

# Thrunton Beat Forest Plan 2017



## 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.

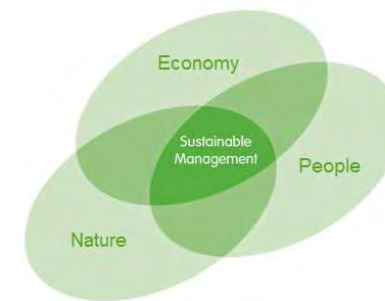
North England Forest District (NEFD) is the management unit that manages the public forest estate in Northern England. This is an extensive area encompassing 9 county or unitary authority areas from the Scottish border to Durham and Lancashire.



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.

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.



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

## Thrunton Beat Forest Plan

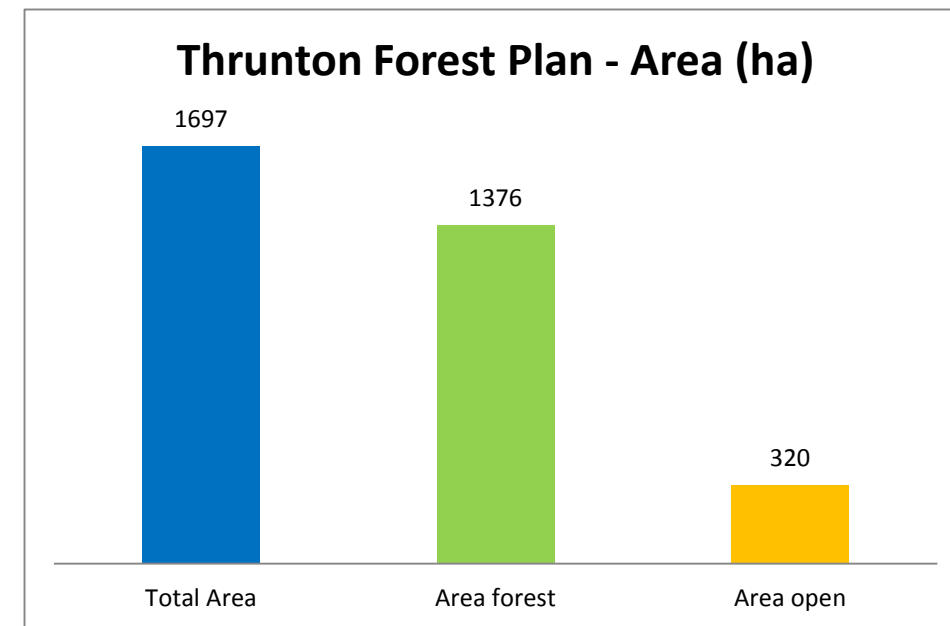
This is the second revision for the Thrunton Beat Forest Plan. Changes to the previous plan include the disposal of four woodlands and some re-scheduling of harvesting coupe periods in response to what was felled during the period of the previous plan.

### Part 1 Background Information

#### Introduction

Located immediately to the North and East of Rothbury are a number of woodlands managed by Forest Enterprise. In order to put the management of these woodlands in context and rationalise the number of plans across the district a single Forest Plan has been produced to cover all these woodlands. Eight discrete woodlands have been included in this plan (see Table 1). In total the forest area is approximately 1700 hectares, ranging in size from the smallest at Debdon Wood (23.9 ha) to Thrunton Wood which is over 1,100 ha. Ownership of this suite of woodlands is represented by a mixture of leasehold and freehold.

Table 1 Forest included in the plan		
Forest Name	Status	Area
Bluemills Wood	Leasehold	46.6
Debdon Wood	Leasehold	23.9
Edlingham Wood	Leasehold/freehold	269.1
Primrose Wood	Leasehold	71.3
Swarland	Freehold	81.9
Thrunton Wood	Leasehold/freehold	1126.8
Whittingham Wood	Leasehold	43.1
Wide Hope Wood	Leasehold	34.1
		1696.8



Thrunton Forest

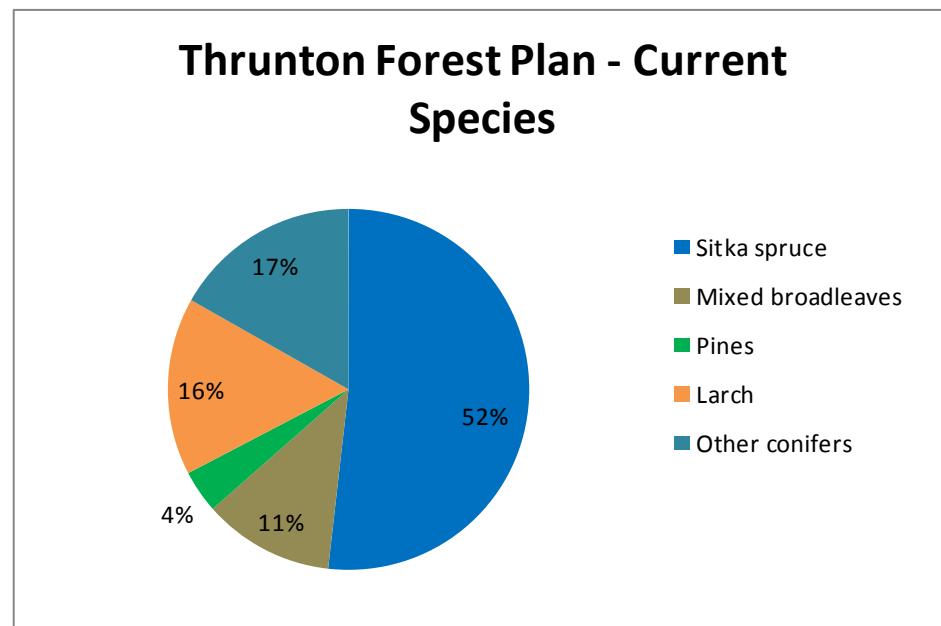


Primrose Wood north of Rothbury

#### Current Woodland composition, species and timber potential

Situated to the North of Rothbury in an area of varied topography (altitude varying from 70m to 310m) the forests are located on a wide variety of site types. Soils vary from stable brown earth through podzols and iron pan soils to less stable gley and peat gley soil. Site stability is generally better than for the majority of the Forest District, and the likely onset of windthrow is not the determining factor for economic rotation length for the majority of crops although some localised windthrow has historically occurred.





Growth rates are generally good with an average yield class<sup>1</sup> of 12 though the range of yield class is wide from 2 to 22, again reflecting site conditions and species planted.

### Designated areas

With the exception of historical designations (See Heritage section) there are no statutory designations relating to any of the woodlands.

### Landscape and Topography

The woodlands comprising the forest plan area sit within the Northumberland Sandstone Hills Landscape Character Area (Northumberland County Council August 2010). The Northumberland Sandstone Hills extend in a wide north-south arc across Northumberland, separating the farmland of the Cheviot Fringe and the uplands to the west, from the agricultural lowlands and coastal plain to the east. This is a plateau landscape, mainly comprising moorland and improved pasture, with several areas of distinctive rocky hills, which are often more prominent from the west due to their geological formation.

<sup>1</sup> Yield class is a measure of how fast the trees are growing. If they are yield class 12 the trees will put on 12m<sup>3</sup> of timber /hectare/annum as an average over their life.

Key characteristics of the Northumberland Sandstone Hills are:

- Sandstone hills forming distinctive skyline features characterised by generally level tops, north-west facing scarp slopes, and craggy outcrops. Exceptional views from the hills of the coast and across the lowland fringe to the Cheviots. Range of semi-natural habitats, with varied moorland communities dominated by heather and rough, acid grassland mosaics on the thin, sandy soils of the higher steeper slopes and broken ground, giving way to scrub, oak/birch woodland and then to improved farmland and parkland, on the lower slopes. Wet peaty flushes, mires, loughs and small reservoirs occur throughout the area.
- Rectilinear pattern of large, open fields bounded by dry stone walls, dating from the time of the parliamentary enclosures, and often broken up by blocks and belts of coniferous woodland.
- Extensive plantations of coniferous woodland. Broadleaved woodland associated with rivers and scarp slopes.
- Important prehistoric archaeological landscape, with 'cup and ring' marked rocks, Bronze Age burial cists, earthwork remains of later Iron Age hill fort systems, standing stones, enclosures and cairns.
- Parkland settings of the large country mansions, which fringe the lower fellside slopes, have distinctive 'landscaped' features and much semi-natural broadleaved woodland cover.
- Scattered pattern of individual isolated farmsteads and small hamlets, served by the market towns of Alnwick and Rothbury.

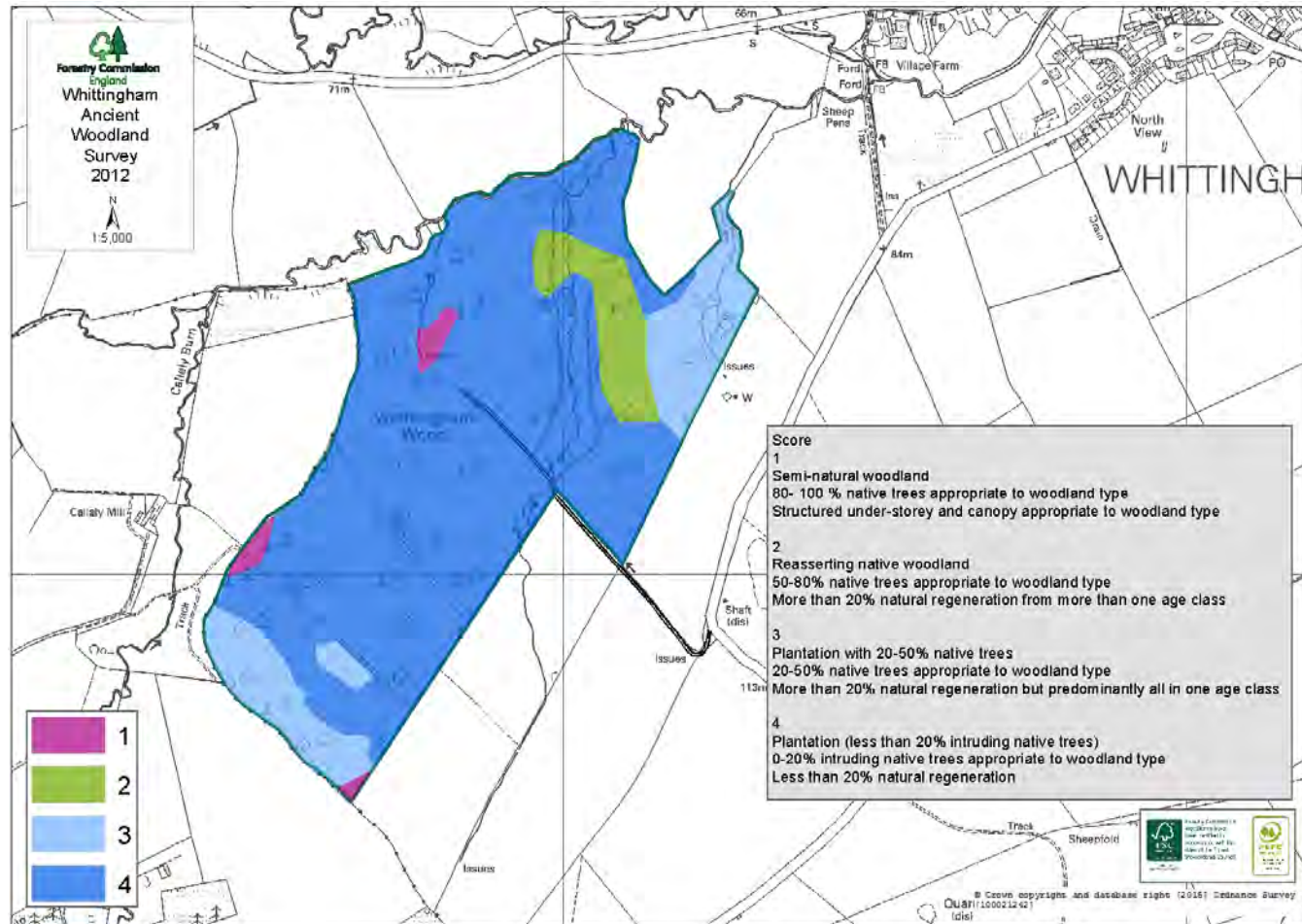
The landscape of the area is varied ranging from the relatively high elevation areas of Coe crag and Long crags in Thrunton to other lowland forests such as Whittingham and Swarland. Thrunton and Edlingham are relatively dominant in any view and the previous felling at Edlingham Crags has revealed a series of rock outcrops which are now being managed in a more sympathetic manner through Continuous cover management.

### Conservation

There are no statutory sites for biological conservation present within the forests; however Whittingham is an Ancient Woodland Site (AWS) recorded as being historically wooded since the 17th century and categorised as a Plantation on Ancient Woodland Site (PAW's), ancient replanted woodland that has previously been restocked with conifer crops but with remnants of the ancient woodland flora present. The ancient woodland status of Whittingham dictates that there is a presumption for conversion to native species in line with current Forestry Commission Policy. Management towards this objective has been ongoing through a program of thinning and felling of non-native tree species throughout the period of the previous plan. An ancient woodland survey was undertaken across the Forest District in 2012. The outcome of this survey, shown in the map below, will be used to formulate an intervention plan for the PAW's restoration. The rate at



which this conversion is achieved will be dictated by successful regeneration of native species following thinning interventions and the AWS will be repeated in 2021.



Management is currently proposed to slowly convert Whittingham to more intimately mixed woodland, with a greater broadleaf component (through natural regeneration). However the long-term stability of the crops and heavy clay soils do question the suitability of Whittingham for continuous cover silviculture throughout the whole woodland and management will therefore need ongoing revision in response to the effects of possible wind damage. It is the intention to regenerate through natural regeneration, however, natural regeneration cannot be guaranteed on all occasions, and if unsuccessful supplementary planting or restocking of suitable species may be required.

Elsewhere within the plan area a number other specific sites of conservation interest are noted together with two Local Wildlife Sites (LWS) noted for their habitat value. These are indicated on the Conservation and Heritage maps.

## Heritage

Historical interest of the plan area is mainly associated with the Scheduled Monuments at Callaly Moor which were surveyed by Newcastle University in the late 1980s prior to afforestation. Significant medieval / post medieval remains are located in the local area associated with Callaly Castle and the univallate hillfort and medieval tower to the west of Thrunton. Four scheduled decorated medieval boundary stones are located within Thrunton, 220m SSE, 420m SSE, 900m SE and 1100m SE of Callaly Crag. Boundary stones have a long history of use in the definition of the extent of land holdings, especially in places where the boundary was most contentious or less well defined by other features. The church was one of the earliest users of single marker stones to delineate the extent of their holdings and these features are associated with Brinkburn Priory dating from around 1050 to 1250. All the scheduled monuments are in reasonable condition and do not face any obvious threats under the present management. They are all covered by a Scheduled Monument Plan 2016-2026. Elsewhere in Thrunton, particularly between Long Crag and Coe Crag, but also on the edge of Edlington are numerous other boundary features which are categorised as Grade 3 Listed Buildings which delineate old parish boundaries.



Medieval boundary stone 220m SSE of Callaly Crag

In Thrunton the historic landscape associated with these boundary features would previously have been an open landscape as indicated on the Ordnance Survey First Edition for the 1860's. Through future restructuring of the forest these sites will be opened up appropriately as felling progresses to enhance the character of their setting and any newly discovered sites will be recorded and notified to Historic England.

### Communities and recreation

Recreational provision within the forests is mainly limited to Thrunton where a small carpark and a series of waymarked routes are provided. With the exception of Swarland (an important informal recreation resource for the local population of the village) and Edlingham crags (informal climbing), the remaining forests are not used by the general public other than on public rights of way.

### Pests and diseases

Roe deer are present throughout and populations are managed by Forestry Commission rangers in freehold woodlands and elsewhere where permitted by the terms of any leasehold agreement.

Larch is threatened by the disease *Phytophthora ramorum* and although still a favoured species both for restocking and as natural regeneration in areas of Continuous cover management regular monitoring for plant health is needed.

### Access and roading

Internally forest operations are generally adequately served by a network of forest road and tracks with the exception of Edlingham where a road extension is needed to access some coupes planned for future felling. This will require EIA screening and is indicated on the Operations map.

## Part 2 Analysis and Concept

The factors outlined in Part 1 present various opportunities and issues.

Factor	Opportunities	Issues
Current species	Growth rates are good with an average yield class of 12 though the range of yield class is wide from 2 to 22	Spruce may become less viable in future rotations due to climate change projections. Larch and ash are both at risk from disease.
Management type	Combination of clearfelling and Continuous Cover Forestry (CCF) in areas of lower wind hazard classification and PAW's. Long term retention of native woodland. Expansion of CCF in Primrose Wood.	At higher elevations felling coupes are dictated by existing windfirm boundaries. Some coupes from the previous plan were not felled and some rescheduling is required in Thrunton, Primrose Wood and Edlingham
Biodiversity	Protection of features associated with AWS, such as veteran/feature trees or ground flora provide opportunity to target thinning operations for greatest benefit.	Long-term stability of the crops and heavy clay soils in Whittingham bring into question the suitability for CCF and its status will therefore need to be reviewed periodically.
Access/Roading	Generally adequate internal network of forest roads	New roadline required in Edlingham – EIA determination needed
Historic Landscape	Area of significant archaeological interest in the NW area of Thrunton including four Scheduled Monuments. Potential to enhance historic landscape character in the area with sympathetic restocking plans.	Historical interests need to be incorporated into operational planning and restocking proposals need to be flexible in response to the discovery of historic features through the restructuring process. Ensure open space previously incorporated is maintained.
Pests and disease		Deer present challenges to natural regeneration and restocking.
Future Species/ Climate change	Species diversification at restocking. Areas of low wind hazard provide best potential for diversification through natural processes	Larch and ash need to be monitored for plant health risk. Spruce may become less viable in future rotations due to climate change projections.
Public access	Recreation use is fairly low key and informal	



**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
<p><b>ECONOMIC</b></p> <p><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></p>	<p>Over the next 10 years of approval we will fell approx. 105,000m<sup>3</sup> of timber through either clearfelling or thinning operations.</p> <p>Thinning and underplanting of CCF and PAW's areas.</p> <p>Construct new forest road in Edlingham to facilitate harvesting of inaccessible coupes (see Operations map)</p>
<p><b>NATURE/HERITAGE/LANDSCAPE</b></p> <p><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></p> <p><i>'we will ensure that rare and threatened habitats are protected and managed to maintain or enhance their conservation value'</i></p>	<p>Through the felling plan create linkage of open habitat across the forest.</p> <p>AWS - veteran or feature trees will be protected and enhanced during operations through sympathetic management. Re-survey of AWS is planned for 2022.</p> <p>Protect Scheduled Ancient Monument's (SAM's) and maintain/enhance open historical landscape character around known heritage features during ongoing restructuring of the forest. This particularly applies to the boundary features and historic landscape at Thrunton but also Edlingham. Ensure that known features of historical interest are protected and enhanced during the ongoing</p>

	restructuring of the woodlands and opportunities to identify as yet unknown features are incorporated into operational planning.
<p><b>PEOPLE</b></p> <p><i>'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'</i></p> <p><i>'we will provide public access to all our forests and woodlands where there are no legal or safety restrictions...'</i></p>	<p>Maintain existing network of public and permissive paths within the woodlands.</p> <p>Maintain access to Edlingham crags for recreational climbing use.</p>

## Part 4 Monitoring plan

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

Objective	Criteria for success	Assessment
<p><b>ECONOMIC</b></p> <p>Wood production</p> <p>Sustainable economic regeneration</p>	<p>Marketable parcels of timber on offer to the market</p> <p>Maintain timber harvesting access and infrastructure</p>	<p>Contract and sales records</p>
<p><b>NATURE/HERITAGE</b></p> <p>Restructuring</p> <p>Heritage/Landscape</p>	<p>Delivery of Forest Plan felling/thinning/coppicing proposals</p> <p>Ancient Woodland survey</p> <p>Protection of SAM's/Listed structures and maintain/enhance open historical landscape character around known heritage features during ongoing restructuring of the forest</p>	<p>Five yearly Forest Plan review</p> <p>Re- survey planned for 2022</p> <p>Five yearly forest plan review and Scheduled Monument plan revisions</p>
<p><b>PEOPLE</b></p> <p>Visual enhancement to visitors.</p>	<p>Maintenance of Ancient woodland characteristics and ongoing restructuring of the woodlands.</p>	<p>Five year Forest Plan review.</p>

## 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 woodlands and local area
- Soils and Geology – indicating soil composition and underlying geology across the woodlands
- Yield Class – indicating the productivity of the timber
- Wind Hazard Classification – indicating the windiness of the sites
- 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 and new roading proposals
- Future Species – representing the long term vision for future species composition





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# Thrunton Beat Location



1:50,000

Whittingham

Thrunton

Wide Hope Wood

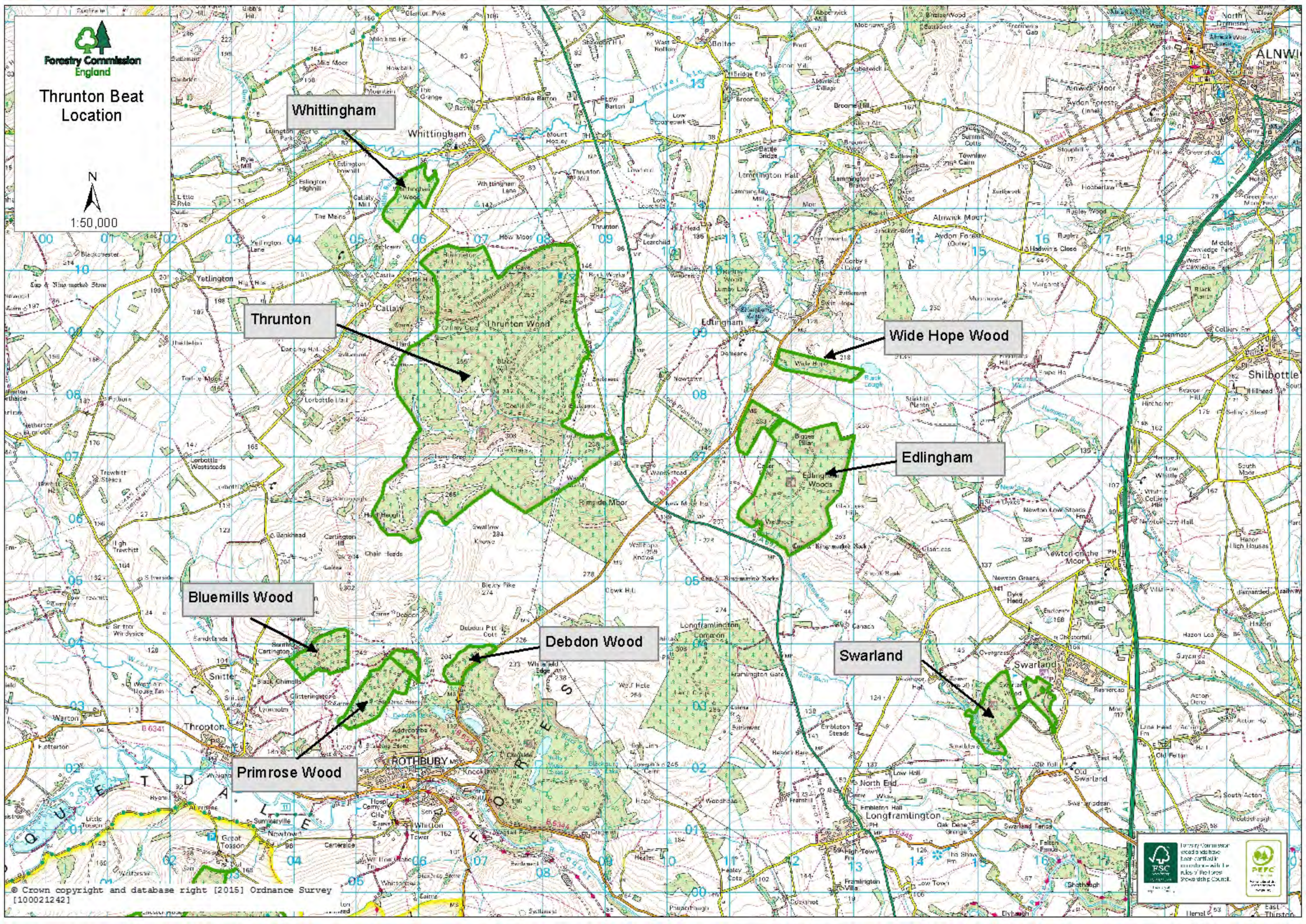
Edlingham

Bluemills Wood

Debdon Wood

Swarland

Primrose Wood





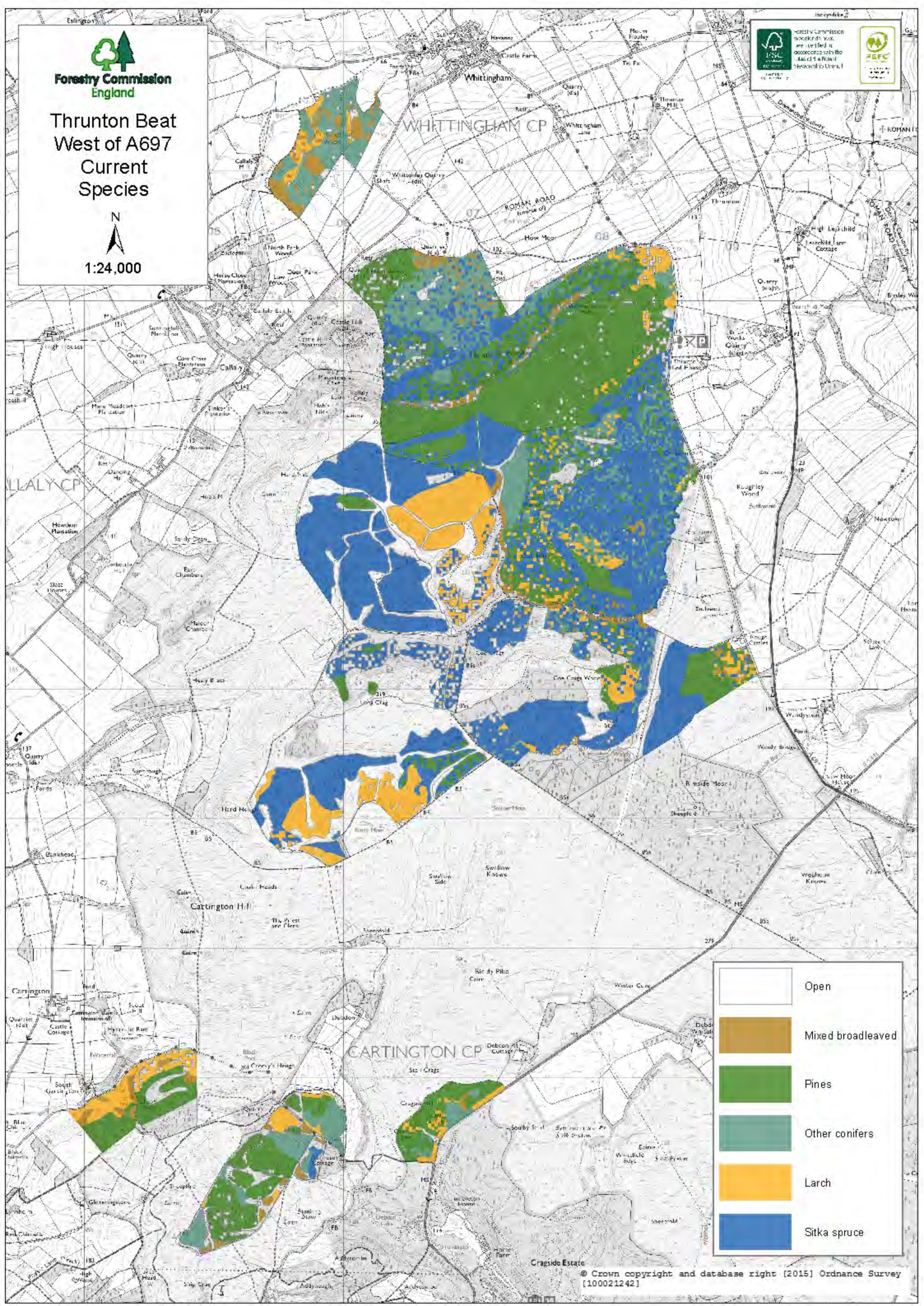
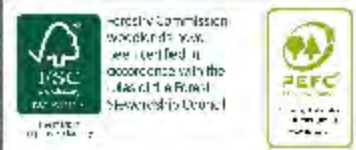


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# Thrunton Beat West of A697 Current Species



1:24,000



	Open
	Mixed broadleaved
	Pines
	Other conifers
	Larch
	Sitka spruce



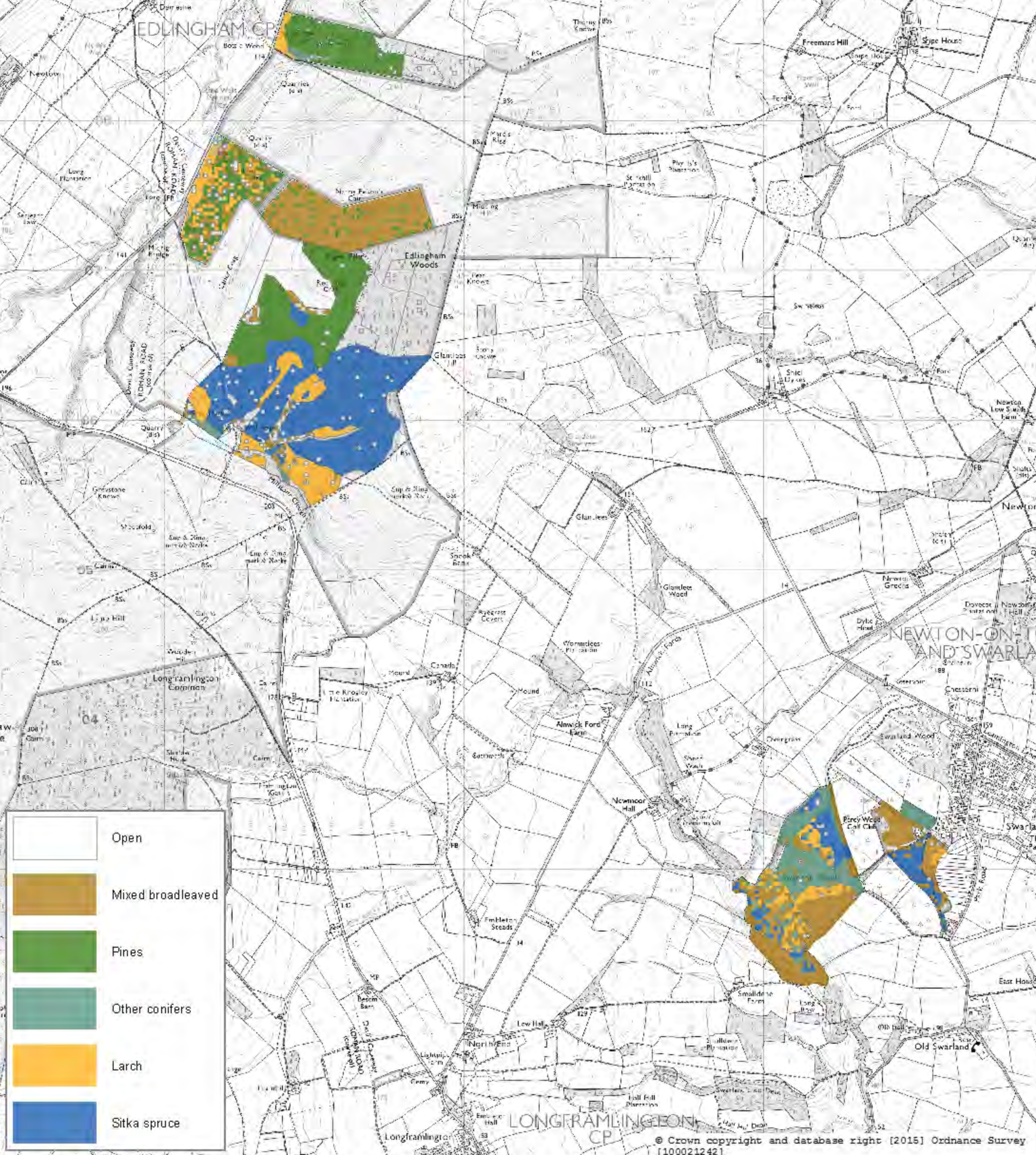


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England

# Thrunton Beat East of A697 Current Species



1:24,000



	Open
	Mixed broadleaved
	Pines
	Other conifers
	Larch
	Sitka spruce





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# Thrunton Beat Landform and Topography



1:34,000

50m contours



The landscape of the area is varied ranging from the relatively high elevation areas in Thrunton, plateau areas north of Rothbury and lowland forests such as Whittingham and Swarland. Locally steep terrain is associated with distinctive rocky outcrops in contrast to areas of open moorland and improved pasture.





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### Thrunton Beat Soils



1:34,000



Soils vary from stable brown earth through podzols and iron pan soils to less stable gley and peat gley soil.



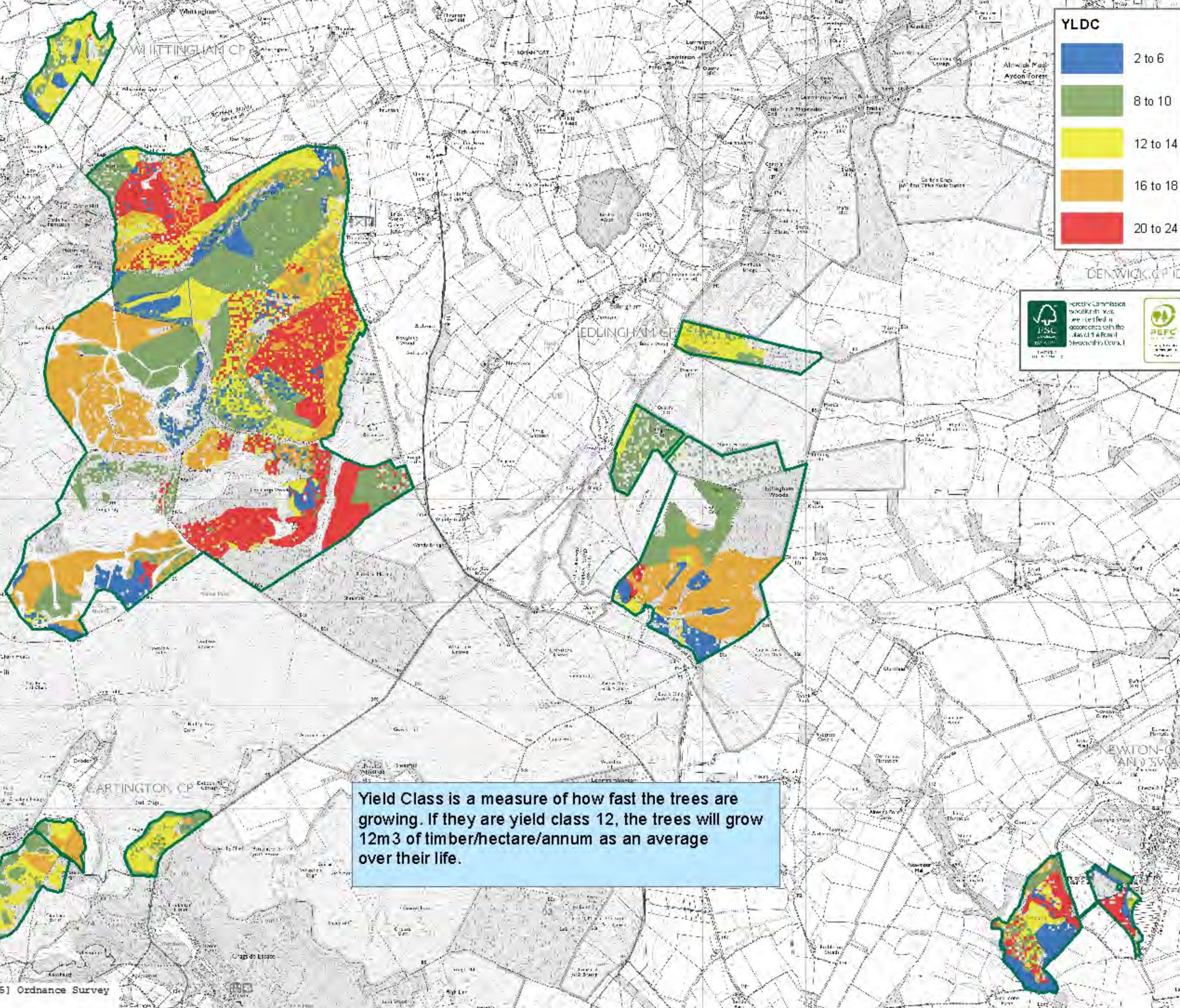
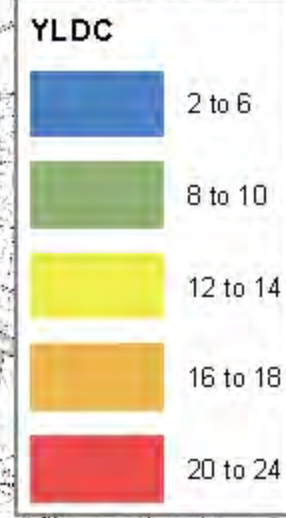


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# Thrunton Beat Yield Class



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Yield Class is a measure of how fast the trees are growing. If they are yield class 12, the trees will grow 12m<sup>3</sup> of timber/hectare/annum as an average over their life.



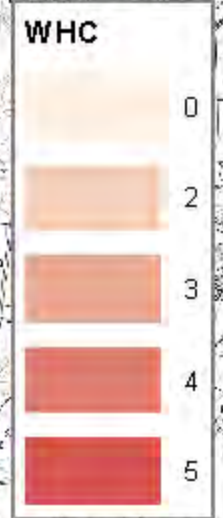


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# Thrunton Beat Wind Hazard Classification



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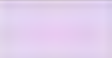
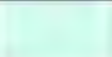


WHC is an indication of the windiness of a site. Areas with high scores above 4 are more restricted in forest management objectives such as the ability to thin or extend the rotation length of a crop. Localised conditions and knowledge of previous storm events are also considered in operational plans.



**Local Wildlife Site - Thrunton Crag**

A large crag in the Fell Sandstone comprising an 8-9m scarp of the fine-grained, well-sorted sandstone extending over some 1.5km and exhibiting a variety of sedimentary structures including contorted bedding, planar cross-bedding, slumping, syndepositional faulting and horizons of nodular

-  Scheduled Monument
-  Unscheduled heritage feature
-  NEFD Natural Reserves
-  AWS
-  LWS
-  SSSI



**Local Wildlife Site - Swallow Knowe**

The site consists of an area bounded by Caw Burn to the south and Swallow Craggs to the north. It contains vegetated rock exposures and several different types of grassland, including species-rich calcareous areas.

Local Wildlife Sites are important areas of countryside that have survived as a result of the way they have been managed. Designating an area as a Local Wildlife Site is a way to recognise their important value. Local Wildlife Sites are non-statutory designated areas, and as such the owner of the land remains in control of how the land is managed.














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# Thrunton Beat Access and Services



1:34,000

-  Climbing Crag
-  Gas pipeline
-  Water pipeline
-  Overhead powerline
-  Bridleway
-  Footpath
-  FC Waymarked trail
-  FC Forest road
-  CROW Open Access







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# Thrunton Beat West of A697 Design Concepts



1:24,000



**Ancient Woodland Site**  
Plantation on Ancient Woodland site, replanted with conifers. Aim to restore to native species where practical through slow conversion by selective thinning

**Area of Significant Archaeological Interest**  
Features of interest and historical landscape character to be taken into account at restocking to safeguard in the future



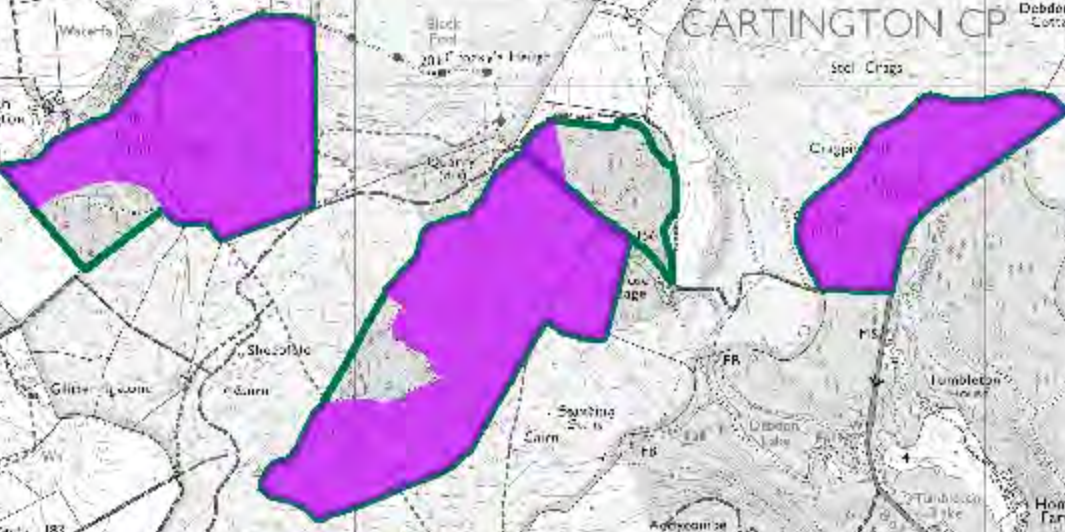
**Crag Features**  
Craggs in Thrunton form a major structural feature which are significant in the landscape. Maintain as open space



**Internal Boundaries**  
Need to mitigate intrusive visual affect of powerline and coordinate felling with neighbours along internal ownership boundary



**Continuous Cover Management**  
Areas of relatively stable crops in north Thrunton and woodlands north of Rothbury to be managed through continuous cover silviculture







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# Thrunton Beat East of A697 Design Concepts



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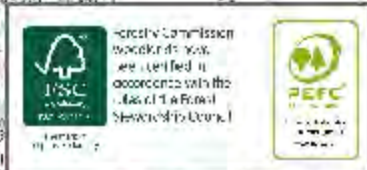
**Crag Features and Open Moor boundary**  
Maintain established open woodland habitat to enhance forest edge habitat and open landscape character of Edlingham Crag

**Restructuring**  
Southern crops in Edlingham are very visible from the A697. Poor access and lack of windfirm boundaries limit options for the current rotation but need to be addressed for future rotations. Consider a new forest road extension to facilitate access

**Broadleaved Edge - Edlingham**  
Area of broadleaved and mature pine to be retained and extended at restocking to blend with neighbouring open birch woodland

**Swarland**  
Important local informal public use. Maintain a varied internal landscape and mixed nature of the forest in the future

**Broadleaved Edge - Swarland**  
Maintain the mature/semi mature mixed native broadleaved woodland

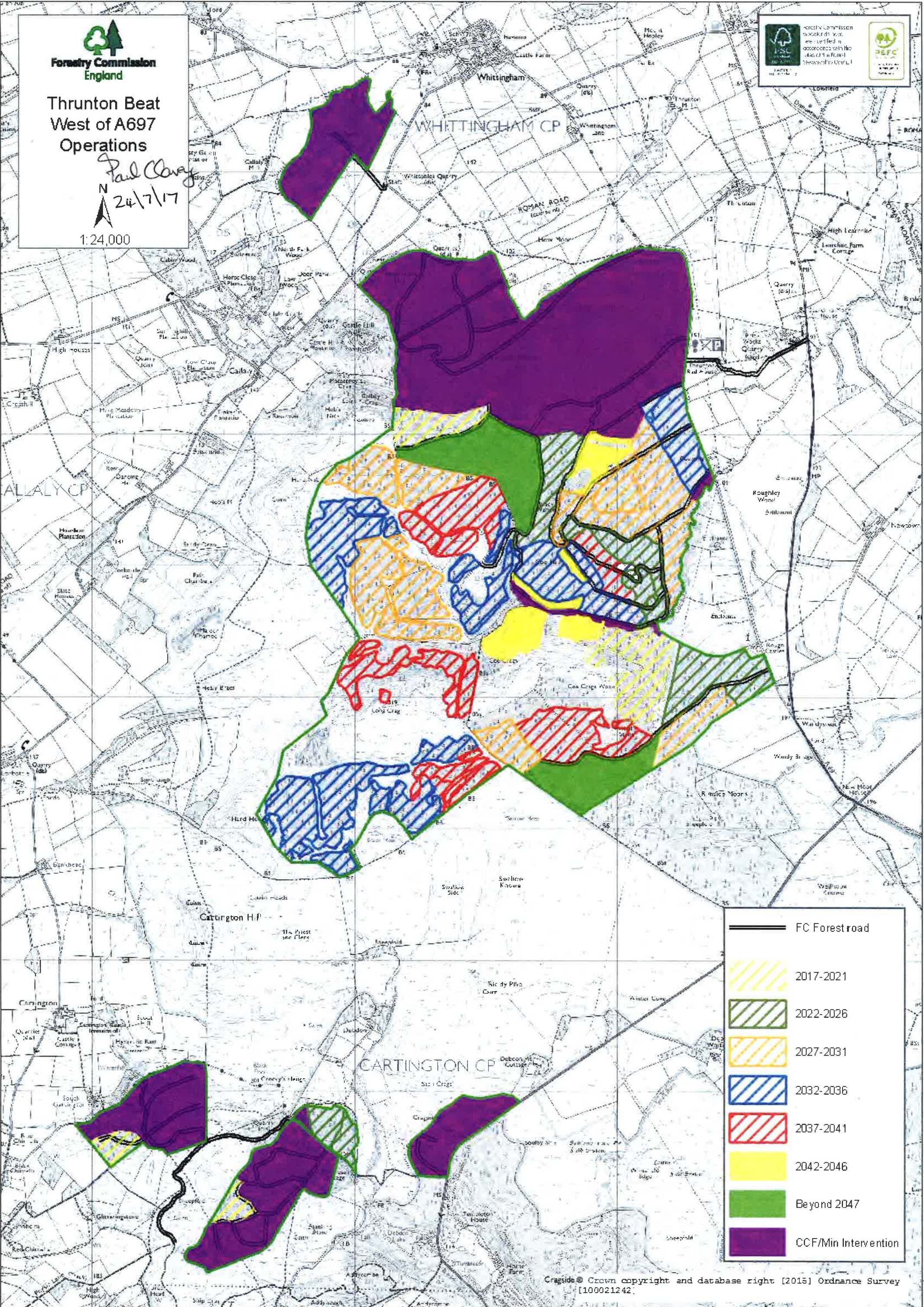




**Thrunton Beat  
West of A697  
Operations**

*Paul Clary*  
N  
24/7/17

1:24,000



	FC Forestroad
	2017-2021
	2022-2026
	2027-2031
	2032-2036
	2037-2041
	2042-2046
	Beyond 2047
	CCF/Min Intervention



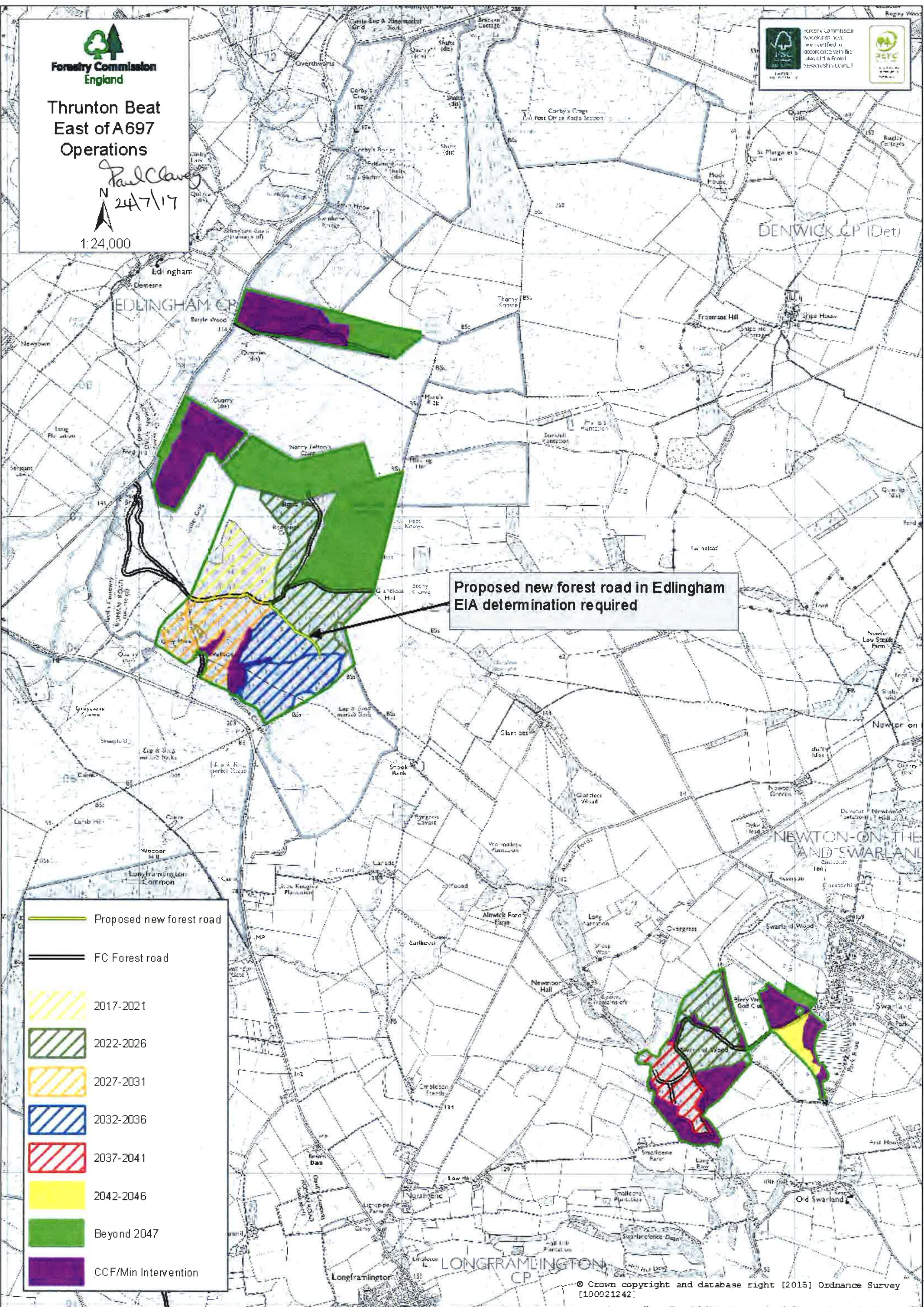


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England

# Thrunton Beat East of A697 Operations

*Paul Clavey*  
N  
24/7/17

1:24,000



**Proposed new forest road in Edlingham  
EIA determination required**

-  Proposed new forest road
-  FC Forest road
-  2017-2021
-  2022-2026
-  2027-2031
-  2032-2036
-  2037-2041
-  2042-2046
-  Beyond 2047
-  CCF/Min Intervention





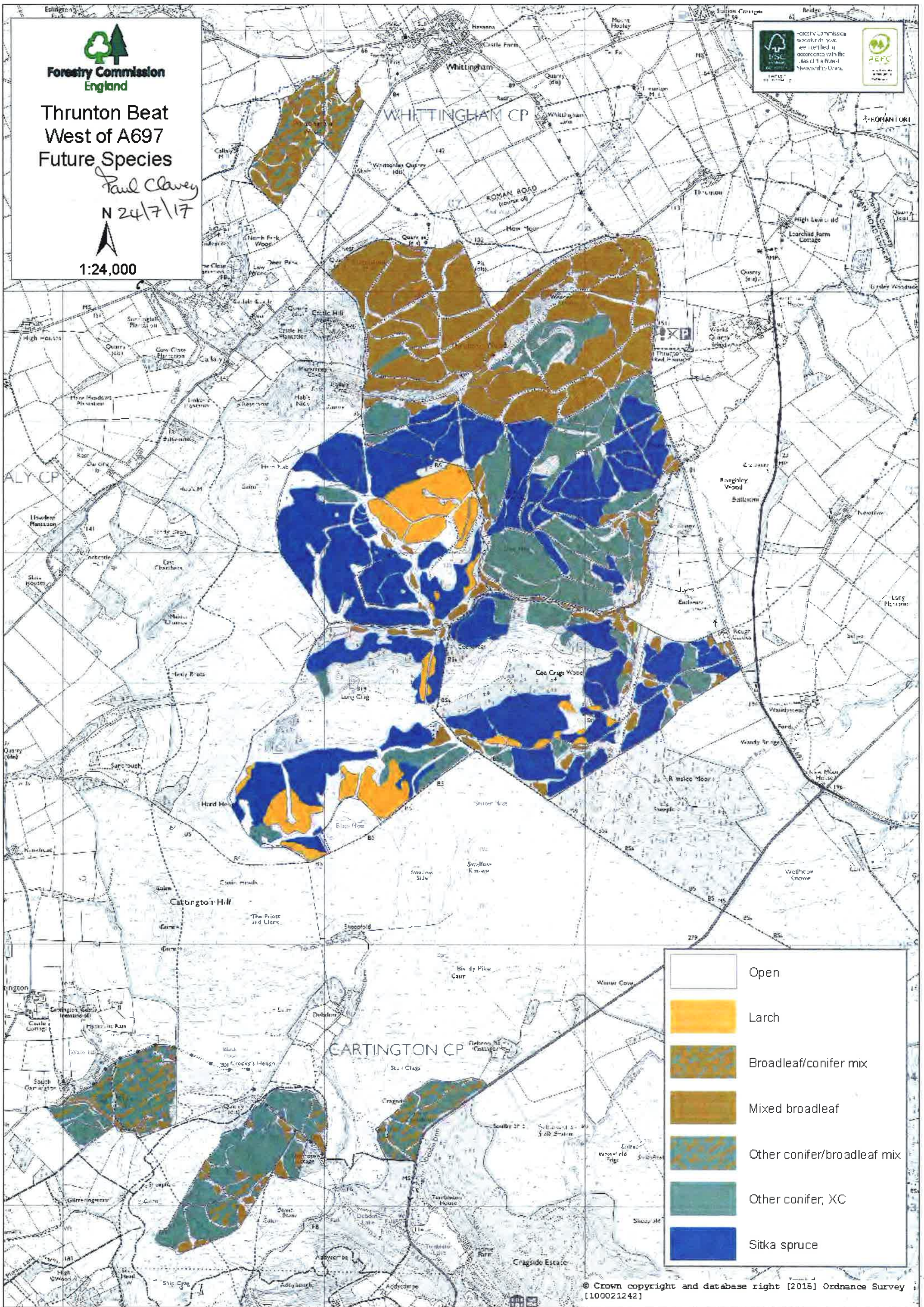
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England

### Thrunton Beat West of A697 Future Species

*Paul Clavey*  
N 24/7/17



1:24,000



	Open
	Larch
	Broadleaf/conifer mix
	Mixed broadleaf
	Other conifer/broadleaf mix
	Other conifer, XC
	Sitka spruce





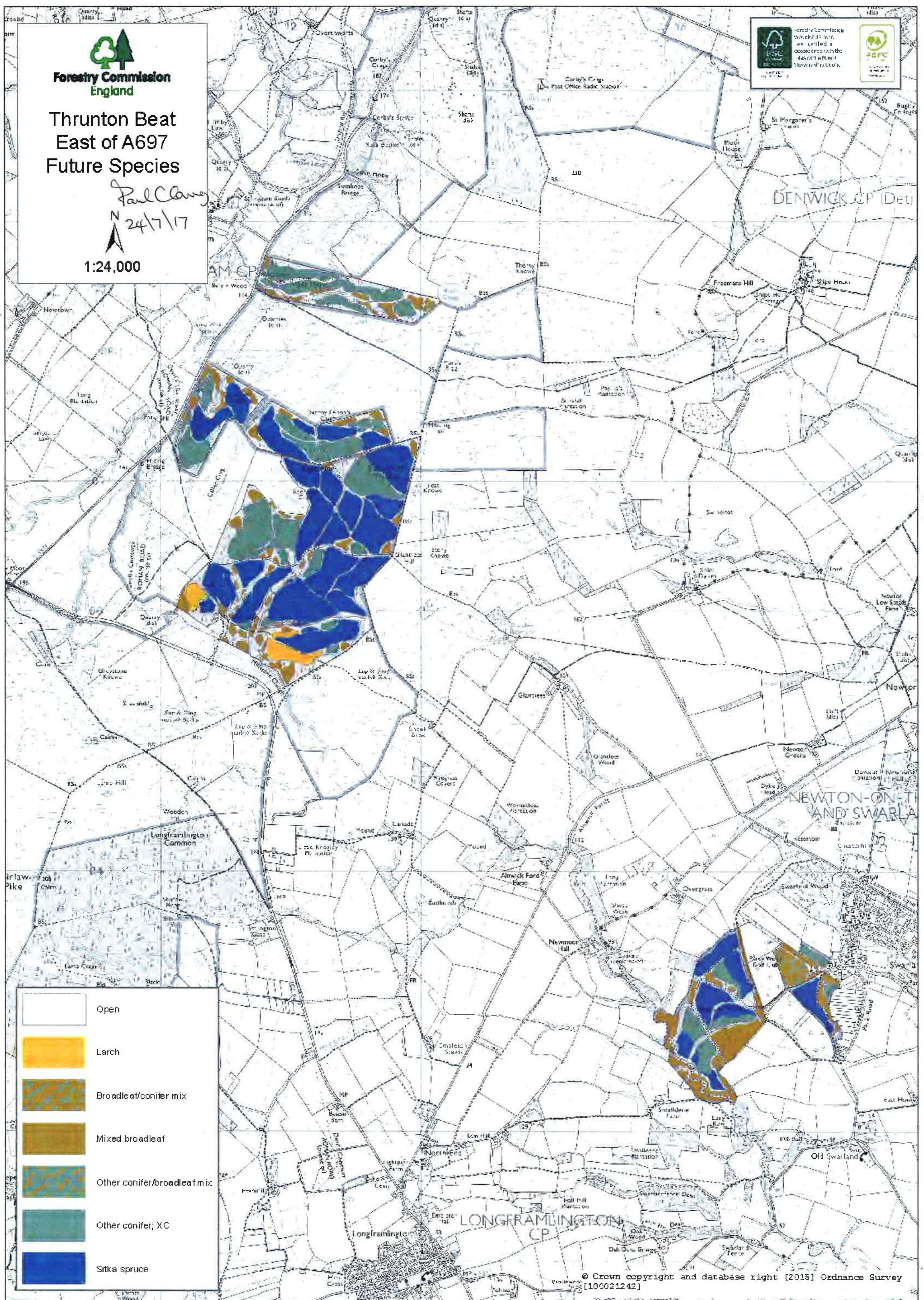
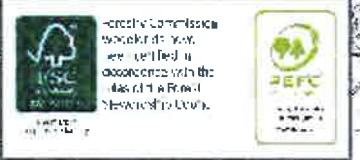
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# Thrunton Beat East of A697 Future Species

*Paul Clancy*

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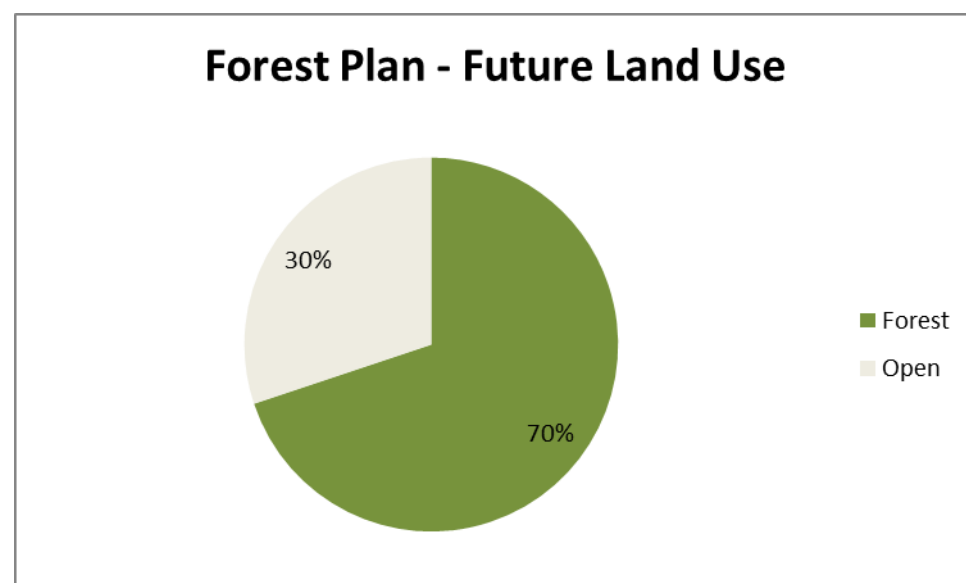


	Open
	Larch
	Broadleaf/conifer mix
	Mixed broadleaf
	Other conifer/broadleaf mix
	Other conifer, XC
	Sitka spruce



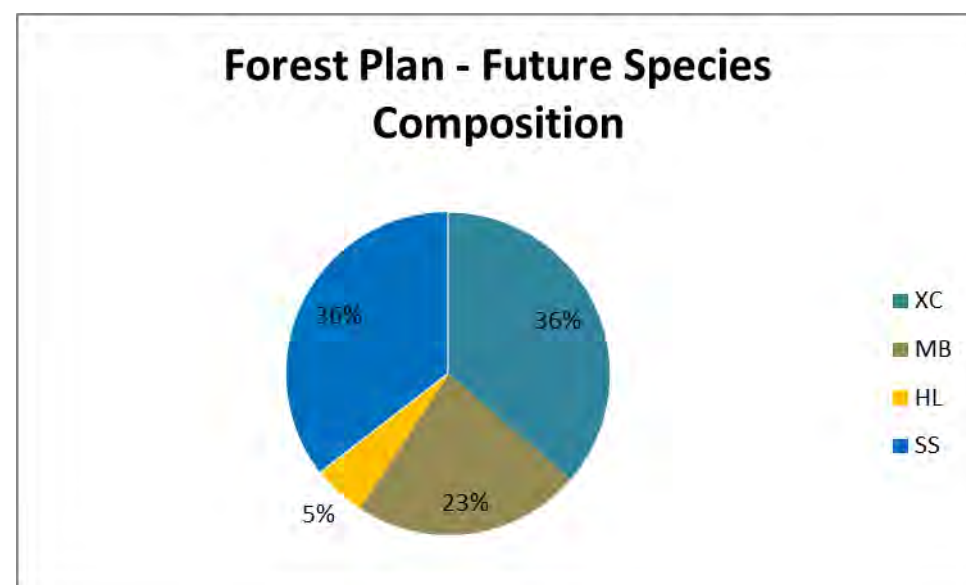
## Part 6 Forest Plan Outcomes

### Future Land Use and Species Composition



The species percentages (of net-planted area) for the indicative restocking plans are presented below:

These combined percentages of future species composition comply with the requirements for UKFS and UKWAS (65% primary species (Sitka spruce), 20% secondary species (Other conifers) and 5% mixed broadleaves). Note: the MB percentage includes PAW's restoration in Whittingham.



At restocking, as indicated by the indicative restocking plan, the opportunity is being taken to restock both to mitigate the straight boundaries of the earlier planting, increase the open area, and introduce broadleaf and alternative conifer species into the restocking. Where broadleaf species are planted the species will be chosen on the basis of their naturalness to the site (National Vegetation Classification), with the exception that no large seeded broadleaf species will be introduced at restocking. As with all indicative restocking plans the proposals will need to be refined as the sites are clear felled and features that are difficult to assess, while tree cover is present become clearer.

The table below indicates the future species and open area percentages for each of the woodlands in the plan area.

	Other conifers (XC)	Mixed broadleaf (MB)	Hybrid larch (HL)	Sitka spruce (SS)	Open habitat
Edlingham	20%	7%	2%	37%	34%
Primrose, Debdon and Chapel Hill	52%	39%	Null	Null	9%
Thrunton	20%	10%	6%	29%	35%
Swarland	17%	26%	Null	27%	30%
Whittingham	32%	43%	Null	Null	25%

### Mixed Woodland

Within areas identified on the Future species plan as mixed woodland (Northern Thrunton, Chapel Hill, Primrose, Debdon and Whittingham), management will normally be under a constant cover silvicultural system. In order to avoid excess management costs, the ability to work with nature is required, accepting where appropriate, species which naturally establish following a regeneration felling. The majority of species within each area will normally be the same as the current dominant species. However within all mixed woodland maintenance of pure species will not be an aim and a component of both pioneer and climax native hardwood species will be encouraged to develop. As with all constant cover silvicultural systems a rapid change in species composition is not practical without major intervention which would not normally be the intention due to the objective being the maintenance of forest cover. Any change within these blocks will therefore normally be progressive and relatively slow.



## Open woodland

In areas of transition from open moor to high forest the aim is to establish an open woodland type to ameliorate the abrupt habitat change by establishing a low and varied density planting, establishing 300 – 400 trees per ha. The species mix being based on the proportions below.

Species	Approx. %
Birch ( <i>Betula Pubescens</i> )	40 -50
Willow ( <i>Salix aurita</i> )	15 - 25
Rowan ( <i>Sorbus aucuparia</i> )	10 -20
Aspen ( <i>populus tremula</i> ) <sup>1</sup>	5 -10
Alder ( <i>Alnus glutinosa</i> ) <sup>1</sup>	5 -10
Scots pine ( <i>Pinus silvestris</i> )	5 -10
Juniper ( <i>Juniperus comunis</i> ) <sup>2</sup>	0 - 5
1 To be planted in localised are where suitable ground conditions exist. 2 Planted only within its known distribution.	

The aim is to establish an uneven spaced tree cover from groups to sparse singletons. There is no formal prescription for the most suitable means of establishing this form of woodland however, being woodland edge habitat, fencing, especially deer fencing, will be avoided where practical to do so. It is therefore proposed that initially areas identified to be restocked as open woodland will be planted at a density higher than the finally required stocking, with the sporadic form of woodland developing through natural losses. Natural regeneration will also be accepted where it does not establish to a level which could diminish the habitat value

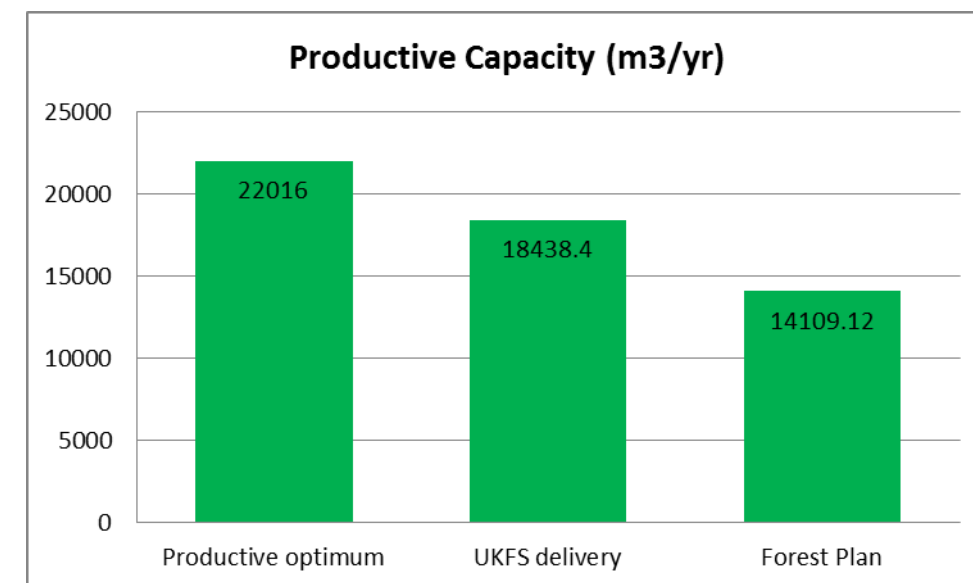
## Productivity

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<sup>3</sup>/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).
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. This Forest Plan – productive capacity based on the productive area (30% open) with percentage species mix from this plan.

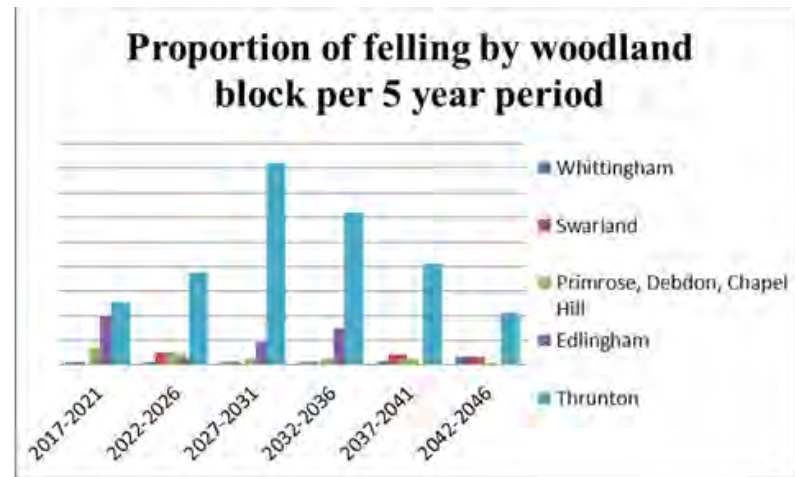
Note: The difference between UKFS delivery and Forest Plan includes factors such as Ancient Woodland restoration in Whittingham and enhancing the historic landscape in Thrunton, which require going beyond the minimum species composition and open space percentages to achieve UKFS.



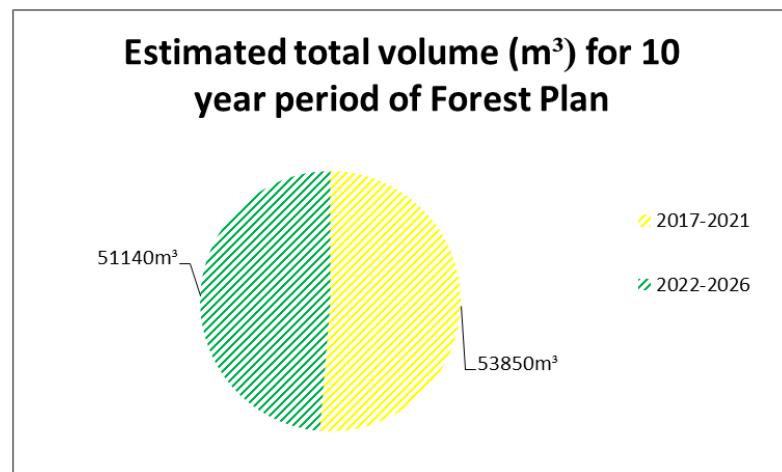


Timber production

The felling and restocking plans presented represent a balance between the multi-objective management of the forests, balancing the conservation, landscape and recreation values within the constraints of both the current status of windthrow and its future management. Many of the woods are stable sites with wind hazard classification as low as 2, which presents opportunities for management other than by clearfelling. Notably the northern area of Thrunton is proposed for management under continuous cover and no large-scale clearfelling will take place. However, in order to develop a more “natural” upper forest edge to Thrunton and Callaly crags, some small scale tree removal may be necessary. Additionally the whole of Whittingham, Debdon and Chapel Hill and much of Primrose Wood have been prescribed for management under continuous cover silviculture. The proportion of felling by woodland block per period is presented below.



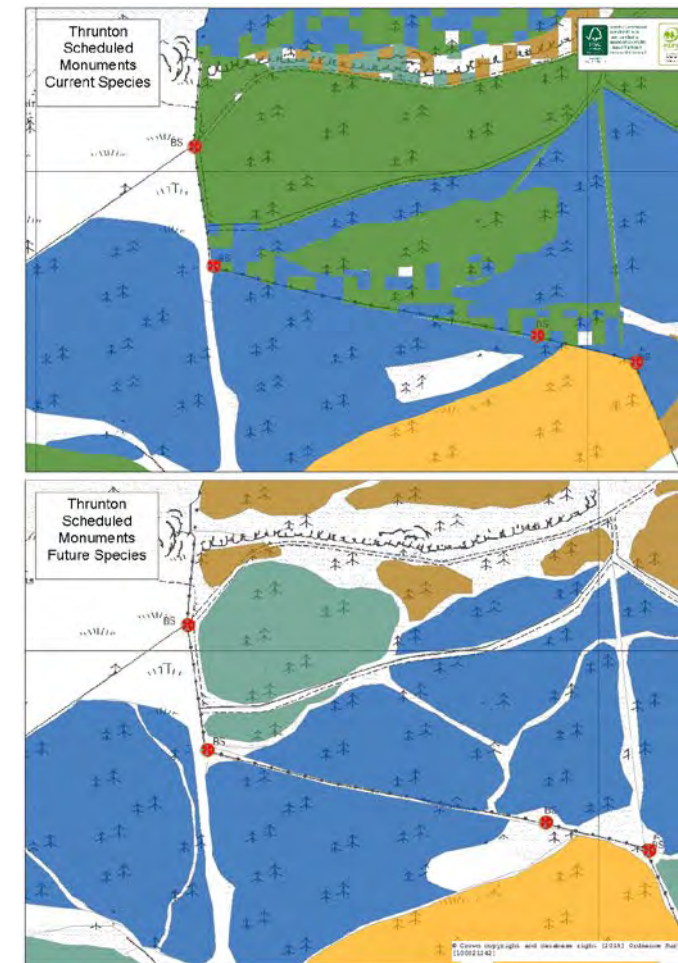
Through the ten year approval of the plan we will harvest approximately 105,000m<sup>3</sup> of timber. Average timber production per period is shown below.



Landscape Appraisal

Landscape considerations from the previous plan focused on the mitigation of visible geometric boundaries such as around the crags in Edlingham. This area has since been felled and the restocking with ‘open’ woodland will protect the landscape quality of this area in keeping with the exposed craggy outcrop features detailed in the Landscape Character Area description. Elsewhere conifer plantations are recognised as a feature of the LCA and mitigating the impacts of other straight forest boundaries remains an objective through the ongoing felling and restructuring program. Where high forest abuts open moorland future planting of ‘open woodland’ habitat will enhance the landscape impacts of commercial plantations. Additionally areas of relatively stable crops will be managed through continuous cover silviculture thus protecting the landscape character of areas such as Whittingham, the suite of woodlands north of Rothbury and the northern part of Thrunton.

An increase in open space, incorporated into restocking plans, adjacent to heritage features will protect the historic landscape significance of important areas within Thrunton through future rotations. The maps below indicate the current and future restocking plans adjacent to the four Scheduled Monuments in Thrunton.





## 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.

Thrunton 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 and serves as an agreed statement of intent against which implementation can be checked and monitored.

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

Productivity	The productive potential 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 graph.
Structure	Future species composition; 36% Sitka spruce, 36% other conifers and 23% mixed broadleaved and 30% open space, complies with 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	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 Local Landscape Character to inform the 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. The historical landscape setting of important areas are also recognised and being proactively managed in the future.
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 suite of diverse and resilient woodlands, 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 particularly in areas of Ancient Semi Natural Woodland and adjacent to features of historical significance.

Timber production remains a priority and will continue through a clearfell/restock regime with the focus on Sitka spruce but also with the introduction of a much broader range of conifer species and broadleaves. This strategy will also contribute toward climate change mitigation and long term forest resilience. In more stable sites the area managed through Continuous cover silviculture will have been expanded.

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