Forestry England

Coate Moor Forest Plan FP 32

2023

Yorkshire Forest District

Forestry England forests and woodlands have been certified in accordance with the UK Woodland Assurance Standard (UKWAS)

Forestry England - Property

Forest District:	Yorkshire
Woodland or property name:	Coate Moor
Nearest town, village or locality:	Great Ayton
OS Grid reference:	NZ 592 110
Local Authority district/unitary Authority:	North York Moors National Park

Areas for approval

	Conifer	Broadleaf
Felling	12.34	1
Lower Impact Silvicultural Systems regeneration felling	4.7ha	
Restocking	7.71	10.33

1. I apply for Forest Plan approval for the property described above and in the enclosed Forest Design Plan.

2. I confirm that the pre-consultation, carried out and documented in the Consultation Record attached, incorporated those stakeholders which FS agreed must be included. Where it has not been possible to resolve specific issues associated with the Plan to the satisfaction of consultees, this is highlighted in the Consultation Record.

3. I confirm that the proposals contained in this Plan comply with the UK Forestry Standard.

4. I undertake to obtain all permissions necessary for the implementation of the approved Plan.

Contents

Appendices

Coate Moor

154.9 Hectares (Ha)

Period of Plan: 2023 - 2033

1. Background

Coate Moor is located on the northern fringe of the North York Moors National Park, approximately seven kilometres from Middlesbrough. Most of the forest lies on a gently sloping moor, with steeper areas at Ayton Bank and above Easby Wood.

The lease was acquired by the Forestry Commission in 1950, with further additions in the early 1960's.

Coate Moor has become a very popular wood for walking and is used by a large number of people who walk to Captain Cook's Monument on Easby Moor.

2. Describing the Site

2.1 Geology and Soils (FP Map 01)

Oolitic sandstone and shale are common throughout the wood, with boulder clay deposits on lower slopes.

The soils under the larger part of the forest are impeded by the presence of an iron pan. There are quite large areas of brown earth soils at lower elevations, though these tend to be extensively gleyed where drainage is poor, there are also localised peat deposits near Gribdale car park. Mining spoil is found at the surface adjacent to historic workings.

The soil nutrient regime for this block is split between medium across the brown earths and gley soils and very poor across iron pan sites. Soil moisture regime ranges between moist and very moist. Coate Moor currently supports a range of productive conifer and broadleaf species.

2.2 Tree Species (FP Map - 02)

Pine is the dominant species group at 29%, comprised primarily of Scots pine with Corsican and Lodgepole as lesser components. Spruce and larch are the next largest species group, both at 15%. Pine and larch tend to dominate iron-pan soils whereas Spruce is planted on gley and brown earth soil types.

At 16%, Open Ground is a significant feature at Coate Moor. This is comprised of unplanted open space within woodland areas and open heath adjacent to neighboring moorland. Improving the quality and landscape impact of open space at Easby Moor has been delivered as part of the previous forest plan.

As both a component within mixtures and as predominantly broadleaf, mixed broadleaves account for 36% of overall species composition and 21% of the total area, a significant change since the previous plan, primarily birch though other species such as alder, sycamore, ash and oak are also present.

Species Composition *	2018		2023	
	Ha	%	Ha	%
MB	14.7	13	41	36.25
PINE	32.79	29	28.2	24.93
LARCH **	16.96	15	24	21.22
SPRUCE	16.96	15	16.5	14.58
OTHER CONIFER	2.26	2	3.4	3.02

Table 1 **including as a component in mix with other species. **Methods of data collection and reporting on species composition have been updated between 2018 and 2023. The increase in larch is attributable to this change as well as the success of Larch natural regeneartion.*

2.3 Wind Damage

Wind Hazard Class ranges from 1 to 3, indicating that the wood is relatively windfirm. On the upper slopes and heavily gleyed soils tree stability is less certain; therefore the management approaches of Lower Intervention Silvicultural Systems (LISS) and extending the rotation age of productive conifer crops should be restricted.

Since the previous plan, opportunities have been taken to carry out 25.72ha of LISS and extended rotation silviculture, across stable stands offering improvements to structural and species diversity.

2.4 Landscape (Photographic montage)

Coate Moor is situated in the Cleveland Hills, Upland Fringe landscape character area on the scarp between the Cleveland Hills plateau and the plain to the north.

Although predominantly coniferous in character, recent felling and restocking has created a more structurally diverse woodland. A mosaic of heathland and native broadleaf habitat continues to develop.

2.5 People and Community (FP Map – 04)

Coate Moor is well used by both local people and visitors to the area. Although the leasehold status means that the woods have not been dedicated as open access under CROW legislation, Gribdale car park provides a popular starting point for a large network of public rights of way (encompassing four footpaths and one bridleway) with further informal access utilising forest tracks and roads.

The Cleveland Way long-distance footpath travels almost three and a half kilometres through Ayton Banks Wood and along the southern boundary of Forestry England managed woodland at the top of Coate Moor. This along with other footpaths and tracks lead up to Captain Cook's Monument, a popular tourist attraction.

2.6 Natural Heritage (FP Map – 04)

The woods at Coate Moor are predominantly secondary plantation conifer. Approximately 10 hectares of low-lying land associated with alder carr and ash woodland at Easby Wood are designated as Plantation on Ancient Woodland Site (PAWS) and have seen recent felling and regeneration works to achieve full restoration to site native-species. This work is providing an important contribution towards the districts PAWS restoration process.

North York Moors SSSI/SAC/SPA at Great Ayton Moor lies contiguous to High Intake Plantation and upland heath communities are developing across areas cleared of conifers adjacent to Easby Moor.

The creation of wetland areas and ponds could develop favorable habitat conditions for associated flora and fauna (i.e. bat species) and improving water quality of the River Leven.

The mosaic of habitats developing across the block provides opportunities to manage mixed woodland with variable proportions of open and temporary open space.

The forest supports a range of national and regionally important bird species across different habitat types (see Appendix 1).

2.7 Cultural Heritage (FP Map - 04)

There is a round barrow scheduled ancient monument recorded at High Intake Plantation, which is classed as not at risk and has benefited from vegetation management over recent years.

Two other scheduled monuments lie adjacent to the woods; Great Ayton Moor cairn cemetery and earthworks and Ayton Banks alum works.

In addition to the above scheduled features, there are numerous records associated with Coate Moor's industrial past, linked to stone quarrying and jet mining.

3. Describing the Project

3.1 Project Brief

- Continue to sustainably harvest timber from clearfell and thinning's, including Lower Impact Silvicultural Systems (LISS).

- Continue to increase the diversity of the forests age structure and improve landscape impact by maintaining current felling patterns. Enhance external and internal landscape edges, using appropriate silvicultural systems, including LISS.

- Manage proportions of productive mixed conifer and broadleaf. Looking to retain existing conifer stands where appropriate and manage through LISS.

- Consider the selection of ESC supported alternative main tree species that will contribute towards a greater range of species diversity, to maintain or increase timber productivity and increase resilience to plant health, biosecurity threats and climate change.

- Protect and, where appropriate, enhance all known sites of archaeological and ecological importance including areas of ASNW and PAWS.

- Increase the proportion of native broadleaf cover, particularly across areas of PAWS, riparian zones and the upper slopes adjacent to open moorland.

- Larch cover is present across 24 ha, including mixed and pure stands, covering 21.22% of the forest by area. Consider reduction as a component within mixed stands and reduction through LISS approaches in pure stands.

3.2 Objectives

Nature

- Improve the resilience of the natural environment to pests, diseases and wildfires and realise the potential of these woods for nature and wildlife, to be measured by Natural England and FC systems.

- Maintain the ecological, cultural and heritage value of these woods, to be measured by Historic England, NYMNP Authority and FC systems accordingly.

    - PAWS restoration continues through appropriate management of regeneration of conifer species.
    - As part of the Cleveland beat, Coate Moor provides an important contribution to the Districts PAWS restoration process with 12.35 ha (7.97% by area) designated as ancient woodland status. The block sits entirely within the North York Moors National Park.

- Where appropriate manage stands through LISS regeneration felling, utilising natural regeneration and enrichment planting, particularly across areas of PAWS and targeting the retention of high-value conifer crops.

Economy

- All of our forests and woodlands are certified to the Forest Stewardship Council®(FSC®) licence code FSC-C123214 and the Programme for the Endorsement of Forest Certification (PEFC) licence code PEFC/16-40-1001 standards. We will maintain the land within our stewardship certified against the UK Woodland Assurance Standard, as independently assessed by annual independent surveillance audits.

- Maximise and maintain a sustainable supply of timber from a diverse range of site-appropriate conifer and broadleaf species, to be measured by FC systems.

- With 92% of the plantable area supporting productive high forest, Coate Moor remains an important block for its contribution to the districts timber producing capacity, particularly hardwoods.

- Continue the reduction of larch as a component within mixed stands, consider strip and group felling in pure stands.

- Increase rhododendron control especially within or adjacent to larch crops.

People

- Maintain the woodlands contribution to the landscape character *Cleveland Foothills Upland Fringe* character area. To be measured by fixed-point photography.

- Clearfell areas will be designed so that their size and scale are in keeping with the surrounding landscape. To be measured by fixed-point photography.

3.3 Opportunities & Constraints

- Some areas have challenging, steep ground access issues, particularly relevant for thinning operations. Consider the range of silvicultural systems or combinations of systems to manage these sites, such as clearfell, long term retention, extended rotation.

- Limited internal roading infrastructure restrict access for timber harvesting across some area of the forest.

- The surrounding highway infrastructure presents challenging conditions for timber transport from the forest to markets. Haulage is restricted to 6wheel and drag with narrow access thought neighbouring farms.

- Projected climate change scenarios and forest pest and diseases are likely to challenge future tree species choice.

- The discovery and advance of Phytophthora ramorum (*P. ramorum*) on Larch and rhododendron in woodland across the area and wider district (though none locally to date) may present issues if crops were to become infected. This could have a negative impact across this block as Larch accounts for 21.22% of planted area.

- *Dothistroma septosporum* (DNB) and *Dendroctonus micans* (*D.micans)* could have a significant impact should significant infection rates occur in future years.

- Site limiting factors - poor nutrient and moisture regime in places.

- Areas of invasive rhododendron.

3.4 Implementation

3.4.1 Conservation

Protect and, where appropriate, enhance all known sites of archaeological and ecological importance:

Archaeological sites

All sites, regardless of their designation, will receive the same level of care during the planning and execution of forest operations. The operational site assessment (OSA) system will ensure they are recognised and the proper measures for their protection are in place before work begins. This planning system also ensures that, where possible, opportunities to enhance the condition of archaeological interest are taken during routine forest work through liaison with Historic England and North York Moors National Park Authority.

Ecological sites

All work sites are surveyed prior to any operations being carried out, both to audit the accuracy of information already held on record and to identify opportunities to further improve the ecological value of the woodlands. For Coate Moor, this will include:

- Increase and improve the deadwood resource as set out in – 'Deadwood - Policy, Procedures, Guidance (PPG) 51 (March 2022)'. Areas of high ecological value across which deadwood resources could be encouraged include Ancient Woodland, riparian zones, Long Term Retention sites and areas of broadleaf woodland.

- Managing PAWS as set out in – 'Keepers of Time: ancient and native woodland trees policy in England (May 2022), 'Ancient Woodland on the Forestry Commission Estate in England (March 2002)' and 'FEE Operations Instructions No. 3 (rev.2012), Ancient Woodlands'.

- 'FC – Managing England's woodlands in a climate emergency' provides guidance to implement adaptation actions including the acceptance of naturalised species and assisted migration.

- Increase the diversity of tree species and age structure that will maintain and improve favourable conditions for target species and identified habitats.

Long Term Retentions (LTR)

These are stable stands or clumps of trees that are important to retain for landscape or biodiversity reasons and will be retained beyond their economic rotation but still managed under an appropriate silvicultural system i.e. thinning may still be carried out. There is 0.72ha of Long Term Retention in Coate Moor at the south-west extremity of Round Hill Wood.

Invasive species
Rhododendron ponticum is recorded across several sites in the forest. A programme of vegetation management will be carried out over the duration of this plan where this is likely to impact on high value conservation sites.

3.4.2 Timber Harvesting

We will continue to sustainably harvest timber from clearfelling, LISS and thinning's. Where appropriate we will develop broadleaf stands to increase their contribution to timber production. These operations will be planned and controlled to ensure due regard for all other objectives of management at Coate Moor.

3.4.3 Landscape

Coate Moor Forest lies wholly within the North York Moors National Park, a protected and designated landscape where felling under the previous plan has benefited its associated landscape impact. Views are varied as the woodland, together with the neighbouring Kildale Estate woodland, wrap around all but the south westerly slopes of a conical hill on which Captain Cook's Monument sits. Near views are experienced from minor council roads and nearby settlements. Longer views of Ayton Banks Wood and Easby Wood can be seen from the low-lying land to the north and west of the property.

Clearfell and shelterwood areas are designed so that their scale and shape are in keeping with the scale of the forest blocks and the surrounding landscape. The resulting diversity in age and height that these systems produce will enhance both external and internal views of the forests.

LISS with associated smaller-scale felling will continue to contribute toward a varied and intimate internal forest landscape, where simple and complex stand structures create a diverse visitor experience within the forest.

Appropriate scale felling across the forest will continue the process of restructuring, continuing away from even-aged, single species stands to a more mixed conifer/broadleaf woodland linking with other associated habitats.

The adoption of appropriate silvicultural systems, including LISS will contribute toward the creation and retention of species and structurally diverse woodlands within the landscape.

On a scale of low/medium/high, landscape sensitivity is considered to be medium.

3.5 Plan (FP Map 08)

The design concept map shows the key factors we need to address. These are taken forward and used to form the basis of a practical plan set out in the fell and restock maps.

3.6 Areas (FP Maps 05, 06 and 07)

3.6.1 Breakdown of felling areas within the period of the plan.

A map showing the location of felling sites can be found in the Forest Plan folder.

Felling	Area - hectares	% of total area (excl. SSSI)	Projected volume (m^3)
Clearfell 2023 - 2027	6.64	4.2	2700
Clearfell 2027 - 2033	6.70	4.3	2800
LISS*	4.7	3	1880

* Through this plan a large proportion of Coate Moor will be managed utilising LISS through Strip, Group and Irregular Shelterwood silvicultural systems. During the plan period, it is proposed that areas of LISS where crops are over 25 years old will receive a silvicultural intervention (thinning/regeneration felling), as a result, the associated area will be regenerated through a combination of restocking and natural regeneration.
See Appendix 2 – LISS justification. The above area of woodland cover will be regenerated through a combination of restocking and natural regeneration, removing no more than 30% of the stems within any single compartment over the plan period.

3.6.2 Breakdown of constituent areas.

A Future Habitat and Species map showing the location and detail of the constituent areas can be found in the Forest Plan folder.

Habitat type (based on principle species planted)	Area - hectares			% of total area		
	2023	2033	2053	2023	2033	2053
Broadleaved;mixed/yew woodlands	31.8	37.1	47.3	20.52	23.9	30.5
Coniferous woodlands	108.2	84.9	73.9	69.85	54.8	47.7
Upland heathland	13.5	18.4	17.5	8.71	11.8	11.29
Other: recreation, Inland rock, wet woodland	1.6	14.4	16.2	1.03	9.3	10.5

3.7 Methods / Forest Operations

3.7.1 Planning

Before any major forest operations are undertaken an Operational Site Assessment (OSA) is completed. This document details the proposed work and outlines all known environmental, social and operational considerations. The OSA then becomes an important reference document during the planning phase, at the pre commencement meeting before scheduled works begin and for supervisory visits during the operation. The OSA is kept along with other documents relating to the operation in the appropriate operational file.

For routine maintenance operations (e.g. fencing, ride mowing, survey work etc.) the Yorkshire District policy on timing of operations to minimise wildlife disturbance will be followed.

Regarding wildfire, we will follow guidance as set out in 'FC Practice Guide – Building wildfire resilience into forest management planning'. This will be applied proportionately dependant on a particular forest or woodland.

3.7.2 Standards

All operations within the forest will be carried out in accordance with the following standards;

- U.K. Woodland Assurance Standard
- U.K Forestry Standard (published 2017).

3.7.3 Harvesting

See 3.4.2. Forestry England staff will monitor work through regular site visits to ensure all guidelines and contract conditions are adhered to.

All plans are required to consider LISS in windfirm conifer plantations. This decision is based upon the methodology provided in FC Information Note 40 – 'Transforming Even-aged Conifer Stands to Continuous Cover Management'. Where existing coupes are not identified for LISS management, we may consider managing these on an extended rotation basis to be thinned and monitored for future consideration for conversion to LISS.

Using the FC Forest Research Agency, Ecological Site Classification system (ESC), a range of conifer species are considered 'optimum' to 'unsuitable' for LISS where timber production is considered as an objective.

Through this plan the area to be managed under LISS is 72.69ha. See Appendix 2 – LISS Justification.

During the lifetime of this plan, we will look to introduce the concept of Forest Development Types. "*A Forest Development Type is a long-term vision of how the species composition and structure of a forest stand is intended to develop. The concept encourages the greater use of mixed-species stands and a wider variety of stand structure than previously deployed in British forests*".[1]

See Appendix 6 for an example of potential appropriate FDTs.

3.7.4 Haulage

As in our other woodland blocks we will continue discussions with the relevant Highways Authority to agree haulage routes and discuss annual tonnages.

All timber traffic will be managed in line with the Road Haulage of Round Timber Code of Practice, Fifth Edition (2020), which aims to improve the safety and environmental standards of the timber haulage industry.

3.7.5 Restocking

Conifer

The areas of LISS regeneration felling carried out as part of management by LISS and clear felling will be established through a combination of restocking using alternative productive conifer species, diversifying age structure and species to continue to provide a sustainable timber resource, whilst mindful of the projected impacts of climate change. The FC Forest Research Agency, Ecological Site Classification system (ESC) will aid species choice and selection. A range of timber producing conifer species as set out in Appendix 2 and Appendix 3 'Species by soil type' will help inform restocking options.

In addition to replanting, areas of LISS and clearfelling will be managed to encourage natural regeneration of conifer and broadleaf species, although it is accepted that replanting will be required to maintain and further diversify the current range of species.

Reference to Predominantly Mixed Conifer on the Future Habitat & Species Map (FP Map 07) will be used to describe those areas where a range of species will be planted and/or regenerated, where conifer species will comprise at least 80% of the component mix. As indicated at 3.7.1, the OSA will provide site-specific data on soils and other site factors that will help inform the correct choice of species on a site-by-site basis.

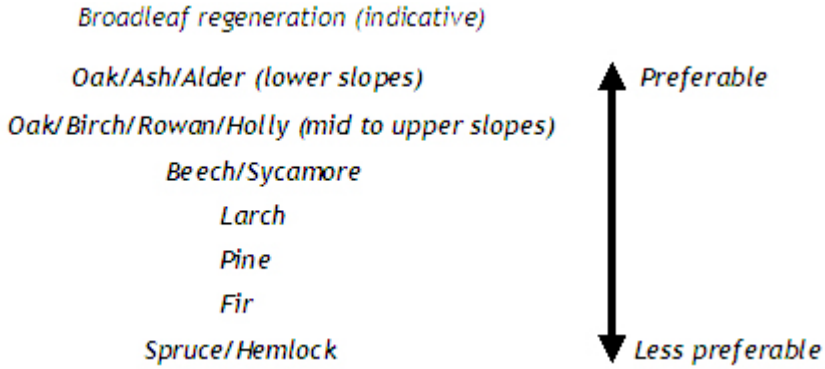
All sites will achieve at least conifer 2500 stems per hectare through planting, natural regeneration, or a combination of both.

[1] Forest Research – Forest Development Types: A guide to the design and management of site-adapted resilient mixed forest stands in Britain

Broadleaf

There are 12.35 ha of Ancient Woodland within Coate Moor with a semi-natural score of 1 (see section 4.1 Habitat Condition). Where Conifer PAWS are either clear felled or managed through LISS regeneration felling through this plan, regeneration will be carried out through a combination of planting site-native species and natural regeneration. Sites will achieve at least 1100 broadleaf stems per hectare. We will accept 'naturalised' species such as beech and sycamore and the principles of assisted migration where these can enhance resilience to the impacts of climate change.

Natural regeneration in PAWS woodland will be assessed and the risk it poses to the objectives of the plan considered. Where dense shade or invasive species (i.e. Western hemlock, Sitka spruce) threatens the native woodland community, it will be removed as part of routine felling or thinning operations.



Reference to Predominantly Mixed Broadleaf on the Future Habitat & Species Map will be used to describe those areas where a range of species will be planted and/or regenerated, where broadleaf species will comprise at least 60% of the component mix.

Targeted enrichment planting will be considered across sites that fail to develop sufficient natural regeneration of broadleaf species.

The majority of sites will achieve at least 1100 broadleaf stems per hectare through natural regeneration, planting or a combination of both.

3.7.6 Wildlife Management

The successful establishment of future restocking sites through planting and/or natural regeneration will require effective control of crop damaging mammals. Although deer are present within the forest and surrounding farmland, good levels of natural regeneration indicate browsing pressure is low. Damage levels will continue to be monitored and will be managed in line with the Yorkshire Forest District Deer Management Strategy.

4. Monitoring

See Appendix 4 – Monitoring Plan

4.1 Habitat condition

Over the lifetime of the plan where maintaining semi-naturalness is important, such as Ancient Woodland Sites, we will monitor and record levels of change through the Sub-Compartment Database

and the resulting Semi Natural Class scores. Across these sites we will maintain stands at SN Class 1 and gradually manage other sites towards this target composition.

Class 1	Semi-Natural Woodland
Includes native coppice woodland and high forest or site-native plantation with a relatively high percentage of native self-sown or coppice understorey.	

Class 2	Reasserting Semi-Natural Woodland
Plantation or ex-plantation with 50-80% site-native species. Includes coppice regeneration and/or strong natural regeneration amongst planted trees.	

Class 3	Plantation
Plantation with 20-50% site-native trees under established plantation stands	

Class 4	Plantation
Plantation with less than 20% site-native species. Includes all non-native broadleaves and beech planted outside its natural range in England.	

4.2 Forest Plan

All forest plans are formally reviewed as part of a "5-year mid-term review" and the plan's aims and objectives and its success at achieving those aims and objectives. This plan will be formally reviewed in 2028 with the opportunity to share information where requested. This time period can be shortened if circumstances change significantly or if parts of the plan prove detrimental to the overall aims and objectives.

Where an amendment to the Forest Plan is required, the Forestry Commission Practice Delivery Note 01 – Tolerance Table will be applied as set out in Appendix 5.

4.3 UKWAS Compliance Table

Maintain the land within our stewardship certified against the UK Woodland Assurance Standard, as independently assessed by annual independent surveillance audits.

	Forest Plan Area (ha)	Forest Plan Percentage	Forest District Area (ha)	Forest District Percentage
Total Area	154.9	100	20,971	100
Total Wooded area	147.3	95.1	18,594	85
Natural Reserves – Plantation (1%)	0	0	294	1.7
Natural Reserves – Semi-natural (5%)	0	0	101	5.6
Long-term Retentions and Low Impact Silvicultural Systems (>1%)	105.2	67.9	10,004	47.9
Area of conservation Value (15%) including	105.2	67.9		

designations; SSSI, PAWS, ASNW, NR, LTR, LISS			10,004	47.9
Planned Open/Other	23.7	15.3	3,113	14.8

5. Determination of Impact Significance and Mitigation

5.1 Native Woodland

Threats to our native woodlands can be immediate and absolute (e.g. loss to infrastructure or development) or slower and subtler (e.g. shading from conifer species or invasive species such as Rhododendron). There are also more widespread environmental changes, such as diffuse pollution and climate change, which may threaten in the long term.
Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk)

Major threats to native woodland are:

- Climate change and fragmentation
- Excessive browsing and grazing by deer, livestock and grey squirrels
- Inadequate or inappropriate management
- Invasive and non-native plant species
- Diffuse pollution
- Pests and diseases
- Inappropriate recreational use
- Development and boundary incursions

Through this plan, we will continue to apply local and national policy and best practice guidance for the management and development of our existing and new native woodlands.

5.2 Flora

Heathland is a UKBAP Priority Habitat

Within woods, concentrate on open space habitat expansion and management, developing heathland, neutral grassland and acid mires.

(G. Peterken – Native Woodland Development in the North York Moors and Howardian Hills)

This plan will continue the management and development of heathland where this will improve habitat networks across Coate Moor. Maintaining a mixed resource of temporary and permanent open space with heathland flora will provide suitable habitat for priority woodland bird species. There are no plans to create new areas of permanent open heathland through this Forest Plan.

5.3 Other Objectives

Concentrate on developing habitat-rich riparian corridors with marshes, meadows, woodlands, trees in farmlands. These would pass through both woodland and farmland.
(G. Peterken – Native Woodland Development in the North York Moors and Howardian Hills).

We will continue to apply local and national policy and best practice guidance to the management of riparian corridors across Coate Moor. This will improve and enhance the habitat network within the woodlands and benefit protected species. Continuing development of both species and structural diversity will benefit habitats for priority woodland bird species throughout the woodland (Appendix 1 – Priority species).

Appendix 1 - Priority species

Bird Species [1]	Forest location	Habitat enhancement
Woodcock, Dunnock	Developed shrub layer	Continue selective thinning and regeneration felling as part of LISS management, this will allow the development of shrub layer structure and increased structural and species diversity. Create and maintain successional woodland (birch and oak)/scrub habitat and standing deadwood.
Hawfinch, Lesser redpoll, Marsh tit, Pied Flycatcher, Redstart, Spotted flycatcher, Tree pipit, Willow tit, Wood warbler, Garden warbler, Willow warbler	Woodland edge, ride, glade	Continue selective thinning and regeneration felling as part of LISS management, this will create increased structural and species diversity. Expand road and ride margins to extend herb and invertebrate rich roadside verges, increase habitat connectivity and edge habitat. Create and maintain successional woodland (birch and oak)/scrub habitat and standing deadwood.
Woodlark Nightjar	Open habitat/ wooded heath	Maintain a mosaic of open structure woodland/wooded heath with areas of open habitat with short grass/heath for feeding and denser vegetation for nesting through woodland management and grazing as appropriate.
Reptile [2]	**Forest location**	**Habitat enhancement**
Adder Common Lizard	Heathland/verges	Maintain the known sites in suitable condition through vegetation management. Plan operations to minimise damage to known hibernacula sites. Maintain a mosaic of open structure woodland/wooded heath, wide rides and forest road verges.
Lepidoptera2	**Forest location**	**Habitat enhancement**
Wide range of species including locally rare; Grey Mountain carpet, Scarce Silver Y, Square- barred bell, Leopard Moth, Beautiful snout, Devon carpet and the Tortrix moth (Tischeria ekebladella)	Heathland/scrub woodland	Create and maintain a mosaic of habitats including successional woodland (birch and oak)/scrub habitat and open heath/ wooded heath habitat.

[1] Source – BTO Bird Atlas and Breeding Bird Survey data and surveys undertaken by the Forest bird study group.

The Breeding Bird Survey is run by the British Trust for Ornithology (BTO) and is jointly funded by the BTO, the Joint Nature Conservation Committee (JNCC) (on behalf of the statutory nature conservation bodies: Department of Agriculture, Environment and Rural Affairs - Northern Ireland, Natural England, Natural Resources Wales and Scottish Natural Heritage), and the Royal Society for the Protection of Birds (RSPB).

[2]Amphibian and Reptile Group
[3]FE Wildlife monitoring volunteers

Appendix 2 – LISS justification

Site Appraisal

Site Factor	Suitability Score	Comment
Wind Hazard Classification: Majority of the forest is WHC range 1 - 3	1	ESC indicates rooting depth ranges between 20 cm to 100 cm.
Soil fertility: Very Poor to Medium	1	Isolated areas of medium fertility support a wider range of species and competing vegetation.
Current species suitability: LP, MCP, MAP, RAP, SP, WEP, NS, ORS, OMS, SS, DF, RC, JCR, ESF, GF, NMF, PSF, LEC, WH, RSQ, LC, BI, AMA, NOM, SY, BE, RON, POK, ROK, SOK, ASP, RAN, CAR, RAR, GAR, IAR, ROW, TST, WST, HBM, WCH, SC, HOL	1, 2, 3 Suitable	Advanced natural regeneration already occurs across a range of conifer and broadleaf species, either as developing understorey where light levels are favourable or across clear fell sites. Corsican Pine and Larch or not considered dues to tree health issues.

Initial analysis indicates areas of Coate Moor achieve a good to moderate site ranking for transformation to LISS.

Stand Appraisal

Stand form – Overall stand form across most conifer species is good and developing but more variable across broadleaf species.

Thinning history – Regular thinning has been carried out across the majority of conifer stands where threshold basal area has been reached, providing opportunities for subsequent selective thinning to improve crown development. Currently there is good evidence that a range of conifer and broadleaf species are capable of developing through natural regeneration across sites.

The impact from P.ramorum, *D.septosporum, D.micans* and *Chalara* on larch, pine, spruce and ash species will need to be monitored as to how this might impact on future stand composition, depending on what the management objectives are for those sites.

Access – Although good infrastructure exists across most of the forest areas, there are areas where access is challenging. Thinning and LISS management will seek to maximise stand development where safe to do so.

On the basis of the above information, we will consider transformation to LISS for the majority of the block with the aim of increasing species diversity through enrichment planting using a range of species depending on site objectives.

Strip (between 20 to 25 m wide), Irregular and Group shelterwood (up to 0.6 ha in size) systems will be applied to a range of stand types where the felling of small coupes, will contribute toward the development of a diverse woodland.

Future wildlife management issues may arise where deer browsing could impact Shelterwood systems as more palatable species are introduced. Site monitoring and adherence to the District Deer Management strategy will help inform future management.

The Forest Research ESC table below supports the range of target species considered for natural regeneration and those identified as very suitable (dark green) and suitable (light green) where enrichment planting will increase species diversity.

Ecological Site Classification Report

Eastings(m)	Northings(m)	Grid Reference	Climate Scenario	Site Class	Filter	Brash	Drainage	Fertiliser/Nurse
459038	510575	NZ590105	Medium-High 2080 (A1b/3q0) AWC method	Warm - Moderately exposed - Slightly dry	Suitable conifers only	No brash present	No drainage installed	No fertiliser

Site Description and Variables

The site has a warm, moderately exposed and slightly dry climate. The soils are fresh moisture status and poor nutrient status. The analysis assumes that site management (e.g. CCF), the use of deep rooting species and/or soil properties will help mitigate climatic moisture deficits. The site DAMS score has been reduced due to either a) an intention to underplant species with the benefit of shelter from established trees or b) local observations of additional shelter/less exposure. Tree species recommendations in ESC do not take account of each countries regulatory approval process, so prior to including species in a forest plan advice should be sought from relevant forestry authorities.

Modifications	AT	CT	DAMS	MD	SMR	SNR
Default	2278.0	8.0	14.0	198.0	5.0(Fresh)	2.0(Poor)
Dams Modifier			-2			
Final	2278.0	8.0	12.0	198.0	5.0(Fresh)	2.0(Poor)

Species	Abbr.	Suit(Ecol)	Suit(Timber)	Yield	Limiting	AT	CT	DAMS	MD	SMR	SNR	Version
Corsican pine	CP	●	●	16	SNR	●	●	●	●	●	●	3.3(A)
Lodgepole pine	LP	●	●	12	SNR	●	●	●	●	●	●	3.1(A)
Macedonian pine	MCP	●	●	12	SNR	●	●	●	●	●	●	3.1(C)
Maritime pine	MAP	●	●	12	SNR	●	●	●	●	●	●	3.1(C)
Monterey/Radiata pine	RAP	●	●	17	SNR	●	●	●	●	●	●	3(C)
Scots pine	SP	●	●	12	SNR	●	●	●	●	●	●	3.3(A)
Weymouth pine	WEP	●	●	9	SNR	●	●	●	●	●	●	3(C)
Norway spruce	NS	●	●	15	SNR	●	●	●	●	●	●	3.3(A)
Oriental spruce	ORS	●	●	13	SNR	●	●	●	●	●	●	3(C)
Serbian spruce	OMS	●	●	12	SNR	●	●	●	●	●	●	3(B)
Sitka spruce	SS	●	●	19	SNR	●	●	●	●	●	●	3.4(A)
Sitka spruce (Imp.)	Imp.SS	●	●	21	SNR	●	●	●	●	●	●	3.4(A)
Douglas fir	DF	●	●	18	SNR	●	●	●	●	●	●	3.1(A)
Hybrid larch	HL	●	●	8	AT5	●	●	●	●	●	●	3(A)
Japanese larch	JL	●	●	8	AT5	●	●	●	●	●	●	3(A)
European larch	EL	●	●	8	SNR	●	●	●	●	●	●	3(A)
Western red cedar	RC	●	●	16	SNR	●	●	●	●	●	●	3.1(A)
Japanese red cedar	JCR	●	●	16	SNR	●	●	●	●	●	●	3(B)
European silver fir	ESF	●	●	15	SNR	●	●	●	●	●	●	3(B)
Grand fir	GF	●	●	20	SNR	●	●	●	●	●	●	3(A)
Nordmann fir	NMF	●	●	14	SNR	●	●	●	●	●	●	3(C)

Ecological Site Classification Report												
Pacific fir	PSF	●	●	21	CT	●	●	●	●	●	●	3.4(C)
Leyland cypress	LEC	●	●	16	SNR	●	●	●	●	●	●	3(B)
Western hemlock	WH	●	●	19	DAMS	●	●	●	●	●	●	3(A)
Coast redwood	RSQ	●	●	17	SNR	●	●	●	●	●	●	3(B)
Lawson's cypress	LC	●	●	15	SNR	●	●	●	●	●	●	3(B)

Ecological Site Classification Report

Eastings(m)	Northings(m)	Grid Reference	Climate Scenario	Site Class	Filter	Brash	Drainage	Fertiliser/Nurse
459038	510575	NZ590105	Medium-High 2080 (A1b/3q0) AWC method	Warm - Moderately exposed - Slightly dry	Broadleaves only	No brash present	No drainage installed	No fertiliser

Site Description and Variables

The site has a warm, moderately exposed and slightly dry climate. The soils are fresh moisture status and poor nutrient status. The analysis assumes that site management (e.g. CCF), the use of deep rooting species and/or soil properties will help mitigate climatic moisture deficits. The site DAMS score has been reduced due to either a) an intention to underplant species with the benefit of shelter from established trees or b) local observations of additional shelter/less exposure. Tree species recommendations in ESC do not take account of each countries regulatory approval process, so prior to including species in a forest plan advice should be sought from relevant forestry authorities.

Modifications	AT	CT	DAMS	MD	SMR	SNR
Default	2278.0	8.0	14.0	198.0	5.0(Fresh)	2.0(Poor)
Dams Modifier			-2			
Final	2278.0	8.0	12.0	198.0	5.0(Fresh)	2.0(Poor)

Species	Abbr.	Suit(Ecol)	Suit(Timber)	Yield	Limiting	AT	CT	DAMS	MD	SMR	SNR	Version
Downy birch	PBI			4	AT5							3.2(A)
Silver birch	SBI			8	SNR							3.2(A)
Big leaf maple	AMA			8	SNR							3.1(C)
Norway maple	NOM			6	SNR							3(B)
Sycamore	SY			7	SNR							3.3(A)
Beech	BE			6	SNR							3.1(A)
Roble beech	RON			12	SNR							3.1(B)
Ash	AH			0	SNR							3(A)
Pedunculate oak	POK			5	SNR							3.1(A)
Red oak	ROK			5	SNR							3(B)
Sessile oak	SOK			6	SNR							3.2(A)
Aspen	ASP			6	SNR							3.2(A)
Black poplar	BPO			0	SNR							3.1(A)
Rauli beech	RAN			17	AT5							3.1(B)
Common alder	CAR			7	SNR							3.2(A)
Red alder	RAR			8	SNR							3(B)
Grey alder	GAR			10	AT5							3.1(B)
Italian alder	IAR			9	CT							3.2(B)
Shining gum	ENI			36	DAMS							3(C)
Cider gum	EGU			18	SNR							3(C)
Rowan	ROW			3	SNR							3.3(A)

Ecological Site Classification Report												
True service tree	TST			5	SNR							3(A)
Wild service tree	WST			6	SNR							3(A)
Black walnut	JNI			6	SNR							3(B)
Common walnut	JRE			0	SNR							3(B)
Hornbeam	HBM			7	SNR							3(A)
Small-leaved lime	SLI			5	SNR							3(A)
Wych elm	WEM			0	SNR							3(A)
Wild cherry	WCH			7	SNR							3(A)
Sweet chestnut	SC			8	SNR							3(A)
White willow	WWL			3	SNR							3(C)
Holly	HOL			3	SNR							3(C)
Willow (SRC)	SRC			6	SNR							3(C)
Eucalyptus glaucescens (SRF)	SRF			14	SNR							3(C)

Appendix 3 - Restock species by soil type

Site type		Species													
Upland sites	Lowland sites	**SP**	**LP**	**MCP**	**DF**	ESF	GF	**WH**	WRC	Ley/Law C	Coast R	Giant R	**HL**	**SS**	**NS**	Oriental S
Gley						***y***		***y***	***y***	y				**Y**	**Y**	***y***
Iron pan/podzol		**Y**	***y***	***y***	**y**	***y***	***y***				***y***	***y***	**y**		y	***y***
BE/intergrade		**Y**		***y***	**Y**	***y***	***y***	***y***	***y***	y	***y***	***y***	***y***	***y***	**Y**	***y***
Calcareous				***y***		***y***			***y***	y						***y***
	Gley					***y***		***y***	***y***	y	***y***	***y***		**Y**	**Y**	***y***
	Podzol	**Y**	***y***	***y***	**y**	***y***	***y***	***y***	***y***	y		***y***	***y***		y	***y***
	BE/intergrade	**Y**		***y***	**Y**	***y***	***y***		***y***	y	***y***	***y***		***y***	**Y**	***y***

BOLD CAPITAL (Y)/BOLD INFILL COLOUR	**Cat A Major species** - currently widely used with no supply problems and should continue to play an important role
Bold, lower case italics (y), pastel infil colour	**Cat B Minor species** - Species that either currently play a minor role but have demonstrated their suitability being part of a species range to diversify our forests. Climate change may increase or reduce their use
Normal lower case (y), pastel infill colour	**Cat C Secondary species**- Species with little information on forest performance but possible choice based on Arboreta. Use on small-scale experimental basis for now but may increase if favourable results

soucre data http://www.forestry.gov.uk/fr/treespecies

Refer to cell comments for specific species notes

No planting where >0.5m peat depth

Pacific coast associated forest cover - mixtures as part of management by LISS					consider in
DF	GF	WH	Law C	Coast R	*ESF*

Appendix 4 - Caote Moor Forest Monitoring Plan			
Objective	**Method**	**Frequency/Timings**	**Actions**
People			
Maintain the woodlands contribution to the landscape character Cleveland Foothills Upland Fringe character area. Clearfells will be designed so that their size and scale are in keeping with the surrounding landscape.	Fixed-point photography	Year 0 baseline, 5-year review, 10-year review.	Review visual impact of coupes within the landscape and adjust future coupe shape if necessary.
Nature			
Improve the resilience of the natural environment to pests, diseases and wildfires and realise the potential of these woods for nature and wildlife.	Update Forester Web GIS; subcompartment database, Conservation module.	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in diversity across species, age structure, conservation siting's/records and broad habitat types; conifer, broadleaf, open. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
	Review sample of Operational Site Assessments.	Annually	Provide feedback where management is not compliant with recommendations.
Maintain the cultural ecological heritage value of these woods.	Liaise with and review Historic England At risk Register, NYMNPA shared monuments data, update Forester Web GIS Heritage module.	Annually or as data becomes available. At time of Year 0 baseline, 5-year review, 10-year review.	Review progress of annual maintenance programmes and adjust where At Risk status may decline from target condition.
Where appropriate manage stands through LISS regeneration felling, utilising natural regeneration and enrichment planting, particularly across areas of PAWS and targeting the retention of high-value conifer crops.	Update Forester Web GIS; subcompartment database	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in stand structure. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
Economy			
All of our forests and woodlands are certified to the Forest Stewardship Council®(FSC®) licence code FSC-C123214 and the Programme for the Endorsement of Forest Certification (PEFC) licence code PEFC/16-40-1001 standards. We will maintain the land within our stewardship certified against the UK Woodland Assurance Standard.	Independent surveillance audit across the organisation.	Annually	Implement corrective actions as required.
	Independent surveillance audit across the District.	As per audit sample.	Implement corrective actions as required.
Maximise and maintain a sustainable supply of timber from a diverse range of site-appropriate conifer and broadleaf species	Update Forester Web GIS; subcompartment database, Operational Thinning Layer, Management Coupe Layer.	As recordable changes occur within the forest environment and End Of Year updates. Year 0 plan renewal, 5-year review, 10-year review.	Review long-term changes in productive capacity through the Production Forecast at the point of plan renewal and across the wider District.
Site-specific			
Clearfell coupes - ensure boundaries are accurately reproduced and within agreed tolerances as set out in Forestry Commission Practice Delivery Note 01 (FC PDN 01).	GPS unit or equivalent data recorders.	Upon completion of all harvesting activity.	If significant coupe variation, apply for appropriate ammendment to FC as required as per FC PDN 01 prior to felling. Update Forester Web for completed clearfells.
Restock & Future Habitat Coupes - Productive mixed conifer sites. Establish at least 2500 conifer stems per ha by planting and natural regeneration by year 5 since date of initial planting (allowing 2 years fallow for *hylobius*).	On-site stocking density plot surveys.	Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance OGB4.	Carry out beating up where stocking density falls below prescribed number of trees/ha to achieve full stocking.
Restock & Future Habitat Coupes - Mixed broadleaf habitat. Establish at least 1100 broadleaf stems per ha through natural regeneration by year 10 since date of felling.	On-site stocking density plot surveys.	Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance OGB4.	Carry out enrichment planting where stocking density falls below prescribed number of trees/ha to achieve full stocking.
LISS coupes - Productive mixed conifer sites. Establish at least 2500 conifer stems per ha by year 10 after final removal overstorey.	On-site stocking density plot surveys.	Beat-up surveys between years 1 to 4. Year 5 stocking assessment, internal guidance OGB4.	Carry out enrichment planting where stocking density falls below prescribed number of trees/ha to achieve full stocking.
Continue the reduction of Larch as a component within mixed stands, consider group felling/small scale regenerative felling in pure stands.	Update Forester Web GIS; subcompartment database	As recordable changes occur within the forest environment. At time of Year 0 plan renewal, 5-year review, 10-year review.	Measure changes in diversity across species. Ensure positive change through increasing diversity occurs over the lifetime of the plan.
Increase rhododendron control especially within or adjacent to Larch crops	On-site visual assessment and monitoring	As recordable changes occur within the forest environment.	Review activity across the forest and wider District to measure activity and to provide insight into gaps and future opportunities through volunteering.
Wildlife management - Identify problem sites where mammal damage is affecting crop establishment or degrading woodland flora.	On-site stocking density plot surveys. Damage, Impact and Activity Assessments as set out in YFD Deer Management Strategy.	To be informed from results of beat-up surveys between years 1 to 4 and year 5 stocking assessment, internal guidance OGB4.	Target deer control in line with District strategy.
Plan specific			
Forest Plan mid-term review. Review the plan's aims and objectives and the progress of their implemetation.	Apply a variety of measures as described in the above table.	2028	Modify the plans aims and/or objectives where these are no longer compatible with National or District Policy. Significant plan changes will require consultation and formal amendment from the Forestry Commission.

Appendix 5 Agreed Tolerance table *for Forestry England Yorkshire Forest District, England*

	Adjustment to felling coupe boundaries	Swapping of felling coupes	Adjustment to felling operation	Clearance of standing trees associated with wind-blown areas[7]	Delayed restocking - including natural regeneration	Species choice	Tree health
Formal assessment and approval by FC area team required	>25% of the coupe area	Where changes to the felling sequence is likely to result in a significant breach[1] of the UKFS adjacency rules	From unconditional felling (thinning or low-intervention management) to conditional felling such as: • regeneration felling • strip felling[2] • clear felling and where ≥50% of standing tree volume is to be removed	Individual work area that is either: >5ha of standing trees associated with wind-blow areas or Proposals result in cumulative additional felling[8] affecting >20% of the Forest Plan area[9]	N/A – dealt with via FC Area team approval (below)	From mixed, predominantly broadleaves to predominantly conifer	Where no SPHN is issued but felling of ≥65% standing tree volume is required in response to a plant health issue
Written approval only required from FC area team[3]	Between 10-25% of the coupe area	Where changes to the felling sequence is likely to result in a minor breach[4] of the UKFS adjacency rules	From unconditional felling (thinning or low-intervention management) to conditional felling where between 30%-50% of standing tree volume is to be removed such as: • regeneration felling • strip felling or From lower intensity regeneration felling to higher intensity regeneration felling, (as defined by the felling operation hierarchy[5]) where <50% of standing tree volume is to be removed	Individual work area that meets both the criteria: 1-5ha of standing trees associated with wind-blow areas, (Where there is an immediate and significant risk to health and safety or access, felling of ≥5ha of standing trees associated with wind-blow areas) and Proposals result in cumulative additional felling[8] affecting <20% of the Forest Plan area[9]	Planting: Where this is ≥ 4 planting seasons from the date of felling. Natural regeneration: where necessary intervention to secure natural regen is not implemented within 4 full planting seasons from date of felling	Deciduous conifers to predominantly evergreen conifers	Where no SPHN is issued but felling between ≥50% and < 65% of standing tree volume is required in response to a plant health issue
No formal or written approval by FC area team required[6]	< 10% of the coupe area	Where changes to the felling sequence does not result in a breach of the UKFS adjacency rules	Clear felling to strip felling, shelterwood or regenerative felling systems, or thinning or From more severe regeneration felling to less severe regeneration felling as defined by the regeneration felling hierarchy[5]	<1ha of standing trees associated with wind-blow areas (Where there is an immediate and significant risk to health and safety or access, felling of 1ha-5ha of standing trees associated with wind-blow areas) and Proposals result in cumulative additional felling[8] affecting <10% of the Forest Plan area[9]	For any changes to the timing of restocking where this occurs <4 full planting seasons from the date of felling	Any other changes	Where an SPHN is issued Or Thinning / regenerative felling <50% of standing tree volume is required in response to a plant health issue

[1] Greater than 20% of the coupe boundary
[2] Felling strips with a width ≤ 1.5 x treelengths, with a length appropriate to site constraints.
[3] Approval letter retained for compliance inspection purposes.
[4] 20% or less of the coupe boundary
[5] Lower impact operation to higher impact operation hierarchy: thinning, selection system, uniform shelterwood, irregular shelterwood, group shelterwood, strip felling, clear felling.
[6] District must keep all **assessment and decision-making** records in respect of amendments for **audit purposes** and compliance inspections
[7] Operations remain subject to other approvals for sensitive areas (e.g. SSSI, SAM etc). Subject to agreement of this tolerance table by relevant protected landscapes.
[8] Cumulative additional felling = 5 year rolling total area of growing trees felled (excludes dead and completely windblown trees) that were not approved for felling within the relevant felling period, in the initial approved Forest Plan. This includes both FS approved amendments and felling below thresholds. The intention is to identify instances where events result in more substantial shift in management requiring increasing need for review of forest plan proposals.
[9] For Yorkshire Forest District the "Forest Plan Area" will be utilized rather than "Forest Management Unit" when considering cumulative impact.

Appendix 6 - FDT

"A Forest Development Type is a long-term vision of how the species composition and structure of a forest stand is intended to develop. The concept encourages the greater use of mixed-species stands and a wider variety of stand structure than previously deployed in British forests".[1]

As can be seen from the table below, there are a range of FDT's suitable to Coate Moor

Code	Description	Future Climate		Future Climate (AWC)		Primary Species	Primary Proportion	Secondary Species	Secondary Proportion	Even aged		Uneven aged		Flashcard
		2050	2080	2050	2080					Unthinned	Thinned	Simple	Complex	
1.1.1	Sitka spruce even aged	Suitable	Suitable	Suitable	Suitable	SS	90-100			x	x*			FDT_1_1_1_SS_V1.pdf
1.1.2	Sitka spruce uneven aged	Suitable	Suitable	Suitable	Suitable	SS	80-90					x*	x	FDT_1_1_2_SS_V1.pdf
1.1.4	Sitka spruce with light demanding conifers	Suitable	Suitable	Suitable	Suitable	SS	60-80	XCLD	20-40	x	x*	x	x	FDT_1_1_4_SS_and_XCLD_V1.pdf
1.1.5	Sitka spruce with shade tolerant conifers	Suitable	Suitable	Suitable	Suitable	SS	60-80	XCST	20-40		x	x*	x	FDT_1_1_5_SS_and_XCST_V1.pdf
1.1.6	Sitka spruce with beech	Suitable	Suitable	Suitable	Suitable	SS	70-90	BE	Oct-30		x*	x	x	FDT_1_1_6_SS_and_BE_V1.pdf
1.1.7	Sitka spruce with long lived broadleaves	Suitable	Suitable	Suitable	Suitable	SS	50-90	XBLL	Oct-50		x	x*	x	FDT_1_1_7_SS_and_XBLL_V1.pdf
1.1.8	Sitka spruce with short lived broadleaves	Suitable	Suitable	Suitable	Suitable	SS	50-90	XBSL	Oct-50	x	x*			FDT_1_1_8_SS_and_XBSL_V1.pdf
1.2.1	Norway spruce even aged	Suitable	Suitable	Suitable	Suitable	NS	90-100			x	x*			FDT_1_2_1_NS_V1.pdf

1.2.2	Norway spruce uneven aged	Suitable	Suitable	Suitable	Suitable	NS	80-90					x*	x	FDT_1_2_2_NS_V1.pdf
1.2.3	Norway spruce with Sitka spruce	Suitable	Suitable	Suitable	Suitable	NS	70-90	SS	Oct-20	x	x*	x	x	FDT_1_2_3_NS_and_SS_V1.pdf
1.2.4	Norway spruce with shade tolerant conifers	Suitable	Suitable	Suitable	Suitable	NS	60-80	XCST	20-40	x	x	x*	x	FDT_1_2_4_NS_and_XCST_V1.pdf
1.2.5	Norway spruce with beech	Suitable	Suitable	Suitable	Suitable	NS	50-70	BE	20-40		x	x	x*	FDT_1_2_5_NS_and_BE_V1.pdf
1.2.6	Norway spruce with long lived broadleaves	Suitable	Suitable	Suitable	Suitable	NS	60-80	XBLL	20-40		x	x*	x	FDT_1_2_6_NS_and_XBLL_V1.pdf
1.2.7	Norway spruce with short lived broadleaves	Suitable	Suitable	Suitable	Suitable	NS	70-90	XBSL	Oct-30	x	x*			FDT_1_2_7_NS_and_XBSL_V1.pdf
2.1.1	Scots pine even aged	Suitable	Suitable	Suitable	Suitable	SP	80-100			x	x*			FDT_2_1_1_SP_V1.pdf
2.1.2	Scots pine uneven aged	Suitable	Suitable	Suitable	Suitable	SP	70-90				x	x*	x	FDT_2_1_2_SP_V1.pdf
2.1.3	Scots pine with shade tolerant conifers	Suitable	Suitable	Suitable	Suitable	SP	60-80	XCST	20-40			x*	x	FDT_2_1_3_SP_and_XCST_V1.pdf
2.1.4	Scots pine with light demanding conifers	Suitable	Suitable	Suitable	Suitable	SP	60-90	XCLD	Oct-40		x*	x		FDT_2_1_4_SP_and_XCLD_V1.pdf

2.1.5	Scots pine with sessile oak	Suitable	Suitable	Suitable	Suitable	SP	50-70	SOK	20-40				x*	FDT_2_1_5_SP_and_SOK_V1.pdf
2.1.6	Scots pine with beech	Suitable	Suitable	Suitable	Suitable	SP	60-80	BE	20-40		x	x*	x	FDT_2_1_6_SP_and_BE_V1.pdf
2.1.7	Scots pine with birch	Suitable	Suitable	Suitable	Suitable	SP	60-90	SBI	Oct-40		x	x	x*	FDT_2_1_7_SP_and_BI_V1.pdf
2.2.1	Corsican pine with shade tolerant conifers	Suitable	Suitable	Suitable	Suitable	CP	30-70	XCST	30-70			x*		FDT_2_2_1_CP_and_XCST_V1.pdf
2.2.2	Corsican pine with light demanding conifers	Suitable	Suitable	Suitable	Suitable	CP	30-70	XCLD	30-70		x*	x	x	FDT_2_2_2_CP_and_XCLD_V1.pdf
2.2.3	Corsican pine with long lived broadleaves	Suitable	Suitable	Suitable	Suitable	CP	30-70	XBLL	30-70			x*		FDT_2_2_3_CP_and_XBLL_V1.pdf
2.4.1	Larch with Scots pine	Suitable	Suitable	Suitable	Suitable	LA	60-90	SP	Oct-40		x*			FDT_2_4_1_LA_and_SP_V1.pdf
2.4.2	Larch with shade tolerant conifers	Suitable	Suitable	Suitable	Suitable	LA	60-80	XCST	20-40			x*	x	FDT_2_4_2_LA_and_XCST_V1.pdf
2.4.3	Larch with beech	Suitable	Suitable	Suitable	Suitable	LA	50-80	BE	Oct-40			x*		FDT_2_4_3_LA_and_BE_V1.pdf
2.4.4	Larch with oak	Suitable	Suitable	Suitable	Suitable	LA	50-70	OK	20-40				x*	FDT_2_4_4_LA_and_OK_V1.pdf

3.1.1	Douglas fir even aged	Suitable	Suitable	Suitable	Suitable	DF	90-100				x*			FDT_3_1_1_DF_V1.pdf
3.1.3	Douglas fir with shade tolerant conifers	Suitable	Suitable	Suitable	Suitable	DF	60-80	XCST	20-40		x	x*	x	FDT_3_1_3_DF_and_XCST_V1.pdf
5.2.1	sessile oak with birch	Suitable	Suitable	Suitable	Suitable	SOK	50-80	BI	20-50		x	x	x*	FDT_5_2_1_SOK_and_BI_V1.pdf
5.2.2	sessile oak with Scots pine	Suitable	Suitable	Suitable	Suitable	SOK	50-70	SP	20-40		x	x	x*	FDT_5_2_2_SOK_and_SP_V1.pdf
7.1.1	birch even aged	Suitable	Suitable	Suitable	Suitable	BI	70-100			x	x*			FDT_7_1_1_BI_V1.pdf
7.1.2	birch and short lived broadleaves	Suitable	Suitable	Suitable	Suitable	BI	50-70	XBSL	30-50	x	x*			FDT_7_1_2_BI_and_XBSL_V1.pdf
7.2.1	silver birch and Scots pine	Suitable	Suitable	Suitable	Suitable	SBI	60-90	SP	Oct-40		x	x*	x	FDT_7_2_1_SBI_and_SP_V1.pdf
7.2.2	silver birch and sessile oak	Suitable	Suitable	Suitable	Suitable	SBI	50-80	SOK	20-50			x	x*	FDT_7_2_2_SBI_and_SOK_V1.pdf
8.1.2	sweet chestnut with long lived broadleaves	Suitable	Suitable	Suitable	Suitable	SC	50-80	XBLL	20-50		x	x*	x	FDT_8_1_2_SC_and_XBLL_V1.pdf

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Coate Moor Forest Plan

FP Map 01 - Soils

Scale: 1:10,000
When Printed @ A3

Created: Nov 2023

- Brown Earth
- Ironpan Soil
- Peaty Surface-Water Gley
- Typical Surface-Water Gley
- Juncus effusus Bog
- Scree

N

0 0.13 0.25 0.5 Kilometers

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Coate Moor Forest Plan

FP Map 02 - Current Species

Scale: 1:10,000
When Printed @ A3

Created: Nov 2023

- Beech
- Larch
- Oak
- Other Broadleaves
- Other Conifers
- Pine
- Spruce
- Open. Felled etc

0 0.13 0.25 0.5 Kilometers

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Coate Moor Forest Plan

FP Map 03 - Age Class

Scale: 1:10,000
When Printed @ A3

Created: Nov 2023

- 1931 - 1940
- 1951 - 1960
- 1961 - 1970
- 1981 - 1990
- 1991 - 2000
- 2001 - 2010
- 2011 - Present

3200
a BI/-/SP 2012/-/2012

c Burnt

3201 15ha
a SP/- 64/-
b JL 56
c OK/SBI/ASP/- 2022/2022/2022/-
g BI/-/LP 2012/-/2012
f Felled
d LP/SP 64/64

3202
b Open
c BI/-/LP 2010/-/2010
h CP 68
i LP/- 70/-

3203 13ha
a NS/-/BI 64/-/93
b Open
d SS 99
e BI/SS/JL 2019/2019/2019
f BI/- 99/-
g SP 54
h BI/- 98/-
i JL/SP/JL /90/90

3204
a SP/JL/SS 2008/2008/2008
b BI/-/SS 97/-/97
c JL 57
j SS 59

3205 25ha
a -/JL/BI/~ -/2009/2009/~
b SP/LP 57/57
c SS/SP 59/67
d Felled
e Felled
f SS/BI/JL 2015/2015/2015

3206 19ha
a BI/SS/JL/~ 2017/2017/2017/~
b JL 57
c SBI 2003
d SS 90
e JL/SS/SP 2008/2008/2008
f JL/SS 57/57
g BI/-/JL 90/-/90
h JL 90

3207
a BI 2008
b JL 541
c DF/SS 2018/2018
d POK/SP /90/57
e SP 57

3208 21ha
a CP/- 68/-
b SS/- 68/-
c BI/OK/HOL/~ 2013/2013/2013/~
d AR/- 65/-
h AR 68

0 0.13 0.25 0.5 Kilometers

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Coate Moor Forest Plan

FP Map 04 - Management Information

Scale: 1:10,000
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Created: Nov 2023

- Block
- Watercourse
- Open Water
- Car Park
- Water Pipeline
- Overhead powerline
- Underground powerline
- Public Rights of Way
- Ancient & Semi-Natural Woodland
- Ancient Replanted Woodland
- Sites of Special Scientific Interest
- Heritage & Conservation

0 0.13 0.25 0.5 Kilometers

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Coate Moor Forest Plan

FP Map 05 - Proposed Felling

Scale: 1:10,000
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Created: Nov 2023

- 2023 - 2026
- 2027 - 2031
- 2032 - 2036
- 2037 - 2041
- Beyond 2042 or LISS
- Other / Open Land
- Long Term Retention

All timber arising from the Forestry England estate represents a negligible risk under the Timber and Timber Products Placing on the Market Regulations (UKTR) and UK FLEGT Regulations

The map shows how we intend to manage tree felling in Coate Moor in order to meet the multiple objectives of management there.

Clearfells
Clearfells remove all or the majority of trees from the site. They allow significant changes in landscape, species and age class diversity to be achieved in a short space of time. They provide temporary open space followed by a slow succession of different habitat types each exploited by different flora and fauna.

Low Impact Silvicultural Systems
Change is managed more slowly using a combination of heavier thinnings and small group felling or strip felling. The purpose of thinning/felling operations is to produce timber and to allow enough light to reach the forest floor for replanting/regeneration to take place. The majority of this site has tree cover at all times and at one or more levels.

0 0.13 0.25 0.5 Kilometers

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Coate Moor Forest Plan

FP Map 06 - Proposed Management Coupes

Scale: 1:10,000
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Created: Nov 2023

- Block
- Clearfell
- Long Term Retention
- Group shelterwood
- Irregular shelterwood (general)
- Minimum Intervention
- Other\Open Land

0 0.13 0.25 0.5 Kilometers

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Coate Moor Forest Plan

FP Map 07 - Future Habitat & Restock

Scale: 1:10,000
When Printed @ A3

Created: Nov 2023

- Block
- Other Broadleaves
- Other Conifers
- Successional Open

0 0.13 0.25 0.5 Kilometers

The maps shows the main species group that are to be used when restocking felled areas. Due to the constraints of map scale, unplanted areas are not shown unless they are greater than 0.5 hectares in size. This means that unplanted corridors such as along forest roads and rides will not be shown on this map.

Predominantly mixed conifer areas will be regenerated through a combination of planting and natural regeneration with appropriate species, dependent on the underlying site conditions such as soil and topography.

In addition, climate change projections and plant health issues indicate a reduction in the suitability of species such as Corsican Pine and Larch for restocking. Species showing drought tolerance and disease resistance characteristics such as Macedonian Pine, Oriental Spruce, European Silver Fir, Coast Redwood and Douglas Fir will be considered.

Predominantly mixed broadleaf areas will be restocked by natural regeneration primarily using site native species. This will be predominantly Birch but other species such as Rowan, Holly and Oak are anticipated. We will also accept other species that are not site-native such as Beech and Sycamore where these meet management objectives. Enrichment planting may be used where there is insufficient regeneration or where we wish to further diversify the range of species present.

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Forestry England

Title: **FP Map 08 - Analysis and Concept**

Date: 26 July 2023

Author: Dale Roberts

Scale @ A3: 1:10,000

Legend

- Manage as predominantly productive mixed conifer
- Manage as predominantly mixed broadleaf

Lower priority area for timber production due to challenging terrain and access.
Convert to primarily broadleaf species through natural regeneration and enrichment planting.

This area has improved in terms of landscape impact adjacent moorland SSSI, SAC SPA sites, over recent years.
Continue to develop as mixed species, successional woodland.

Successful restoration of PAWS realised through the previous plan.
Maintain protection of this area for continued success.

Continue improvements of visual appearance within the wider landscape.
Allow natural succession, enabling a mosaic of open heathland and broadleaf habitat.

Sustainable timber production remains a priority objective across accessible areas of the forest.
Structure and species diversification will continue, including LISS and, where appropriate.

0 0.1 0.2 0.4 0.6 0.8 1 1km

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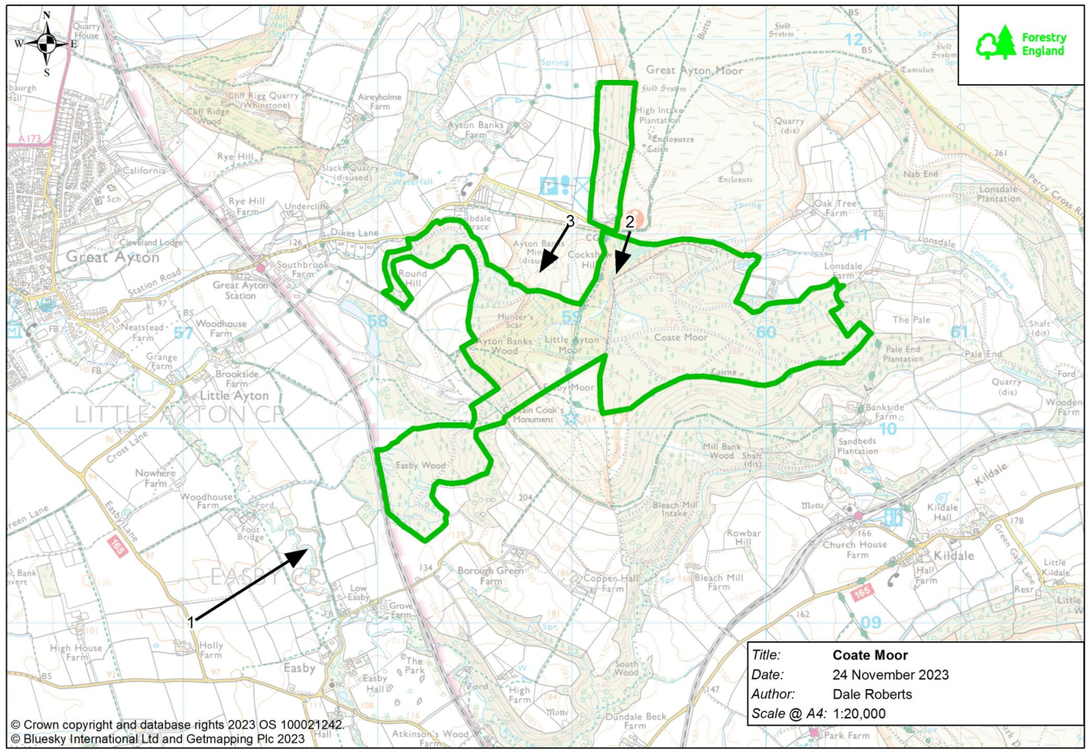
Forest Design Plan Coate Moor



1. NZ 5687 0923.

View from Easby Lane showing Coate Moor within the local landscape context. Work over the previous ten years has improved harsh, geometric lines and the forest is now begging to blend in an improved naturalistic manner t the landscape and heathland below Captain Cooks monument. Semi-natural woodland and heathland flora will continue to develop across this visually important area of the forest.

2. NZ 5925 1112

From Great Ayton Moor towards captain cooks monument, with Gribdale Car Park in the mid-ground. Felling and re-stocking interventions continue to improve species and structural diversity.

3. NZ 5899 1112

From Dikes Lane road to Ayton Banks. Developing forest diversity will be further improved through future felling and restocking interventions