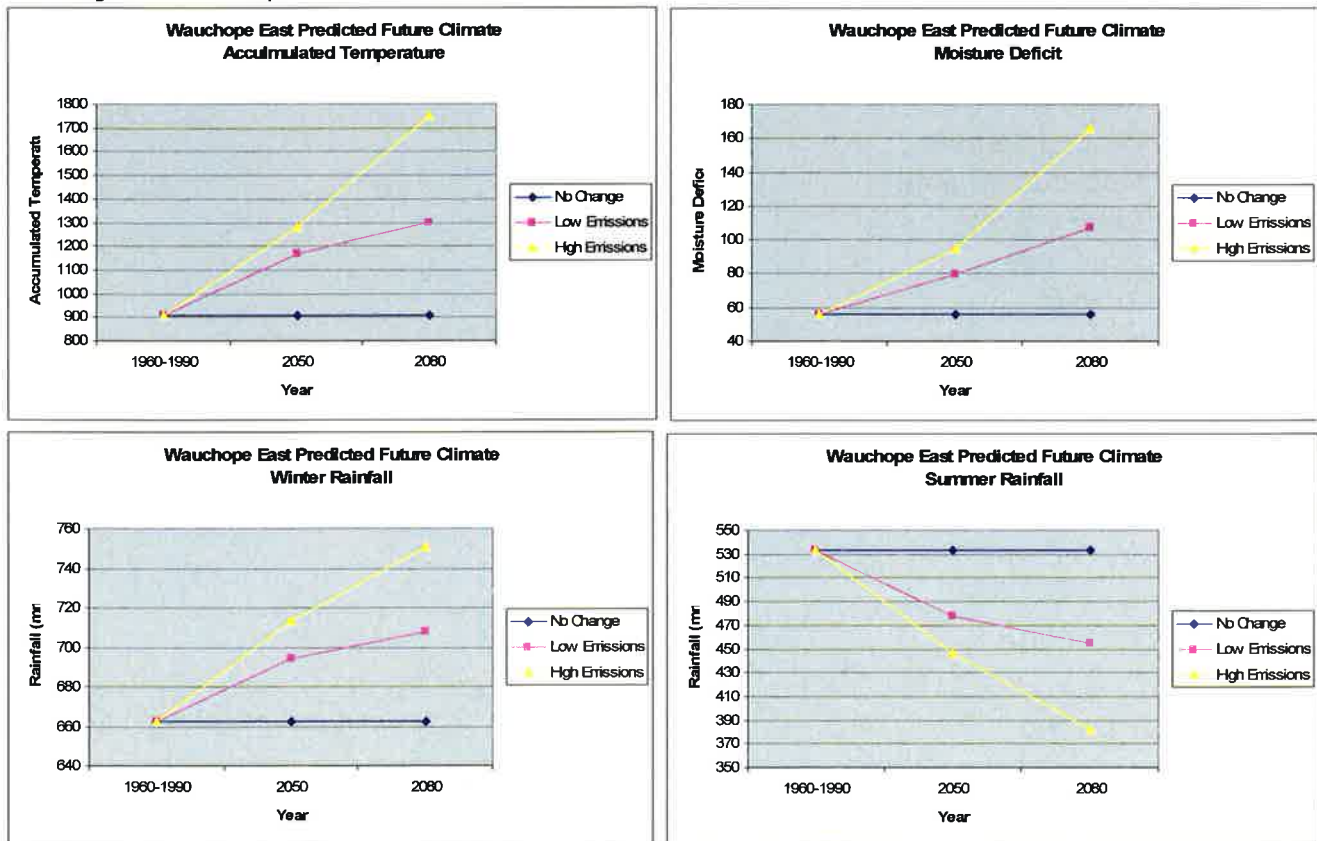
Figure 4: Eskdalemuir Wind Rose (located 35 km to the west of the forest)



Prevailing winds are from the Southwest as illustrated in figure 4:
This prevailing wind direction should be considered when planning felling coupes and windfirm edges.

For future climate predictions we have used the ESC tool to consider the 2050 and 2080 low and high emissions scenario data for this area. The findings of this study are illustrated on the figure 5;

Figure 5: Wauchope East Future Climate Predictions



The key points to take form this data are;

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- The area will be warmer with a longer growing season.

This will enable us to explore the use of some alternative conifer and broadleaf species in the next and future rotations.

- The moisture deficit (wetness) will be drier.

Although it is predicted to be drier Sitka spruce is still a very suitable species in all future predictions.

There are no windiness predictions available in the data. Although it is assumed that storm events will be more common in the future. Coupes should be designed to be robust to future wind events

Ecological Site Classification (ESC) can also list species suitability for the site in the future and the following species are predicted to be suitable or very suitable in 2050 following high emissions scenario;

- Sitka spruce
- Scots pine
- Noble fir
- Lodgepole pine
- Macedonian pine
- Downy birch
- Grey alder
- Rowan

The main limiting factor for other species is DAMS scores. It would be possible to grow other species such as Douglas fir and Norway spruce in the more sheltered valleys to the Northeast and Southwest of the site.

3.2 Biodiversity and environmental designations

3.2.1 National Designations

The Landscape character assessment map shows that there is a area of great landscape value to the north east of Wauchope East. This landscape is of a different character type to the forest dominated Wauchope East and has limited inter visibility between the two sites.

There is one large SSSI located within the forest, the open moorland running along the English/Scottish Border from the Carter to Peel Fells. This site is designated because of its important blanket bog and subalpine dry heath habitats as well as its breeding bird assemblage (golden plover, dunlin, ring ouzels, wheatears, whinchats, snipe, curlew, teal and redshank as well as schedule 1 raptors which rely on the open moorland habitats. The site is contiguous with Kielderhead and Emblehope moors SSSI (a national nature reserve and SAC over the border in Northumberland). Together these SSSI's form one of the largest upland habitats to be found in the borders area.



Kielderhead Moors SSSI November 2014

The Black Burn running through Lethem is a Special Area of Conservation (SAC) and forms part of the wider River Tweed SAC. This site is designated for its internationally important array of fish (lamprey and salmon), mammal (otters) and vegetation (rivers with floating vegetation often dominated by water-crowfoot). As a large proportion of the forest drains into this site water quality is an extremely important part of the forest design plan.



View of developing Riparian Native Woodland at Black Burn 26/11/2014

3.2.2 Open Habitats

The land management plan area of Wauchope East encompasses Kielderhead Moors: Carter Fell to Peel Fell SSSI. The area is designated for its upland blanket bog, subalpine dry heath and breeding bird assemblages that include golden plover and dunlin, four Schedule 1 raptor species as well as ring ouzel wheatear, whinchat, snipe, curlew, redshank and teal.

Work to halt gully erosion has been carried out in the last 10 years. This used plastic piling to slow water flow in the gullies and has been so successful that any open water areas that were created as a side effect of the work have now vegetated over. After consultation with SNH, it is proposed to re-wet these areas by removing the ground vegetation covering the bottom of the sikes in order to improve the habitat for invertebrates and ground nesting birds on the site.

3.2.3 Woodlands

There are no mapped areas of ancient woodland shown on the ancient woodland inventory of Scotland. There are neighbouring ancient woodlands opposite Hells Hole at Crag Bank this is also an SSSI and national nature reserve. This land management plan will look to provide habitat links with this important site.

Looking at the first edition ordinance survey maps only three of the small woodland farm copses that existed prior to afforestation are still present, namely Butterlee Plantation (MB) in Peel and Bigfoot and Charlie's Plantation (SP) in Lethem. These plantations would have been too small to map as part of the native woodland survey but are interesting features and should be protected by this forest design plan.



Charlie's Plantation Scots Pine. January 2015

During the past design plan period there has been broadleaf planting particularly around riparian zones. The best examples of these are those which have had some form of protection from browsing damage (1.2m tree shelters or deer fencing). Recently conifer regeneration has been removed from these areas to encourage further recruitment of native broadleaves.



Recent example of conifer regeneration cut out of a native woodland riparian zone

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This design plan should look to continue to improve these habitat links throughout the forest.

There are also areas of slightly more mature broadleaves which are beginning to develop into important areas for conservation. The riparian gully of Swire Sike is a good example of this.



Swire Sike Developing Riparian Woodland March 2015

Across the border at Peel Fell is William's Cleuch which supports a small population of Scots pine. Over the last 50 years there has been some speculation that these may be native remnants. If these pines are locally native there are major conservation implications for the area. There is an on-going wildwood project that is being led by Forestry Commission England. Any native planting the Kielderhead SSSI will need approval from SNH. For further information refer to the Kielder Wildwood paper in the appendices



William's Cleuch Scots Pine January 2015

Ecological Site Classification Software suggests that the most appropriate native woodland type for this area is W11 Oak and Birch with Bluebell/Wild hyacinth and W19 Juniper with Wood Sorrell. Other appropriate woodland types are W17 Oak/Birch with blaeberry.

3.2.4 Protected Species

Wauchope East is of particular interest for raptor and owl conservation with numerous breeding pairs of Schedule 1 species such as goshawk, peregrine falcon, hen harrier and barn owl. These known nest sites – artificial and natural - are monitored closely throughout the year and any chicks ringed.

There is a historic golden eagle territory within the area, which although currently not active as a breeding site is frequently visited by juvenile and sub-adult birds passing through and will be a strong contender for any future possible golden eagle release programmes that may take place in the South of Scotland.

In addition to the above bird species red squirrels are resident throughout the forest despite the presence of grey squirrels. Otters can also be found in all the water courses.

Numerous and sizeable badgers setts throughout the area are surveyed, monitored and marked on constraints maps to avoid damage or disturbance during forestry or civil engineering operations.

There are historic records of black grouse leks in the area and new planting near open moorland areas will be planted with appropriate tree and shrub species mix and composition to create suitable habitat conditions for this species.

3.2.5 Deer Populations

In terms of Deer management Wauchope East is combined with Wauchope West (Shankend, Whitrope and Wauchope Burn), Swinnie and Falside to form a management unit which totals 9071ha.

The only species at the moment in the management unit is Roe Deer. The control is carried out by a mixture of direct Forestry Commission wildlife rangers as well as deer management permissions and contractors.

Population as of August 2012 was 7.7 per 100ha. Our forecast is for a gradual sustainable reduction with a target population of 5 per 100ha over the next 5 years.

See section 5.6

Wauchope East Land Management Plan 2015 - 2025

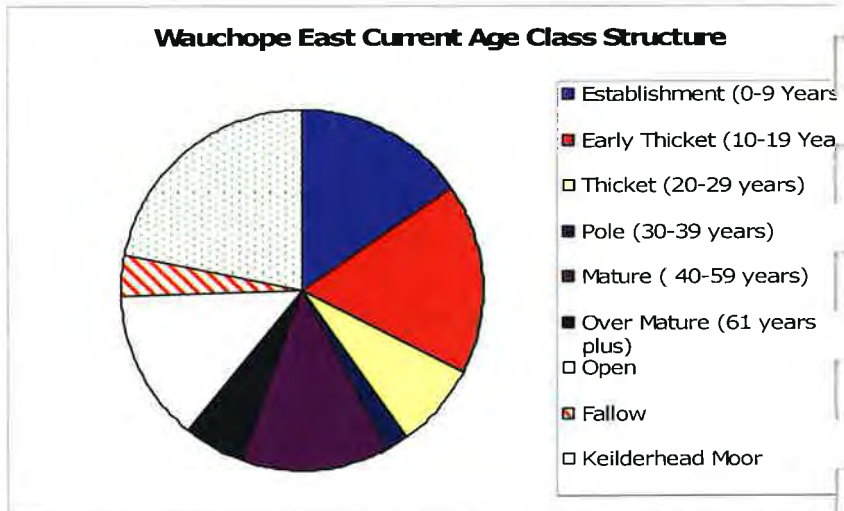
3.3 The existing forest:

3.3.1 Age structure, species, yield class and management types

The current age class of the forest is illustrated in figure 6;

Figure 6: Wauchope East Age Class Structure

Age Class	Area (Ha)
Establishment (0-9 Years)	639.8
Early Thicket (10-19 Years)	694.4
Thicket (20-29 years)	327.8
Pole (30-39 years)	72.0
Mature (40-59 years)	539.1
Over Mature (61 years plus)	233.0
Open	555.3
Fallow	151.3
Keilderhead Moor	905.0
4117.7	

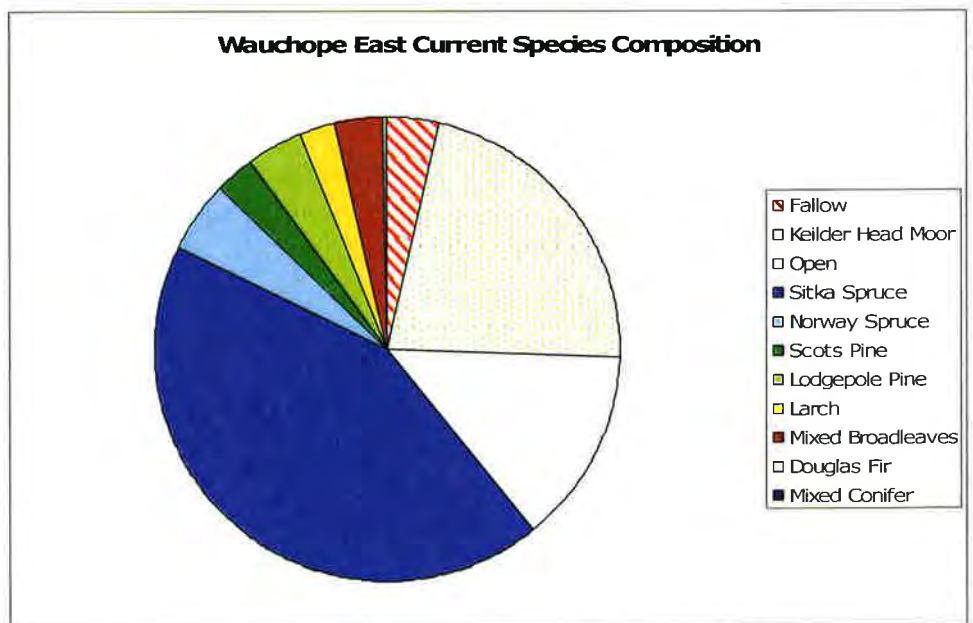


Looking at the figures it can be seen that Wauchope East is a fairly well restructured. In an ideal world there will be an increase in the amount of forest in the over mature and pole age classes, but in large areas of the forest exposure is a major constraint for rotation length. The over mature age class will be increased by the perpetuation of long term retentions and natural reserves in this plan period. The pole stage will increase as the early thicket develops.

Figure 7 displays the current species composition of Wauchope East;

Figure 7: Wauchope East Current Species Composition

Species	Area (ha)
Fallow	151.3
Keilder Head Moor	905.0
Open	555.3
Sitka Spruce	1768.6
Norway Spruce	214.4
Scots Pine	109.9
Lodgepole Pine	164.0
Larch	95.8
Mixed Broadleaves	145.8
Douglas Fir	6.4
Mixed Conifer	1.2
4117.7	



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The forest is currently dominated by Sitka spruce which occupies 55% of the forested area. It is envisaged in this plan that SS will still continue to be the dominate species but opportunities to diversify the conifer composition should be investigated in the areas where other species are deemed very suitable. The native broadleaf elements of the forest will also increase as targeted planting of broadleaves along riparian corridors is undertaken.

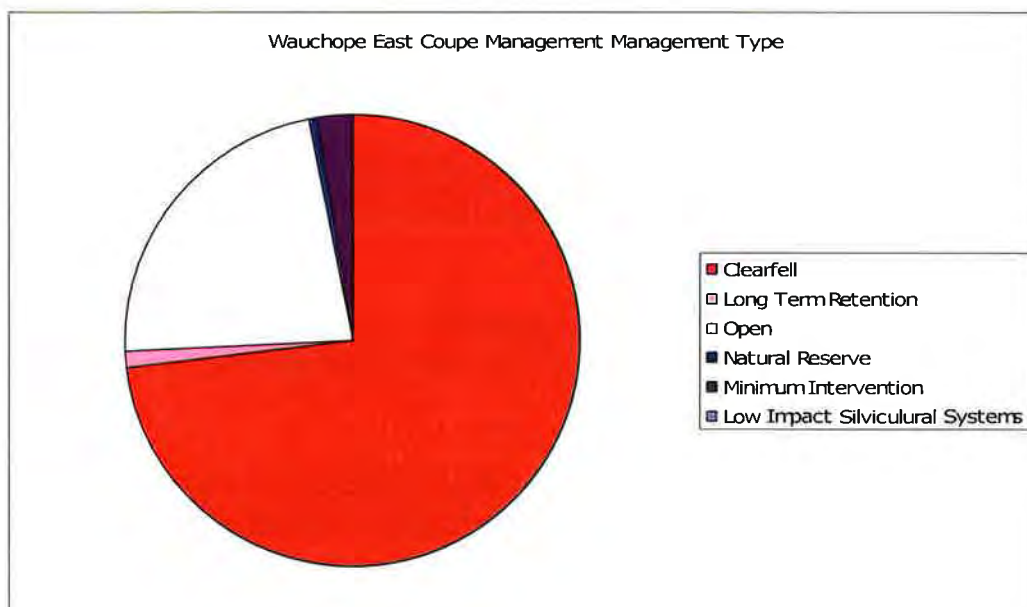
The forest has a range of yield classes that are displayed spatially on the Yield class map.

Although yield class is a good indicator of tree growth generally it is also species specific. Some of the lower yield classes displayed are from slower growing species such as Scots Pine or Larch.

Figure 9 below illustrates the coupe management types within the forest.

Figure 9: Wauchope East Coupe Management Types

Coupe Management Type	Area (ha)	Area (%)	Comments
Clearfell	3010.4	73	Including open streamside's, roads etc
Long Term Retention	40.1	1	Coupes with a delayed felling year
Open	945.1	23	Coupes classified as 100% open
Natural Reserve	18.9	0	Coupes with no planned Management intervention
Minimum Intervention	99.4	2	Coupes with minimal management intervention
Low Impact Silvicultural Systems	3.8	0	Continuous Cover Coupes
	4117.7	100	



Clearfell is the most common management practice, and will continue to be into the future. Open space is a larger designation than in a normal forest due to the large area taken up by the Kielderhead SSSI. It is expected that there will be an increase in the other management types prescribed in this management plan.

3.3.2 Access

With large areas of private and state owned productive forests in the area, strategic management of timber transport is essential. Timber transport from Wauchope East to the processing plants within the South of Scotland is considered, along with privately owned forests, as part of the Scottish Borders Timber Transport Group. This group aims to minimise impact to roads and communities through agreeing route solutions.

Public road access to the forest is from the A6088 between Chesters and the Carter Bar and the B6357 Bonchester Bridge to Newcastleton. These are both recognised timber haulage routes with no restrictions.

There are 4 main threshold entrances into the forest which are listed below;

- Hyndlee (NGR NT58990600) Servicing Hyndlee and the main forest road through to Lethem
- Lethem (NGR NT65740800) Servicing Lethem and the main forest road through to Hyndlee
- Knot of the Gate (NGR NT58860289) Servicing the south of Hyndlee and Lethem
- Myredykes (NGR NY59679804) Servicing Peel

The majority of the forest is well roaded with an ongoing upgrade and maintenance programme to make sure the forest roads are kept to specification.

There may be some small road building detailed in this plan to access thinning and future clearfell coupes. There is also an alternative access route into Peel that will be investigated.

Public access is encouraged in all of these areas whether on foot, horseback, or bicycle. The access is managed under the Scottish Outdoor Access Code (SOAC).

Wauchope East is used annually as a stage for motor rallies.

3.3.3 LISS potential

The areas of the forest which may be suitable for LISS are still in the establishment or early thicket stage. Following thinning a decision should be made at the next design plan revision whether to apply LISS management to these areas. Programming thinning regimes for these areas will give the option for conversion to continuous cover methods in the future.

Areas of Natural reserve and Minimum Intervention will also be mapped out during this plan. These are areas of woodland which will be allowed to develop naturally, with limited management intervention in perpetuity.

3.3.4 Current and potential markets

Given the expanse of land and conifer potential, a large proportion of the timber produced will be softwood to supply large scale processing sawmills in the area. This does not rule out hardwood and other diverse timber products, these are particularly relevant given the benefits species diversity can bring to other social and environmental management objectives. These opportunities will be considered and implemented as part of the plan.

3.4 Landscape and landuse

3.4.1 Landscape character and value

With reference to the Landscape Character and Landform analysis map it can be seen that all of the forest falls into the Southern Uplands Forest Covered SNH landscape value.

This landscape type has the following key features

- Medium to Large Scale organic, rolling smooth hills and ridgelines which dominate views.
- Dominant coniferous forest cover characterised by Sitka spruce plantations. The hill tops along the border are made up of heather and grass dominated moorland.
- Restructuring of the forest over the last 20 years has given visual diversity to the landscape.

Specifically the Wauchope Newcastleton block has the following distinctive features

- Strong direct links with character of Kielder forest located directly south of the Cheviot Hills
- Distinctive geology of carboniferous sedimentary rocks gives generally subdued landform
- Higher summits (up to 600m)

This landscape character type does not constrain the extent of forestry, but improvements can be made to the visual appearance of the forest by both age class and species diversification, allied with careful coupe design.

3.4.2 Visibility

The topography of the landscape often restricts internal views of the forest, although 20 years of restructuring has broken up views of the forest internally.

Historically people saw the forest as dark expanses of conifer covering the landscape with straight forestry edges contrast with the curves of the hill landform and the surrounding grassland or moorland. However restructuring and redesign in the past 20 years has created forests that fit better with the land form and are more diverse in structure

Opportunities should be taken to improve the woodland margins in this forest design plan period.

3.4.3 Neighbouring landuse

There are a mixture of surrounding land uses including improved and unimproved grassland, rough grazed moor and new native woodland planting.

There are also privately owned forestry plantations. Where possible we will plan our felling coupe phasing, and restocking, to complement these forests and not compromise our own or adjacent crop stability.

3.5 Social factors

3.5.1 Recreation

Recreational use of this land is concentrated around the threshold entrance at Hyndlee.

Access throughout the remainder of the forest is low but is encouraged through the Scottish Outdoor Access Code (SOAC)

The forest is regularly used as a rally stage for the Border Counties Motor rally and the Roger Albert Clark Historic rally.

There is also horse and trap interest in the area, with organised events taking place in the forest over the past few years.

3.5.2 Community

The communities around the forest are very much rural with scattered settlements at Hyndlee and Lethem. The closest villages are Bonchester Bridge and Chesters, there are currently no formal links with the local community in this area.

Forest users were invited to attend a tour of the forest. Interest was low so the visit was cancelled.

3.5.3 Heritage

There are a two scheduled monuments within Wauchope East. They are;

Tamshiel Rig Fort, Settlement and Field System

The monument comprises the remains of a fort, settlement and field system that extends into the neighbouring land owner property. The site probably dates from the later first millennium BC. The monument was de-scheduled in 1990 after the mistaken belief that forestry ploughing had largely destroyed the site. Although ploughing seriously damaged the western section of the monument the rest of the site survived afforestation so the site was rescheduled. Threats to the site include regeneration of gorse and SS seedlings. This should be monitored during the period of the plan. For further information refer to the Monument management plan in the appendices



Tamshiel Rig Fort settlement and field system (March 2015)

Black Hill Settlement

The monument consists of a later prehistoric settlement dating from the first millennium BC. Threats to this monument are regenerating SS and bracken encroachment. These will be monitored in this design plan period and works scheduled to address any issues.



Black Hill Settlement (March 2015)

There are numerous other unscheduled features either considered as archaeological or built heritage. These features will be protected as part of the work plan system.

3.6 Statutory requirements and key external policies

Other than the protected areas and features mentioned above there is no known statutory requirements and key external policies covering Wauchope East.

4.0 Analysis and Concept

4.1 Analysis and Concept

The Analysis and Concept maps show detailed considerations of the factors that influenced the development of design and long term vision of this forest.

4.2 Concepts of the plan

The design concept has been graphically presented in the site analysis and design concept maps.

The thought process in developing the concept is set out below.

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Factor	Opportunity	Constraint (limitation or restriction)	Concept Development
Adapting to climate change – a resilient forest and protecting the environment	Wide variety of sites within the forest ranging from the sheltered valleys at Hyndlee Glen and Peel to the exposed plateaux around Peel and Carter Fells	Increased risk of pests and diseases due to warmer weather. Increased risk of windblow. Extreme rain events may increase flooding.	Use climate change models highlighted in section 3.1.3 to plant site suitable species both now and into the future. Utilise the higher quality sites to grow a mixture of tree species both conifer and broadleaf. CCF and continuation of restructuring can be used to increase structural diversity in the forest to mitigate the effects of catastrophic wind events. Increased appropriately timed thinning operations will also increase stand stability in the next rotation. Larch will not be planted in the first 10 years of the plan due to Phytophthora spread from the West. The pine stands within the forest will be monitored for the spread of Dothistroma needle blight. Opportunities will be taken to increase riparian buffers and improve riparian habitats to maintain high water quality and increase floodwater storage capacity.
Mitigation for climate change	Store carbon in forest ecosystems and timber products	Highly productive timber producing trees may not be best species for environmental and social benefits	Given that timber production is a key management objective plant fast growing Sitka Spruce and other species particularly capable of producing timber for long term use in construction. The blanket bog on the Kielderhead Moors SSSI should be protected and enhanced

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<p>Timber Production</p>	<p>Large areas of land in good climate capable of producing large quantities of high value timber</p>	<p>Soils limit tree growth. Wind limits rotation length.</p>	<p>In the next rotation plan for c 50% of the tree cover as SS to produce timber. c. 25% of the forest will be restocked with a mixture of conifers and broadleaves that are selected as very suitable for the sites. Productive broadleaf site including birch will be investigated as part of the design process. Thinning will be undertaken on larger areas of the forest than in the previous rotation this will improve timber quality.</p>
<p>Forest Structure</p>	<p>Wauchope East has had large amounts of restructuring carried out over the last 10 years</p>	<p>Limitations to rotation length over large areas of the site due to wind and soil limitations.</p>	<p>Assign the permanent native woodland and water buffer zones (including natural reserves). Clear fell coupes should be realistically phased with opportunities taken to retain the more stable stands to the age of maximum mean annual increment where possible.</p>
<p>Neighbours and communities</p>	<p>The forest is a resource that could be utilised by locals and communities centred around Bonchester Bridge and Chesters</p>	<p>Currently limited community interest in the forest. FCS has limited funds.</p>	<p>Listen and engage with communities who have aspirations regarding the forest Consult with neighbouring woodland owners and managers to allow discussion on plans</p>

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<p>Managing permanent habitats to support a range of species</p>	<p>Potential expansion of existing riparian zones.</p> <p>Open habitats on the hill tops. Opportunity to enlarge slightly where timber growth of first rotation has been poor. Riparian MB/open space will also increase in this plan period</p> <p>Look at opportunities to retain conifer attractive for Squirrel Conservation as long term retentions or natural reserves</p>	<p>The expansion is constrained by the timber production management objectives and the funding for native woodland expansion.</p> <p>Again timber objectives constrain the extent of open space and open space should only be enlarged where altitude limits tree growth.</p> <p>Wind and soils limit rotation length in some areas of the forest</p> <p>Deer Pressure</p>	<p>The existing 3% broadleaves will be expanded to >7% over the next rotation period. There should be linkage into the wider landscape adjacent to the forest.</p> <p>Current open space accounts for 20% of the area This area is likely to increase slightly as the second rotation crops brought off the hill tops at Carlin Tooth and Peel fell. The larger MB/open space prescriptions in the riparian zones will also increase the total open space in the forest. Open hill tops are also an important part of reducing the landscape impact of straight edges running against landforms.</p> <p>Identify mature and young NS and SP stands in sheltered locations as long term retention candidates for the next rotation. Target for crown thinning</p>
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Wauchope East Land Management Plan 2015 - 2025

Designing woodland for specific species	Red squirrels	Not a stronghold area increased risk of Grey squirrel migration North	Continue with squirrel monitoring in the area. Increased species diversity will provide better habitat for squirrels both (Red and Grey) in the next rotation. Consult with Red Squirrels South Scotland with restock options Avoid creating corridors of Large seeded broadleaves deep into the forest.
	Black grouse	Difficulty in establishing suitable habitat for Black grouse in remote locations	Continue to provide woodland fringe enhancements for black grouse adjacent to known active leks. Protection should be budgeted for in the restock program
	Juniper	Phytophthora austrocedrae	Investigate the potential for planting locally sourced Juniper in the woodland as there are no local "native" populations within the forest. Areas around Carlin Tooth and Peel fell will be particularly suitable.
Water and soils	Increase buffer zones to improve water quality.	Some softer species are difficult to establish in riparian zones	Focus the increase in riparian buffers in riparian zones that have lower broadleaf stocking. Aim initially for 40% broadleaf cover 60% open space in the indentified riparian zones
Heritage	Preserve and enhance sites of historic interest.	Threat of conifer regeneration on open SAMs	Identify all scheduled and unscheduled sites and design the forest to protect them into the future.
Operational Access	Some areas of Wauchope East have no operational access	Limited roading budget	Work with local civil engineering team to develop cost effective, feasible roadlines that will give access to the areas currently isolated. If possible site these roads so they can be used for future thinning operations.

5.0 Land Management Plan Proposals

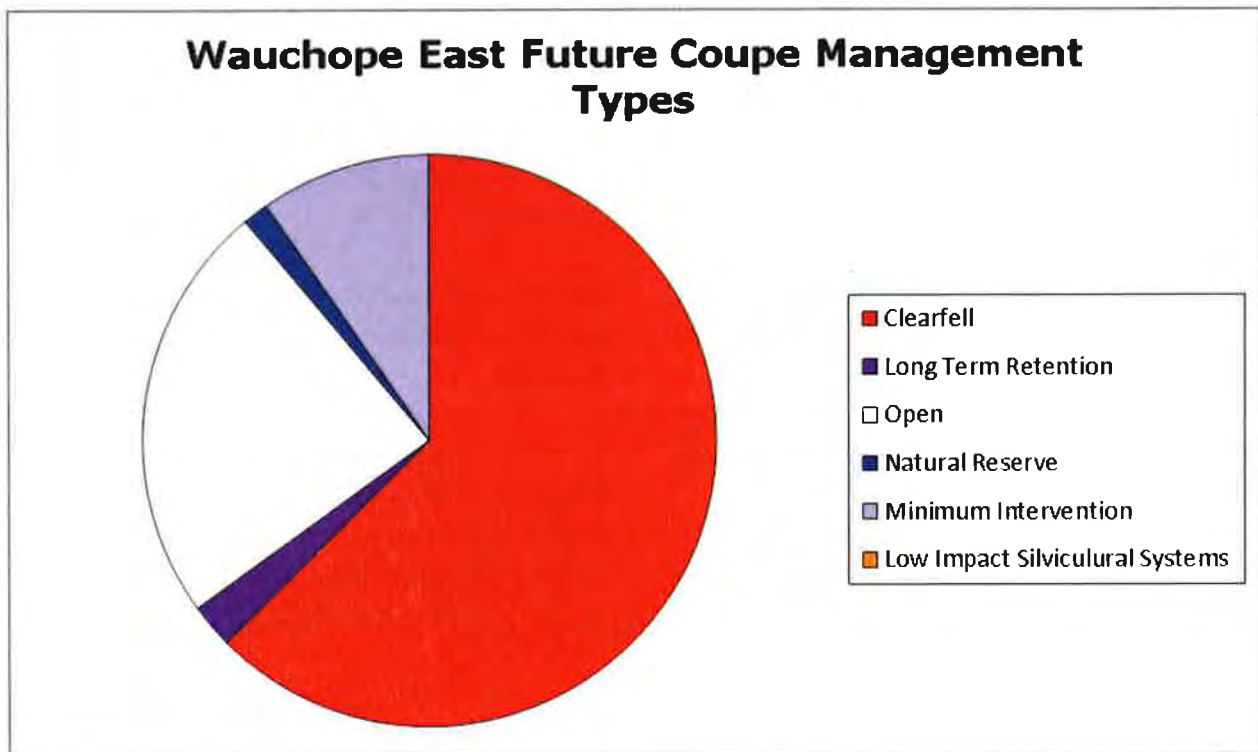
5.1 Management types

The Coupe Management types are illustrated in the figures 10 and the management map;

Figure 10: Wauchope East Coupe Management type

Coupe Management Type	Area (ha)	Area (%)	Comments
Clearfell	2576.7	63	Including open streamsidess, roads etc
Long Term Retention	103.4	3	Coupes with a delayed felling year
Open*	981.8	24	Coupes classified as 100% open
Natural Reserve	59.3	1	Coupes with no planned management intervention
Minimum Intervention	396.6	10	Coupes with minimal management intervention
Low Impact Silvicultural Systems	0	0	Continuous Cover Coupes
	4117.8	100	

* This refers to the whole coupe management type not the total open space in the forest



Wauchope East Land Management Plan 2015 - 2025

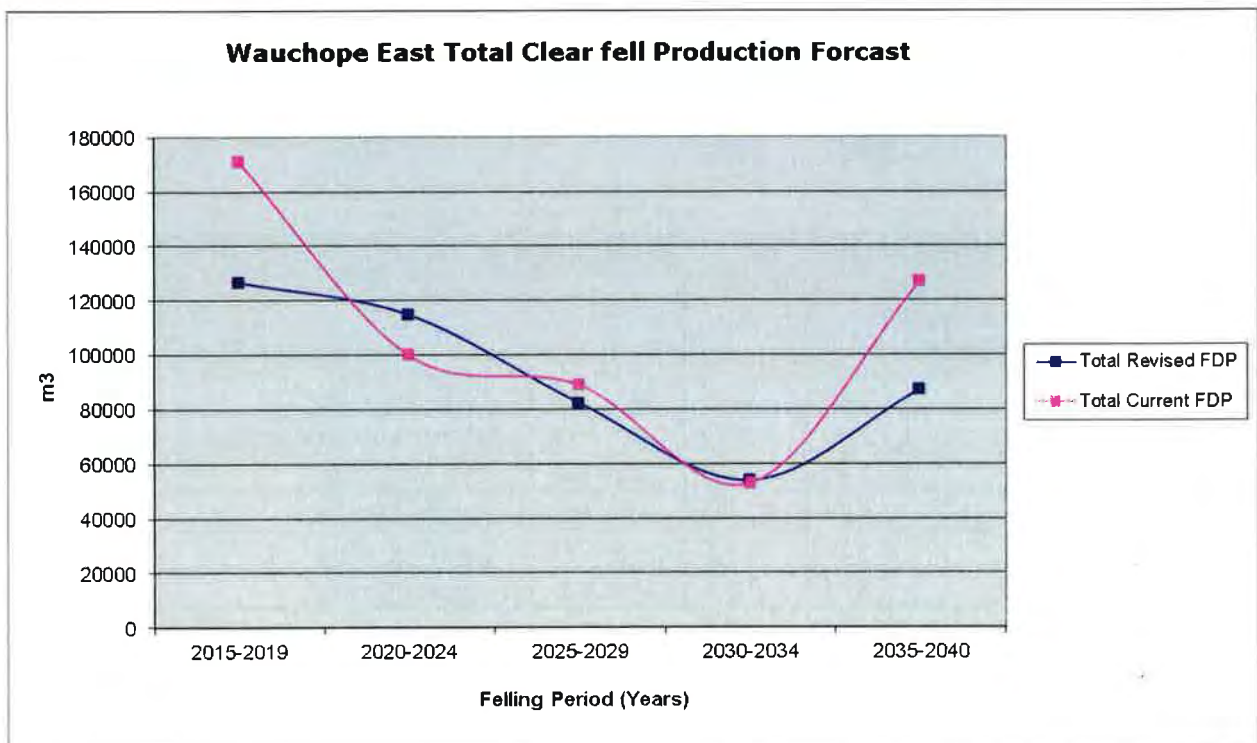
5.1.1 Clearfell

The majority of the forest will continue to be managed using traditional clear fell coupes. There will be 63% of the forest managed using this technique.

Although this is the most common management type the average coupe size has been reduced from 30.7ha to 22.4ha. The predicted volume production over the next 25 years for the revised FDP is compared to the current FDP on figure 11;

Figure 11: Current and Proposed Forest Design Plan Timber Streams

	Volume m3(obs)				
	2015-2019	2020-2024	2025-2029	2030-2034	2035-2040
Lethem Revised FDP	32410	40425	24451	30201	25862
Lethem Current FDP	74830	34995	32302	18200	71570
Peel Revised FDP	43963	49603	35457	4619	36423
Peel Current FDP	44852	43496	16479	8116	1698
Hyndlee Revised FDP	50240	24676	22233	19027	25024
Hyndlee Current FDP	51377	21406	40033	26490	53594



Wauchope East Land Management Plan 2015 - 2025

The revision of the total plan area has a similar flow of timber when compared to the previous FDP. This will ensure a sustainable flow of timber to the market in the future.

In the first 5 year period there is a reduction of 45,000m³ from the current plan. The reason for this is the 15 year delay of felling 2 large stable NS coupes in the Hyndlee Glen.

The average annual cut for the revised plan area is 18500m³. This is slightly less than the 21500m³ that would have been the average annual cut in the current plan.

Figure 12 illustrates the timings of the felling coupes for approval in the next 10 years of this forest design plan.

Figure 12: Wauchope East Proposed felling Coupes for Approval

Lethem

Coupe Number	Felling Year	Production Forecast Volume (m ³)	Net Area (Ha)	Comments
56005	2016	13808	30.8	Clearfell carried from previous FDP
56026	2016	10137	24.5	Clearfell to address recent windblow
56041	2019	8465	28.5	Clearfell site for restructuring
56020	2021	5246	16.0	Clearfell to address windblown area
56050	2023	12976	25.3	Clearfell to address windblown area
56025	2023	16573	33.6	Clearfell site for restructuring
56045	2024	5627	7.4	Clearfell site for restructuring

Totals 72832 166.1

Hyndlee

Coupe Number	Felling Year	Production Forecast Volume (m ³)	Net Area (Ha)	Comments
55034	2016	1,826	5.49	Clear Fell for Restructuring
55035	2016	13,909	26.2	Clear Fell to address large windblown area
55036	2018	11,120	31.0	Clear Fell for restructuring
55055	2023	8,420	14.9	Clear Fell for restructuring
55040	2024	8,376	16.5	Clear Fell for restructuring
55031	2024	7,879	8.8	Clear Fell for restructuring

Totals 51,530 103.0

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Peel

Coupe Number	Felling Year	Production Forecast Volume (m3)	Net Area (Ha)	Comments
57003	2015	5,993	9.1	Clearfell to address windblown area
57104	2016	19,911	39.2	Clearfell to address windblown area
57020	2017	18,078	28	Clearfell to address windblown area
57007	2020	23,117	39.1	Clearfell to address windblown area
Totals		<u>67,099</u>	<u>115.4</u>	

Wauchope East

Totals **191,461m3** **384ha**

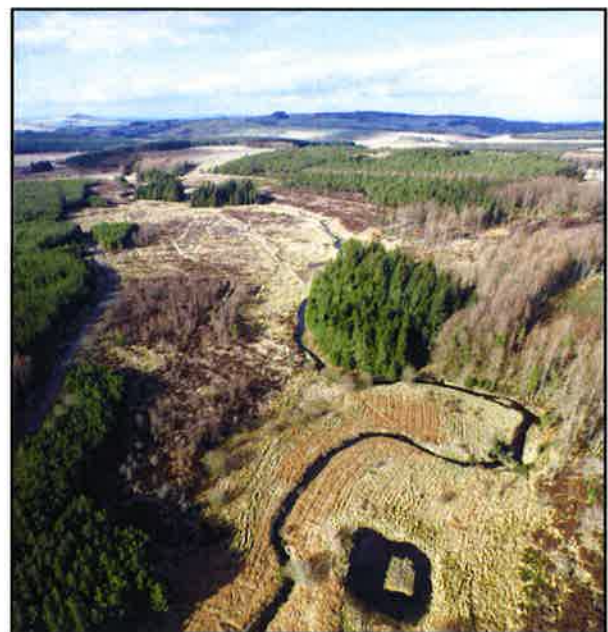
The presumption is that the felling of the above coupes will not take place until the neighbouring restock areas have reached 2m. Where coupes have been blown down and cleared before neighbouring coupes reach 2m, adjacency issues will be dealt with through a delay in restocking, i.e. a coupe will not be restocked until all surrounding crops are at least 2m tall.

The sites listed in figure 12 will be conventionally restocked during this design plan period with fallow periods between 1 and 5 years depending on adjacency issues. Hot planting will be permitted if it alleviates future adjacency issues.

5.1.2 Minimum Intervention

Minimum intervention coupes cover 10% of the forest.

These areas are predominantly the riparian zones that are being left to gradually colonise with native trees following felling of plantation. Current biodiversity value is limited and the area is not predominantly wooded, therefore it would be inappropriate to classify this area as a Natural Reserve. Minimum Intervention is the appropriate classification in the short to medium term and, if a biologically rich native woodland community develops here in the future, it can be reclassified as a Natural Reserve. There may be some additional native woodland enrichment planting or conifer removal required in these



areas during this design plan period. Sitka spruce regeneration will be removed from a minimum intervention riparian zones when it reaches 10% of the total area. Broadleaf densities are specified on the future habitats and management map.



Hyndlee Burn Minimum Intervention area (March 2015)

5.1.3 Continuous Cover/ Low Impact Silvicultural Systems (LISS)

There are no areas of LISS designated in this plan. Areas that would be suitable around the Swire Sike have just been first thinned. A decision for these areas will be taken at the next design plan revision. If this area was deemed suitable for LISS management it would bring the area managed using LISS to around 10% of the total forested area.

5.1.4. Long Term Retention

3% of the plan area is designated as long term retention. Generally these are stands of Scots pine, Norway spruce and larch that are on the shoulders of the minimum intervention riparian areas. These areas hold value for conservation as well as adding age and species diversity to the forest.

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Oaky Cleuch Long Term Retention area March 2015

These stands will be held long past their economic felling age and although small in area are important character elements of the forest. Opportunities should be taken in felling coupes that are planned in the next ten years to identify similar areas and flag for retention.

5.1.4. Natural Reserves

Although they only cover a small area of the forest, Natural Reserves are extremely important for conservation. Natural reserves are predominantly wooded areas managed in perpetuity by minimum intervention. Conservation of biodiversity is the prime objective. The function of these reserves is to provide a continuity of habitat to allow sedentary species to establish and thrive.

There are 2 areas of Natural reserve proposed in this plan. The first being 19ha of Lodgepole pine and Sitka Spruce located close to the Hyndlee Burn. Within the plan there are 31.4ha of Scots Pine designated close to the entrance at Lethem. Sitka spruce regeneration in this area will be monitored and removed if it becomes invasive. It is the intention of the district to aspire to 20m³/ha of deadwood but in these natural reserves this figure is likely to be higher.



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5.2 Future Habitats and Species

The majority of the forest will be restocked using conventional methods. During this design plan period there are 15 coupes that are planned to be restocked in the 10 year period.

During this management plan period there will be an area of productive Oak plantation planted at a suitable site close to the Mathematicians quarry and a productive birch plantation at Lances Sike.

Figure 13 gives a detailed description of planned restock species in these coupes.

Figure 13: Wauchope East Restock Coupes for approval

Lethem

Coupe Number	Felling Year	Plant Year	Fallow	Gross Area	Species	Net Area	Comments
56033	2012	2015	3	46.4	SS	34.1	SS planted to productive densities
					SP	8.3	SP planted to productive densities
					MB/Open	4	Net area of planted productive broadleaves
56010	2013	2016	3	31.3	SS	17.5	SS Planted to productive densities
					NS	7.6	NS Planted to productive densities
					SP	4.1	SP Planted to Productive densities
					MB/Open	2.1	Net area of planted Native Riparian Broadleaves
56047	2013	2016	3	6.4	Birch	5.6	Birch Planted to productive densities
					MB/Open	0.8	Net area of planted Native Riparian Broadleaves
56026	2015	2019	4	22.1	SS	12.8	SS Planted to productive densities
					SS/LP	7.5	SS/LP 2:1 mixture planted to productive densities
					MB/Open	1.8	Net area of planted Native Riparian Broadleaves
56048	2014	2018	4	23.8	SS	17.4	SS planted to productive densities
					SS/LP	5.9	SS/LP 2:1 mixture planted to productive densities
					MB	0.5	Net area of planted Native Riparian Broadleaves
56005	2015	2019	4	22.8	SS	3.2	SS Planted to productive densities
					SS/LP	17.1	SS/LP 2:1 mixture planted to productive densities
					SP	1.2	SP Planted to Productive densities
					Juniper	1.3	Net area of Juniper planted as woodland fringe for C Tooth
56041	2019	2022	3	16.9	SS	14.4	SS Planted to productive densities

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56041	2019	2022	3	16.9	SS	14.4	SS Planted to productive densities
					MB/Openn	1.7	Net area of planted Native Riparian Broadleaves
56020	2021	2018	3	12.6	SP	9.3	Net area of planted Native Riparian Broadleaves
					SS	2.2	SS/LP 2:1 mixture planted to productive densities
					MB/Openn	1.1	SS Planted to productive densities
Totals			3.9	182.3		181.5	

Hyndlee

Coupe Number	Felling Year	Planting Year	Fallow	Gross Area	Species	Net Area	Comments
55034	2015	2016	1	5.8	Oak/Birch	4.3	Oak and Birch Planted at 3000spha
					MB/Openn	1.5	Net area of planted Native Riparian Broadleaves
55035	2015	2018	3	9.8	NS	20.1	NS Planted to productive densities
					MB/Openn	2	Net area of planted Native Riparian Broadleaves
55036	2018	2021	3	26.6	SS	16.1	SS/LP 2:1 mixture planted to productive densities
					NS	5	NS Planted to productive densities
					SS/LP	5.5	SS/LP 2:1 mixture planted to productive densities
Totals			2.33	42.2		238	

Peel

Coupe Number	Felling Year	Planting Year	Fallow	Gross Area	Species	Net Area	Comments
57003	2014	2018	3	8.7	NS	7.2	NS Planted to productive densities
					MB/Openn	1.5	Net area of planted Native Riparian Broadleaves
57020	2016	2019	3	24.8	SS	20.9	SS Planted to productive densities
					NS	3.9	NS Planted to productive densities
57104	2015	2019	4	39.2	SS	36.2	SS Planted to productive densities
					MB/Openn	3	Net area of planted Native Riparian Broadleaves
57007	2020	2022	2	21.7	SS	20.9	SS Planted to productive densities
					Bi	0.8	Net area of Birch
Totals			3	94.4			

Total for Wauchope East **3.1** **318.9**

Figure 14 summarises the proposed Restocking in Wauchope East over the next 10 years;

Figure 14: Wauchope East Restock Summary Table

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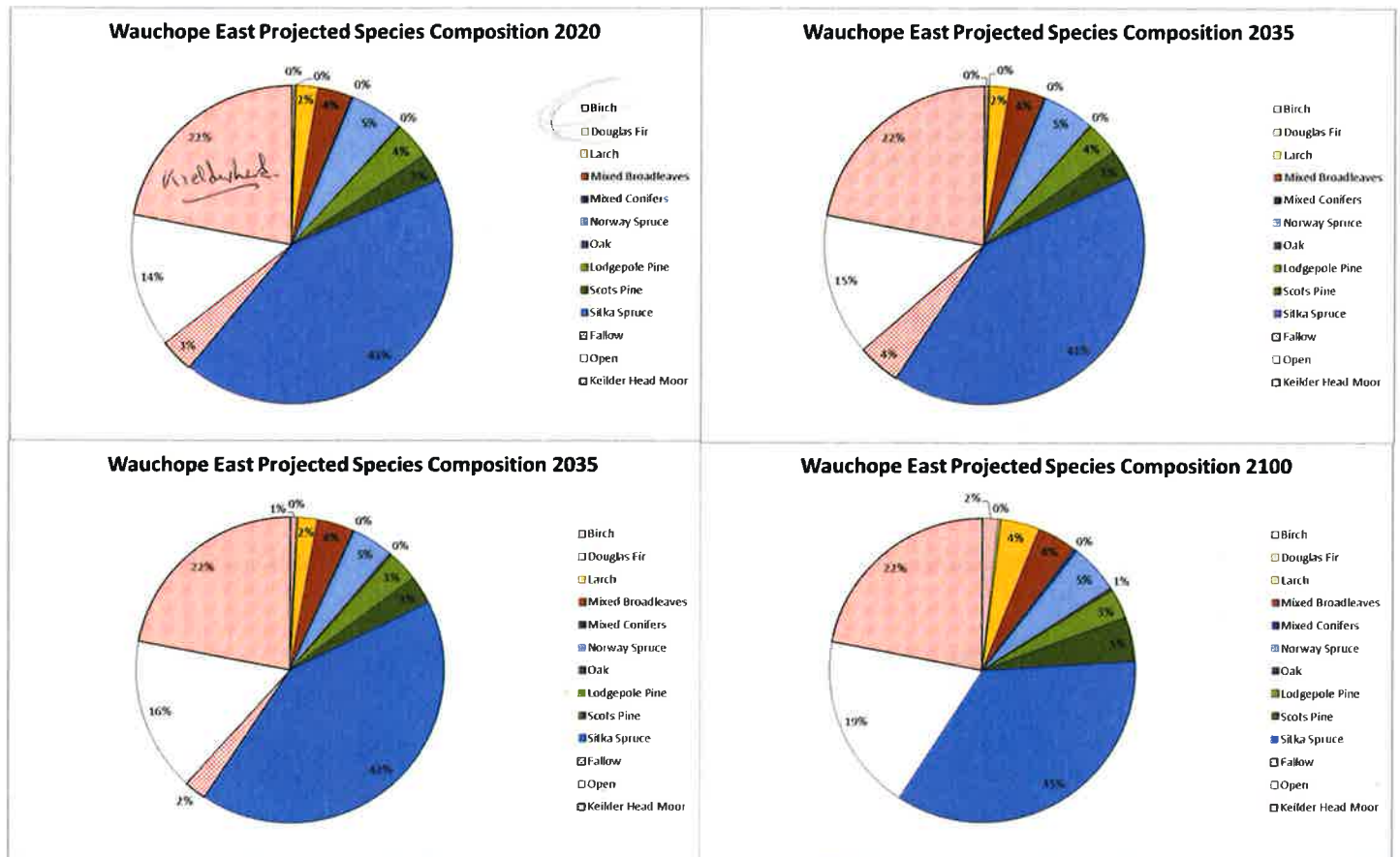
	Net area (ha) Restocked Conifer	Net area (ha) Restocked Broadleaf
Lethem	163.9	17.6
Peel	218.8	18.8
Hyndlee	46.7	7.8
Totals	479.4	44.1

Figure 15 illustrates how the species composition will change throughout the design plan period;

Figure 15: Wauchope East Future Species Composition

Species	Design Plan Year			
	2020	2025	2035	2100 area
Birch	9.8	14.3	25.1	67.2
Douglas Fir	6.6	6.5	6.5	11.7
Larch	91.3	84.2	85.9	171.1
Mixed Broadleaves	145.1	149.2	161.4	173.4
Mixed Conifers	2.3	2.2	1.8	12.8
Norway Spruce	225.2	216.9	179.8	216.6
Oak	4.6	4.6	11.7	12.9
Lodgepole Pine	154	138.8	133.6	130.2
Scots Pine	115.6	122.6	124	192.6
Sitka Spruce	1756.6	1700.5	1714.7	1447.4
Fallow	142.5	179.8	96.8	
Open	559.1	593.1	671.4	776.8
Kielder Head Moor	905	905	905	905
	4117.7	4117.7	4117.7	4117.7

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Over the next 25 years the species composition of the forest stays broadly the same.

It should also be noted that the actual area of open space will be expected to reduce as native broadleaves colonise the open space in the riparian zones. This would also have a positive effect on the amount of native broadleaves. This will be helped by targeted planted of native broadleaves in the 10 year period of the plan in the riparian zones as detailed in figure 13.

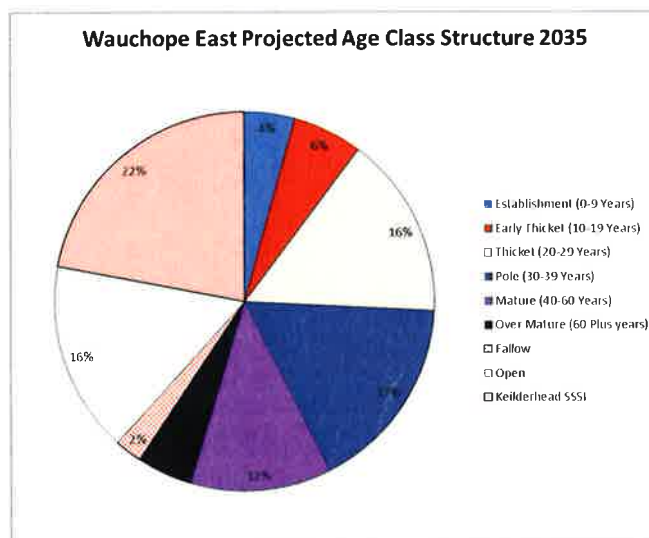
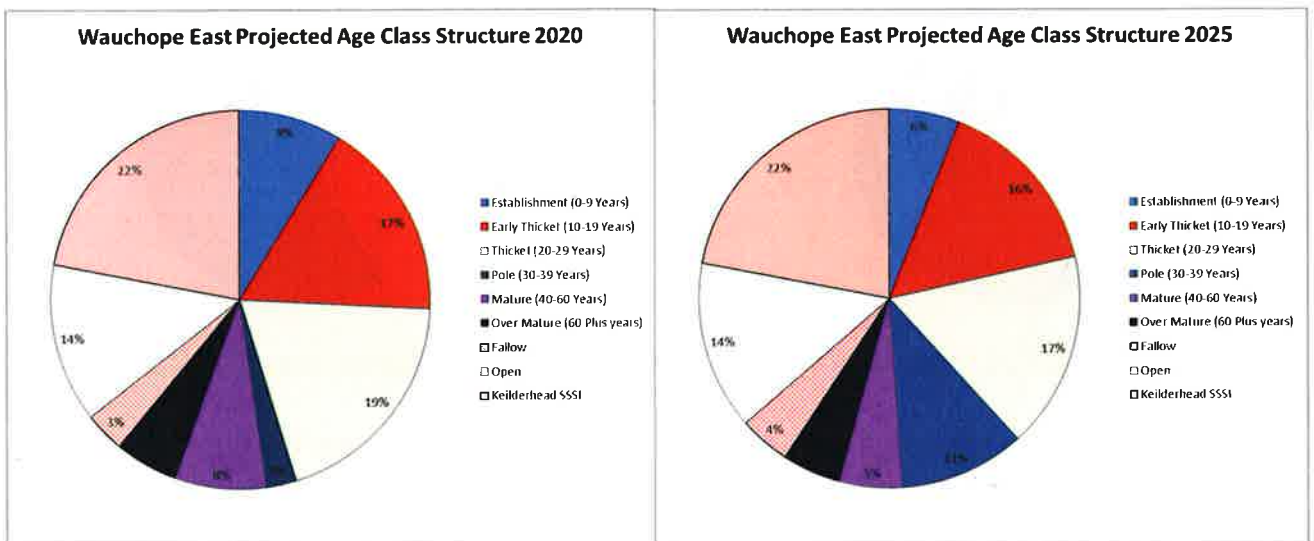
5.3 Restructuring

Figure 16 illustrates how the age class composition will change throughout the design plan period;

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Figure 16 Wauchope East future Age Class Composition

Age Class	Design Plan Year		
	2020	2025	2035
Establishment (0-9 Years)	362.1	245.6	177.8
Early Thicket (10-19 Years)	701	638.6	245.5
Thicket (20-29 Years)	800	692.5	639
Pole (30-39 Years)	104	437.3	692
Mature (40-60 Years)	321	220.8	495.4
Over Mature (60 Plus years)	223	205	194.8
Fallow	142.5	179.8	96.8
Open	559.1	593.1	671.4
Keilderhead SSSI	905	905	905
	4117.7	4117.7	4117.7



5.4 Operational Access

The majority of Wauchope East is well served with forest roads, however there are some exceptions.

This land management plan has outlined 3.4 km of new forest roads. This layout will ensure that Wauchope East is completely roaded. These new forest roads have been sited to avoid environmental impacts, and have been checked with the area civil engineer to ensure that the proposed road line is feasible in terms of gradient.

Of this 3.4km, 955m needs to be built to access thinning coupes in the 10 year cycle of this design plan, and therefore will form part of the approval. These roads are summarised in figure 17.

Figure 17; Wauchope West Forest Roads for Determination

Forest Road Name	Proposed Build Year	Length (m)	Comments
Peel New Access	2018	955	Access road Peel. This will be used for 1st thinning and future clearfell access. Also this will act as the main access to the Peel forest removing the need to use the current access across 3 rd party land.
Total		955m	

For further spatial information please refer to the Management and the Future Habitats and Management Maps.

5.5 Thinning plans

For further spatial information refer to the thinning coupe map.

As part of this forest design plan revision a detailed thinning programme has been drawn up for the first 10 years. Operational access, soils, DAMS scores and previous thinning history have been assessed as part of this exercise.

The plan shows a number of second rotation crops coming up to the age of 1st thinning in the next 10 years. There has been an assumption made for growth rates of the younger crops that will be coming on stream towards the end of the 10 year period.

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Figure 18 summarises the planned thinning operations over the period of the design plan;

Figure 18: Wauchope East Planned Thinning Coupes

Coupe Number	Thinning Prescription	Operation Year	Gross area	Net Area	Estimated Volume (m3)	Comments
55504	1st thin	2016	83	70.6	4236	Rack and Light matrix thin of 2nd rotation plantation
56505	1st thin	2016	41	38.3	2298	Rack and Light matrix thin of 2nd rotation plantation
55502	1st thin	2017	15.7	13.3	798	Rack and Light matrix thin of 2nd rotation plantation
55502	Crown thinning	2018	65	55.3	3318	Crown thin of predominantly SS consider marking
55504	1st thin	2018	16	13.6	816	Rack and Light matrix thin of 2nd rotation plantation
55503	1st thin	2018	11	9.4	564	Rack and Light matrix thin of 2nd rotation plantation
56503	1st thin	2018	38	32.3	1938	Rack and Light matrix thin of 2nd rotation plantation
56506	1st thin	2018	38	32.3	1938	Rack and Light matrix thin of 2nd rotation plantation
57501	1st thin	2018	43	36.6	2196	Rack and Light matrix thin of 2nd rotation plantation
55502	2nd Crown thinning	2019	85	72.3	4338	Crown thin of predominantly SS consider marking
56504	1st thin	2019	15	12	720	Rack and Light matrix thin of 2nd rotation plantation
56505	2nd Crown thinning	2022	41	35	2100	Crown thin of predominantly SS consider marking
55504	1st thin	2023	49	41	2460	Rack and Light matrix thin of 2nd rotation plantation
55504	2nd Crown thinning	2023	83	70.6	4236	Crown thin of predominantly SS consider marking

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55502	2nd thin	2023	16	14	840	Crown thin of predominantly SS consider marking
56503	2nd thin	2024	38	32.3	1938	Crown thin of predominantly SS consider marking
56502	1st thin	2024	11	9	540	Rack and Light matrix thin of 2nd rotation plantation
57501	2nd Crown thinning	2024	43	36.6	2196	Crown thin of predominantly SS consider marking
55505	2nd Crown thinning	2025	16	13	780	Crown thin of predominantly SS consider marking
56504	Yellow Sike	2025	15	12	720	Crown thin of predominantly SS consider marking
Totals			762.7	649.5	38970	

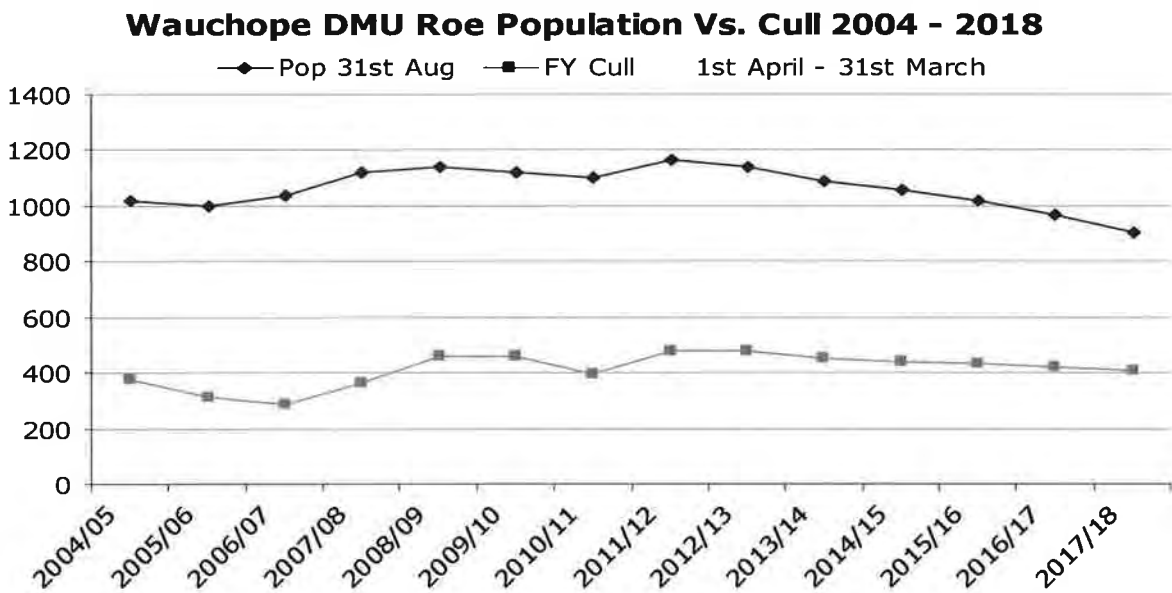
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5.6 Deer Management

The future cull targets have been set to achieve less than 10% leader damage on all commercial tree species.

The annual deer cull for the whole of the Wauchope deer management unit will be set as indicated in figure 19;

Figure 19: Wauchope DMU Roe Population vs Cull 2004-2018



Should impact levels rise the cull target may be revised to reduce population levels below estimates.

5.7 Management of open land

Open land in the forest can be grouped into three broad categories;

1. Important Open Habitats

As detailed earlier in the management plan there are important open habitat areas within the forest.

Kielderhead SSSI (Blanket Bog and Sub alpine Heath)

These are UKBAP priority habitats.

During this plan period conifer regeneration is to be monitored and removed if it appears on the sites. For the blanket bog area previous drain blocking to restore and increase the blanket bog area has been successful. Similar operations in this area will be carried out during this next plan period.

In the longer term the area of bog will be slightly increased once the coupe to the south of the site has been felled in 2025

2. Open ground as a percentage of riparian zones

Within the riparian zones there are a mixture of prescriptions for open ground ranging from 10 to 90 %. The majority of these areas have been designated as minimum intervention coupes with the vision that in the future a network of riparian woodlands will be created in the forest. Conifer natural regeneration will be monitored in these areas, and if they reach a percentage greater than 15% it will be removed.

3. Open ground along roads and at hill tops with little ecological interest.

Conifer natural regeneration will be monitored in these areas a decision on whether to remove will be made on a case by case basis. E.g. The feathered edge created by the conifer regeneration below the Carlin Tooth forms an attractive edge to the plantation.

5.8 Public Access

Public access in Wauchope East will continue to be encouraged under the Scottish outdoor access code.

5.9 Heritage Features

There are no felling, thinning or restocking activities planned around the scheduled monuments and listed buildings within this design plan period. Features that are not protected by any designations but mapped as heritage points will be addressed on a site by site basis in the work plan system prior to work commencing.

5.10 Critical success factors

Main critical success factors for plan development are:

4. The continued stability of the first rotation crops assigned for later phase clearfelling.
5. Adequate protection for softer conifer and broadleaf species to be established
6. Continued riparian zone broadleaf recruitment.

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1. Background and key information

The plan comprises 3211ha of predominantly upland conifer forest located immediately east of the B6537 public road running from Newcastleton to Bonchester Bridge.

Mostly planted in the 1950's and 1960's the woodland consists of large areas of Sitka Spruce that have mainly been managed on a rotational felling system (clearfelling) over the last few decades. Good progress towards restructuring has been made. But only a few areas of the forest have benefited from thinning. Large volumes of timber have been produced as a result of the first rotation fellings but there remains high potential for timber production into the future.

There is extensive upland forestry nearby including private forestry and National Forest Estate land in Wauchope East. Further South, over the border, is the large Kielder forest. In this area of the Scottish Borders upland forestry is a major component of the land use.

The previous forest design plans for this area were known as Hyndlee, Lethem and Peel.

Main access routes are the B6357 through Hyndlee (Timber Transport – agreed route) and the A6088 leading from Hawick to Carter Bar (No restrictions). Peel forest is accessed at Myredykes via the C1 from Saughtree (Timber Transport – agreed route)

Most of the forest falls into high wind categories indicating that wind poses a significant threat to the long term stability of the crop. Temperature and climate wetness are generally favourable for tree growth at lower altitudes, less so at higher altitudes. Climate change predicts a slight increase in drier and warmer summers but less so compared to the Tweed Valley.

Soils are predominantly surface water gleys and peaty gleys, in the more sheltered areas upland brown earths and ironpans predominate. Topography is undulating typically with large flatter plateaux areas between the water courses. The land rises to hill ground (approx 500m) on the South East side (the England/Scotland border)

The landscape in this area is large scale with distant views. The landscape character includes large conifer forests and large expanses of open ground. Taking account of the landform and visual landscape will be an important part of the forest design.

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The area forms a large water catchment. Water flows Northwards to the Tweed via the Jed Water and the Teviot and via the Rute Water and the Teviot. Water flows Southwards to the Esk via the Peel burn and the Liddle Water. Clearly the site is located on the watershed between East and West Britain.

There are two scheduled ancient monuments of settlements and field systems and numerous unscheduled sites of heritage interest.

Other statutory designations the large Kielderhead SSSI which is an important open habitat of upland heath land and this must be protected and planned for into the future.

The area is home to a number of very important species including the numerous high profile raptors, otters, juniper species and some black grouse. The woodland is seen as a priority woodland for Red squirrels in South Scotland and much species diversification has been implemented in recent years to support this species.

Although there are no "plantations on ancient woodland sites" there are important native woodlands nearby where there is an opportunity to link with the future design.

Although visitors are always encouraged there is little demand, probably due to the remoteness. There are a number of sporting events throughout the year including car rallies.

There are a number of small villages and communities who use the woodlands including Bonchester Bridge, Lethem and Wauchope

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Key drivers for design

The key drivers for design have been taken from considering the potential in Wauchope East against the Dumfries and Borders Forest District Strategic Plan 2009-2013

[http://www.forestry.gov.uk/pdf/Dumfries&BordersIPDF.pdf/\\$FILE/Dumfries&BordersIPDF.pdf](http://www.forestry.gov.uk/pdf/Dumfries&BordersIPDF.pdf/$FILE/Dumfries&BordersIPDF.pdf)

These drivers for design are listed below:

Key theme one: Climate Change

Adapting to climate change – a resilient forest.

With climate change there will be an increased risk to our forests of pests and pathogens. Increasing wind events may increase risk of windblow. Increasing drier and warmer summers may lead to drought and drought crack of timber. Tree species should be well suited to the site (soil and climate), and resilient to pests and diseases. In terms of ESC, species must be either "suitable" or "very suitable". Best available future climate predictions will be used to help select species. Sitka Spruce remains "very suitable" in many sites across Wauchope based on the 2050 high emissions scenario. With generally wetter soils the risk of drought is lessened. Norway Spruce should be planted widely as it is suitable and provides resilience via species diversity.

A diverse structure of forest will increase the forests ability to cope with climate change. Mixed age class of rotational felling coupes for example will reduce the risk levels of catastrophic windblow and outbreak of disease. The use of alternatives to clearfell (Continuous Cover Forestry) will make the forest more resilient with its different species and ages. Although the opportunity of CCF is limited by soils and climate to less than 10% of the land.

Adapting to climate change – Protecting the environment and the public.

Good woodland design including buffers will help in flood management and water quality. There may be opportunity to enhance floodwater storage through riparian treatment. Well planned operations will keep water quality high.

Mitigation for climate change

Mitigation is achieved by storing carbon in forest ecosystems and in timber products and also by reducing the carbon footprint of operations. Planting large areas of high yielding species that produce timber for construction will sequester highest levels of carbon – avoid deforestation.

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A small trial of planting of Willow for biomass on sites less suitable for Sitka Spruce should help provide much needed wood fuel / energy for the long term. The trial will be <50ha.

Key theme two: Timber

This is an important forest for producing large volumes of softwood sawlogs and small roundwood and as such Sitka Spruce and other high yielding conifer species will be a major part of the forest. Timber quality that meets the standard construction specification of C16 is important and as such the tree species with lesser properties will be limited in their planting e.g. Noble Fir and Grand Fir.

Due to the limitations of soils and wind the majority of the forest will be managed on a clearfell management type with a rotation length of approximately 50 years. The first step in design will be to identify the watercourses and the permanent habitat networks. The land left in between these linear features will be the basis of the coupe design. Much work on restructuring has already been done and the designer should reconsider and amend existing coupes. To progress towards full restructuring some coupes of older windfirm trees will be held for as long as the wind will allow (LTR). Conversely areas at higher windblow risk and of less value to diversity may be felled earlier. The aim is to create coupes of different age classes throughout the forest. Coupe size will be medium to large to fit the landscape scale and to provide operational efficiency.

Small areas of CCF will produce some larger dimension timber in a variety of species. This will be particularly useful for smaller local specialist markets.

Thinning will be practiced wherever soils and climate allow. This will increase the value of the timber through increasing the proportion of higher quality sawlog material.

Broadleaves grown for timber production will be limited only to the very best climates and soils and given the limitations in Wauchope the area of productive broadleaves will be limited to <1%. In addition there is the small area of willow for biomass.

Maintaining timber haulage routes will be important to ensure timber can be removed from the forest in a safe and effective way that creates minimal disturbance to communities and other road users.

Key theme three: Business Development

Timber will continue to be the main area to support business development. Local and national businesses will benefit from the forestry and the wood processing industry. Typically these businesses will offer services of harvesting, establishment, maintenance, and machine plant maintenance and repair and timber haulage.

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An attractive landscape and forest will attract tourists and visitors who will spend locally in shops and hotels helping to support the local economy.

A well maintained forest road network will help encourage motor rallies which will in turn bring about benefits to the local economy in terms of spending.

Key theme four: Community Development

This is a remote and rural community made up of people who are often interested in the countryside and landuse. During the review of the forest design plan the local communities including Saughtree, Bonchester Bridge, Wauchope and Hyndlee will be consulted. FCS will endeavour to understand the needs of the community and include these wherever they are compatible with the wider management objectives of the forest.

There is potential for links to be made with local primary schools.

Key theme five: Access and Health

Demand for recreation in Wauchope is low. The future forest should focus on design to make informal access safe for walkers, cyclists and horse riders.

Access to heritage sites should be included in the future design. Small scale landscaping associated with access points and routes should be designed and maintained to maximise visitor enjoyment.

Key theme six: Environment

The landscape is an important feature in this environment and distant views can be had across many valleys. Plan areas of CCF where the landscape benefits will have the largest benefits e.g. near roads, paths and access areas. Use mostly medium and large scale clearfell coupes to fit into the topography and large scale distant landscapes. E.g. Looking across to Lethem from Hyndlee. Coupe shapes to follow natural features and boundaries avoiding straight edges and cutting across contours.

Ancient monuments, features, outcrops and waterfalls exist throughout the woodland. Identify features, create and maintain buffer zones around existing and those discovered during forest operations.

Water quality is currently classified as good in Wauchope E and the woodland should be designed to future proof the water quality – ensure good buffers between timber production coupes and the key water courses.

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Key theme seven: Biodiversity

Biodiversity is a primary theme in Wauchope East. Appropriate forest and stand structure for biodiversity will be delivered via use of CCF and appropriate mixed age class clearfelling. The habitats must not become fragmented with stands of mature trees left isolated. The key habitat corridors will be identified and fragmentation should be avoided by phased felling / long term retention / natural reserve. Linking the habitats will be a key consideration for the designer. Equally important will be the tree species composition of the forest, some animal and bird species thrive with certain tree species:

This woodland is one of the most important locations for red squirrels in the forest district and is classified as priority woodland – although not a stronghold area.

Norway Spruce and Scots pine should be planted in high proportions adjacent to permanent habitat networks (up to 50% NS and SP in these areas). Long Term Retention of Norway Spruce and Scots Pine should be used to retain populations. Avoid large seeded broadleaves which will encourage the resident greys.

Create new graded edge habitats along upper margins for Black grouse to help them make comeback.

Plant juniper species for berries to support wildlife. This is a priority species for FCS woodlands

Retain stands of large and old trees (LTR and CCF) for Goshawk and other schedule 1 raptors e.g. Greencleuch road.

Maintaining good water quality and creation of native woodland habitats will help support otter populations.

Careful management and timing of operations will help protect the badgers in the forest.

Native broadleaved woodland is a very effective way to support these and many other important species. Although there are no PAWS in Wauchope there is more recent mixed broadleaf planting in the riparian areas some of which is reaching 20 years old. As coupes are felled along burns and streams the opportunity should be taken to expand the native woodland which in turn will support birds, fish, otters and other wildlife. The native woodland component of the forest should at least meet UKFS standards of 5% of the forest area.

Priority Open habitats at Kielder Head SSSI are valuable for biodiversity. Over the plan period implement habitat management including more ponds, gully erosion avoidance scheme and heather management. Recognise the future native woodland expansion just across the border at Kielderhead and create landscape ecology appropriate to management objectives. Consider robust native woodland links between riparian zones in Wauchope and open habitat at Kielderhead.

There is potential for high deer populations and effective deer management will be necessary to retain populations to a level to allow successful establishment of softer

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species e.g. SP and NS. The focus will be on deer management rather than sporting lets.

3.0 Draft Management Objectives

Primary Management Objectives

To help mitigate for climate change through carbon sequestration

grow large areas high yielding conifers suitable for producing timber for use in the construction industry. **To help make the forests resilient** diversify tree species and woodland structure.

To maximise fast growing conifers for sawlogs (suitable for the construction market).

The expanse of forestry at Wauchope will provide a large volume of timber into the future. As well as Sitka Spruce other conifers including Norway Spruce, Scots Pine, Firs and Larches will be planted to ensure to provide construction quality timber as well as offering species diversity benefits. Productive Willow will be trialled in the South end of Hyndlee. Productive broadleaves will be a small component.

To protect and enhance the environmental opportunities including water, soils, landscape and archaeology.

Water and soil quality is important to the forest and downstream users, the design will ensure these natural resources are protected into the future. Landscape character and design is important to visitors and tourists alike. Protection and enjoyment of the heritage will be an important factor in management of the forest.

To increase the overall biodiversity value of the forest through 1) tree species diversification 2) mixed forest and stand structure and 3) strengthening and creating new permanent habitats (including native woodlands)

Secondary Management Objectives

- 1. Community Development**
- 2. Access and Health**
- 3. Business Development**

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4. Potential tree species and structure

To deliver the management objectives the proposal is to design a forest made up of the following proportions

Tree Species	Current Forest Species %*	Potential future forest %*	Reason for proposed change
Other conifer	13	Around 15%	Alternatives to spruce will bring multiple benefits to the w and tree species of firs, larches and Scots pine must be ir in the design - wherever they are deemed very suitable ir of ESC and future climate predictions. These species will be targeted on the land adjacent to the habitat networks shoulder of better ground above the water courses) - pot future LTR areas and CCF areas. The diversity of these tree species will help strengthen the biodiversity of the habitat networks as well as deliver timber objectives
Norway Spruce	7	Around 13 %	Very useful species to deliver timber, biodiversity and for resilience to climate change (by diversifying from Sitka S To be located alongside the "Other conifers". NS is limited growth potential by wind and should avoid exposed sites >17. Finding sites suitable for establishing and growing NS will important part of the FDP as will identifying LTR of existir
Sitka Spruce	60	Around 55 %	Retain high percentage for Timber and Climate change m This species will be chosen only when there is no alternat species that will deliver the timber management objective these sites where the climate and the soils are more chal (usually the more exposed plateaux between the habitat networks)
Broadleaves	5	Around 5 %	Focus of broadleaves is in the riparian areas to strengthen riparian networks and comply with UKFS. Landscape ecol important and robust links and networks to neighbouring be designed. Species will include birch, willow, alder, asp hawthorn Up to 1% of productive broadleaves would be s in the best climates and soils. Up to 50ha of Willow bioma would be suitable in peat areas where nutrition is low and would struggle.
Open	16	Around 12 %	Main areas of open space are in and around the riparian a this will strengthen the habitat networks through providir and access for birds and animals. Open space around roa paths and quarries. Slight reduction in open space in exc for woodland and the obvious benefits of woodland creati

*Excluding Kielderhead open habitat area

Wauchope East Land Management Plan 2015-2025

Structure Type	Current forest %*	Potential future forest %	Reason for proposed change
Continuous Cover Forestry	0	Around 10 %	Increase the diversity in the forest and stand structure by managing by CCF in areas of better soil and climate. CCF will better deliver climate change, social and environmental objectives. Aim for CCF areas to strengthen the habitat networks. It should be noted that 1% of the forest is 60 years old and this is a significant change from 0% currently. The extent of Wauchope managed under CCF is limited by wind and soil.
Clearfell	95	Around 73 %	Retain large percentage of clearfell to deliver the timber management objectives. Aim for full restructuring to achieve maximum diversity for resilience for climate change and biodiversity benefits. These clearfell areas will be situated between habitat networks, away from key water courses.
Long term Retention	1	Around 10 %	Significantly increase the LTR to strengthen the biodiversity value, particularly in areas adjacent to habitat networks. This management type will also deliver large volumes of timber. The key role of the designer here will be to identify older conifer stands that can be held longer and by doing so secure the long term habitat for wildlife particularly to the permanent habitat networks.
Minimum Intervention & Natural reserve	4	Around 17 %	Although it would seem a dramatic rise in this category 10% of the current riparian zone is designated as Clearfell (though some are felled recently) but they will be changed at the design plan revision.

Glossary

LTR – long term retention

CCF – Continuous cover forestry

LISS – Low impact silvicultural systems

PAWS – Plantation on ancient woodland sites

ESC – Ecological Site Classification (FC system to explore site suitability for tree species)

NW – Native woodlands

AC – alternative conifers (alternative to Sitka spruce)

MB – Mixed native broadleaves

PBX – Productive broadleaves

SS – Sitka spruce

NS – Norway spruce

DBI – Downy birch for biomass

YC – Yield Class (timber volume production – m³ per ha per annum)

UKFS – UK Forest Standard

FCS – Forestry Commission Scotland.

Wauchope East Land Management Plan 2015-2025

Appendix II Forest Design Plan Consultation Record

Consultee	Date contacted	Date response received	Issue raised
Statutory Consultees SNH, SEPA, HS, Scottish Borders Council, RSPB	01/03/2013	01/04/2013	These were consulted as part of a detailed FDP Brief with responses taken into account with the proposals. They will be contacted as part of FCS consultation with the final proposals
Karen Ramoo red squirrels south Scotland	10/12/2013	10/12/2013	No issues as long as grey moor continues in the area as with
Greg Macfarlane South Scotland Conservancy	29/10/2014	29/10/2014	Useful site visit with Greg to discuss proposals and principles
Iain Mackee FCS Open Habitat ecologist	14/1/2015	14/1/2015	No issues with proposals Some suggestions for Kielderhead
South Dean Community Council	1/11/2015	30/11/2015	Contacted to attend forest visit unfortunately not enough interested but proposals to be presented at community council meeting

East

Wauchope West Forest Design Plan 2014- 2024

Appendix II Forest Design Plan Consultation Record

Consultee	Date contacted	Date response received	Issue raised	Forest District Response
Statutory Consultees SNH, SEPA, HS, Scottish Borders Council, RSPB	01/03/2013	01/04/2013	These were consulted as part of the detailed FDP Brief with responses taken into account with the proposals. They will be contacted as part of FCS consultation with the final proposals	All issues addressed in FDP
Karen Ramoo red squirrels south Scotland	10/12/2013	10/12/2013	No issues as long as grey monitoring continues in the area as with Wauchope	Squirrel monitoring will continue through the design plan period
Greg Macfarlane South Scotland Conservancy	29/10/2014	29/10/2014	Useful site visit with Greg to discuss proposals and principles	No response required
Iain Mackee FCS Open Habitat ecologist	14/1/2015	14/1/2015	No issues with proposals Some suggestions for Kielderhead SSSI	See open habitats management prescriptions
South Dean Community Council	1/11/2015	30/11/2015	Contacted to attend forest visit unfortunately not enough interest to run but proposals to be presented at community council meeting on 20/5/2015	Attend CC meeting

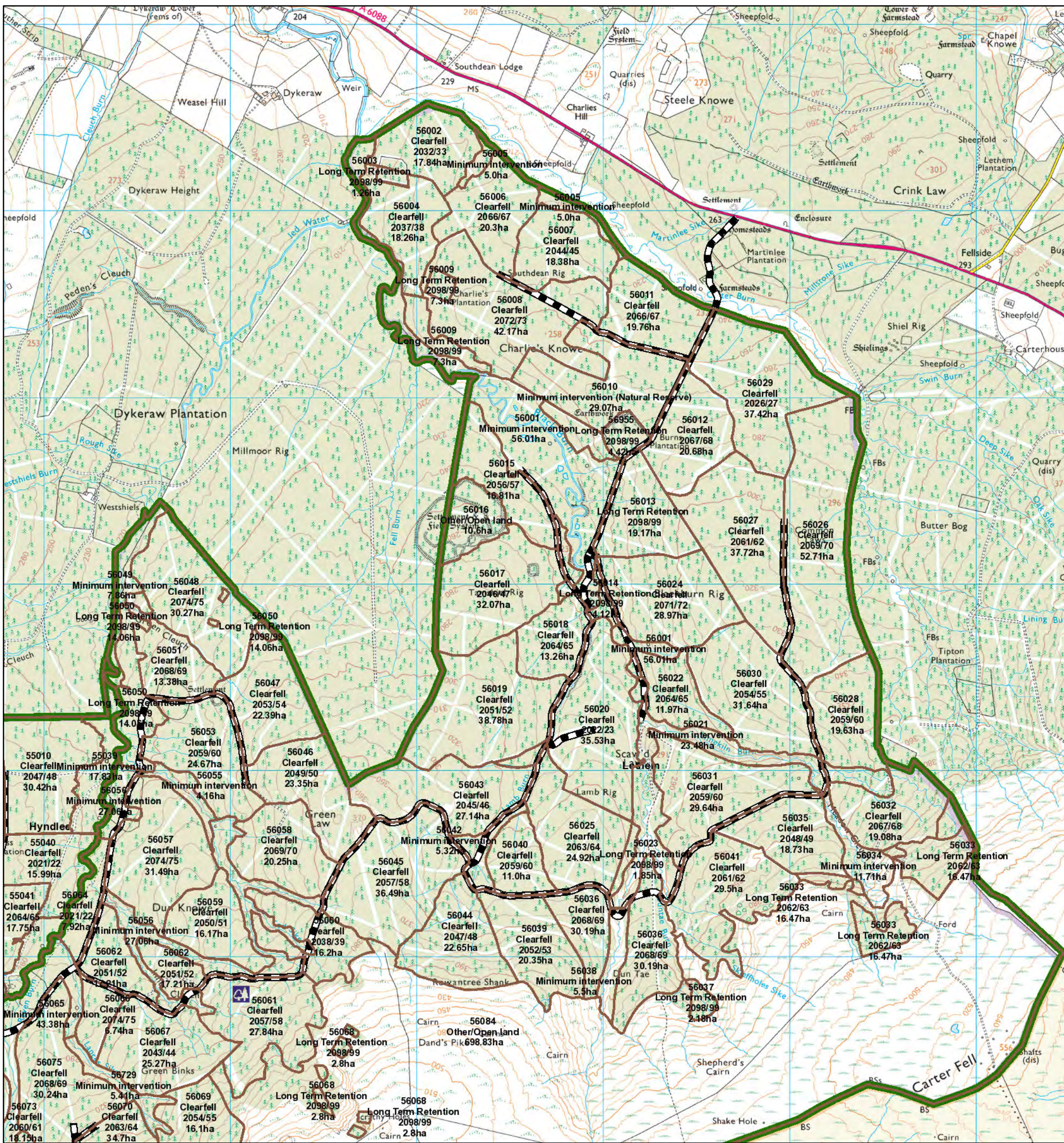
Wauchope West Forest Design Plan 2014- 2024

Appendix III: Tolerance table

	Adjustment to felling period*	Adjustment to felling coupe boundaries	Timing of Restocking	Change to Species	Change to road lines	Windthrow response
FC Approval not normally required	Fell date can be moved within a 5 year period. Where separation or other constraints are met <i>not specified but is in DFPs.</i>	1.0ha or 10% of coupe area - whichever is less	2 planting seasons after felling. Restocking within 2 years +/- of year 2. For Shelterwood area stocking assessment by year 4 and beat up in 5 th growing season	Change within species groups e.g. evergreen conifers or broadleaves. Underplanting of CCF areas with species indicated on the FDP.		Up to 0.5ha
Approval by exchange of letters and maps		1.0ha to 5ha or 10% of coupe area- whichever is less			Additional felling of trees not agreed in plan. Departures of >60m in either direction from centre line of road	
Approval by formal plan amendment may be required	Advance felling into current or 2 nd 5 year period	>5ha or 10% of coupe area	If timing of restocking is out with the period detailed above	Change from specified native species. Change between species groups	As above depending on sensitivity	>5ha



17.3.5 BASELINE ACCESS AREA FELLING PLAN



Legend

Lethem - Felling year

Scale @ A3: 1:20,000

Date: 16/05/2022

Author: Charlotte Picking

Management Coupes

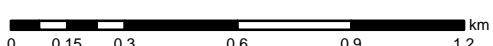
Management Coupes

Forest Roads

Forest Roads

Blocks

Blocks



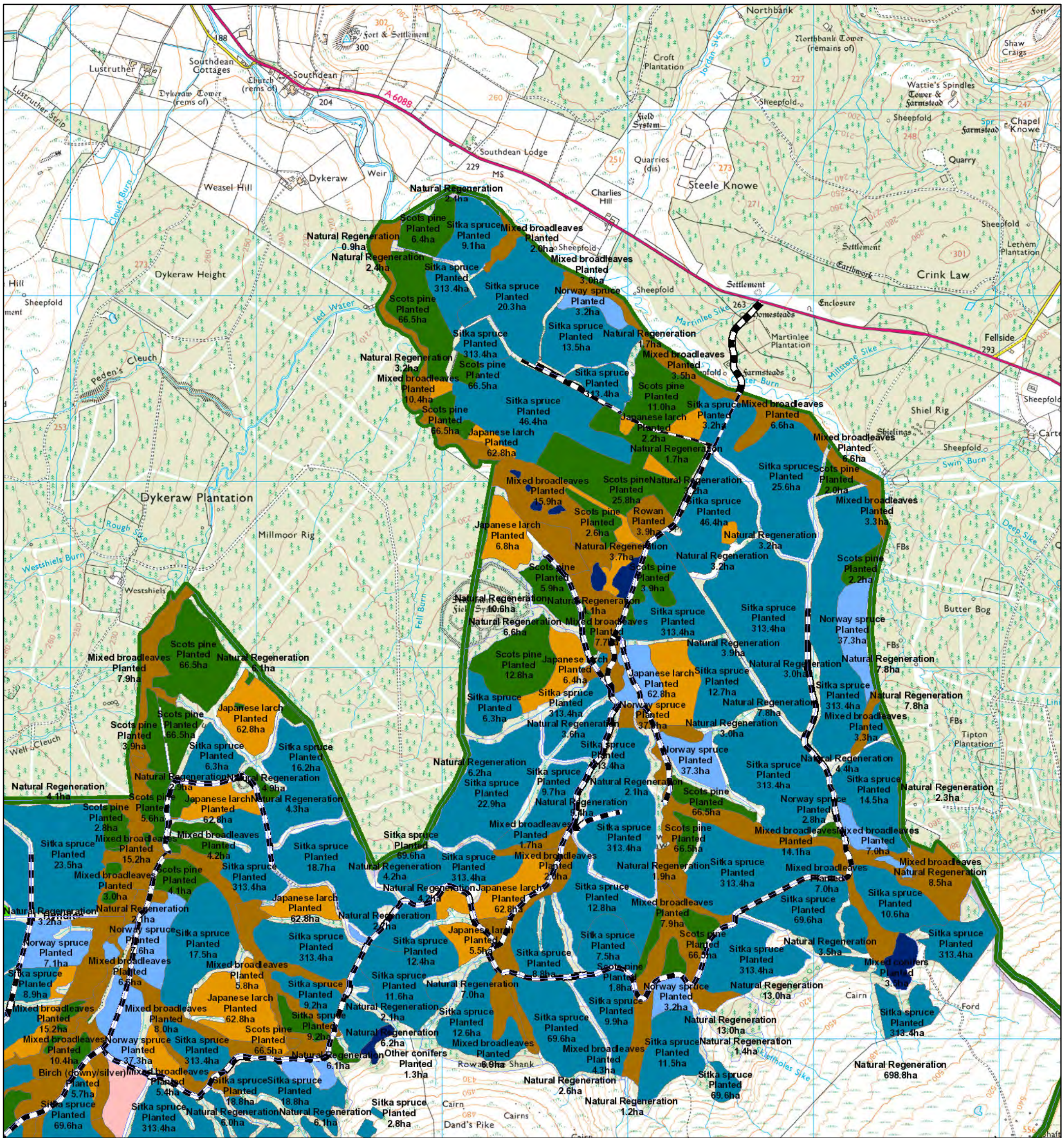
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17.3.6 BASELINE ACCESS AREA RESTOCK PLAN



Lethem - Restock coupes

Scale @ A3: 1:20,000

Date: 16/05/2022

Author: Charlotte Picking

Legend

Restock Areas

- Ash
- Beech
- Birch
- Oak
- Native Mixed/Other Broadleaves

- Other/Mixed Broadleaves
- Other/Mixed Conifers
- Douglas Fir
- Larch
- Lodgepole Pine

- Norway Spruce
- Scots Pine
- Sitka Spruce
- No Species

- Forest Roads
- Forest Roads

Blocks

- Blocks



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