Chapel House Forest Plan 2017

Forestry Commission England

North England Forest District

Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.

Planning and District Context

The Strategic Plan for the Public Forest Estate in England outlines the delivery of forest policy at a national level. At a regional level there are six Forest Districts covering the country that directly oversee the implementation of policy actions in local public forest estate woodlands. Forest Enterprise England is the organisation responsible for managing the English public forest estate.

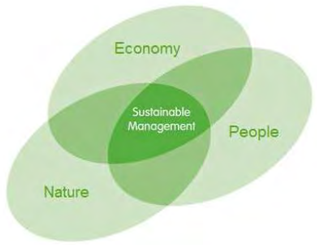
North England Forest District (NEFD) is the management unit that manages the public forest estate in Northern England. This is an extensive area encompassing 9 county or unitary authority areas from the Scottish border to Durham and Lancashire.

Our task is to realise the potential of each of the forests in our care for sustainable business opportunities, wildlife and nature conservation, and the enjoyment and well-being of local people and visitors. Each of our forests supports the economy through local jobs, sustainable timber production and the provision of recreation and tourism opportunities. All are funded by revenue from timber sales and recreation provision.

The woodlands of the district are currently arranged in 62 management areas, and their management is covered by individual ten year Forest Plans that identify local issues and the broad silvicultural management of the woods. Forest Plans are reviewed every five years.

These plans and their associated forest operations ensure that produce from the woodlands is endorsed by the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) as being produced from woodlands under good management that meet the requirements of the UK Woodland Assurance Scheme (UKWAS) and the UK Forest Standard (UKFS).

Individual Forest Plans aim to deliver a range of public benefits with achievable objectives that deliver the three drivers of sustainable land management outlined in the North England Forest District Strategy.



These key drivers are supported by the following Forest District Policy;

- we will optimise the financial return from timber production compatible with achievement of other forest district objectives while complying with the UK Forestry Standard and meeting the requirements of the UK Woodland Assurance Scheme

- we will provide public access to all our forests and woodlands where there are no legal or safety restrictions. We will encourage and permit a wide range of recreational activities from walking and quiet enjoyment to more specialised activities where appropriate.

- we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value

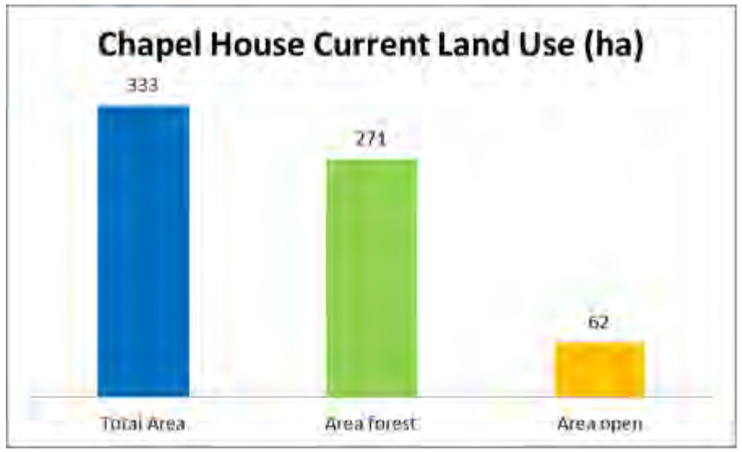
Chapel House Forest Plan

This is the third revision for the Chapel House Forest Plan. Changes to the previous plan include a re-scheduling of harvesting coupe periods, re-assessment of landscape sensitivity objectives and an updated strategy to manage the threat of Phytophthora Ramorum larch disease.

Part 1 Background Information

Introduction

Chapel House Forest, occupying an area of 333 hectares is situated at the southern end of Lake Windermere close to the hamlet of Staveley in Cartmel near Newby Bridge. It adjoins broadleaf woodland on the lower slopes and the northern end borders on to private coniferous woodland. Rough grazing fields surround the southern and eastern boundaries. The north eastern corner referred to as Astley's Plantation is freehold, and the remaining land is leased from United Utilities on a 999 year lease dating from 1954.

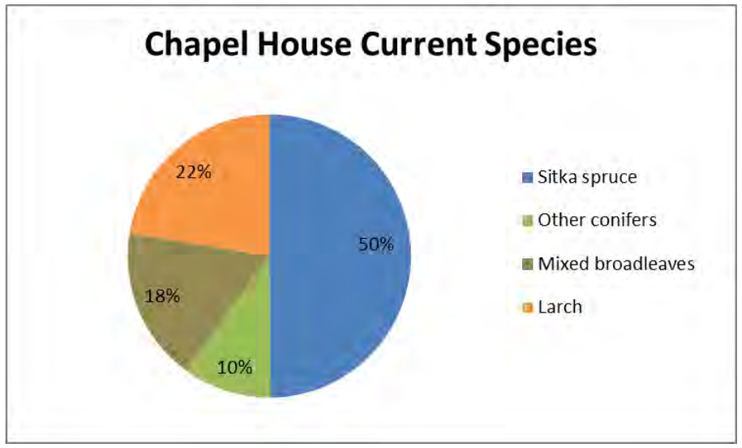


Current Woodland composition, species and timber potential

The majority of the forest was planted on grazing land in the 1950's and 1960's mainly with spruce, larch, Scots pine and western hemlock. Coupe felling to restructure the even aged forest started in the 1990's and several areas have been successfully replanted. Boggy areas and associated alder Carrs are common throughout the forest and in 2005 a storm caused catastrophic windblow damage to the south-east corner of the forest which has since been cleared and replanted.

Sitka spruce is the predominant species with larch also extensively planted with growth rates and timber quality being good, apart from where planted too near bogs where growth has been checked. On the intergrade iron pan soils Scots pine and western hemlock have been planted, the Western hemlock being prone to butt fluting which has reduced its economic value.

Oak, birch and sycamore can be found on the lower slopes in surrounding woodland. At higher elevations in the forest birch and alder is more common.



The principal soil types are upland brown earth and intergrade iron pans which are suitable for the principal conifers. Additional benefits arise in the fragmented minor types like the sphagnum and molinia bogs and the rocky, skeletal areas which create the biodiversity and landscape value.

The western slopes are steep and can require skyline systems for harvesting. At higher elevations the terrain levels off and mechanised harvesting systems can be employed but the rocky and boggy terrain requires careful operational site planning.

Windthrow hazard varies with the more stable lower classification found on the steeper western lower slopes. On the flatter upper plateau the classification is higher and requires thinning on time without delays in cycles because heavier thinnings could lead to windblow. Restructuring of the forest by phased felling of coupes has been an objective since the first plan. The opportunistic felling of a large coupe in the centre of the forest, to remove obtrusive conifers from the skyline requires that some other coupes now need rescheduling. This will also aid the smoothing of future timber production without comprising the landscape provided that timely re-establishment, within 3 to 4 years post felling, is achieved.

Designated areas

Chapel House is situated wholly within the Lake District National Park. One small area of Ancient Semi Natural Woodland (ASNW) is located on the lower western slopes adjacent to neighbouring semi-natural woodland. The ancient woodland status of this area dictates that there is a presumption to maintain native species in line with current Forestry Commission Policy.

Conservation

Chapel House is an important area for wildlife diversity and has areas of high conservation value. The habitats vary from the Ancient Semi-Natural Woodland of Bells Close Wood on the western boundary, through the coniferous woodland, up to the open heather-filled knolls. The woodland contains many watercourses, marshes, bogs and ponds, and a reservoir at 'Simpson Ground'. These areas provide habitats for a range of flora and fauna, and are noted for their insect and aquatic life. There is a scattering of native broadleaves throughout, with a vision of encouraging and increasing this habitat. Retention of older stands of trees provides habitat diversity including deadwood and sites for high nesting birds and red squirrel.

Conservation interest associated to the area of ASNW and the remnants of this habitat in other areas include potential features such as veteran trees, deadwood and riparian zones. These features of interest are safeguarded and enhanced during thinning operations. An Ancient Woodland Survey was undertaken across North England Forest District in 2012. The results of this survey categorised the area of ASNW with a score 1, indicating 80-100% native tree cover with a structured under-storey and canopy appropriate to the woodland type.

Landscape and Topography

Chapel House is located within the 'Lower Windermere' Landscape Character Area (LDNPA 2007). The areas distinctive characteristics include the extensive ancient semi-natural woodland right down to lake shore, and wooded and open rocky outcrops on rising ground to both the east and west of the lake itself. The guidelines for managing landscape change refer to encouraging the sustainable management of broadleaved woodland and maintaining continuous woodland cover. The guidelines also seek the conservation and enhancement of the strong sense of enclosure provided by broadleaved semi-natural woodland. Chapel House is prominent in the landscape on the western side and viewed by visitors to Lakeside throughout the year with fleeting views from the A590 highway at the southern end of Lake Windermere. The landscape on the lower slopes is dominated by broadleaf woodland, and on the higher northern sections coniferous woodland where private ownership adjoins. Large areas of rough grazing border the boundaries of the south and eastern sides.

Heritage

Archaeological features are minimal because the predominance of rocky outcrops and wetland will have severely limited land use in earlier periods. A potash kiln in Bell Close Wood has been identified by the Lake District National Park.

Communities and recreation

This is a popular site for low impact, informal recreation. There are limited facilities which include:

- Gummers How car park which can hold approximately 30 cars. It has accompanying picnic areas.
- Small parking area adjacent to Barrowbanks entrance (3/4 cars)
- 4 miles of public footpath
- 1.5 miles of public bridleway

There is widespread use of the forest roads and other informal tracks and paths throughout the woodland area. The car park is located off a 'C' class road which leaves the A592 near to Fell Foot Country Park and heads towards Bowland Bridge. It is mainly used by people walking to the summit of Gummers How (off our land). Access to this walk is either up the main road or via a path on our land to a kissing gate in the wall before crossing the road. The local community access the forest mainly for dog walking with some cycling and horse riding via the Barrowbanks entrance and along the public rights of way. Permits are regularly issued for orienteering training and competitions.

Pests and diseases

Roe and red deer are present and populations are managed by Forestry Commission rangers. Larch is threatened by the disease Phytophthora ramorum and consequently there will be no future restocking of larch. Larch will be thinned in areas of continuous cover and proactively removed in the event of disease outbreak.

Access and roading

There is a single main access point into the woodland at the southern end of the wood at Barrowbanks. Internally forest operations are adequately served by a network of forest roads and tracks. Access from the public road on Fell Foot Brow, east of Bell Close Wood is restricted to light vehicles.

Part 2 Analysis and Concept

The factors outlined in Part 1 present various opportunities and issues. These are summarised below:

Factor	Opportunities	Issues
Current species	Conifer species are generally growing well which provide sustainable yield throughout the plan period and for the future.	Distribution of larch (at risk from P. Ramorum) is highly visible in the landscape and currently managed under Continuous Cover Forestry (CCF). Ash regeneration (at risk from Chalara) will need regular monitoring. Some areas previously felled and not restocked for landscape reasons are infilling with conifer natural regeneration.
Management type	Combination of clearfelling and Continuous Cover Forestry (CCF) in areas of lower wind hazard classification. Long term retention of native Mixed Broadleaves.	At higher elevations felling coupes are dictated by existing windfirm boundaries.
Biodiversity	Protection of features associated with ASNW, such as veteran/feature trees or ground flora provide opportunity to target thinning operations for greatest benefit. Linkage of wetland mire habitats and open space.	Need to ensure an appropriate balance of objectives to maintain productive capacity of the forest.
Access/Roading	Adequate internal network of forest roads	Access from the public road on Fell Foot Brow, east of Bell Close Wood is unsuitable to facilitate harvesting of crops on the lower western slopes.
Harvesting	Re-scheduling of coupes to minimise landscape impact and smooth production across the forest	
Pests and disease		Deer present challenges to natural regeneration and restocking.
Future Species/ Climate change	Thin and under plant areas of larch to transform to other conifer species over time. Enhance integration with neighbouring woodland and open fell	Larch not desirable and ash is susceptible to Chalara.
Public access	Recreation use is fairly low key and informal, mainly walking with the occasional orienteering event	Occasional fly tipping and unauthorised mountain bike trail creation
Landscape	Re-assess the previous forest plan objective to leave the entire 'Swainson' coupe (indicated on the Design Concepts map) unplanted for landscape reasons – use viewshed analysis to determine an upper crop boundary that does not compromise the landscape enhancement that has been previously achieved.	'Barrowbanks' coupe (indicated on the Design Concepts map). The landscape sensitivity for this area was highlighted in the previous plan. Recent survey of natural regeneration now indicates a stocking density of around 2500 trees/ha i.e. fully stocked and removal of regeneration now would incur significant expense. A pragmatic solution is required that retains the objective for landscape sensitivity whilst not incurring excessive cost.

<u>Appraisal of Opportunities and Constraints</u>

There are landscape concerns regarding the potential impact that Phytophthora Ramorum could have on the visible stands of larch which are currently managed under CCF. However, through planned thinning and underplanting of these crops there is an opportunity for species diversification. There are opportunities to increase the amount of open space around mires/bogs and footpaths which will provide internal landscape and conservation benefit. However, landscape and biodiversity objectives need to be appropriately balanced with economic objectives and a pragmatic solution to manage natural regeneration of conifer in some areas previously identified for open habitat is needed. Continued restructuring of the forest can be achieved with some readjustment of felling periods.

Part 3 Objectives and Proposals

The following objectives have been identified based on FEE National Policy and NEFD Strategic Plan

Forest District Strategic Goal	How Forest Plan delivers
ECONOMIC <u>Wood Production</u> – '*we will optimise the financial return from timber production compatible with the achievement of other district objectives whilst complying with the UK Forestry Standard and meeting the requirements of the UK Woodland Assurance Scheme'*	Harvesting plan provides a sustainable yield of timber into the future. Over the next 10 years of approval we will fell approx. 29,000m^3. Thinning larch and underplanting with alternative conifers around Barrow Banks to diversify the species and help mitigate the potential threat from Phytophthora Ramorum
NATURE/LANDSCAPE *'we will continue to diversify the age class structure of our even-aged woodlands and increase the value of all our woodlands and forest for wildlife'* *'we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value'*	Through the felling plan create linkage of open and wetland habitat across the forest to maximise connectivity. Features of interest associated to the ASNW, such as veteran or feature trees, will be protected and enhanced during operations through sympathetic management. Re-survey of ASNW is planned for 2022. The areas of conifer scheduled to be felled in 2017-2021 on the lower western slopes adjacent to Bell Close Wood will be replanted with locally native broadleaved species. This objective compliments the LCA guidelines for managing landscape change. *Barrowbanks Coupe* The regeneration includes a high percentage of birch and other broadleaves as well as 'softer' conifers such as larch and firs, which currently contribute to an improving graded forest edge. We will initiate the removal conifer from the area, particularly targeting the Sitka spruce, possibly prematurely but at a time when the regeneration is able to generate an economic return. The area will continue to be managed with 'landscape' as a primary objective as conifers are felled throughout the next rotation. *Swainson Coupe* The previous plan identified this coupe for conversion to open habitat, principally for landscape reasons to remove the skyline impact of the previous conifer crop. However, landscape enhancement can still be achieved without complete loss of productive capacity. Viewshed analysis (Part 6 Map 1) demonstrates that the proposed crop boundary, indicated on the Future Species map, would not be visible in the future from prominent viewpoints. In support of the LCA guidelines for landscape change rocky knolls throughout the coupe will be retained as open habitat.
PEOPLE '*we will utilise the land and resources at our disposal to assist communities close to our forests to enhance their environments and hence their quality of life'…..* '*we will provide public access to all our forests and woodlands where there are no legal or safety restrictions…'*	Maintain existing network of public rights of way and enhance the internal landscape through the felling proposals to increase the amount of open space adjacent to and viewable from paths.

Part 4 Monitoring plan

The objectives identified in section 3 will be monitored in the following ways;

Objective	Criteria for success	Assessment
ECONOMIC		
Wood production	Marketable parcels of timber on offer to the market	Contract and sales records
Sustainable economic regeneration	Maintain timber harvesting access and infrastructure	
NATURE/LANDSCAPE		
Restructuring	Delivery of Forest Plan felling/thinning/coppicing proposals	Five yearly Forest Plan review
PAW's/ASNW	Enhance ASNW condition	Re- survey planned for 2022
Landscape	Enhancement achieved through contribution to the LCA guidelines for managing landscape change	Five yearly Forest Plan review
PEOPLE		
Visual enhancement to visitors.	Maintenance of Ancient woodland characteristics and ongoing restructuring of the woodland.	Five year Forest Plan review.

Part 5 Forest Plan Maps

- Location – 1:50,000 scale showing location in context of other woodland in the local area
- Current Species – species composition in 2017
- Landform – indicating topography of the woodland and local area
- Soils and Geology – indicating soil composition and underlying geology across the woodland
- Yield Class – indicating the productivity of the timber
- Wind Hazard Classification – indicating the windiness of the site
- Conservation and Heritage – statutory and non-statutory conservation and heritage features
- Access and Services - formal public rights of way, FC access and local services
- Design Concepts – broad concepts of future management
- Operations Proposals – showing felling proposals, areas of Long Term Retention and Continuous Cover
- Future Species – representing the long term vision for future species composition

Forestry Commission
England

Chapel House Location

N

1:50,000

Chapel House

Other FC Woodland

Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.

Forestry Commission
England

Chapel House
Current Species

N

1:10,000

- Mixed broadleaf
- Larches
- Pines
- Other conifers
- Sitka spruce

Forestry Commission
England

Chapel House Landscape and Topography

N

1:10,000

Chapel House is very prominent in the landscape on the western side and can be viewed by many people throughout the year from the A590 road and from Lakeside at the southern end of Lake Windermere. The landscape on the lower slopes outside the F.C. boundary is dominated by broadleaf woodland, and on the higher northern sections coniferous woodland where private ownership adjoins. Large areas of rough grazing border the long and straight boundaries of the south and eastern sides.

50m contour

Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.

Forestry Commission
England

Chapel House Soils

N

1:10,000

Astley's Plantation

Chapel House Plantation

- Upland sphagnum bog
- Ranker
- Rock
- Brown earth
- Ironpan
- Peaty surface water gley
- Surface water gley
- Juncus effusus bog
- Calluna bog
- Open water

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Forestry Commission
England

Chapel House
Yield Class

N

1:10,000

0
2 to 6
8 to 10
12 to 14
16 to 18
20 to 22

Yield Class is a measure of how fast the trees are growing. If they are yield class 12, the trees will put on 12m3 of timber/hectare/annum as an average over their life

Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council

Forestry Commission
England

Chapel House Wind Hazard Classification

N

1:10,000

0
2
3
4
5

WHC is an indication of the windiness of the site.
Areas with high scores above 4 are more restricted in forest management objectives such as the ability to thin or extend the rotation length of a crop.
Localised conditions and knowledge of previous storm events are also considered in operational plans

Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council

Forestry Commission
England

Chapel House Conservation and Heritage

N

1:10,000

Bell Close Wood ASNW

Simpson Ground Mire

Astley's Plantation

Chapel House Plantation

STAVELEY-IN-CARTMEL CP

Staveley-in-Cartmel

Newby Bridge

- Watercourses
- SNCI
- Open water
- ASNW
- Heritage feature
- Conservation feature

Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.

Forestry Commission England

Chapel House Access and Services

N

1:10,000

Lake District National Park

Access point

Public road

FC road

Footpath

Mast

Overhead powerline

Forestry Commission
England

Chapel House Design Concepts

N

1:10,000

These areas were previously felled and were very visible in the landscape. They will be maintained as predominantly open habitat with a sporadic cover of natural regeneration to form a softer transistion with the forest edge and improve the external landscape particularly from distant views.

This zone forms the main timber production areas. Coupe design is dictated by windfirm boundaries and sitka spruce will be the favoured species choice.

Single species plantations of larch are at risk from the disease Phytopthora Ramorum. Some areas are highly visible in the landscape so species diversification will be achieved by gradual transition mostly through the process of thinning and underplanting under a continuous cover silvicultural system. Elsewhere species diversification will be achieved at restocking following clearfell.

The woodland contains many watercourses, marshes, bogs and ponds, and a reservoir at 'Simpson Ground'. These areas provide habitats for a range of flora and fauna. There is a scattering of native broadleaves throughout, with a vision of encouraging and increasing this habitat. Open ground will also be increased through a series of glades.

Opportunities to improve the external neighbouring boundary through species choice and density with increased open habitat will continue to be made through the period of the plan. ASNW and other broadleaf woodland to the west fits well with the neighbouring woodland.

Swainson

Chapel House Plantation

Barrowbanks

STAVELEY-IN-CARTMEL CP

Ownership boundary

Wetland habitat

Landscape enhancement

Productive zone

Species diversity

Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council

Forestry Commission England

Chapel House Operations

Paul Clavey 5/9/17

N

1:10,000

Existing entrance will require upgrade to facilitate harvesting and timber transfer of the 2017-2021 period coupes on the lower western slopes.
EIA determination required.

Asdley's Plantation

Chapel House Plantation

STAVELEY-IN-CARTMEL CP

Staveley-in-Cartmel

Newby Bridge

- Open
- 2017-2021
- 2022-2026
- 2027-2031
- 2032-2036
- 2047 onwards
- LTR
- CCF/Min Int

Forestry Commission
England

Chapel House
Future Species

Paul Clavey 5/9/17

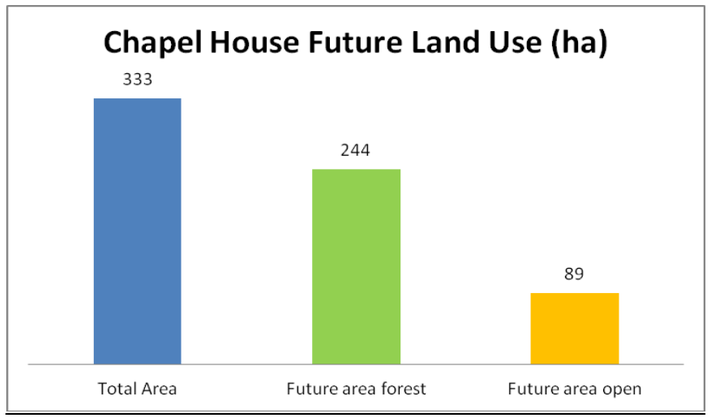
N

1:10,000

- Open
- Sitka spruce
- Larch
- Other conifers
- Scots Pine
- Mixed broadleaved
- Spruce/other conifers
- Mixed broadleaved/conifer
- Open broadleaved habitat

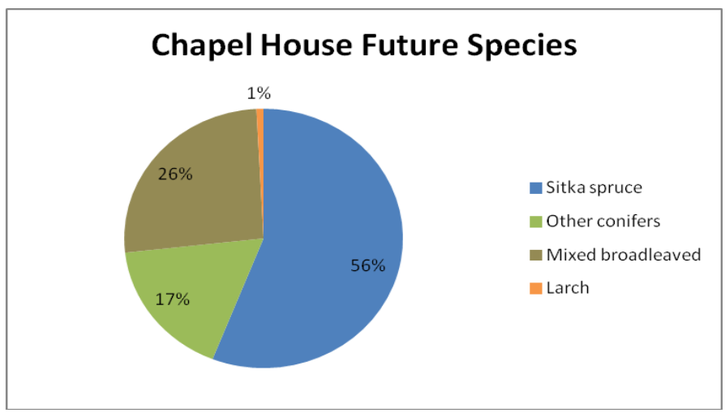
Part 6 Forest Plan Outcomes

Future Area and Land Use



Future Species

The combined percentages of future species composition shown below comply with the requirements for UKFS and UKWAS (65% primary species (Sitka spruce), 20% secondary species (Other conifers) and 5% mixed broadleaves). Note: a proportion of the MB percentage outside any PAW's designation will be managed with biomass/woodfuel as an objective and therefore contributes to the secondary species percentage.



Productivity

The productive potential of the forest is optimised through timber production achieved through delivery of the harvesting plan and delivery of ecosystem services and other non-market benefits included in biodiversity, climate change mitigation, water, people and landscape. This is represented in the Productive Capacity Analysis below:

The graph shows the relative productive capacity (m^3/year) of the forest based on average yield class as a comparison between the following scenarios;

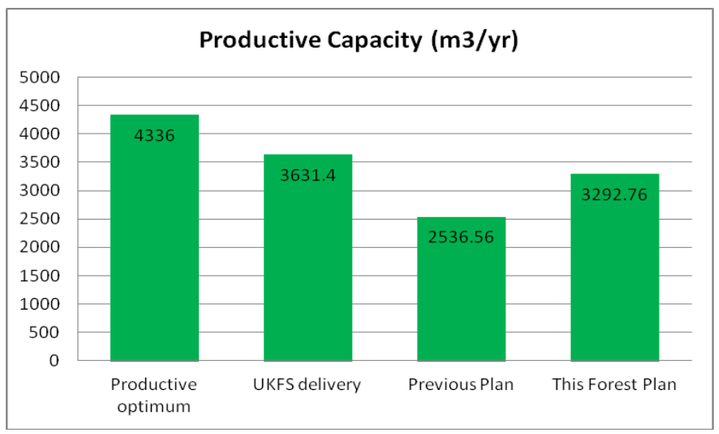
1. Productive optimum – productive capacity assuming that the total productive area (18% open) is planted with the optimum commercial species suited to the site (i.e. Sitka spruce YC 16).

2. UKFS delivery – productive capacity achievable through minimum compliance with a species percentage mix comprising 65% primary species (SS YC 16), 20% secondary species (MC YC 14), 5% broadleaved (YC 4) and 10% open space.

3. Previous Plan - productive capacity based on the productive area (18% open) with percentage species mix from the previous plan.

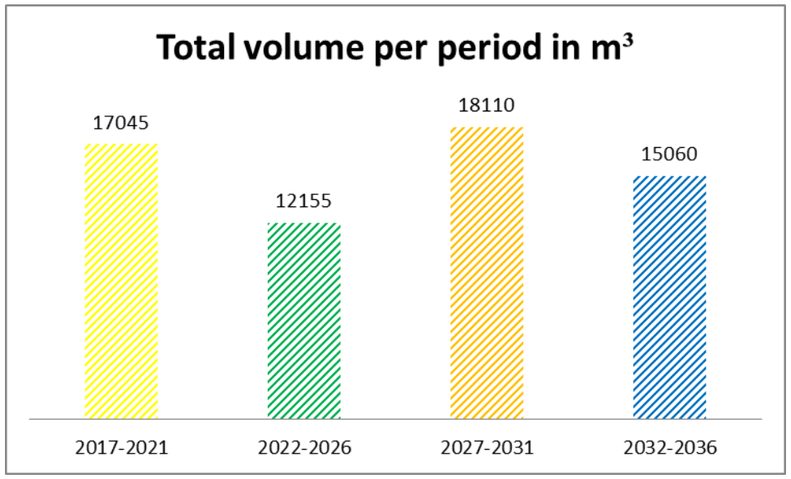
4. This Forest Plan – productive capacity based on the productive area (27% open) with percentage species mix from this plan.

Note: The difference between UKFS delivery and Forest Plan also includes requirements such as riparian corridors, landscape, ancient woodland, heritage etc. which require going beyond the minimum species composition and open space percentages to achieve UKFS.



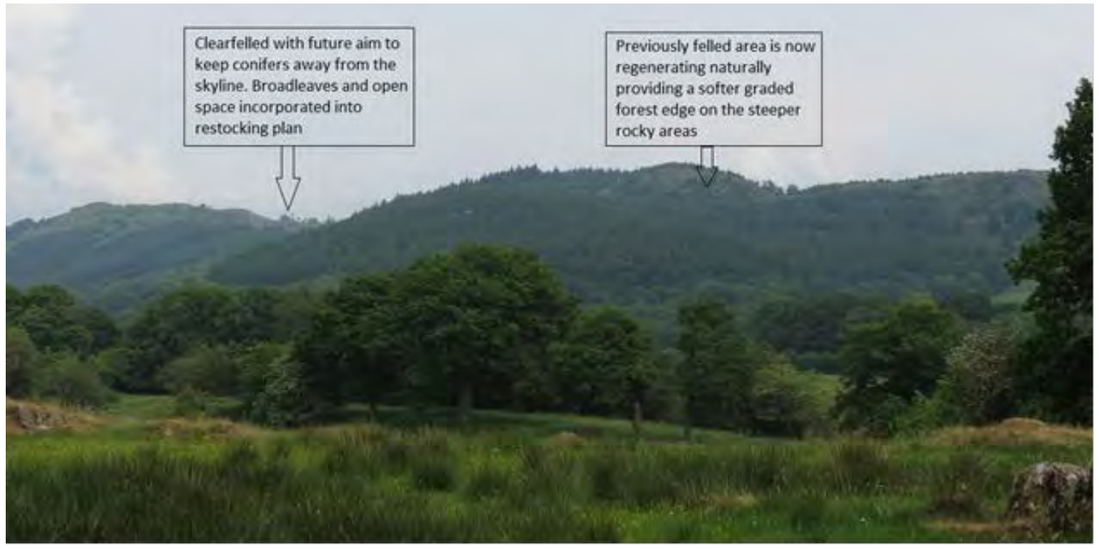
Timber production

Average timber production per period is shown below. Over the 10 year approval of the plan we will harvest approximately 30,000m³ of timber.

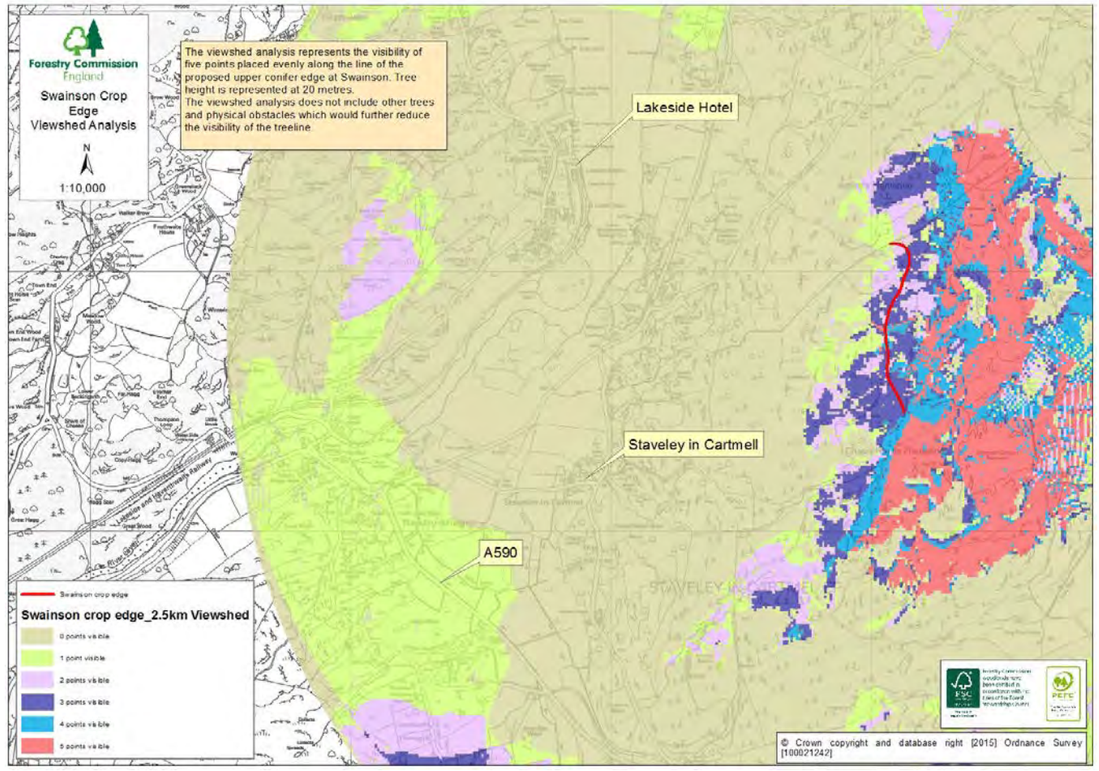


Landscape Appraisal

The previous forest plan included landscape assessment from several viewpoints indicating that the western aspect of the forest is very visible particularly from the southern end of Lake Windermere. Landscape enhancement opportunities focused on the realignment of forest boundaries at two locations, adjacent to the open high ground area of Swainson and an area of steep rocky ground above Barrowbanks. Both areas have now been felled removing mature conifers which were encroaching on the skyline shown in the photograph below taken from Canny Hill, near Newby Bridge.



Previous prescriptions for both sites were to manage as open habitat; however, modelling using 'Viewshed Analysis' and field survey assessment of natural regeneration indicates that landscape enhancement objectives can still be achieved without necessarily compromising the economic potential across the entire area. In the area east of and adjacent to the open ground of Swainson productive conifers will be re-established over a proportion of the area whilst incorporating an upper graded edge of broadleaves and open space. The boundary of the conifer crop has been determined using viewshed analysis, which indicates the visibility of a 20m crop, i.e. mature, over a range of 2.5km. The analysis shows that the future tree line would not be visible from previously identified key viewpoints, shown in the map below. Furthermore, the analysis does not take into consideration other physical obstructions in the landscape, such as other trees or buildings which further reduces the impact where some limited visibility is indicated.



Survey of the naturally regenerating trees on the area above Barrowbanks indicates a density of 2500 trees/m³, including a mixture of spruce, larch, firs and mixed broadleaves. Currently the regeneration is providing the desired landscape enhancement through a softer graded forest edge on the steeper rocky slopes. However, these landscape benefits may become compromised in the future as the regeneration matures. With particular focus on removing Sitka spruce the conifer regeneration will be felled through the next rotation once the trees are economically viable in conjunction with other scheduled thinning operations in the forest. This will ensure mitigation of any future adverse landscape impacts whilst optimising the economic potential of the regeneration. The desired outcome is a mosaic of mixed broadleaved, firs and larch incorporating characteristic open rocky outcrops as indicated on the Future Species map.

Mitigating the impacts of any other straight forest boundaries remains an objective through the ongoing felling and restructuring program, however most of the higher elevation of Chapel House is hidden from distant views.

The internal landscape becomes more apparent from within and the proposals to open up the forest around wet mire areas, rocky outcrops and public rights of way will continue to improve the internal appearance of the forest for visitors as the felling and restructuring continues. The image below indicates the mosaic of internal open space that is being incorporated into restocking.

The United Kingdom Forest Standard (UKFS)

The UKFS is the reference standard for sustainable forest management in the UK. The UKFS is supported by a series of guidelines which outline the context for forestry in the UK, defines standards and requirements and provides a basis for regulation and monitoring. These include General Forestry Practice, Forests and Biodiversity; Climate Change, Historic Environment, Landscape, People, Soil and Water.

Chapel House Forest Plan is able to demonstrate that relevant aspects of sustainable forest management have been considered and the stated objectives in Part 3 and outcomes in Part 6 show how sustainable forest management will be achieved. The plan provides a clear means to communicate the proposals and to engage with interested parties.

In addition to conforming to general sustainable forest management principles UKFS is demonstrated in the following key areas:

Productivity	The productive potential is dictated by timber production achieved through delivery of the harvesting plan and delivery of ecosystem services and other non-market benefits included in biodiversity, climate change mitigation, water, people and landscape. This is represented in the Productive Capacity Analysis graph.
Structure	Future species composition; 56% Sitka spruce, 18% other conifers and 26% mixed broadleaved and 27% open space, exceeds UKFS requirements. Long term structure will improve through linking of permanent broadleaved and open habitats.
Silvicultural	A combination of clearfell and restocking will be continued with Continuous Cover of areas of mixed conifer and broadleaved woodland at lower elevations.
Biodiversity	Habitats and species are considered during the planning phase. Ecological connectivity achieved by extending and linking areas of broadleaved woodland and open space will ensure that the area is managed with conservation and biodiversity as an ongoing objective.
Climate change	Long Term Retention areas will minimise soil disturbance. Forest resilience will be enhanced over time through greater species diversity, particularly establishment of alternative conifer species with age and stand structure diversification to help mitigate climate change and disease/pest outbreaks. Ecological Site Classification will be used to identify the most appropriate species at the time of restocking.
Landscape	The planning process refers to the areas Landscape Character to inform future forest design. Visual sensitivity and consideration to visibility and the importance and nature of views of the woodland from key viewpoints is used to inform shape, landform and scale. Particular emphasis is made on mitigating geometric shapes, symmetry and distinct parallel lines in the landscape through species choice, forest edge and coupe design.
Historic	Historic features are recognised and their safeguard will be routinely incorporated into operational management.
People	The Forest Plan is consulted with individuals, the local community and organisations with an interest in the management of the forest.
Water	Quality will be protected through adherence to Forest and Water guidelines during harvesting and forest management operations.

Longer term management proposals

The proposals in this plan will lead to a more diverse and resilient woodland, with a greater range of species and habitats. Substantial areas of alternative conifer species will have been established, and the range of broadleaved species and open habitat will have been extended.

Timber production remains a priority and will continue through a clearfell/restock regime with the focus on Sitka spruce but with a much broader range of conifer species and broadleaves at the lower elevations. This strategy will also contribute toward climate change mitigation and long term forest resilience.

Public use of the forest will continue to be made available with ongoing maintenance of permissive and public routes as appropriate.