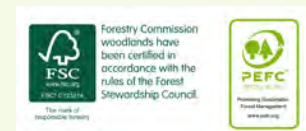


Claife Forest Plan 2018



North England Forest District



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.

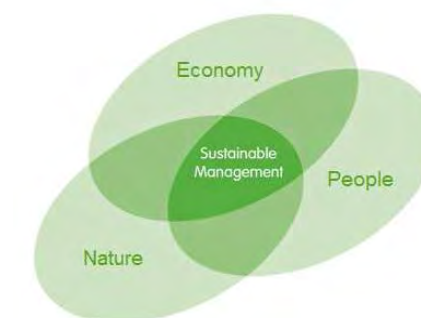


Our task is to realise the potential of each of the forests in our care for sustainable business opportunities, wildlife and nature conservation, and the enjoyment and well-being of local people and visitors. Each of our forests supports the economy through local jobs, sustainable timber production and 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 including orienteering, horse riding and motor sports
- we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value

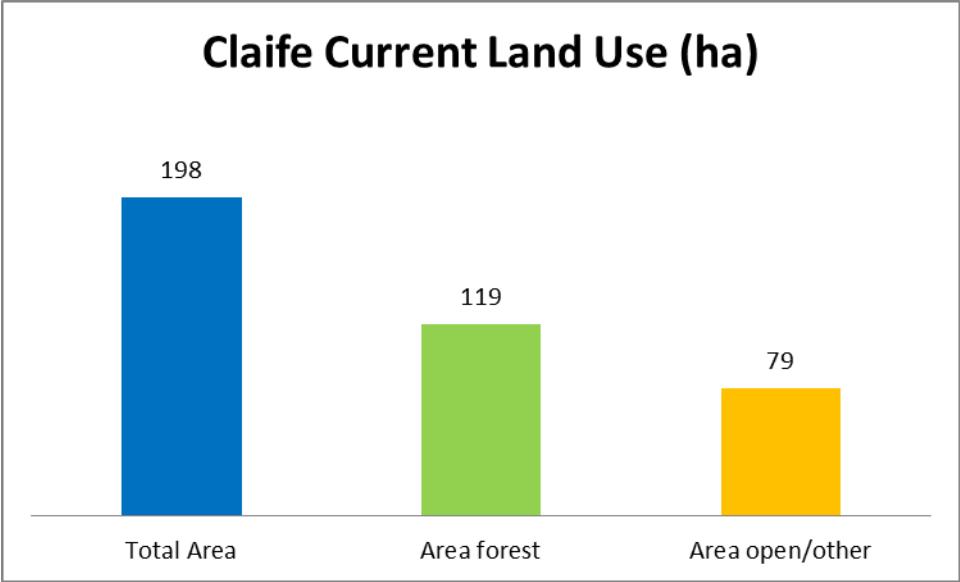
Claife Forest Plan

This is the third revision for the Claife Forest Plan last revised in 2008. There are no significant changes to the objectives of the previous plan, however early felling of Phytophthora ramorum infected larch over the last few years has necessitated changes to the scheduling of harvesting coupes and re-consideration of appropriate future species in some areas. Areas of planted and naturally regenerating broadleaved woodland and some areas of mature European larch have been re-categorised as Long Term Retention.

Part 1 Background Information

Introduction

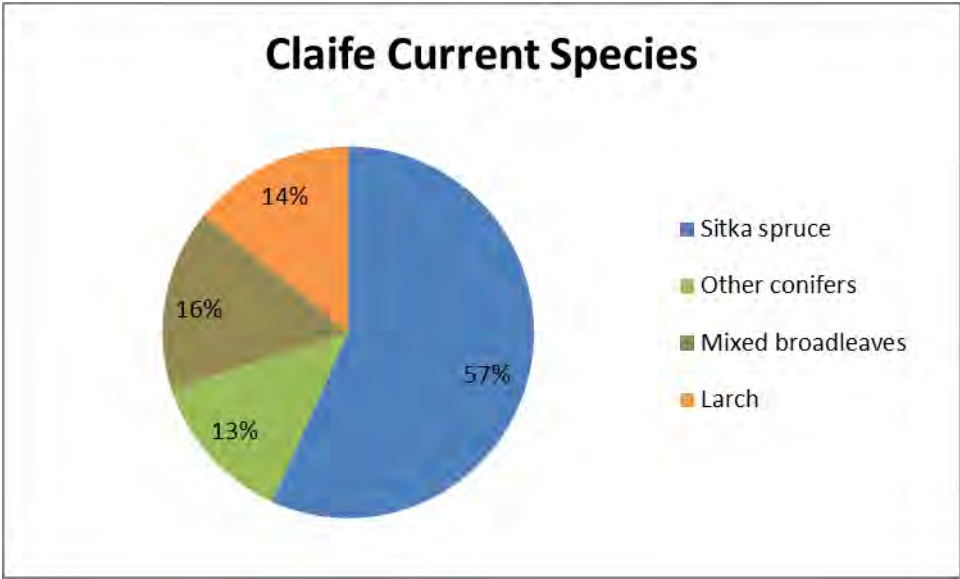
Claife Forest occupies an area of 198 hectares on the prominent plateau of Claife Heights between Lake Windermere and Esthwaite Water. It lies entirely within the Lake District National Park. The majority of the land was purchased in 1962 with the remaining 33 hectares at the north western end leased from the National Trust. The neighbouring land is a mixture of coniferous and broadleaf woodland, and wood pasture in private ownership.



Current Woodland composition, species and timber potential

There is a long history of tree planting at Claife, with European larch being planted as early as 1778, with the progeny of these trees scattered across the area. Planting of larch and spruce by the Forestry Commission commenced in the

1960's, and phased felling of these coupes started in the 1980's. The forest has undergone significant restructuring since then up to the present date as felling of first rotation crops has progressed. This restructuring process has been accelerated in recent years due to unplanned early felling of infected larch to comply with Statutory Plant Health requirements. The present species mixture is indicated below; composing 84% conifer and 16% broadleaved.



Sitka spruce and Japanese larch have historically been the main conifer species, both producing good quality timber for local processors on an industrial scale using modern mechanised machinery, thereby supporting the local economy. Larch is an important landscape feature, the value of which has been recognised for a long time in the locality and disease outbreaks of Phytophthora ramorum presents challenges in maintaining both landscape and economic objectives. Recent planting presents a more balanced and diverse species structure in terms of the inclusion of broadleaf species and alternative conifer species such as Macedonian pine, Norway spruce, Western red cedar and Serbian spruce. Birch is scattered throughout the wood and alder and willow follow the network of streams and mires. Young ash and oak are associated with recent restocked areas.

Claife is situated on a plateau between the 150m and 250m contours. Terrain is generally level or gently sloping, and the ground is broken with rocky outcrops and wet areas. Timber harvesting can be done with mechanised harvester – forwarder based systems supplemented by skidders. Soils are mainly iron pans, with significant areas of upland brown earths, peaty gleys and strips of bogs and the productive capacity of the area is good, commercial plantations typically achieving Yield Class in the range 12 to 16.

As with many upland forests within Great Britain managing the risk of wind throw is a major constraint when allocating felling dates to crops. Economic felling age is often limited to the age at which they are expected to achieve terminal height (the height at which major wind blow can be expected). However, Claife is typified by generally stable site types in terms of exposure, and much of the area has been classified as wind hazard class 2 to 3. Options on the timing of clearfelling and opportunities to thin or utilise continuous cover silvicultural systems will be reviewed as part of this plan revision. In practical terms any areas of windthrow below 3 should be thinable.

Designated areas

Claife is situated wholly within the Lake District National Park within a World Heritage Site (UNESCO 2017 Outstanding Universal Value as a 'cultural landscape'). This designation gives the opportunity to demonstrate at a practical level how activities such as forestry, which have been prominent in shaping the landscape we see today, can be integrated to provide greater public benefits through sustainable land management delivering for people, nature and the economy.

Claife Tarns and Mires Site of Special Scientific Interest (SSSI) occupy part of the Forestry Commission landholding. Additionally there is a small area of ancient semi natural woodland on the south east boundary of the forest.

Conservation and Heritage

Claife forest contains a number of areas of high conservation value, with the most important sections forming part of the Claife Tarns and Mires Site of Special Scientific Interest (SSSI).

The SSSI on Forestry Commission land forms an important component of the network of wetlands, tarns and mires which occupy the rolling plateau of Silurian slates and shales known as Claife Heights.

The land designated as SSSI is managed under a separate management plan agreed with Natural England. (Claife Tarns & Mires SSSI plan 2017- 2027)

The forest contains many other areas of specific conservation interest. These are identified on the 'Nature Conservation & Heritage map' and represent a range of habitats from broadleaved woodland through watercourses, tarns and mires to areas of open crag and rock. Plant types and inter-related mire communities are important. Each area is numbered and described in detail in the appendix to this conservation statement.

Claife water bodies form an important area for dragonflies with rare species like the 'White Faced Darter' present.

Phased felling combined with re-appraisal of sites when restocking has produced a more diverse habitat and birds such as siskins and cross bills are frequent visitors feeding off the conifer seed. Generally the woodland lacks old growth and veteran trees, the latter limited to a few Scots pines and dead birch is responsible for most of the standing deadwood.

There are no Scheduled Ancient Monuments. A number of historical features are present including an old derelict hog house near Long Moss on the Parish boundary, which is protected during forest operations.

APPENDIX TO CONSERVATION & HERITAGE STATEMENT (see Conservation and Heritage map for locations).

Area 1

Waterson Intake is an area of broadleaved woodland covering 2.3ha. The dominant species is birch which was planted in the 1960s but there are also a number of mature open-crowned oak as well as occasional alder, holly and hazel. The ground vegetation is dominated by grasses and bracken with a variety of mosses, as well as occasional hardfern and foxglove. A small stream passes through the area.

Area 2

Moss Intake is an area of mire containing a small brick-dammed tarn which was previously a water supply for the Wray area. The tarn has an extensive cover of floating pondweed which supports a strong colony of the Brown China Mark moth. Sharp flowered rush grows around the edge of the tarn. The mire surrounds the tarn and is particularly extensive to the south and east of it. It is dominated by purple moor grass with sharp flowered rush, bog myrtle, cross-leaved heath, bog asphodel, sedges and a variety of mosses including Sphagnum, Polytrichum commune and Rhizomnium punctatum. Several old alder trees are present at the south end of the mire. The mire was previously planted with Norway spruce which was stunted and failed and was removed.

Moss Intake Tarn and Mire are important for dragonflies - species recorded here include common hawker, four spotted chaser and black darter as well as large red and common blue damselflies. The requirements of these species should be taken into account when managing this area.

Management: Trees on its southern edge which previously caused heavy shading have been felled which will increase temperatures and improve the suitability of the tarn for dragonflies generally and will be left unplanted. Some naturally regenerating cover will be allowed to provide dappled shade.

Area 3

Katy Intake is an area of birch woodland planted in the 1950s. There is limited understorey. The ground vegetation comprises bracken with a variety of grasses and some bryophytes and occasional hardfern and foxglove. This area should be maintained as broadleaved woodland, the management should aim to increase the species diversity and age diversity.

Area 4

This site is an area of mire dominated by purple moor grass with sharp-flowered rush, soft rush, and sphagnum moss. Cushions of the moss Polytrichum commune are also common. Other species present include cross-leaved heath, bog asphodel and cranberry. Pondweed is present in the pools and ditches. This mire was previously planted up with Norway spruce which had failed and was very stunted, and has been removed and the area left unplanted. There is some naturally regenerating broadleaves and conifer developing which should be monitored to ensure the trees do not become over dominant.

To the north-west of the mire the ground is slightly higher and better drained. The vegetation comprises acid grassland dominated by fescue grass with some bilberry and heath bedstraw. This area adjoins Nor Moss on the neighbouring land; it should be left unplanted to prevent shading the southern edge of Nor Moss Tarn and to form a wildlife corridor from the tarn into the forest.

Area 5

This is an area of mire and marshy grassland dominated by purple moor grass with sharp flowered rush. Various mosses are present but the most abundant are sphagnum sp. and Polytrichum commune. Other species present include cross-leaved heath, common cotton grass, carnation sage, bog asphodel. Devils bit scabious, lesser celandine, and narrow buckler fern. Bog pondweed is present in the ditches. Bracken is present on the better draining areas around the edges. Scattered birch and Norway spruce are present, the spruce should be removed. The site should be left unplanted and maintained as open space.

Area 6

This is an area of mire dominated by purple moor grass with sharp flowered rush and soft rush. The most abundant mosses are sphagnum sp. and Polytrichum

commune. Other species present include cross-leaved heath, bog asphodel, lesser celandine, devil's bit scabious, marsh thistle and bracken. Bog pondweed is present in the pool which is a spawning ground for common frogs. This area should be left unplanted and should be maintained as open mire.

Area 7

This is an area of mire and wet grassland dominated by purple moor grass with sharp flowered rush and compact rush, as well as sphagnum and Polytrichum commune. Other species present include bog asphodel, cross-leaved heath, devil's bit scabious and bracken. This area should be left unplanted and maintained as open mire. The mire drains into Belle Grange Beck and together the mire and beck form a valuable wildlife corridor. At the eastern end the beck has been opened up when the previous crop was felled.

Area 8

This is an area of grassland and mire dominated by purple moor grass with sharp flowered rush as well as sphagnum, Polytrichum commune and cross-leaved heath. Pondweed is present in the ditches. This area was previously planted up with Norway spruce which was removed and the area is now being maintained as open grassland and mire.

Area 9

This area covers two separate sites. One consists of a strip of alders along a small stream. The ground is damp and shady and is predominantly mossy. Other species present include hardfern, common dog violet and soft rush. There is some conifer regeneration present. This should be removed and ideally the area of alder woodland should be enlarged.

The second site is a deer glade which now supports a dense growth of Sitka spruce and larch which have invaded by natural regeneration. The ground vegetation is grassy with abundant Polytrichum moss. A small stream runs through the area before crossing the boundary to run alongside the wall. The trees should be removed from this area in order to maintain the wildlife corridor and to prevent shading of the stream.

To the south-west of this site is a large area of mire which should be included as a conservation area. It is dominated by purple moor grass with sharp flowered rush, sphagnum moss and Polytrichum commune. Other species present include cross-leaved heath, bog asphodel, common cotton grass, carnation sedge and devil's bit scabious. This area should be left unplanted and maintained as open mire.

Area 10

This is an area of mire dominated by purple moor grass with sharp flowered rush, soft rush, cross-leaved heath and bog asphodel. There is much sphagnum and Polytrichum commune. Some small Norway spruce is present. These should be removed and the area maintained as open mire.

There are two extensions to this area to the west of the road; the first, at the northern end, is an area of open mire with a similar species composition to that described above, it should be left unplanted and maintained as open mire. The second area, at the south-west end, supports alder and Norway spruce. The spruce should be removed and replaced with alder and birch.

Area 11

Brown Stone Moss contains a small artificial tarn which was created by the construction of a turf dam. Extensive rafts of sphagnum mosses extend from the south-west corner into the centre of the tarn. Sharp flowered rush is present around the edge of the tarn and stands of bottle sedge are present at the southern end.

Mires are present at the north-east end of the tarn and also at the west end. Species present include purple moor grass, sharp flowered rush, cross-leaved heath, Polytrichum commune and sphagnum moss. The mire at the western end contains some very stunted Norway spruce which should be removed and an open area maintained. A small stream drains from this western mire and empties into Three Dubs Tarn, this stream should be opened up to form a wildlife corridor.

Brown Stones Tarn is an important site for dragonflies. Species recorded include common hawker, downy emerald, black darter and the rare white-faced darter dragonflies as well as common blue, large red, azure and emerald damselflies.

The crop at the southern edge of the tarn have been felled which is helping to decrease the shading of the water, however, some shelter should be maintained in the future.

At the north-east end of the site on the opposite side of the road there is a strip of alder/birch woodland which runs towards the Heald. This should be maintained and enlarged.

South west of Brown Stone Moss there is an additional area of mire with a small amount of open water.

Area 12

High Blind How comprises a number of rocky knolls. The thin soil around the rocks support acid grassland with fescues, bents and mat grass, heath bedstraw, tormentil and Cladonian lichen as well as a small amount of bilberry on the rock ledges. Bracken is abundant on the deeper soil between the rock outcrops.

Area 13

This is an area of mire and open water. The mire supports purple moor grass, sphagnum, cross-leaved heath, bog asphodel and deer grass. A small flush drains down to Three Dubs Tarn. This area should be maintained as a mire.

Area 14

High Pate Crag is another viewpoint comprising a number of rocky knolls. Acid grassland is present on the thinner soils overlying the rocks with bracken dominating on the deeper soils between the outcrops.

To the north-west of the crag is an area of mire with purple moor grass, cross-leaved heath, bog asphodel, sharp flowered rush, sphagnum and Polytrichum commune. The area has been left unplanted following the previous timber harvesting of the adjacent crops.

Area 15

Low Pate Crag supports mixed woodland with many mature oaks, some of which are multi-stemmed indicating that they had been coppiced in the past. Larch is also frequent. Other species include holly, yew and hazel. The ground flora includes bracken, wavy hair grass and creeping bent with a variety of mosses.

This area should be maintained as upland oak woodland gradually replacing the larch with broadleaved species such as oak, birch, rowan or holly.

Area 16

This is an area of mire and marshy grassland containing purple moor grass, sharp flowered rush, soft rush, bracken, bog asphodel and sphagnum. It would benefit from being widened and opened up to the south. At the north end is a small area of alder/birch wet woodland which should be retained.

Landscape

Claife is located within Area 48: Claife Heights and Latterbarrow landscape character area (LCA) situated towards the south east of the Lake District National Park, to the southwest of Ambleside. Distinctive characteristics of the LCA relevant to Claife include:

- A hummocky patchwork of woodland, wet pasture, mires and tarns;
- Dramatic views across Lake Windermere to the east and Esthwaite Water to the west; and panoramic views from Latterbarrow;
- Strong sense of enclosure provided by woodland and hedgerow-lined lanes;
- Latterbarrow forms a dramatic backdrop within views westwards across Windermere outside the area;
- Coniferous dominated woodland on the south Claife ridge;
- A network of quiet, narrow winding lanes enclosed by hedgerows;
- Strong sense of tranquillity in the landscape extending from the western shore of Windermere. The sense of tranquillity is enhanced by the relative absence of dwellings and settlements and minimal sources of artificial noise.

Local Distinctiveness and Sense of Place

This landscape encompasses an unusual patchwork of hummocky grassland and tarns, nestled within a strongly wooded backdrop. Higher points such as Latterbarrow and Colthouse Heights provide dramatic panoramic viewpoints across the surrounding landscape, towards Lake Windermere to the east and the Coniston Fells to the west. Claife Heights viewing station is a recognisable landmark feature within the landscape. Views from the edge of this area contribute to a strong sense of place and orientation.

Towards the centre of the area, a strong sense of enclosure is provided by dense coniferous and deciduous woodland. Clearings in the woodland reveal a series of tarns, mires and wetlands, nestled amongst surrounding lush green grassland. Boundaries are a mix of hedges and walls, with some locally distinctive flag boundaries, made from large vertically-placed flagstones made from slate. Field barns and other features associated with hill farming are also an important historical and visual aspect of this landscape. From here, views are limited to the immediate landscape, with the patchwork of tarns and woodland creating a small-scale and more intricate sense of place, with seasonal colour and interesting textures where the woodland is deciduous.

Areas of Distinctive Character

The area has a strong sense of tranquillity associated with the perceived naturalness of the woodland and pastoral fields that dominate the landscape. In

addition the relative absence of dwellings and settlements and minimal sources of artificial noise also enhance the sense of tranquillity.

Landscape Sensitivities

Sensitive attributes specific to this Area of Distinctive Character are:

Patches of broadleaved woodland, which are sensitive to lack of management or conversion to conifers;
Water within Elterwater and other waterbodies, which is vulnerable to diffuse and point source pollution;
Felling and species change in coniferous woodland;
Dramatic, panoramic open views across Lake Windermere and surrounding fells, which are vulnerable to interruption from tall vertical or large-scale developments;
Flag boundary walls, which are relatively unique features, rare within the rest of the Lake District landscape;
Hedgerows, stone walls and field barns, which are sensitive to changes in agriculture.

Forces for Change

Forces for change specific to this Area of Distinctive Character are:

Lack of management of important landscape features such as stone walls, hedges, field barns and pollarded trees due to financial pressures in agriculture;
Increased pressure for new residential developments on the edge of Hawkshead and potential loss of vernacular character and use of local building materials;
Communication developments leading to increased visual clutter from mobile phone and radio masts;
Increased traffic on small roads and car park development changing the character of minor roads and tracks.

Guidelines that are specific to this Area of Distinctive Character include:

Physical Character

Conserve and enhance patches of broadleaved woodland, which provide a sense of enclosure;
Encourage conversion of coniferous woods to broadleaved species; and
Protect water within the tarns from diffuse and point source pollution.

Aesthetic and Perceptual Character

Protect dramatic panoramic open views across Lake Windermere and surrounding fells and also northwards from Latterbarrow from tall vertical or large-scale developments; and
Mitigate landscape impact of any new communications infrastructure.

The internal landscape of the forest is characterized by areas of permanent open space associated with the numerous wet mire and blanket bog areas linked by Alder Carrs throughout the forest, examples shown below:



Opportunities to create wider extensive views from the forest have been made in recent years as felling and restructuring work has progressed such as at High Pate Crag in the south of the forest. Areas of existing broadleaved woodland are managed sensitively and where appropriate broadleaved and alternative conifer species such as Macedonian pine and Serbian spruce have been planted to improve species diversification.

Communities and recreation

Recreation use in Claife is quiet and informal, closely linked with the use on adjacent land, mainly that in National Trust ownership. It is popular with walkers passing through from the surrounding area on the network of public footpaths and bridleways. There are no formal facilities provided but there is freedom of access on foot and cycle over the forest road system. The White Post Walk guide posts were removed because the walk duplicated the footpath system.

The Lake District National Park are responsible for the maintenance of the public rights of way. Some of the paths are constricted and overshadowed by adjacent trees causing walkers to walk over a narrow section of path. This means that some sections are wet and eroded but this is improving with the previous and continuing objective to incorporate more open space along public rights of way to allow paths to dry out, increase their widths and improve internal and external views from the forest.

The Forestry Commission liaise closely with neighbours and Lake District National Park over level of usage, footpath problems and timing and types of permit that

are issued for public events. Permitted activities in recent years have been orienteering, running and mountain bike orienteering.

It is considered that the current level and type of use is appropriate for the area especially considering that extensive forest recreation facilities are available at nearby Grizedale Forest. Therefore no further formal recreational provision is envisaged at the present time.

Pests and diseases

Native deer, both red and roe are present. On restocked areas, fences will be used to protect softer barked tree species from stripping damage by red deer. Deer management is undertaken jointly with the National Trust and Forestry Commission Wildlife Rangers and permanent open areas have been set aside for deer control.

The Red deer are held in high regard with the general public and careful management is implemented to provide opportunity for people to see the deer. Roe deer numbers are increasing as the forest diversifies.

Larch is under threat from the disease *Phytophthora ramorum* and consequently there will be no restocking of larch for the foreseeable future, however where it is naturally regenerating will be retained.

Access and roading

Access to the forest is via minor roads from Wray Castle and through a shared track with the National Trust from Base camp. The internal road network is complete and provides satisfactory access to all parts of the forest and there are no plans for further development or extension. The National Trust and Bryerswood Estate occasionally use the F.C. internal roads as a part of a good neighbour relationship.

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	Diversification of species composition is being achieved with the inclusion of Mixed broadleaves and other conifer species. Sitka spruce remains the primary economic species for timber production through the next rotation.	Larch is at risk from Phytophthora ramorum.
Management type	Some potential for long term retention of more open grown areas of conifer and mixed broadleaved areas. Depending on future stability there may be opportunity for wider continuous cover management in some coupes currently managed through clearfell system.	Wind hazard, soils and localised conditions will influence ability to thin and retain some crops. Decisions regarding thinning viability or conversion to continuous cover will be made in response to these factors.
Biodiversity and heritage	High conservation value of mires and habitat associated with the open areas throughout the forest. Heritage features are located within open areas and therefore at low risk from future operations. Developing areas of mixed woodland good for red squirrel population.	Natural regeneration onto the mires. Grey squirrels competing for native red squirrel territory.
Access/Roading	Adequate internal network of forest roads.	No issues.
Landscape	Restructuring through felling and restocking will contribute toward landscape mitigation	Felling mature larch (in response to Statutory Plant Health notification) around the

	<p>where issues still remain.</p> <p>Potential to create small areas of widely spaced non-productive mixed woodland along eastern boundary and High Pate crag to help mitigate future landscape impacts associated with coupe felling. This will also provide good habitat for red squirrels and connectivity with neighbouring woodland.</p>	<p>communications mast means the mast is visible above the skyline when viewed from Windermere.</p> <p>Due to topography the skyline of Claife will always be sensitive, especially viewed from the east.</p>
Harvesting	Two coupes scheduled within the period of the plan will produce good volume of marketable timber.	Unscheduled early harvesting in response to Statutory Plant Health Notices means that much of the forest will not produce timber again until beyond 2050.
Pests and disease		Larch is at risk from Phytophthora ramorum. Damage to softer conifers by deer may necessitate use of deer fencing.
Future Species/ Climate change	Species diversification with an introduction of alternative conifers such as Norway Spruce, Western red cedar, Firs, Serbian Spruce, Macedonian Pine and native Mixed Broadleaves. Sitka Spruce remains viable based on climate change projections.	Need to balance diversification with maintaining economic viability of the forest through subsequent rotations.
Public access	Limited use of the forest is adequately served by the access available to the public. Freehold.	Maintaining PROW's with routes clear of obstruction and encroachment of trees

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 <i>'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'</i>	Harvest 11.5ha in the period 2017-2021 generating approx. 6,400m³ of timber.
NATURE and HERITAGE <i>'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'</i> <i>'we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value'</i>	<p>Continued restructuring of the forest through felling and restocking with a variety of conifer and broadleaved species.</p> <p>Establish areas of non-productive widely spaced woodland to mitigate impacts of coupe felling system on the skyline (indicated on the Future Species map).</p> <p>Seek to extend mire habitats following harvesting of the coupe to the south (High Blind Howe), the exact boundary for restocking to be determined post felling.</p> <p>Long Term Retention of remaining original larch plantations to enhance structural diversity and local landscape character.</p>
PEOPLE <i>'we will provide public access to all our forests and woodlands where there are no legal or safety restrictions...'</i>	Maintain public rights of way to a good standard to facilitate public access.

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 Sustainable economic regeneration	Marketable parcels of timber on offer to the market Maintain timber harvesting access and infrastructure	Contract and sales records
NATURE and HERITAGE Nature conservation Historic features	Maintain open character of mire and increase extent of this habitat as appropriate Protect and enhance features	Delivery of felling plan and assessment at five year review
PEOPLE Visual enhancement to visitors.	Ongoing restructuring of the woodland	Five year Forest Plan review

Part 5 Forest Plan Maps

- Location – showing location in context of other FEE woodland in the local area
- Current Species – species composition in 2018
- Age Class Distribution – planting year periods of the current species
- Landscape and Topography – indicating topography within the forest and local area
- Soils – indicating soil composition across the forest
- Wind Hazard – windiness of the site based on Wind Hazard Classification
- Yield Class – indicating the productivity of the current species
- Nature Conservation Designations – statutory areas of conservation
- Conservation and Heritage – non-statutory conservation and heritage features
- Access and Services - formal public rights of way, FC access and local services
- Operations Proposals – showing felling proposals and areas of Long Term Retention or alternatives to clearfelling (ATC)
- Future Species – representing the long term vision for future species composition

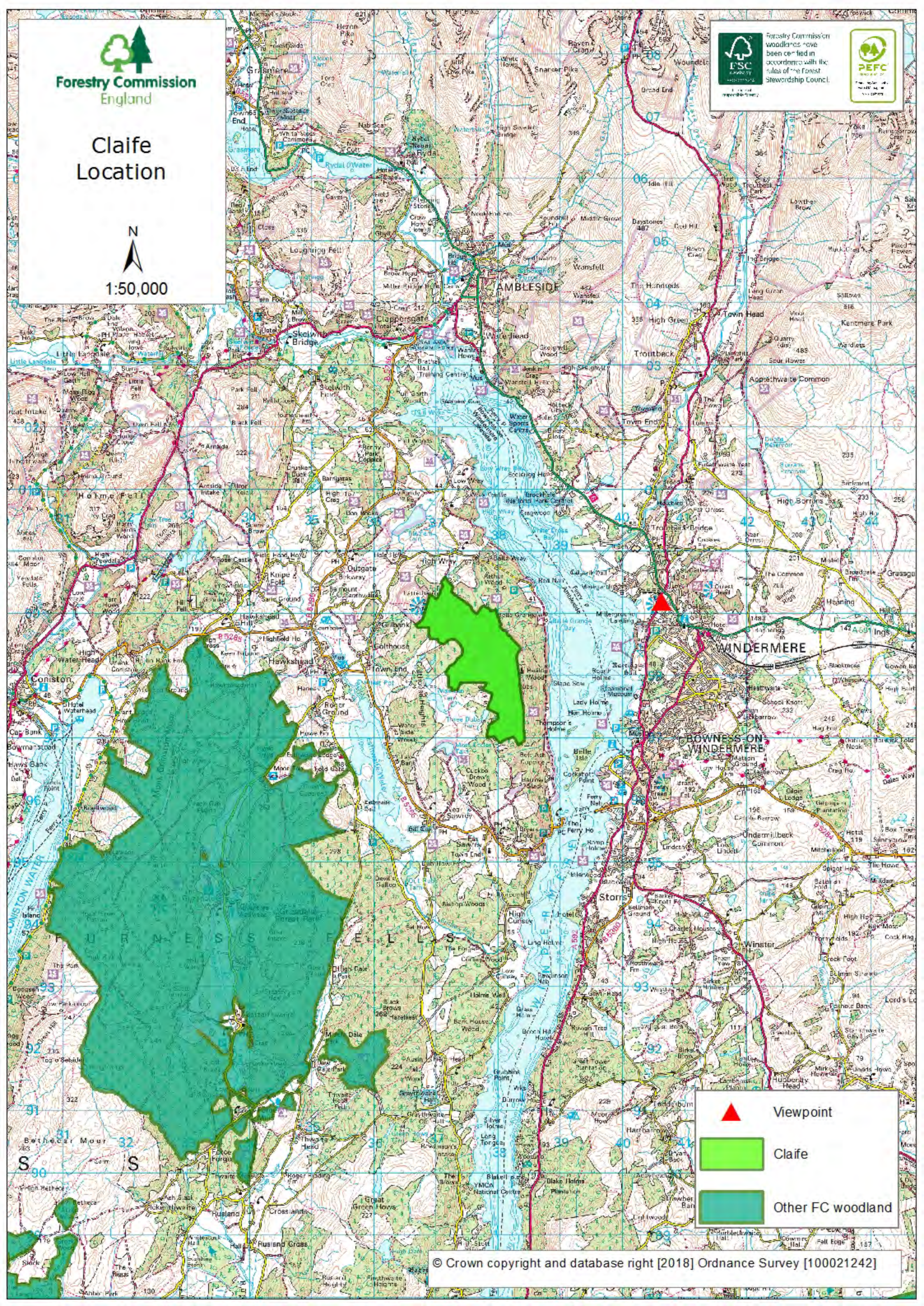
Claife Location



1:50,000



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



Viewpoint



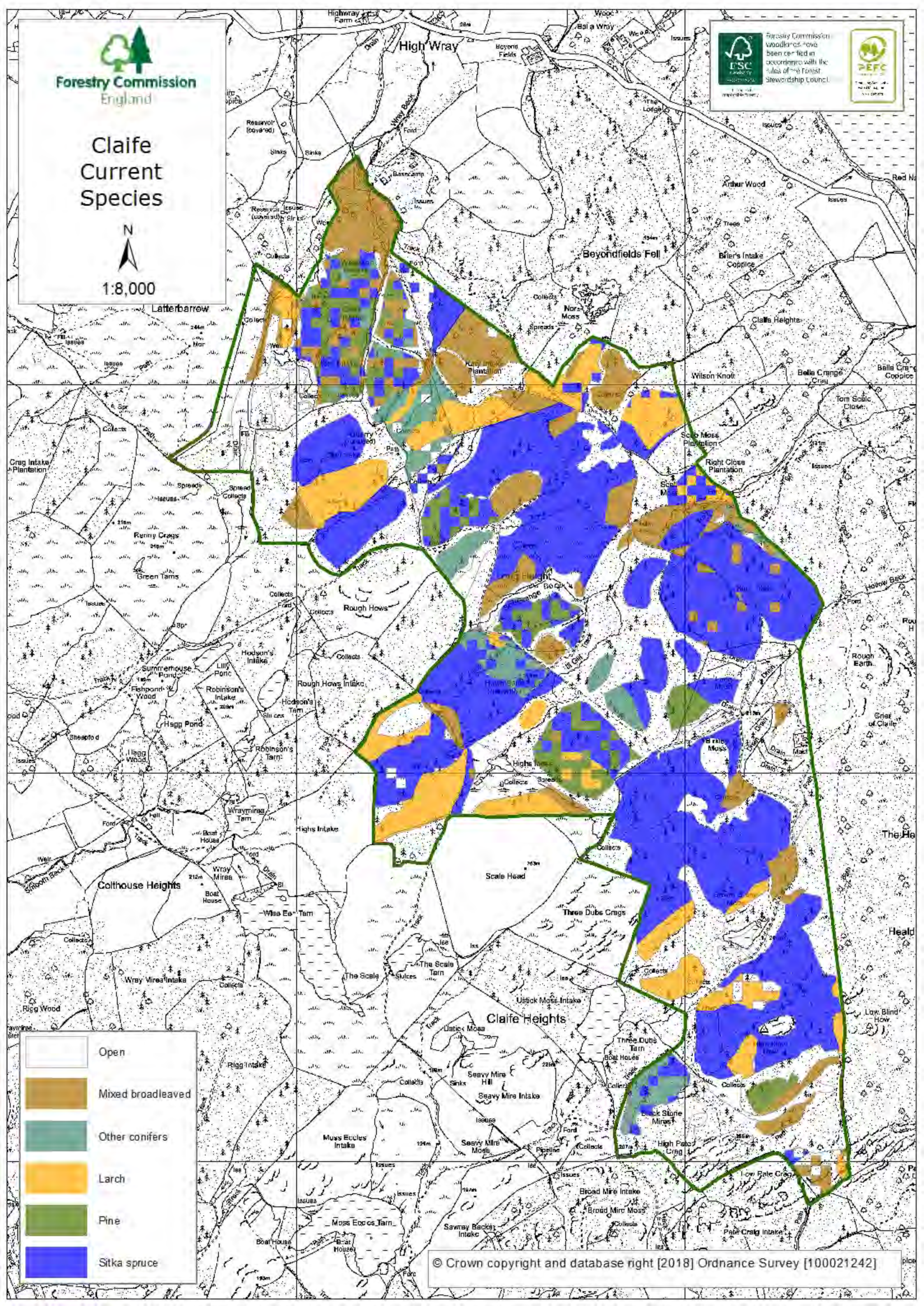
Claife



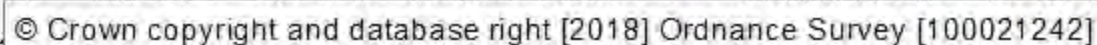
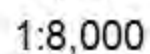
Other FC woodland



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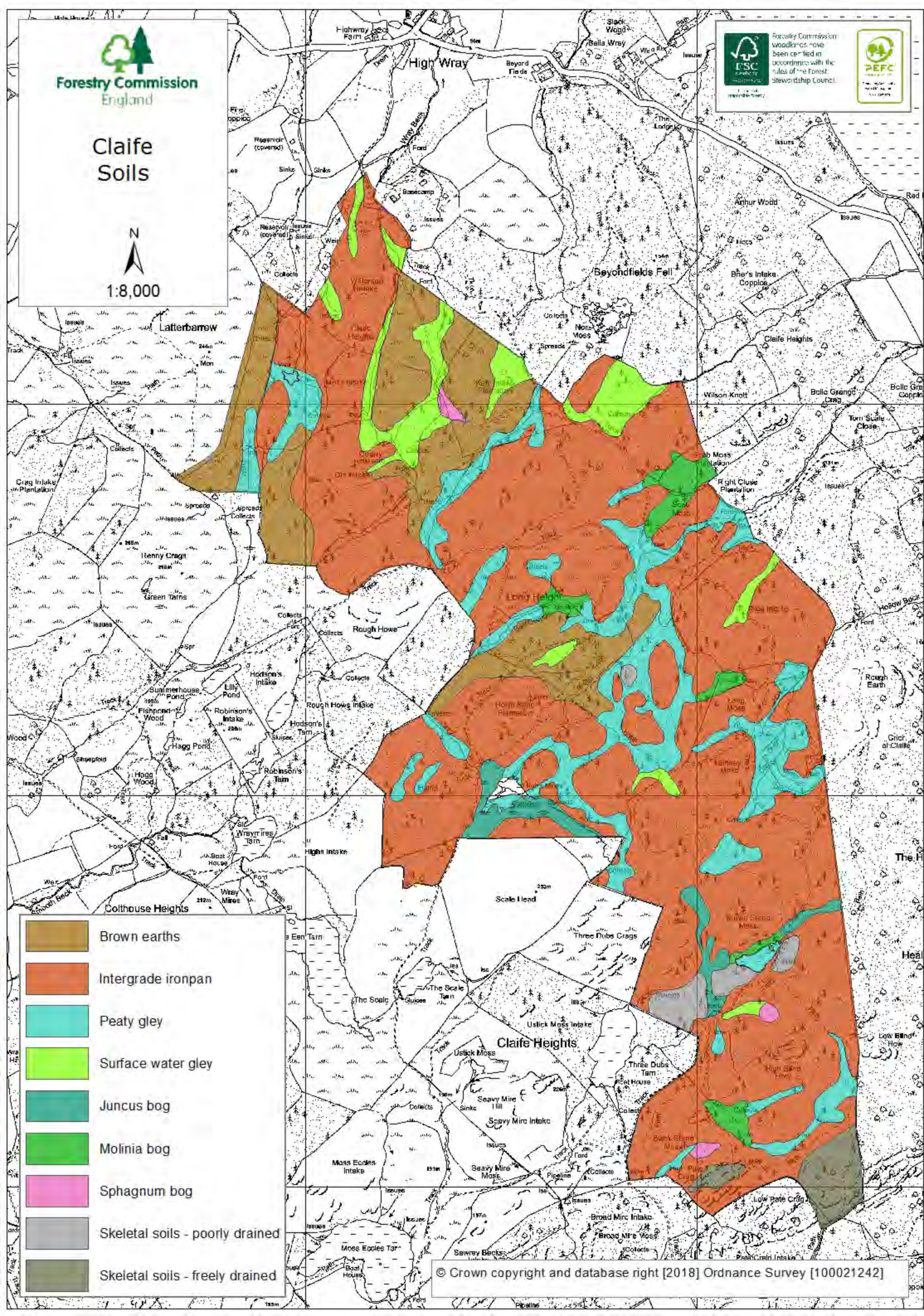
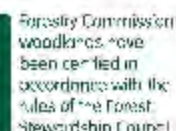
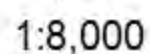
Claife Landscape and Terrain

N
1:8,000

Claife is situated on a plateau between the 150m and 250m contours. The terrain drops steeply to the east down toward Lake Windermere and is more gently undulating to the west in the direction of Hawkshead. Within the forest the terrain is generally level or gently sloping broken with rocky outcrops and wet areas.



Claife Soils



Claife Wind Hazard Classification

N
1:8,000



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



WHC is an indication of the windiness of the site. Areas of high scores above 4 are more restricted in forest management objectives such as the ability to thin or extend the rotation length of the crop.

0

2 to 3

4

5

Claife Yield Class



1:8,000



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rules of the Forest
Stewardship Council



PEFC
Programme
Certified
by the
Forest Stewardship
Council

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.

0

2 to 4

6 to 8

10 to 12

14 to 16

18 to 20



Claife
Nature
Conservation
Designations



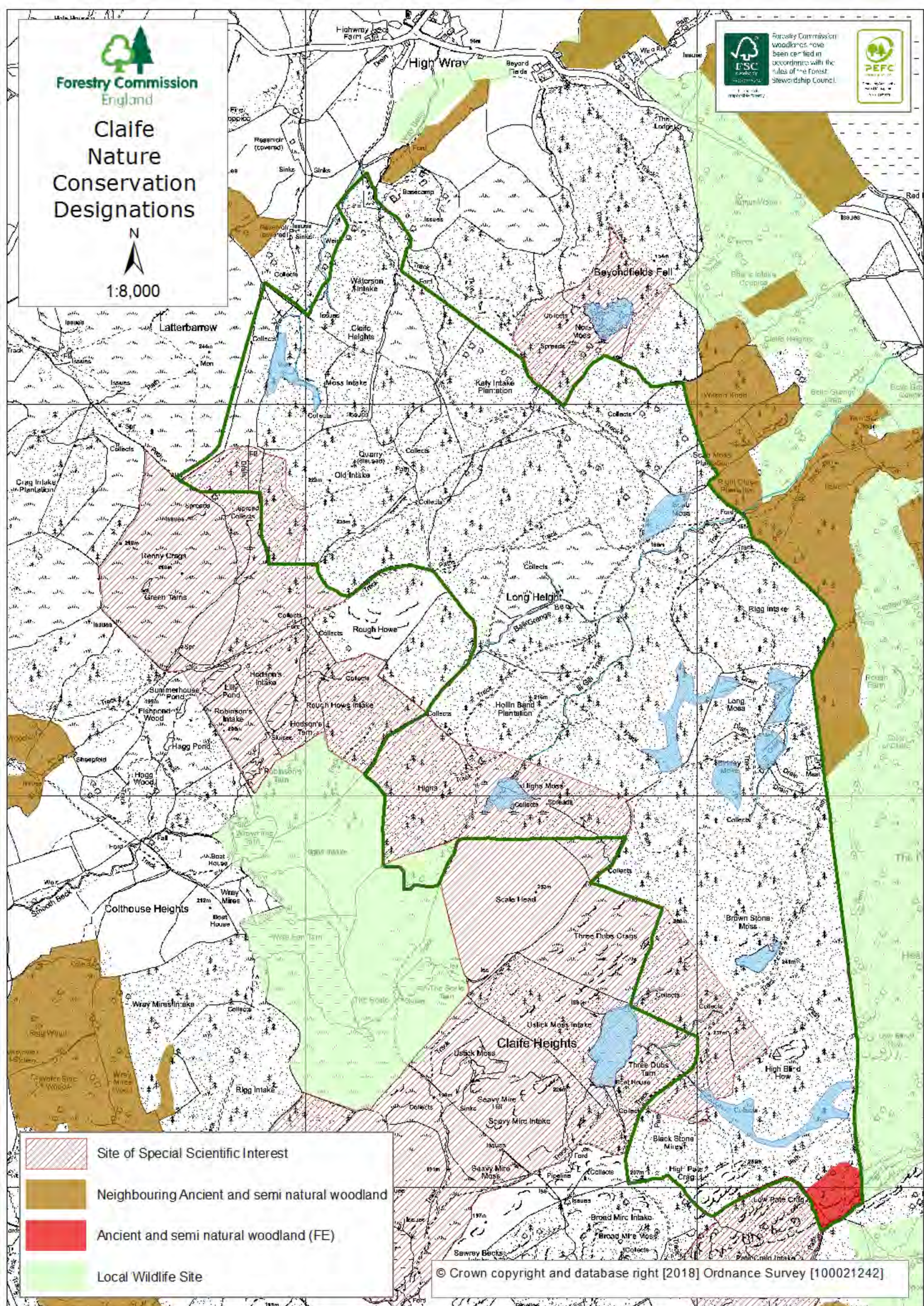
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Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.



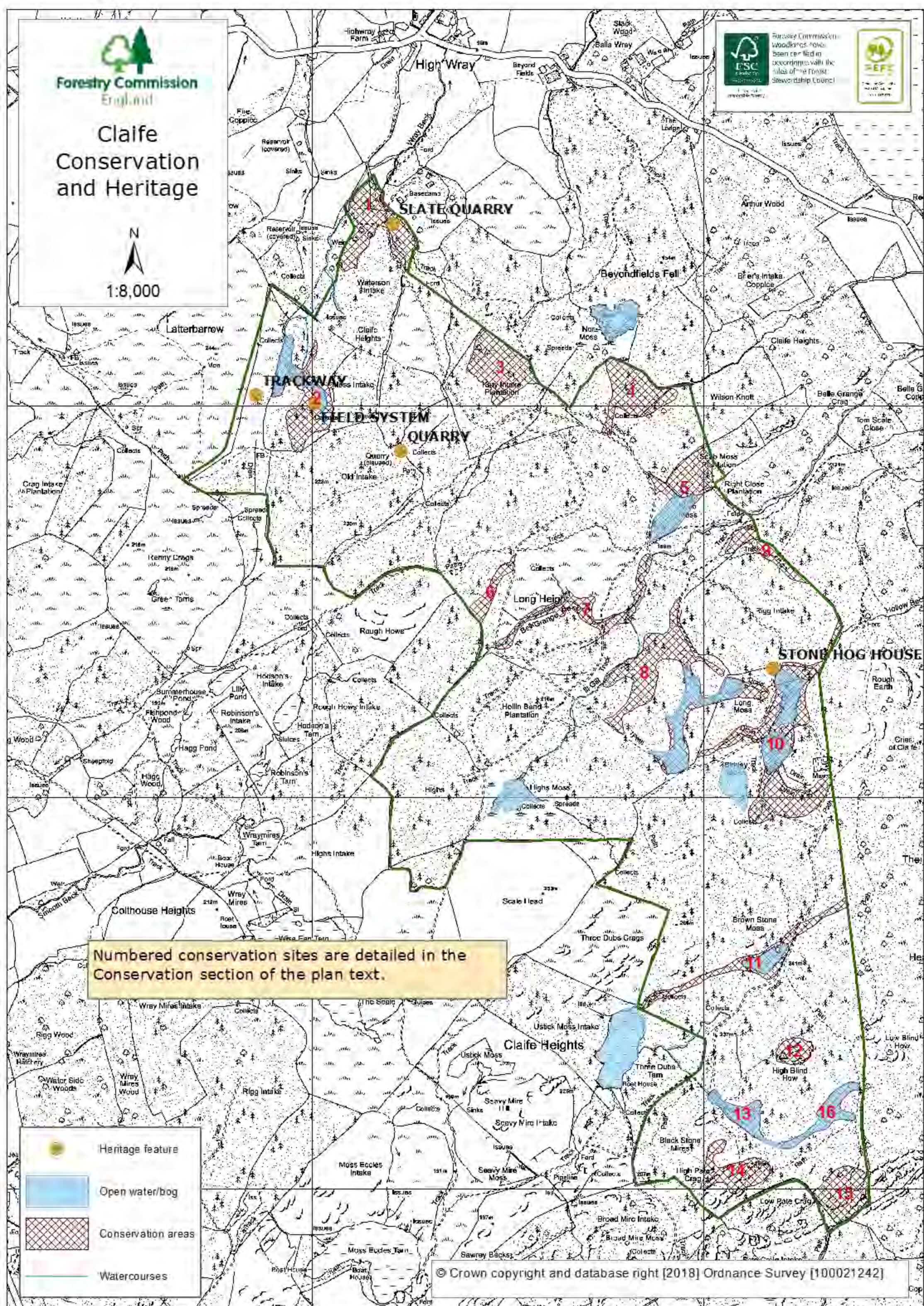
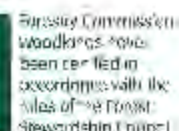
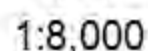
PEFC
PROGRAM FOR THE
EFFECTIVE USE OF
FERTILISERS



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Claife
Conservation
and Heritage



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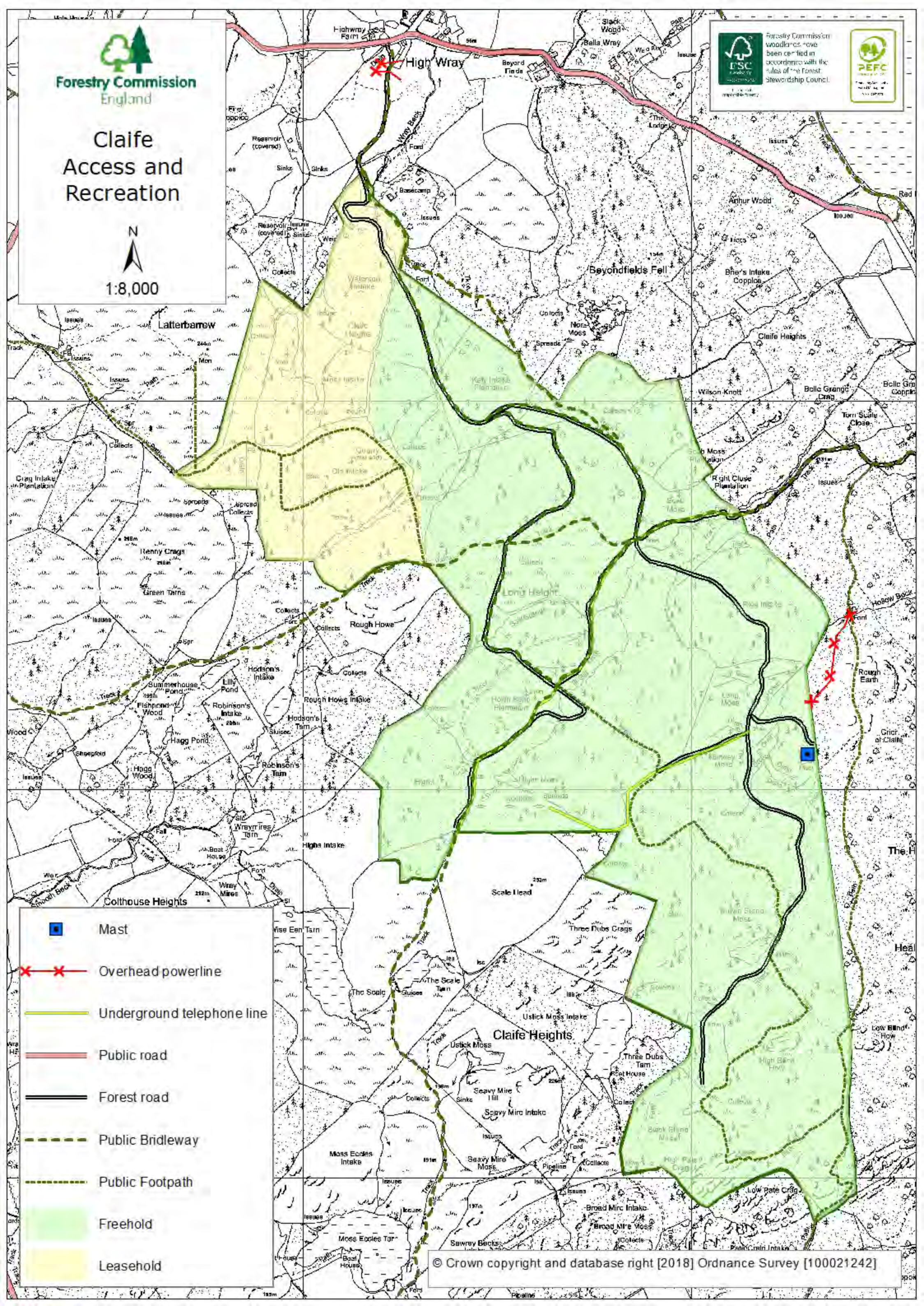
Claife Access and Recreation



1:8,000



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Mast



Overhead powerline

Underground telephone line

Public road

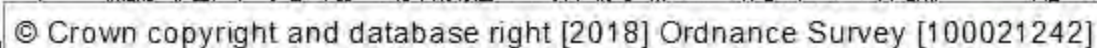
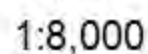
Forest road

Public Bridleway

Public Footpath

Freehold

Leasehold



Claife Future Species



1:8,000



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



In response to premature felling of diseased larch and the objective for wider species diversification in response to climate change mitigation, alternative species are being incorporated into the restocking. Ecological Site Classification (ESC) will be used to identify the most appropriate species but could include firs, cedars, serbian spruce, macedonian and scots pines.

Larch is of historical value in the area and enhances the landscape. Areas of older growth larch will be retained as long term retention in the absence of any disease issues.

Wet mires are important conservation features and restocking will be kept well back from mires. Management will be aimed at keeping mires clear of conifer natural regeneration

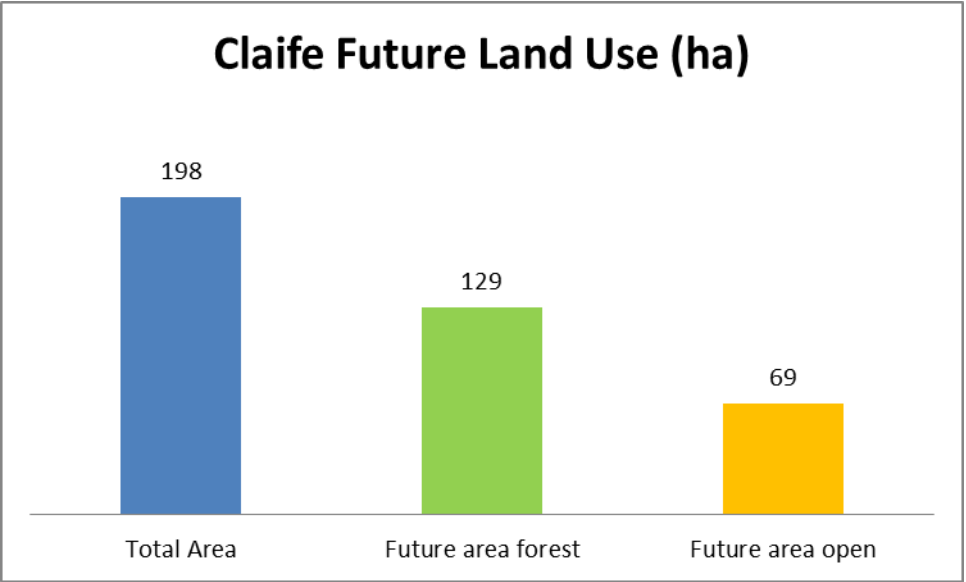
Widely spaced conifer, such as Scots pine and broadleaves established along the eastern boundary and in the area around High Pate Crag to improve distant landscape views of the upper forest edge and mitigate impact of the communications mast.

Claife provides opportunities for growing Sitka spruce without compromising the objectives for the mires. The intention is to produce quality timber from well thinned stands. High windthrow areas are unlikely to be thinned.

-  Open
-  Broadleaved
-  Larch
-  Other conifer
-  Spruce
-  Larch/broadleaved
-  Larch/spruce
-  Spruce/broadleaved
-  Spruce/other conifer
-  Other conifer/broadleaved
-  Open broadleaved habitat

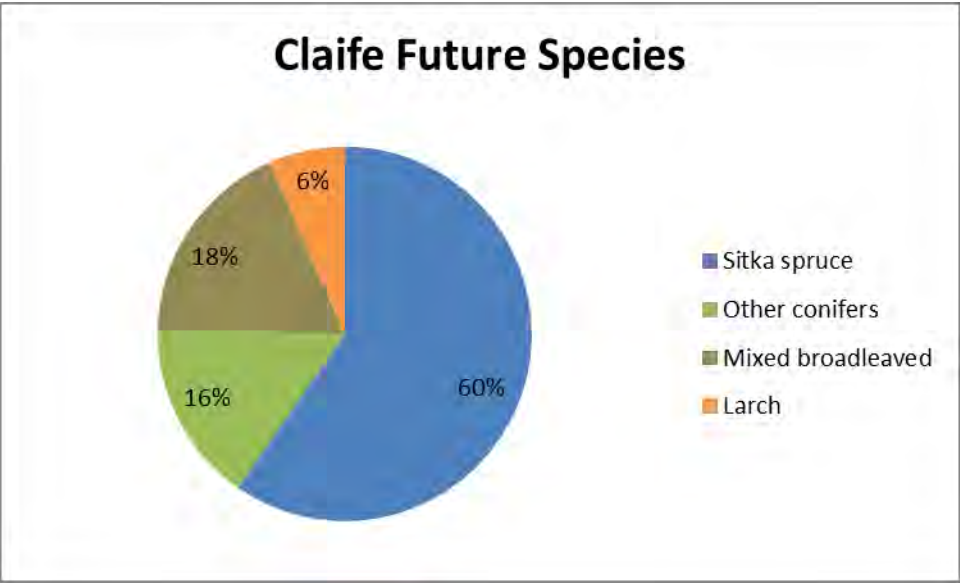
Part 6 Forest Plan Outcomes

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).

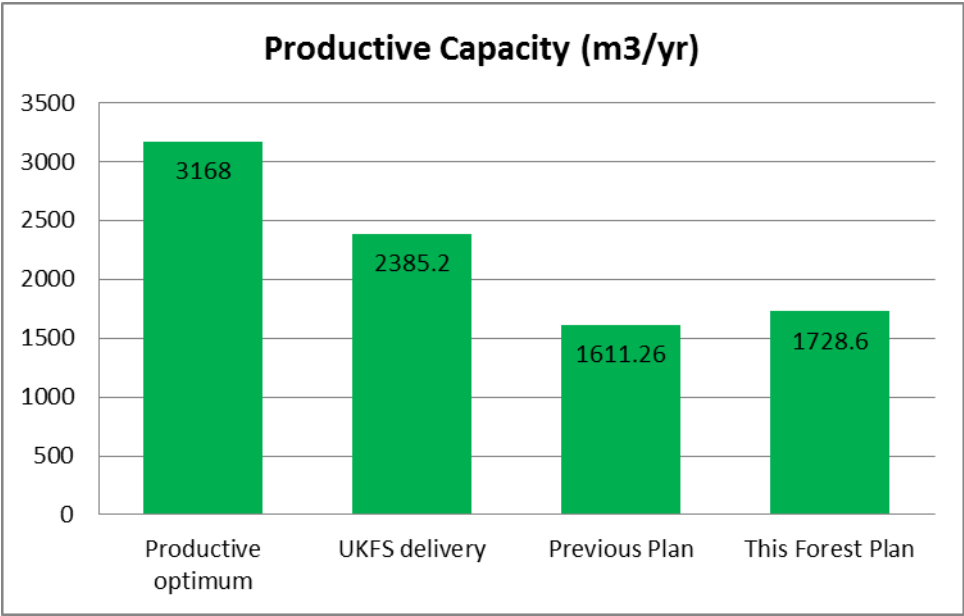


Productivity

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 (m³/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 is planted with the optimum commercial species suited to the site (i.e. Sitka spruce YC 16). In this scenario areas of undesignated mire habitat would be afforested.
2. UKFS delivery – as above but with minimum UKFS 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 (40% open) with percentage species mix from the previous plan.
4. This Forest Plan – productive capacity based on the productive area (35% open) with percentage species mix from this plan.

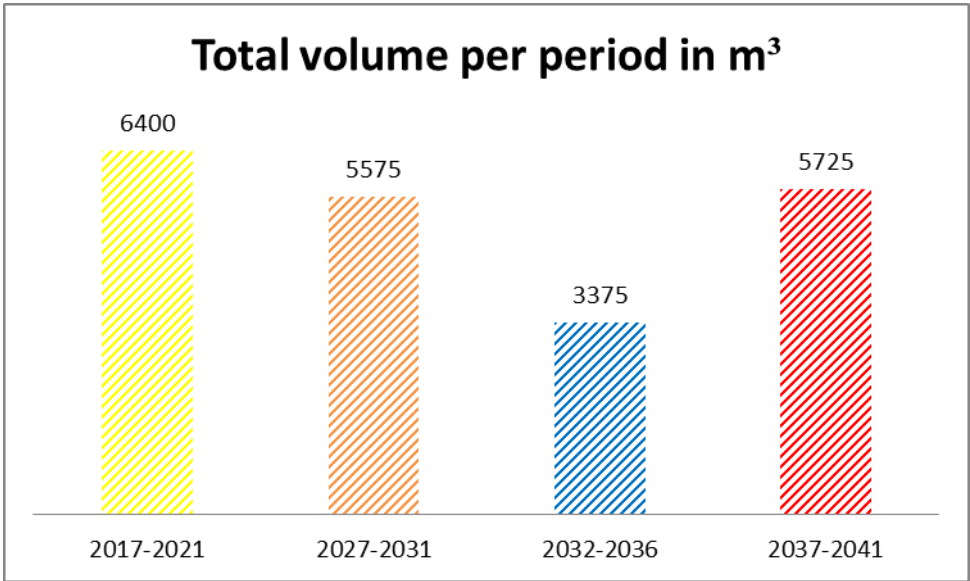


The difference between UKFS delivery and Forest Plan also includes requirements such as riparian corridors, landscape, ancient woodland, heritage etc. which require going beyond the minimum species composition and open space percentages to achieve UKFS.

The increase in productivity reflects the inclusion of Sitka spruce and other conifer species as a replacement for larch in some areas. The slight fall in open space percentage recognises the fact that some areas previously indicated as ‘open’ have infilled with regeneration. However, none of these areas are recognised as important open mire or designated habitat.

Timber production

Average timber production per period is shown below. Over the 10 year approval of the plan we will harvest 11.5ha of timber generating approximately 6,400m³.

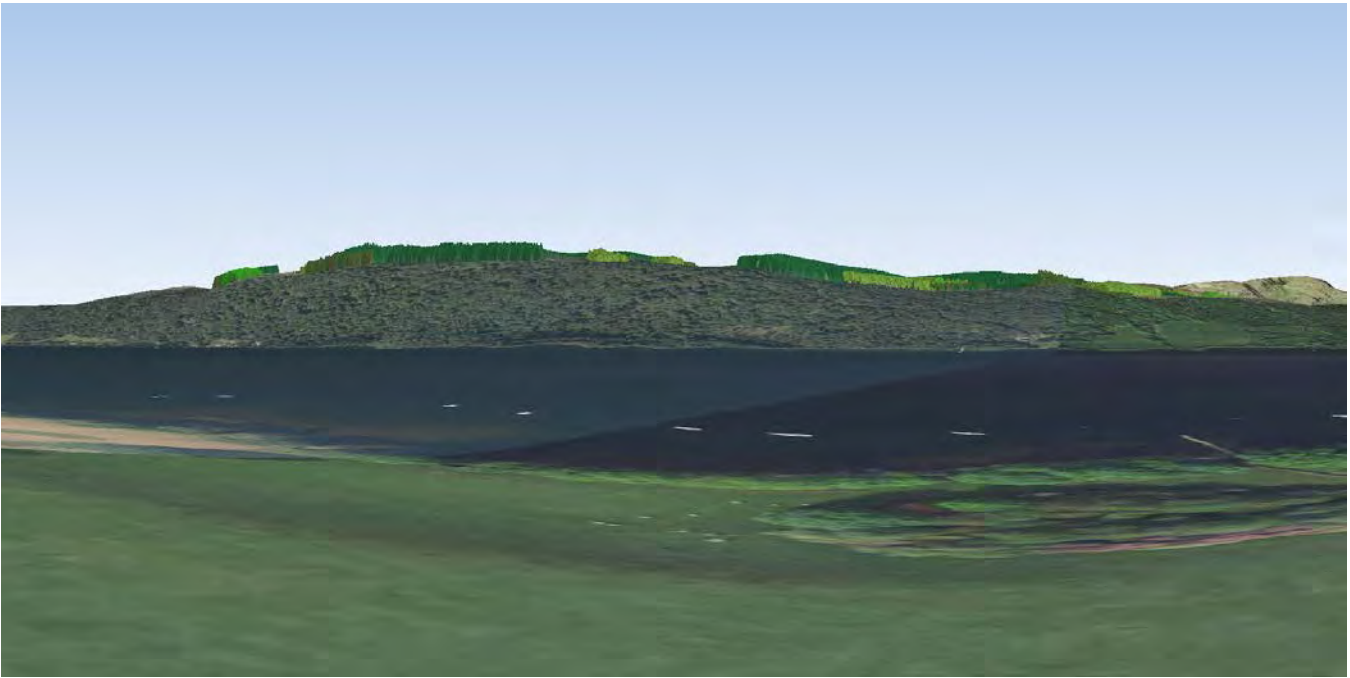


Landscape Appraisal

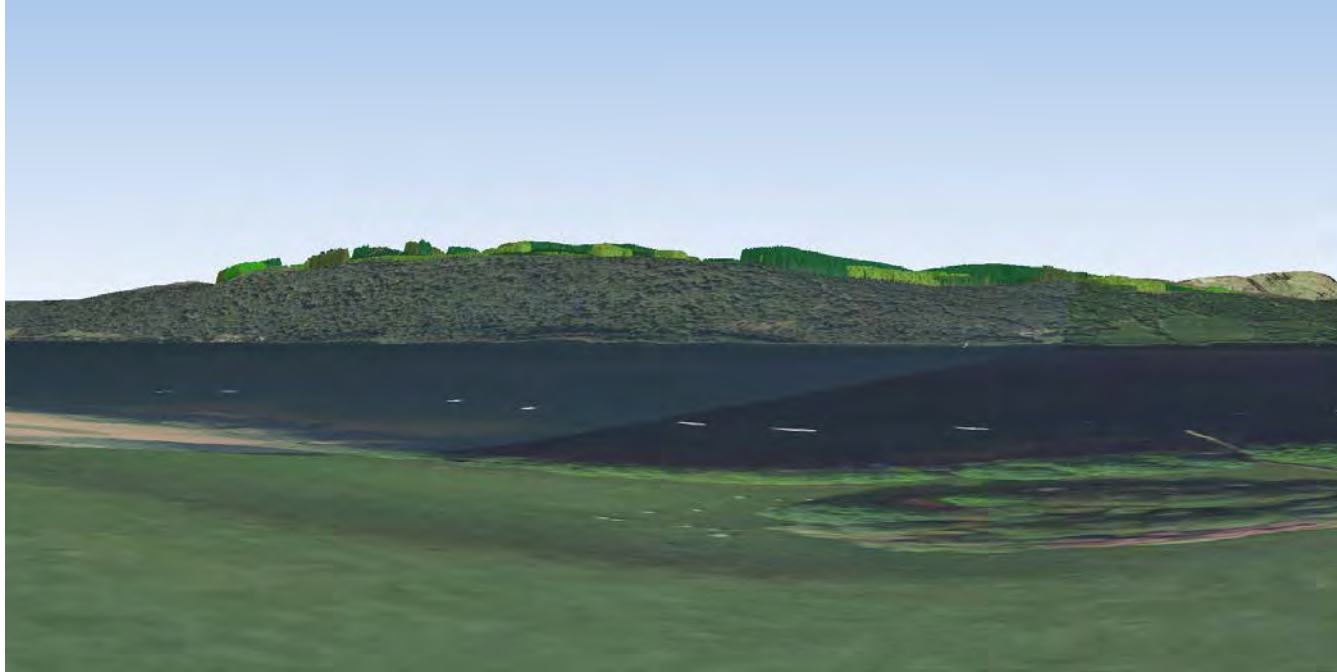
The Landscape Character assessment recognises the local significance of Claife as a dominant feature in the landscape and distant views from Windermere and more locally from Latterbarrow are significant. The forest has undergone significant restructuring and many of the harsh upper edges and straight lines have already been mitigated. Similarly the internal landscape, which is characterised by a mosaic of open space, mires and productive crops, fits well in the locality. Retained larch which screened the mast along the eastern boundary had to be felled due to Phytophthora ramorum and the mast is now visible from the far side of Lake Windermere. Much of the area around the mast is important mire habitat and will remain open, but some planting of widely spaced conifers and broadleaved trees will help to mitigate the visibility of the mast in the future.

Mitigating the impacts of any other straight forest boundaries remains an objective through the ongoing felling and restructuring program. The dominant view from Windermere is represented below indicating how the distant higher elevation of Claife changes through successive rotations. Due to topography the upper forest edge is always sky lined which creates gap and block issues as crops are felled. The establishment of widely spaced non-productive conifer and broadleaved woodland along the eastern boundary helps to maintain a more even profile blending well with the extensive area of National Trust mixed woodland down to the lakeshore.

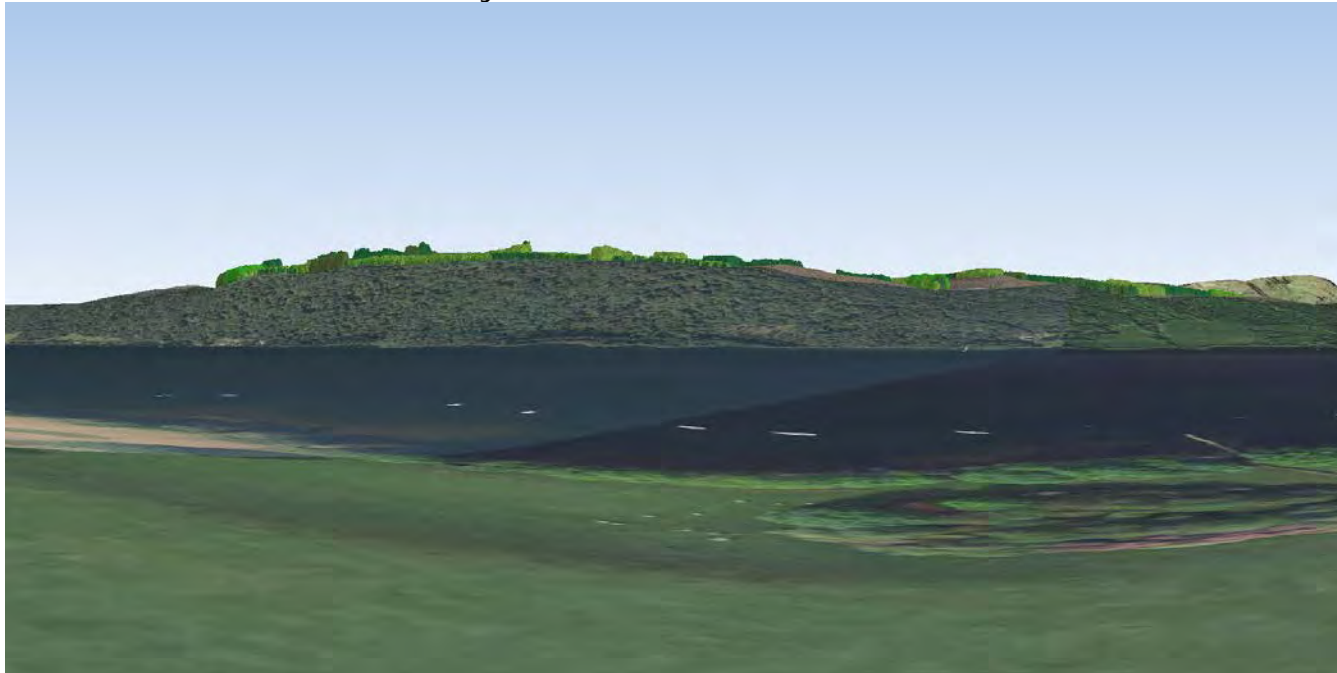
Windermere - Present view 2018



Windermere - End of plan period 2027

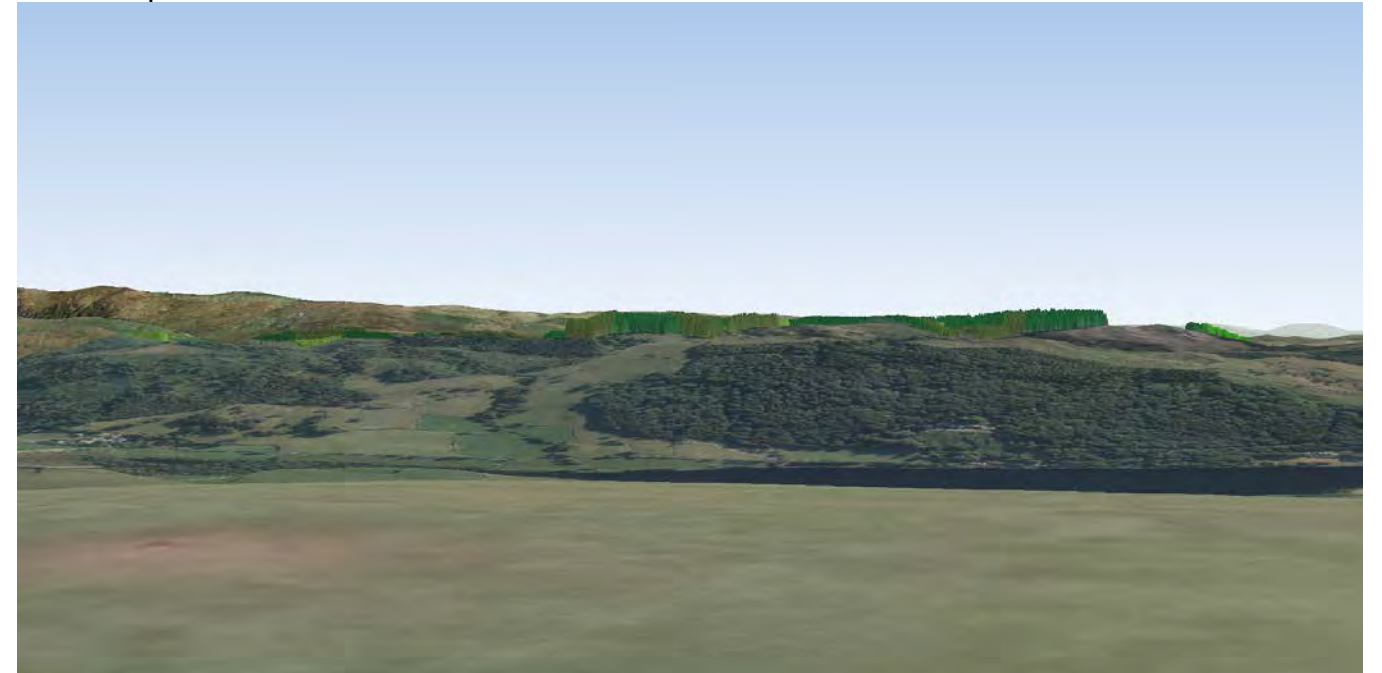


Windermere - Future View beyond 2047

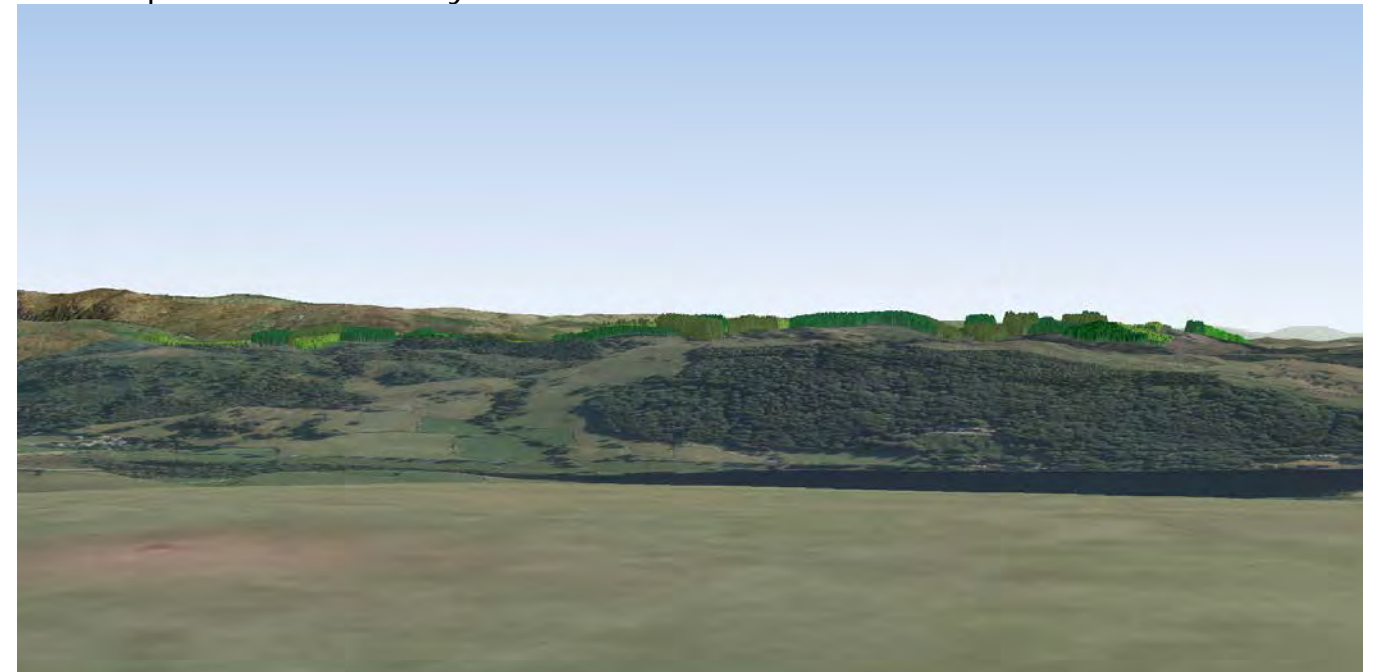


Similarly, the present distant view from the west, taken from Moor Top at Grizedale, highlights the isolated block of retained woodland to the southern end of Claife. By planting and encouraging natural regeneration of widely spaced non-productive conifer and broadleaved trees in the open areas adjacent to High Pate crag will help to soften this impact in the future, demonstrated in the images below:

Moor Top – Present view 2018

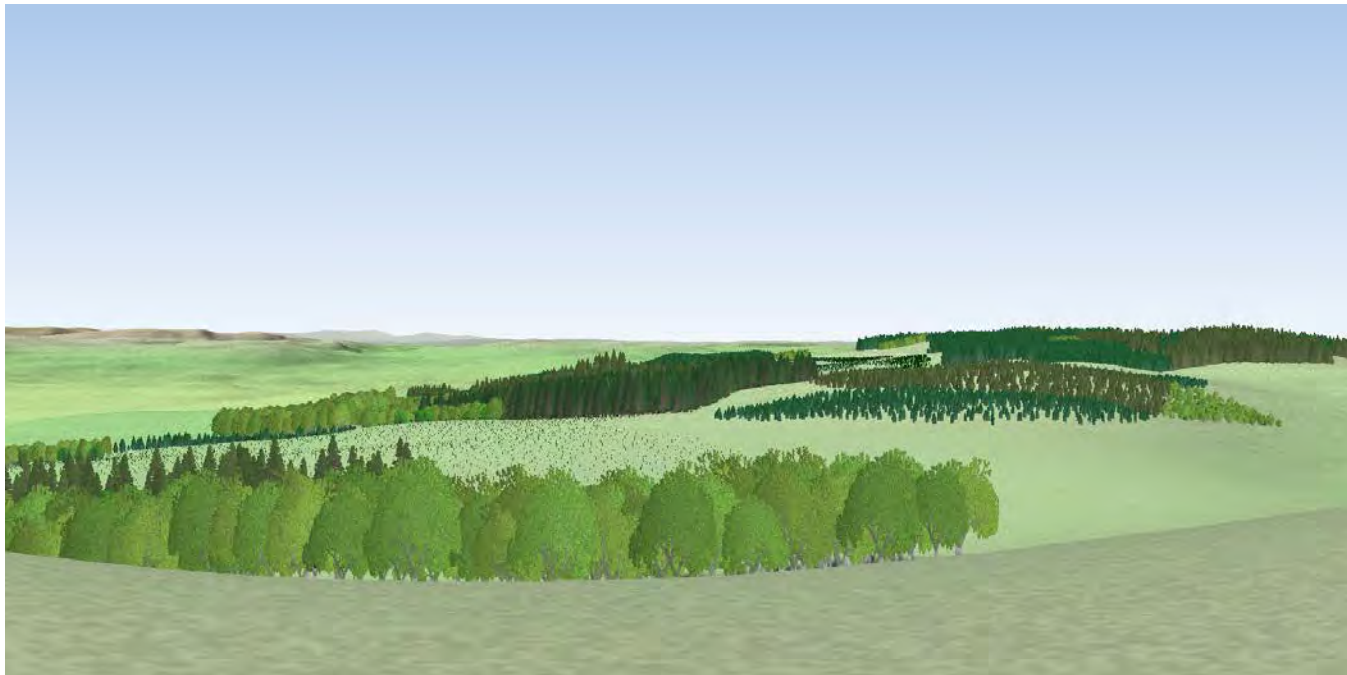


Moor Top – Future view beyond 2047

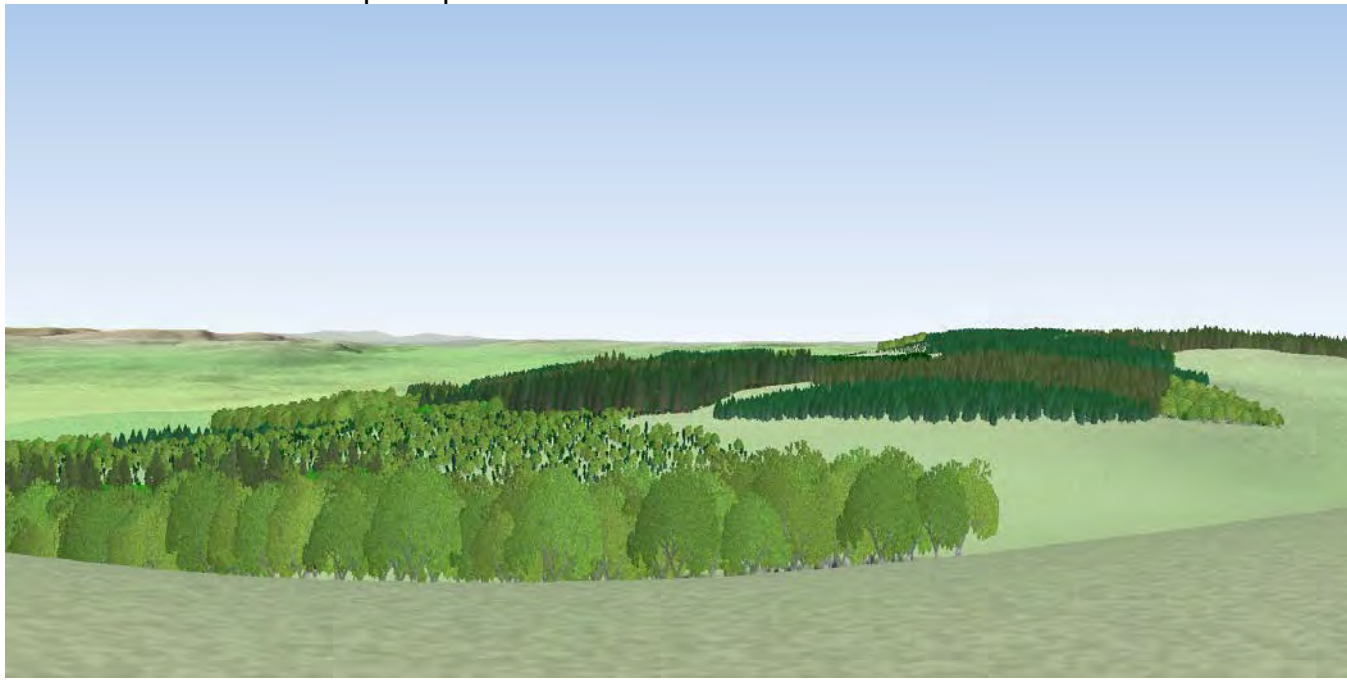


The internal landscape becomes more apparent from within and proposals to open up the forest around wet mire areas, rocky outcrops and public rights of way will continue to improve the internal appearance of the forest for visitors as the felling and restructuring continues. The 3D representation below, from Latterbarrow indicates the changing mosaic of internal open space, naturally regenerating broadleaves and restocking that is being incorporated into the future design.

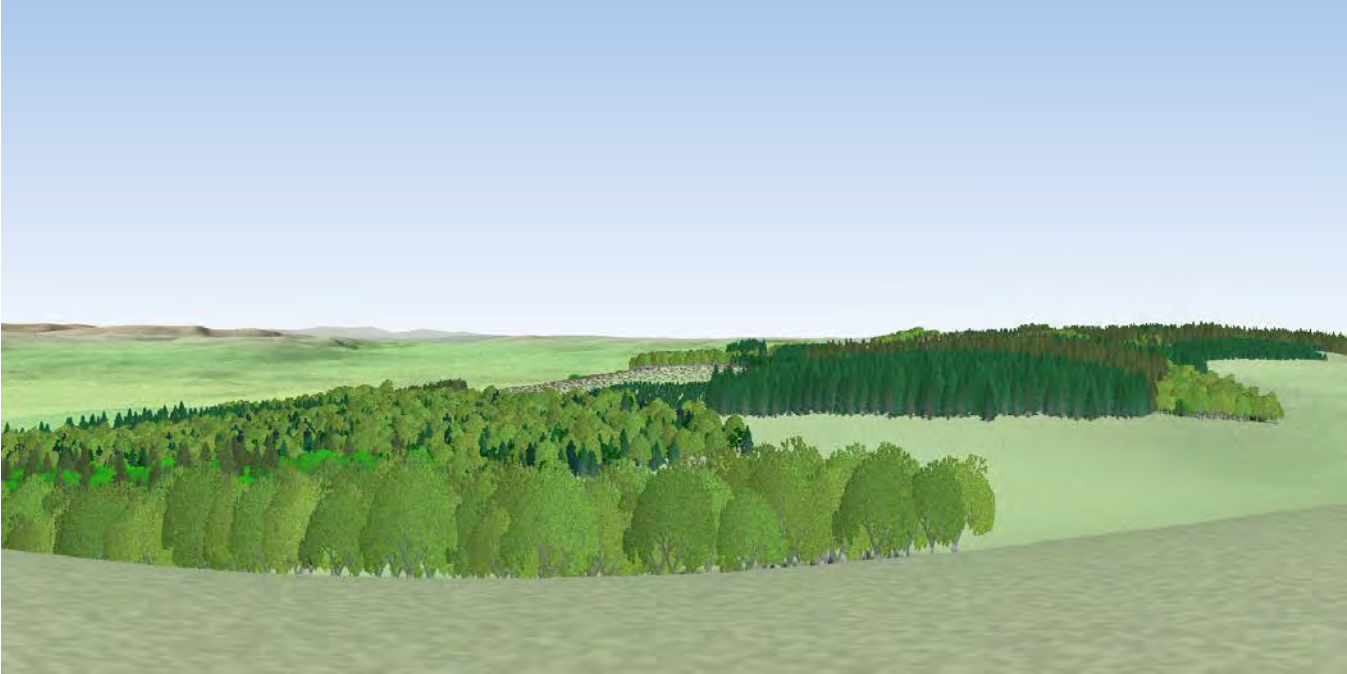
Latterbarrow - Present view 2018



Latterbarrow - End of plan period 2027



Latterbarrow - Future view beyond 2027



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.

Claife 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
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landscape. This is represented in the Productive Capacity Analysis graph.

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 maintained or extended as appropriate.

Timber production remains a priority and will continue through a clearfell/restock regime with the focus on Sitka spruce but also incorporating a much broader range of conifer species and broadleaves. Thinning of crops will continue and future decisions made regarding possible conversion of some crops to lower impact silvicultural systems such as Continuous cover forestry. 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.

Structure	Future species composition; 60% Sitka spruce, 22% other conifers and 18% mixed broadleaved and 35% 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 or where localised conditions permit thinning.
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.