

HOCKHAM
THETFORD FOREST
FOREST PLAN

2016 – 2026

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**PROTECTING
AND EXPANDING
ENGLAND'S FORESTS
AND WOODLANDS,
AND INCREASING THEIR VALUE TO SOCIETY
AND THE ENVIRONMENT.**



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

The mark of responsible forestry



1. What are Forest Plans?

Forest Plans are produced by us, the Forestry Commission (FC), as a means of communicating our management intentions to a range of stakeholders. They aim to fulfil a number of objectives:

- To provide descriptions of our woodlands to show what they are like now.
- To explain the process we go through in deciding what is best for the woodlands' long term future.
- To show what we intend the woodlands to look like in the future.
- To outline our management proposals, in detail, for the first ten years so we can seek approval from the statutory regulators.

Our aim is to produce a plan that meets your needs for the woodland; meets the needs of the plants and animals that live there and meets our needs as managers.

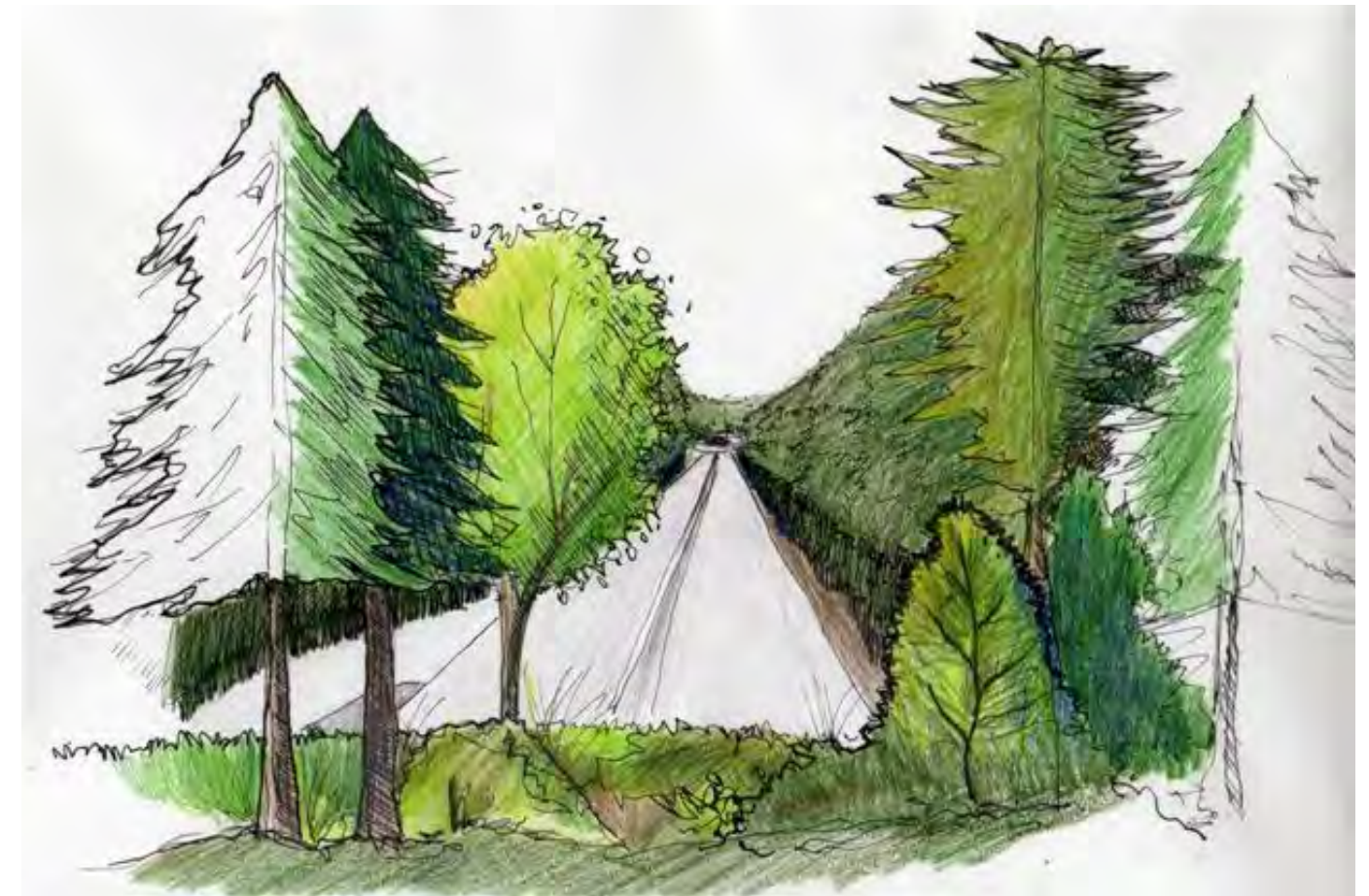
We have produced this draft plan to illustrate our management proposals thereby creating an opportunity for you to comment on the plan, whether you are a user, a neighbour or a member of one of the many stakeholder groups that have an interest in the woodlands. Information on how to get your comments to us is on the webpage.

This plan does not set out the detailed yearly management operations for each small piece of a wood, known as a coupe*. It is not possible to say which year a particular operation will take place, but we can say in which five-year period it should happen.

All tree felling in the UK is regulated and a licence is required before trees can be felled; the scale of tree felling in Thetford Forest is such that the Forest Plan is the best mechanism for applying for this licence.

Responsibility for checking that the plan meets all the relevant standards and statutes lies with another part of the FC (Forest Services). If all the criteria are met, full approval is given for the management operations in the first ten years (2016 - 2026) and outline approval for the medium term vision (2026 - 2086). The plan will be reviewed after the first five years (2021) to assess if the objectives are being achieved. Natural England will approve management proposals for the Sites of Special Scientific Interest (SSSIs) which lie within our woods.

We use some technical words and phrases in the text because they best describe what we are doing. There is a glossary at the back of the plan with some commonly used technical forest terms and abbreviations these technical words are identified with an *.



2. Standard Practices and Guidance

Underpinning the management proposals in Forest Plans is a suite of standard practices and guidance described briefly below. Some of these practices are strategic national policy, whilst others are local expressions of national policy to reflect the particular conditions found in East England - the policy level is indicated in brackets.

The UK Forestry Standard* (national)

The UKFS sets out standards for the sustainable management of all forests and woodlands in the UK and describes, in outline, good forest practice.

The UK Woodland Assurance Standard* (national)

The UKWAS certification standard sets out the requirements which woodland owners, managers and forest certification bodies can use to certify their woodland and forests as sustainably managed. It is the document which guides all of our management, and against which the FC is certified by outside consultants to ensure our compliance. The most current edition at this time is the third edition.

Deadwood (national and local)

Deadwood is important in the forest as a habitat for birds, invertebrates and some primitive plants. Guidance is given on how to provide deadwood in the forest of different sorts and sizes and how this will be distributed.

Natural reserves (national and local)

Natural reserves are areas of the forest where little or no active management takes place thereby creating a very different and special habitat in our otherwise actively managed forests.

European Protected Species (national)

In August 2007 amendments to the European Habitat Directive came into force in England and Wales to protect the habitat of a number of vulnerable species. Those European Protected Species (EPS) most likely to be found in a woodland habitat include all species of bat, hazel dormouse, great crested newt, otter, sand lizard and smooth snake.

In Forestry Commission managed woodland where one or more of these species has been confirmed, the FC will manage the woodland in accordance with the good practice guidance documents that have been produced by FC and Natural England (NE). On the rare occasion when woodland management operations cannot be undertaken in compliance with the guidance, NE will be consulted and where necessary, an application will be made to undertake the operation under licence.

It is recognised that EPS can occur beyond woodland therefore the management of open habitats identified in this Forest Plan will also need to consider the presence of these species.

Other Designations

The FC landholding in England has a wide range of European and national designations placed upon it in various locations across the country, such as;

- National Park
- Area of Outstanding Natural Beauty (AONB)
- Special Protection Area* (SPA)
- Special Area of Conservation (SAC)
- Sites of Special Scientific Interest* (SSSI)
- Scheduled Monuments (SM's)
- County Wildlife Sites*

Along with the standard guidance documents, we have individual plans for our designated sites; these describe work required to maintain and enhance the protected features. We will gradually integrate these into our Forest Plans where appropriate.

In addition, the Forestry Commission has a number of practice guides and specialist bulletins which further inform our management, some of these are available to download from our website <http://www.forestry.gov.uk/>

3. Introduction

This Forest Plan covers 834 hectares of Forestry Commission land which is part of Thetford Forest in the county of Norfolk. We are guided and directed by the policies and strategies detailed below:

The Governments Priorities

The Government forestry policy is set out in Defra's and Forestry Commission England's Forestry and Woodland policy statement. This policy was published in 2013 during the Conservative and Liberal Democrat coalition government.

The Forestry Commissions Priorities

Our strategic plan for the Public Forest Estate in England and Corporate plan 2015-2016 focus on three goals for sustainable land management including:

- An Estate that delivers for Environment, Nature and History
- An Estate that delivers for People
- An Estate that delivers for Economic Growth

General Description of Plan Area

The plan area lies on the eastern edge of Breckland approximately 5 miles north east of Thetford. The woods are bordered on the west by an extensive army training area and large estate, on the north by a wild life trust reserve, and on the east and south by intensively managed arable and animal production units. There is a significant proportion of non-Forestry Commission woodland in the landscape, linked with hedgerow trees.

The whole of the plan area lies in the county of Norfolk, and is within the administrative boundaries of Breckland District Council. It falls within three parishes which converge at Wretham, Hockham and Stow Bedon.

Most of the plan area is held as freehold, acquired by the Forestry Commission in the 1920s and 30s. Most is now dedicated as open access land under the Countryside and Rights of Way Act 2000 (CRoW Act). The lease on Brick Kiln Covert began in 1952 and no public access is permitted.

The strategic priorities of the Government and Forestry Commission set the direction for the future management of the woodland. These along with the Forestry Commissions Corporate Plan 2015-16 and local knowledge are used to prepare a design brief for the Hockham area. The plan is then subject to a consultation where subsequent changes may be applied before being finalised.

The whole plan is arranged around the three themes of sustainable forest management:

- Nature
- People
- Economy

4. Design Brief

Nature

- The felling plans should aim for an even distribution of felled area for Woodlark/ Nightjar habitat and contribute to maintaining a minimum area of 12757 ha in cyclic clearfell as required under the SPA* designation.
- Incorporate open space areas as detailed in the Thetford Open Habitat Plan where possible, connecting pingos through a network of rides, encouraging distribution of rare flora and fauna.
- Open Pingos in Frost Common by selective felling around ponds (haloing), allowing sunlight to reach ponds, encouraging increase and diversity in water flora and fauna.
- Maintain and improve cultural and heritage value of the land by protecting sensitive heritage features highlighted through the OSA* process.

People

- Create a pleasant natural environment for the public to enjoy outdoor recreation in a rural woodland setting.
- Enable everyone, everywhere, to connect with the nations trees and forests, so that they understand their importance and act positively to safeguard forests in the future.

Economy

- Maintain the land within our stewardship under UKWAS* certification by meeting standards detailed in UKWAS third edition.
- Improve economic resilience of our forests by increasing species diversity through restock programmes to protect future timber supplies and biomass.
- The felling plan should aim to smooth production from crops in cyclic clearfell but also meet market commitments.

The following three sections will show how the objectives in the Design Brief can be delivered through the Forest Plan for the Hockham area of Thetford Forest. The final section will be an appraisal of the plan against the design brief and a statement regarding monitoring the progress of work as the Forest Plan is implemented on the ground over the next ten years.

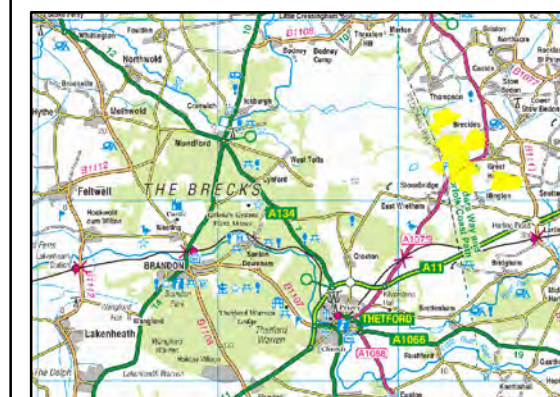


Analysis & Concept Map

Freehold woodland Public right of access	Parking (in gateway)
Leasehold woodland No public right of access	FC Carpark/picnic site
Settlement	Public campsite
House	Public Right of Way
Forest Road	FC trail
Public Road	Public Road
Environment	
SSSI & SPA	FC natural reserve
FC Conservation Sites (pingos)	Surrounding SSSI sites to plan area
FC conservation sites	Water courses and drains
Cattle grazing area	Proposed Open Habitat network

Location & Context

Forest Plan area highlighted in yellow



Design Brief

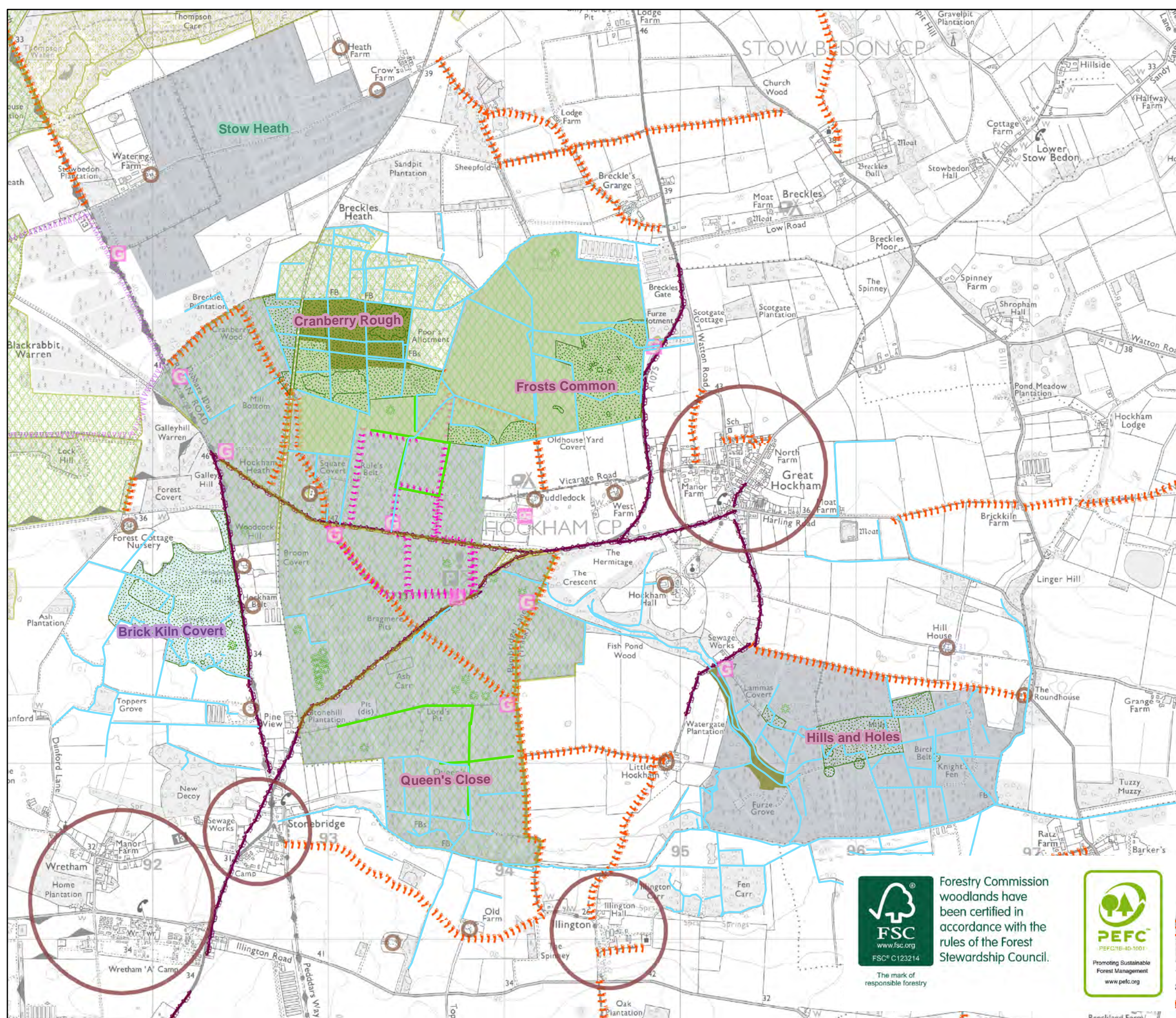
- Nature**
- Evenly distribute fell areas for Woodlark/Nightjar habitat as required under the SPA designation.
 - Implement Open Habitats Plan where possible connecting pingos.
 - Open Pingos in Frost Common through haloing works.
 - Maintain, manage and protect sensitive heritage features.
- People**
- Create a pleasant natural environment for the public to enjoy outdoor recreation in a rural woodland setting.
- Economy**
- Maintain FC land under UKWAS* certification.
 - Increase species diversity through restock programmes.
 - Smooth crop production to meet market commitments.



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Promoting Sustainable Forest Management



5. Nature

Site Characteristics

The plan area mostly lies between 45m and 33m above sea level, falling to 22m on the southern fringe through Brick Kiln Covert, Queen's Close and Hills & Holes.

The dominant soil type on the higher ground in Stow Heath and the centre of the main block is Freckenham. The Freckenham series is an acidic brown earth, a coarse textured soil with good rooting depth but low water availability to trees except where the local water table is accessible, with less than 3% clay and less than 7% silt.

Cranberry Rough is fringed with Adventurers series— a neutral to slightly acidic reed and brushwood derived fibrous peat formed in the floodplain over coarse sand and gravel valley floors. The centre of Cranberry Rough is up to 11m deep organic lake mud overlain with acidic poorly drained sedge peat. At the west end an oligotrophic raised moss peat developed above the water table up to 70cm deep. Geologists know Cranberry Rough as Hockham Mere - the place where, in the 1940s/50s, seminal research used pollen analysis to describe the historic sequence of vegetation change .

Queens Close has the Moulton/Worlington complex. These are brown earths, Worlington soils are deep acidic excessively well drained loamy sand and Moulton occurs on a finer textured drift with a much higher clay content (10-30%) than usual in Breckland—and is consequently considered the best agricultural land in the district. This means that the few places Moulton occurs in the forest will have been farmed and therefore marled.

Hills and Holes predominantly has Freckenham soils in a complex mixture with almost all of the gley, peaty gley and peat Breckland valley soils, which generally have water tables that limit rooting depth.

These differences in topography and soil type through the area are reflected in the character of woodland present.

The overall climate is generally mild with very warm summers, but the area can experience very low winter temperatures; spring and early summer frosts are common. These factors, coupled with relatively low rainfall (520 - 640 mm/year) create an almost continental climate.

Existing Habitats

Coniferous Forest

Most of the wooded area of the plan is conifer forest, with Pine being the predominant species. The mature forest areas are used as breeding habitat by several different species of raptor and other Schedule 1 birds such as Firecrest.

Deadwood

A proportion of dead trees are left standing after clearfelling, providing they are regarded as safe; these become important standing deadwood habitat. A lot of fallen trees are left to rot down where they fall, it is important not to 'tidy up' these fallen trees from a biodiversity point of view as shaded rotting wood is important habitat for invertebrates.

Protected Sites

Most of the plan area has been designated as a Special Protection Area (SPA) under the European Habitat Directive.

The two birds of interest; Woodlark (*Lullula arborea*) and Nightjar (*Caprimulgus europaeus*), nest on open ground and rely on the clearfell tree harvesting system to generate suitable nesting habitat. As a result of the SPA designation the area notified as a Site of Special Scientific Interest (SSSI) has been increased to match the SPA, although parts of the forest had already been notified as SSSI for significant assemblages of rare Breckland plants and invertebrates.

The SPA designation protects the breeding habitat of Woodlark and Nightjar and therefore impacts on the clearfell programme across Thetford Forest. This revision of the Forest Plan will try to smooth the 'supply' of breeding habitat over time by amending the felling dates of the clearfell coupes to produce an annual area of clearfell close to the sustainable mean for the forest. This is illustrated in a bar graph in the appraisal and monitoring section.



Woodlark

©Chris Knights

5. Nature

Ponds, watercourses and wetlands

Cranberry Rough provides a wide range of wetland habitats, including swamp woodland, tall reed fen, a network of dykes and pools and areas of damp grassland and fen. These in turn support an exceptionally rich diversity of wetland plants, insects and birds. This wetland site was formerly a lake known as Hockham Mere. It is now a 'Site of Special Scientific Interest'.

During the last ice age retreating glaciers left hummocks and hollows, distinctive features in the landscape known as Pingos. These are predominantly located in Hills and Holes, Brickkiln Covert and Frosts common. These can be seen on the LIDAR* image for Frosts Common and Brick Kiln Covert on page 10. Pingos support a wide range of species including the rare emerald damselfly, water beetle and great crested newts. The wet nature and rich biodiversity of these areas makes machinery access for harvesting purposes very difficult. Therefore they are managed as either continuous cover or wood pasture (see management map, pg.13). Work was undertaken in 2014 to remove trees around the Pingos in Frosts Common which were blocking sunlight from reaching the water, making the waterbodies cold and devoid of water plants. Extraction was carried out using low impact horse power.

There are a number of drains throughout the forest plan area which flow into a stream along the southern edge of the forest (see Analysis and Concept map). This area lends itself well to supporting a variety of wet woodland species. Therefore, the minimum intervention area at Queens Close will undergo group plantings of Willow and Alder to increase biodiversity in the area.



Open Space

The UK Forestry Standard and UKWAS requires 10% of the forest area to be managed as open space for biodiversity, cultural and recreational purposes. The existing open space within this plan is made up of the motorcycle recreation area and the network of forest rides, which pass through acidic and calcareous areas. It is recognised that widening and linking rides within this plan will increase biodiversity for the priority habitats: fenland, calcareous grassland and glacial pools (pingos). Tree removal around pingos (haloing) will also create open space whilst improving conditions for water flora and fauna.

The network of wide rides generally exist from old field boundaries from previous land use and have shaped the square like plantations seen on the ground today. As well as conservation value and timber extraction routes these wide rides act as fire breaks reducing fires spreading during a wildfire incident, and providing good access for the emergency services. They are also important for wildlife management providing good feeding areas for deer. Open space is managed through mowing and grazing, which at Hockham includes the areas at Cranberry Rough, Frosts Common and Hills and Holes.

The Thetford Open Habitat Plan identifies priority habitats and aims to integrate 10% open space across 12 Thetford Forest design plans, creating ecological corridors, benefiting the wider Breckland landscape. More information on this proposed plan can be found at: www.forestry.gov.uk/forestry/INFD-9P7JCF.

5. Nature *cont.*

Safeguarding our Heritage

The Forestry Commission acquired most of Hockham in the 1920's and 1930's with early woodland blocks in existence before 1840. Historically the land was used for mainly arable crops. Other areas were managed as wood pasture including Frosts common, Hills and Holes and Stow Heath.

The Great Eastern Railway station was originally located at the start of The Great Eastern Pingo trail just off the A1075. The dismantled railway runs from the Eastern edge of Stow heath through past Cranberry rough ending at the Hockham belt opposite Brick kiln covert. This was the branch line between Swaffham and Thetford and was opened for goods traffic on 28 January 1869 and for passengers on the 18th October 1869. The line closed in 1964 and the old station is now a private house. A small road existed in the forested plantation above Woodcock House in 1866 to provide access for the construction of the railway.

Cranberry rough was once the site of a large lake left by retreating glaciers from the last Ice Age (10,000-12,000) years ago. For the Neolithic hunters through to the people of the medieval manor of Hockham the lake would have been a vital source of fish and fowl. There are records of a 'fish house' here in 1380. In Tudor times there was still a large lake of around 280 hectares, called Hockham mere, but it gradually silted up and by 1737 was simply a swamp. In 1939 boreholes put down into the bed of the mere disclosed deep deposits of organic lake mud. Pollen analysis from these were able to show the vegetational changes of the region from the late glacial until recent time.

As part of the Breaking New Ground (BNG) Landscape Partnership scheme, the Forestry Commission and Forest Research carried out a LIDAR* survey covering 150km² of Thetford Forest in the Brecks to reveal hidden ground features providing new information on previous land use. The project involved flying over the landscape and sending over 300,000 laser pulses per second to the ground, which reflected back to build a 3D image relative to the land and vegetation below. The LIDAR* image opposite shows an image of Hockham, where tree cover has been digitally removed to show ground contours coloured to highlight features present on the ground. The lowest ground areas are shown in yellow through to the highest shown in green. The small hummocks and hollows (Pingos) can be seen in both Frosts Common and Brick Kiln Covert. Other smaller pits, possibly marl pits are also present and dotted across the central area. Lines shown within the blue highlighted area depict windrows and can be seen in other areas on the map. Until recently, these were created by de-stumping ground following clear fell operations to control fomes (heterobasidion annosum) a fungal disease affecting tree roots, causing the newly planted trees to die. This disease had a big effect on Corsican Pine which until 2006 was the predominant species planted in the forest. However, due to Dothistroma Needle Blight discussed on pg. 12, Corsican Pine is no longer planted and as a result windrows are no longer created. LIDAR has enabled clear images of previous practices like this to be captured. The image also shows in which direction trees have been planted.

The red highlighted area shows an outline on the ground which may be from a previous building. This is not physically visible on the ground but through LIDAR imaging has been possible to find. For more information on this project visit www.breakingnewground.org.uk.

In common with much of Thetford Forest, the plan area has good survival of features associated with previous land use history including prehistoric flints, parish boundary banks, warren bank and low lying ditches previously used to control water (water meadows).

Heritage features are considered as part of an OSA* process rather than as part of the plan.



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6. People

Access and Recreation

The plan area provides 95% of land dedicated for unrestricted public access on foot under the Countryside and Rights of Way Act 2000. The Great Hockham car park and picnic site is signed and located just off the A1075 between Thetford and Watton. It offers two waymarked walk trails. There are also several gateways along the unclassified road that splits the main forest area. These are regularly used by dog walkers.

The 8 mile Great Eastern Pingo trail runs through the middle of Stow Heath and can be accessed from a small car park just off the A1075. The route also follows part of the Peddars Way. The Peddars Way and Norfolk Coast Path follows a Roman road past the western edge of Stow Heath and Brick Kiln Covert, this is part of a 93 mile National trail.

There are a few Public footpaths which run through the forest; there is also a bridleway meant for walkers, horse riders and cyclists which runs along Bambridge Lane. The Norfolk and Suffolk Junior Motorcycle Club lease an old quarry just off the A1075 for motorcycling events.

A recent Europe wide study has shown that people who visit forests prefer to see stands of large mature trees, both of broadleaves and conifers. This study confirms our own management policy of retaining some over-mature trees and managing them under a long term retention or continuous cover system, contributes well to providing a more aesthetic environment.

The Forestry Commission manages a recreation webpage for Great Hockham providing information on the area including it's history, recreation offer and the opportunity to provide feedback about the site. The web address is www.forestry.gov.uk/forestry/englandeastanglianoforestthetfordforestparkgreathockham. There is also a Thetford Forest Facebook page.

Community

There are isolated houses neighbouring the woods across the area. The plan area is close to the village of Great Hockham with a population of approximately 600 people as well as other villages including Stonebridge and East Wretham. The plan area is sometimes used by local schools to carry out forest school activities. The nearest towns to the plan area include Thetford with a population of approximately 23,000 and Watton with 8,000 people. The Environment Agency has water monitoring points at various locations in the forest.

Forest plans are revised every 10 years and plans for the East England Forest District are accessible from the Forest Plans webpages at www.forestry.gov.uk/forestry/INFD-9PFDDY. Details of current forest operations in the area are also available on these pages.



Landscape

For nearly a century the landscape of Thetford Forest has been ever-changing; from the 1920's onwards tree planting on a huge scale created one of England's largest lowland forests and from the 1970's, when the trees started to reach maturity, the timber from the forest has been harvested. The present day landscape of Thetford Forest is a patchwork of trees of different ages intermingled with wide rides and open spaces.

As the age structure of the forest has altered it has been possible to assess the visual effect of the larger clearfells of the 1970's and 80's. These early clearfells were 25 – 30 hectares in size and can dominate the landscape. It is now agreed that a fell area of around 15 hectares fits better into the landscape, providing visual diversity while retaining the economies of scale for our forest operations.

Forest Plans have been used in Thetford Forest for more than 20 years; leading to a change from rectilinear felling shapes to more 'organic' shapes that follow natural or historic boundaries resulting in more of the forest becoming a mosaic of organic shapes composed of trees of different ages and species. There are just a few large rectilinear areas left to 'redesign' but most of the Thetford Forest is well on the way to becoming a well balanced and sustainable multi-purpose forest.

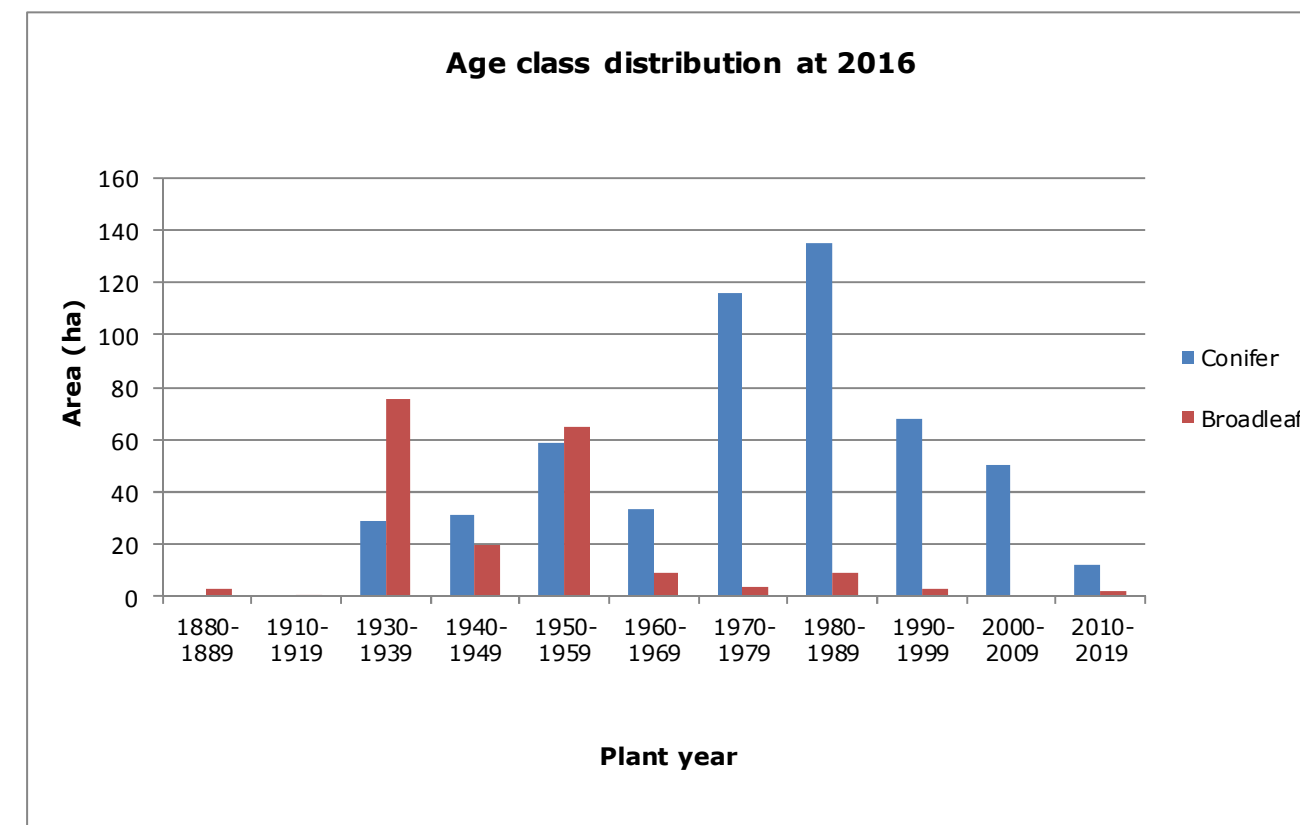
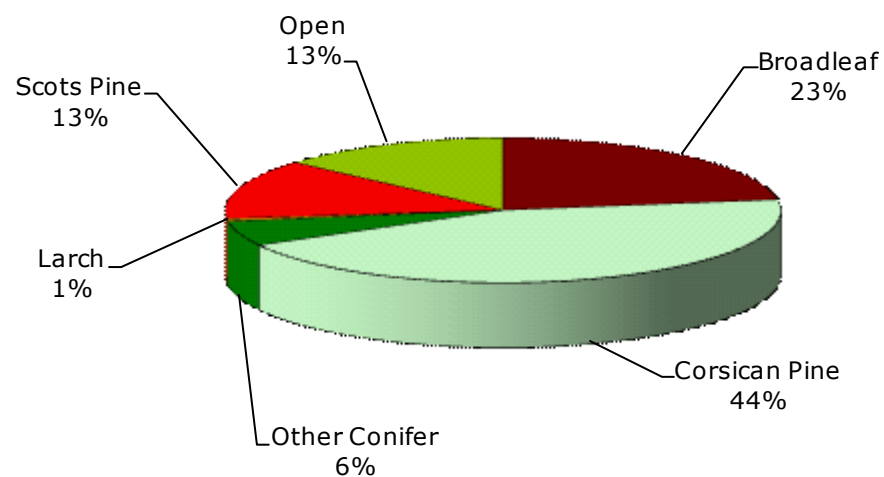
7. Economy

Tree Species

Thetford Forest is predominantly a pine forest; this genus was chosen as both Scots and Corsican pine are particularly well suited to the soils and climate in Breckland; growing fast and producing good quality timber. The heavy reliance on pine, particularly Corsican pine, has its downside as Dothistroma Needle Blight (aka Red Band Needle Blight) has now spread across the forest; Corsican pine is particularly susceptible to this disease; Scots pine is also affected but to a lesser extent. The effect of Dothistroma Needle Blight is to reduce the number of needles held on the tree and also to reduce the efficiency with which the remaining needles photosynthesize, leading to poor growth and in the worst cases killing the tree. Ongoing research is guiding our future silvicultural decisions. Within the plan area there are 25ha of longstanding research plots looking into the effects of current thinning practices on Dothistroma Needle Blight.

Broadleaves are one of the main species covering 23% of the plan area, occurring in belts and large blocks such as Hills & Holes and Brick Kiln Covert. Open space including both permanent and temporary (e.g. recently felled areas) accounts for 13% of the plan area.

Species Proportions before plan implementation (2016)



Age Classes

The bar chart above illustrates how past management of the woods has perpetuated the condensed initial establishment phase—resulting in the current limited spread of tree ages. Some of the original pine plantings and broadleaf belts remain, as does the pre-Forestry Commission broadleaf woodland.

The design brief is to 'smooth' the felling of the second rotation so that the age class distribution becomes more evenly spread over a period of 60 to 70 years. This equates, approximately, to a rotation* of trees and will move the forest forward on a more sustainable basis.

Forest resilience

The plan area is an established woodland with an increasing varied age structure and ride network throughout. Silvicultural systems currently used include thinning on a 5-7 year cycle in conifer plantations and a 10 year cycle for continuous cover areas to encourage natural re-generation.

To improve forest sustainability tree species and protection is considered as part of the restock programme taking into account soil type, diversification, fire resilient species, disease and pests. As a result of changing priorities restock species are decided closer to the time of felling and so a percentage of other conifer species are shown on the habitat map on pg. 16.



Forestry Commission
England

East England Forest District

Hockham

Scale: 1:20,000

Management Area

Legend

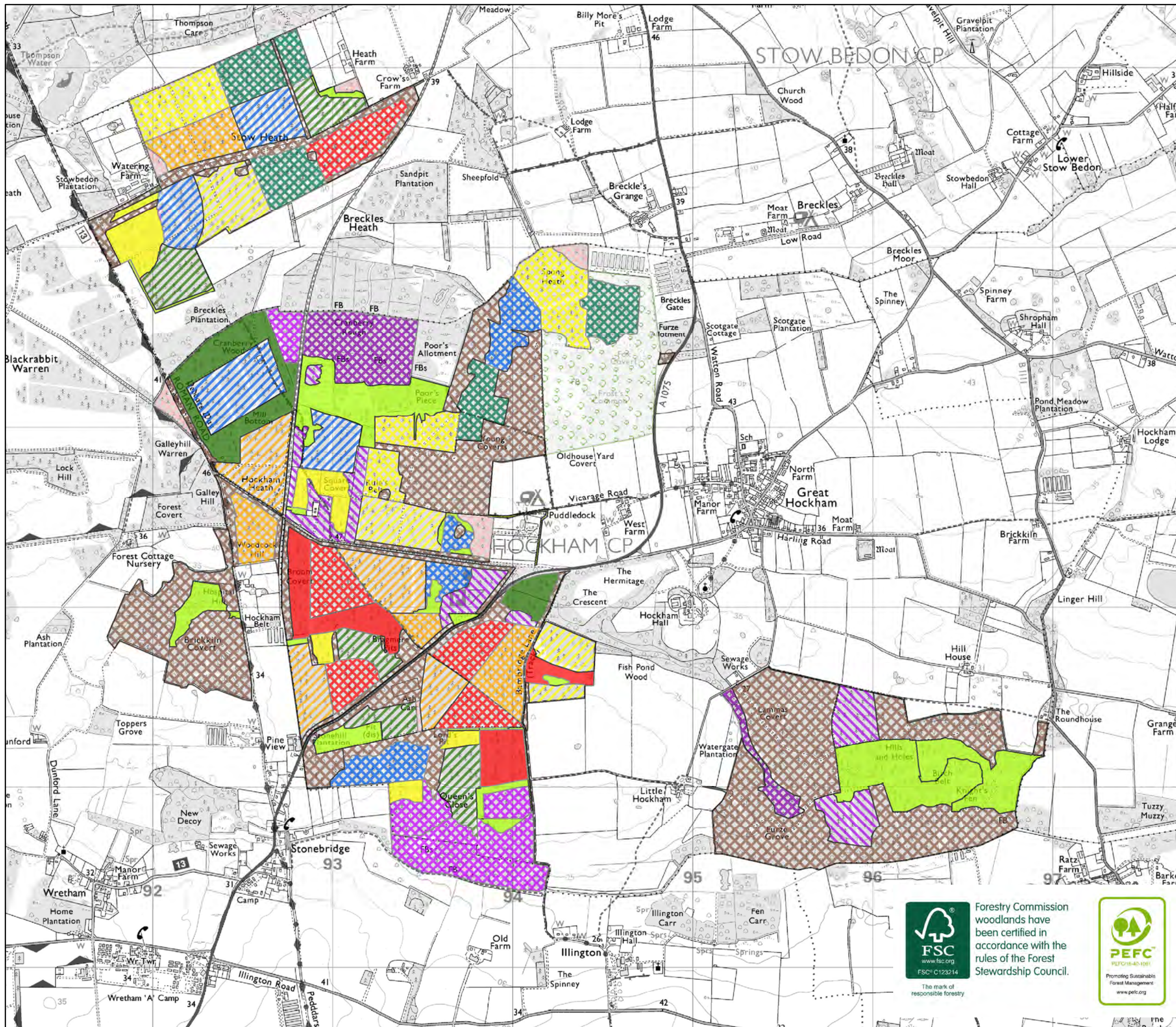
- Clearfell 2017-2021
- Clearfell 2022-2026
- Clearfell 2027-2031
- Clearfell 2032-2036
- Clearfell 2037-2041
- Clearfell 2042-2046
- Clearfell 2047-2051
- Clearfell 2052-2056
- Clearfell 2057-2061
- Clearfell 2062-2066
- Clearfell 2067-2071
- Clearfell 2072-2076
- Clearfell 2077-2081
- Clearfell 2082-2086

Continuous Cover Forest

- CCF - Conifer
- CCF - Broadleaves
- Minimum Intervention
- Natural Reserve
- Long term retention

Open/Other

- Wood Pasture
- Open



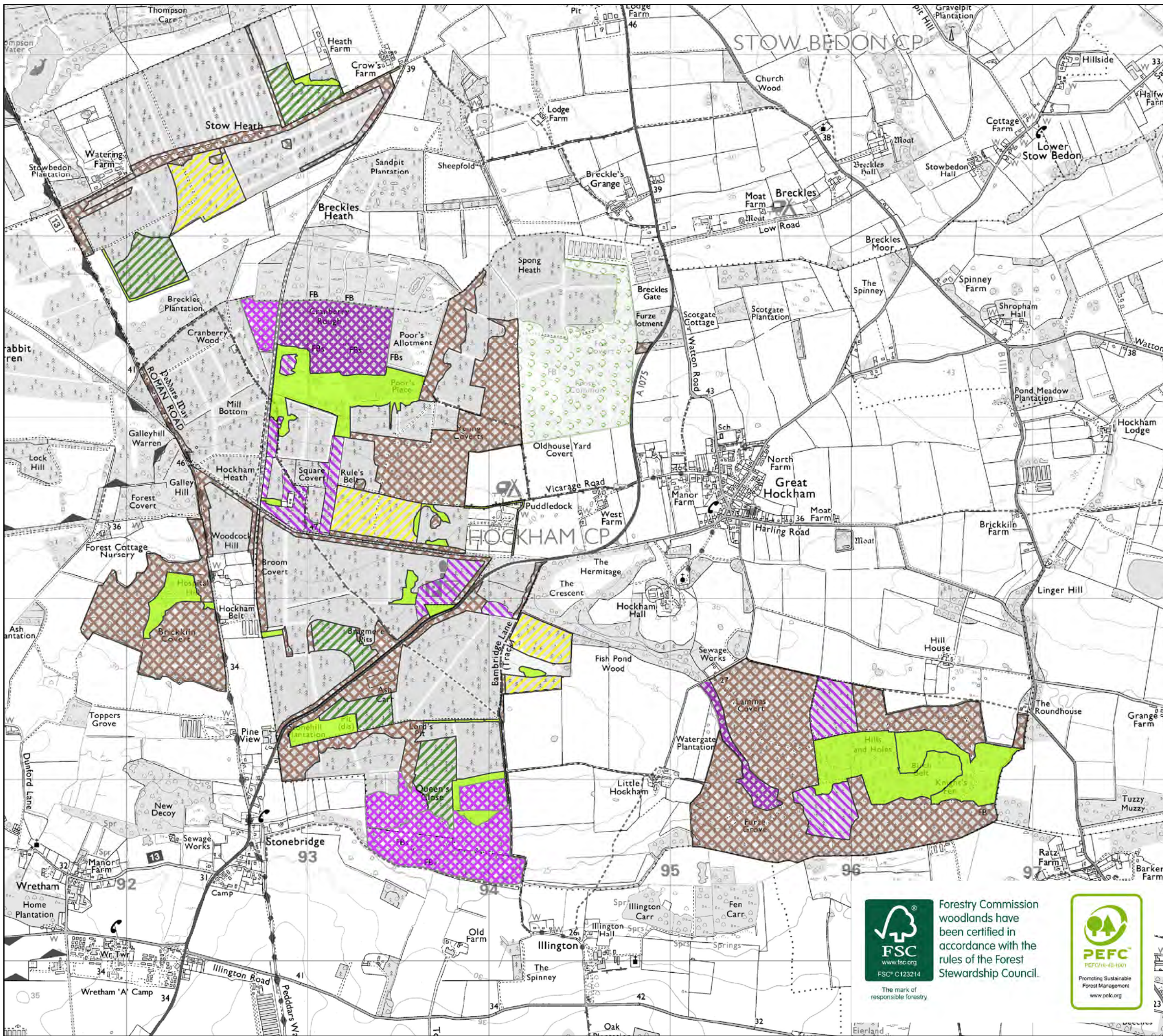
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Produced by the planning team
January 2016

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Forestry Commission
England
East England Forest District
Hockham
Scale:1:20,000


Management map for the 10 year approval period of the plan, showing clear fell, selective fell and open areas

Legend

- Clear fell**
-  Clearfell 2017-2021
 -  Clearfell 2022-2026

- Continuous cover Forest (selective felling)**
-  CCF - Conifer
 -  CCF - Broadleaves
 -  Wood Pasture

- Natural process**
-  Minimum Intervention
 -  Natural Reserve

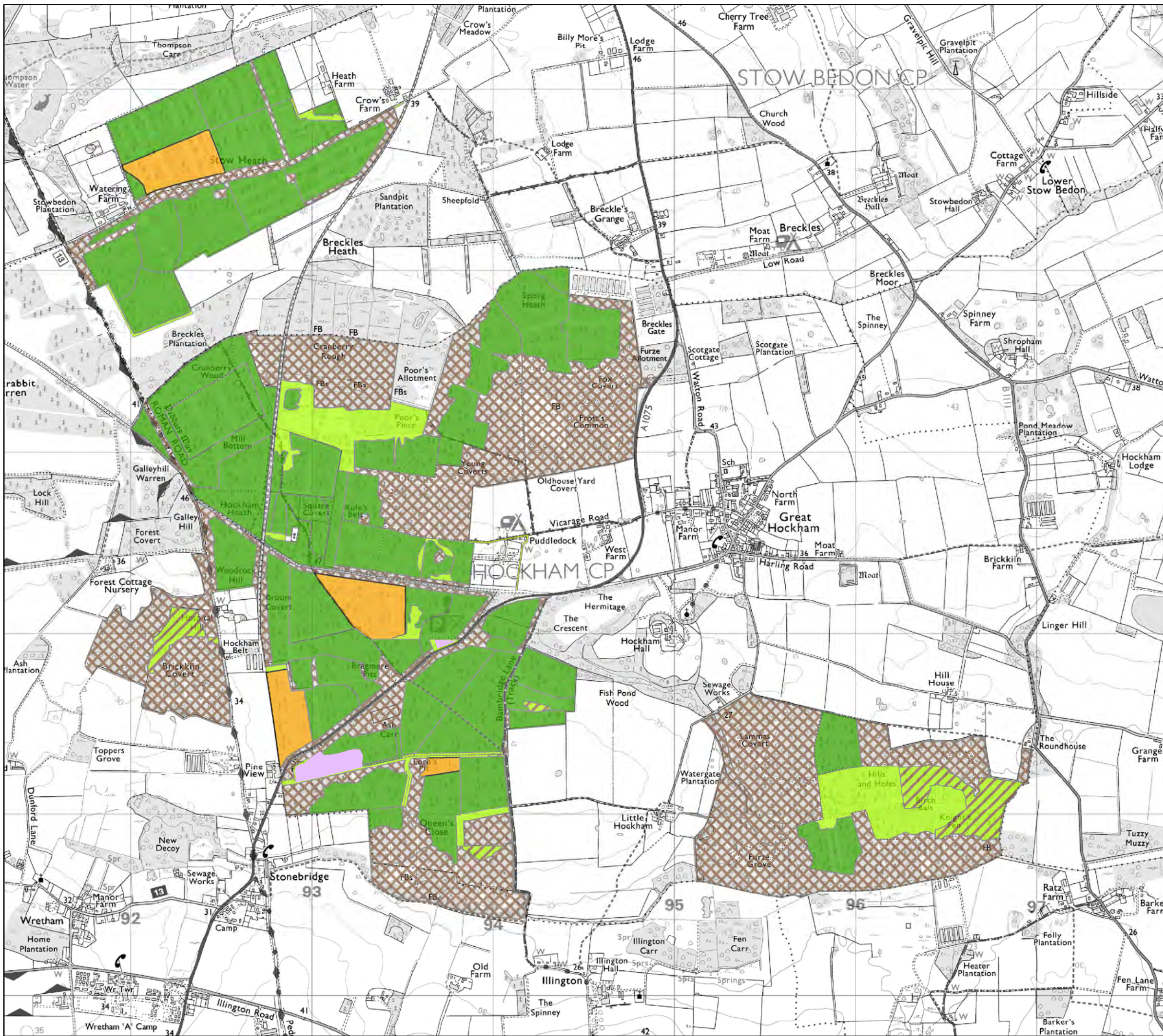
- Open (managed through recreation, grazing and mowing practices)**
-  Open/Other



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Forestry Commission
England




East England Forest District

Hockham

Scale:1:20,000

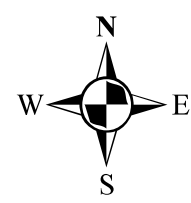
Habitat map

Legend

-  Evergreen Conifer
-  Deciduous conifer woodland
-  Broadleaf woodland
-  Permanent Open Space
-  Temporary Open Space
-  Recreation - Open

Produced by the planning team
January 2016

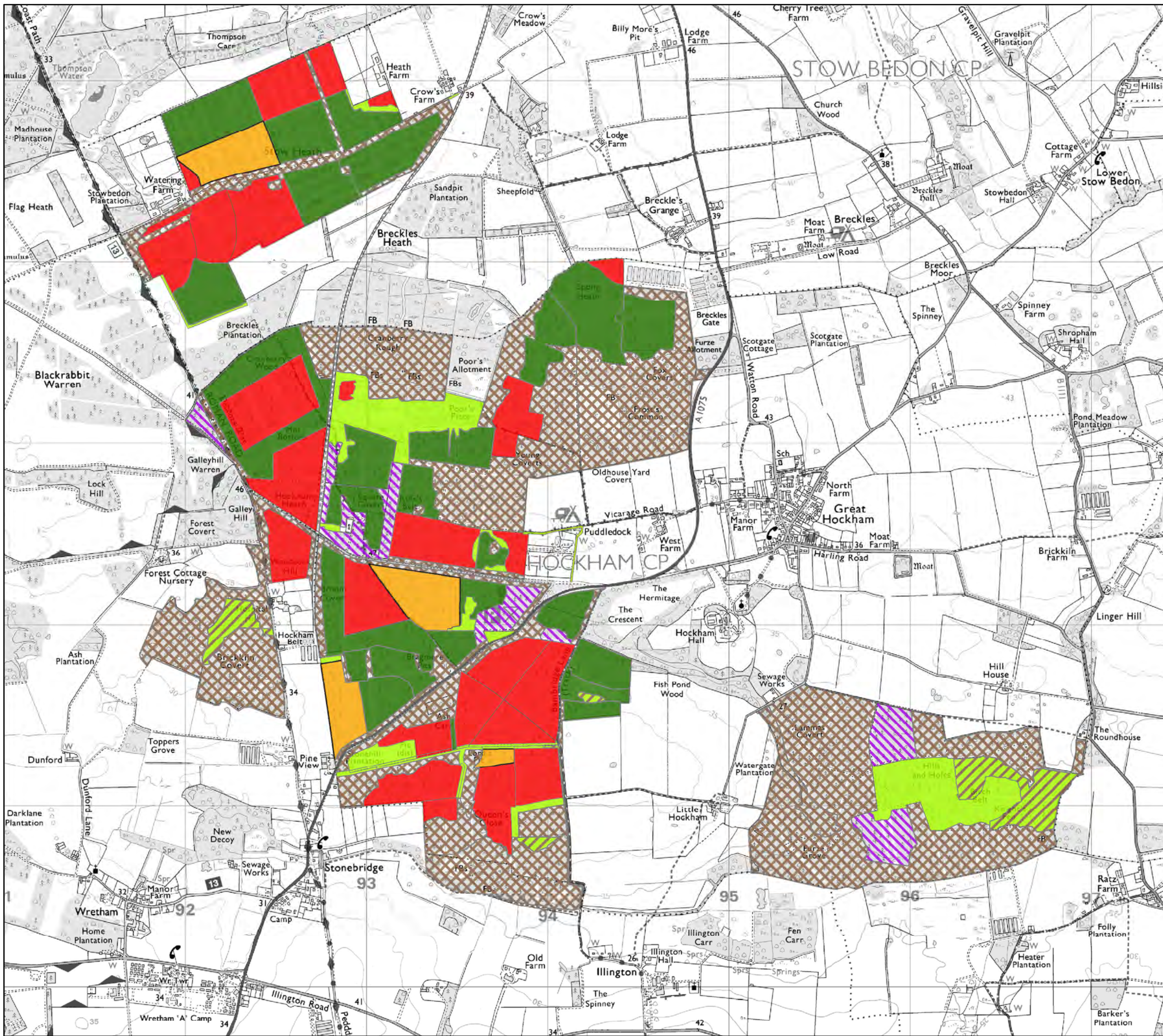
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Forestry Commission woodlands have been certified in accordance with the rules of the Forest Stewardship Council.

The mark of responsible forestry





Forestry Commission
England

East England Forest District

Hockham

Scale:1:20,000

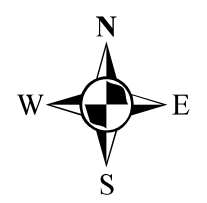
Habitat map to show provisional restock species

Legend

- Other Conifer
- Larch
- Scots Pine
- Broadleaves
- Mixed Conifers
- Permanent Open Space
- Temporary Open Space

Produced by the planning team
January 2016

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[2014] Ordnance Survey [100021242]



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

The mark of
responsible forestry



8. Plan Appraisal

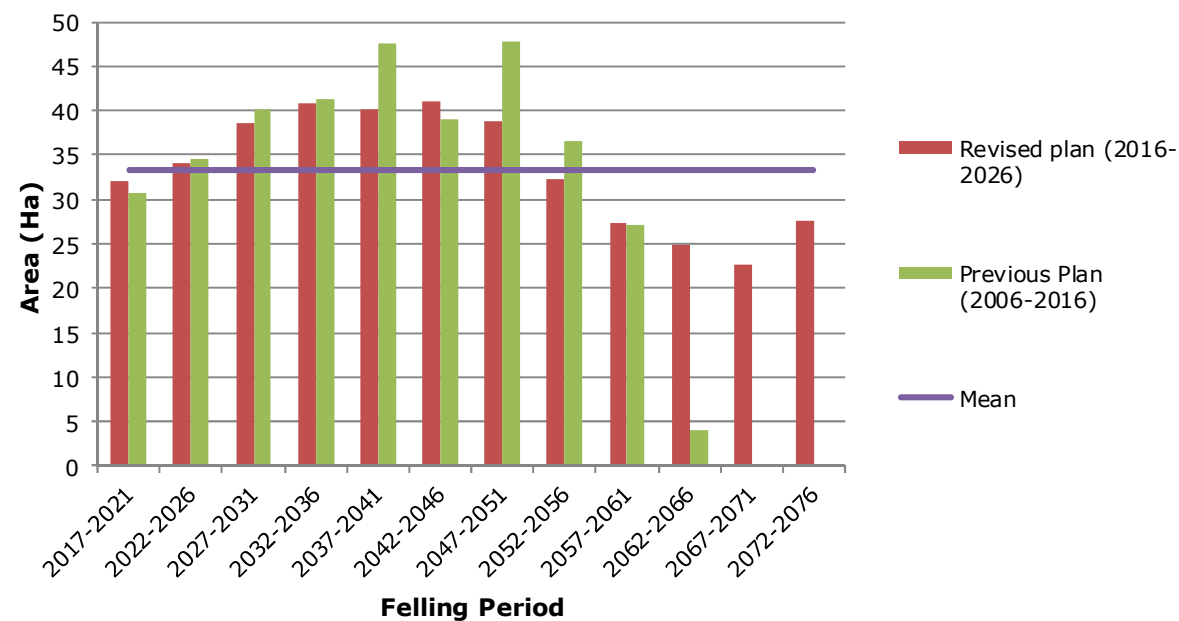
The appraisal of the revised plan is measured against the design brief on page 6, this has three separate sections and the appraisal relates to these sections:

Nature

The felling comparison chart below shows how the revised plan has 'smoothed' the creation of felled area over the long term so that Woodlark and Nightjar habitat is more evenly distributed around the mean value. However, in the short term, complete smoothing has not been possible because there is insufficient mature timber to clearfell in this 10 year period (see age class chart on page 12).

The proportion of open space within the plan has reduced from 13% to 9% bringing it closer to the 10% requirement. The reduction is mainly as a result of the change in land management at Frosts Common from open space to wood pasture. Future plans for open space will see an increase/decrease in individual plans, as the 10% requirement is reallocated across Thetford Forest as a whole, using a network of rides in the most beneficial areas. The Open Habitat Plan route proposal is detailed in the analysis and concept map. Unfortunately, the analysis work involved is more complex than envisaged so the plan is not yet available to fully incorporate into the revision. However, an area near to Queens Close has been incorporated into the plan. This area is particularly wet and has consequently caused difficulties with re-planting and access. The open space now planned for this area will help connect Pingos which is a key objective in the design brief.

Revised conifer fell area in 5 year periods compared to previous plan



People

It is difficult to assess how pleasant a woodland environment is as this is subjective but maintaining areas of woodland under continuous cover systems, wood pasture and keeping patches of mature trees in long term retentions should create a pleasing environment for forest users and viewers.

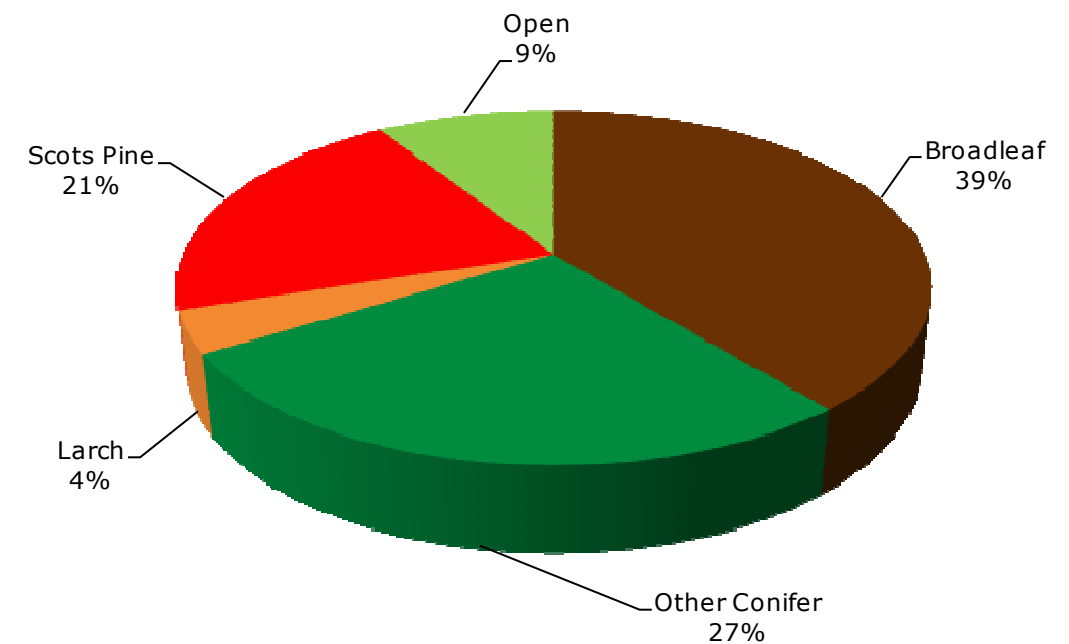
The size and shape of the coupes planned for felling can be seen on the management maps on pages 13/14; the average size of these coupes is 8ha and the continued use of organic shapes blend well into the landscape.

Economy

The objective to smooth timber production while continuing to meet market commitments is very similar to the prior objective for the provision of SPA habitat and the same restriction of age class on clearfell area applies. Most of the stands in the plan are programmed for felling at their current optimum marketable age—between 50 and 70 years old. In the interim, the productive stands at Hockham are expected to yield good quality thinnings material, and the average coupe size is large enough to allow efficient timber harvesting.

The pie chart shows projected species proportions by the end of the plan period, demonstrating a significant increase in the diversity of tree species across the plan area compared to the current species proportions (page 12), improving forest resilience. Due to increases in disease and pests affecting tree health the selected tree species for restock are decided closer to the time of felling and therefore a higher percentage of other conifer is now planned.

Species Proportions following plan implementation (2016-2076)



9. Summary of Proposals

The increase in restock species diversity should increase the resilience of the forest to climate change and the threat from pests and diseases.

The habitat map on page 15 gives an indication of the split between conifer and deciduous trees across the plan area; Larch is separated out because it is a deciduous conifer. The habitat map on page 16 indicates provisional restock species based on soil maps. Restock species will be confirmed by a site assessment after felling— soil pits and vegetation surveys will be used to ascertain the optimum species for the coupe taking into account prevailing knowledge of species performance and pathology concerns.

Monitoring

To monitor compliance with the felling plan, after a coupe is felled the shape is captured on the ground using a GPS* receiver and the data is uploaded into GIS*. The resulting point data is then compared to the original coupe shape to confirm that the felling coupe has been accurately laid out on the ground.

To monitor compliance with the restocking plan, the forest district database is updated at replanting to show the newly planted species and their proportions. As part of this updating process the restocking information is compared with the Habitat Plan to confirm compliance. The restocking area can vary slightly from the plan as physical features come to light only after felling. Most of these minor changes are within the tolerances agreed between Forest Enterprise and the Forest Services – see Tolerance table on page 22. A felled coupe is usually restocked two years later, when all the ground preparation and weed control has been completed.

To monitor timber sustainability, a stocking assessment is carried out to measure establishment success after five years.

Ongoing monitoring of the SPA is undertaken by surveying woodlark and nightjar numbers; the results inform subsequent Forest Plan revisions and site management prescriptions.

Date of commencement of the plan: 1st May 2016

Expiry Date: 1st May 2026

Mid-Term Review Date: 1st May 2021

I seek approval to clear fell and restock 66ha of the Public Forest Estate (this is the area in yellow and green stripe fell periods—i.e. 2017-2026).

I also seek approval to selectively fell approximately 59ha within an area of 295hectares (for the purpose of continuous cover forestry and Wood Pasture) during the period 1/5/2016 to 30/4/2026 as shown on the enclosed plans.

Signed

FOREST MANAGEMENT DIRECTOR—Forest Enterprise

Signed

REGIONAL DIRECTOR—Forest Services

Date

10. Glossary of Terms

Biological Diversity

The richness and variety of wildlife and habitats.

Canopy

The mass of foliage and branches formed collectively by the crowns of trees.

Compartments

Permanent management units of land within a forest, further divided into sub-compartments. The compartment boundary usually coincides with a road or ride.

County Wildlife Sites (also SINC and LNR)

A non-statutory designation, recognising a site's local importance for nature conservation. These sites are identified by the Local Authority and should be taken account of in planning.

Coupes

Areas of forest that have been or will be managed together.

Cubic metre

A standard forestry unit of timber volume. A cubic metre is roughly equivalent to a tonne of timber.

England Forestry Strategy (now England's Trees Woodlands and Forests)

Describes how the Government will deliver its forestry policies in England and sets out the Government's priorities for the next five to ten years.

Favourable condition

English Nature's definition for an SSSI in its intended state.

Forestry Commission Guidelines

Outline the principles and standards of good management practices in forests and woodlands to enable landowners, land managers and their advisors to satisfy Forestry Commission policy.

GIS

Geographic Information System - computer program that enables the FC to hold and display all the district's inventory, landholding and crop information. All the maps in this document have been produced using GIS.

GPS

Global Positioning System, which uses information from satellites to accurately locate a position on the Earth.

Habitat Action Plans

UK wide plans for priority habitats defined under the UK Biodiversity Action Plan. They contain quantitative targets for conserving, restoring and expanding the habitats.

Historic Environment

These are the physical remains of every period of human development from 450,000 years ago and include earthworks, buried remains, structures and buildings.

Historic Environment Action Plan (HEAP)

Sets out the requirements for the sustainable management of all historic environment sites.

Historic Environment Record (HER)

The definitive database of all known Historic Environment remains which is managed by the County Archaeology Service.

Lidar

Light detection and ranging is a method of surveying landscapes. Flights over the landscape send down laser pulses to the ground and the time taken to reflect back builds a picture of the relative height of the land and vegetation.

Native woodland

Woodland containing tree and shrub species which colonised Britain unaided by the influence of man after the last Ice Age.

Natural regeneration

The growth of trees from seed found in the soil or cast from adjacent trees and shrubs.

Non-native species

Trees and shrubs that have been introduced to the UK by the activities of man. Also used to describe species not native to the site and locality.

Operational Site Assessment (OSA)

Detailed site plans that are prepared in advance of all major forest operations and identify site constraints, opportunities and areas requiring special treatment or protection.

Red Data Book species

Species that are included on Red Data lists published by the Joint Nature Conservation Committee (JNCC). The lists are based on a global system developed by the International Union for Conservation of Nature and Natural resources (IUCN) for classifying species according to their extinction risk.

Restocking

The re-establishment of trees where felling has taken place. Restocking may be achieved through natural regeneration but as a term, it is more usually associated with replanting.

Ride

Forestry term for unsurfaced roads, paths and tracks within a woodland.

Rotation

The period, in years, that a 'crop' of trees take to reach economic maturity e.g. Scots Pine may be grown on a 80 year rotation.

Scheduled Monuments

Nationally important archaeological sites which are protected under the Ancient Monuments and Archaeological Areas Act, 1979.

Semi-natural woodland

A woodland predominantly composed of trees and shrubs that are native to the site and are not obviously planted.

Species Action Plan

A conservation plan under the UK Biodiversity Action Plan for species based upon knowledge of its ecological and other requirements, which identifies the action needed to stabilise and improve its status.

SPA

Special Protection Area designated under the European Habitats Directive (Council Directive 92/43/EEC).

SSSI

Site of Special Scientific Interest—this designation is determined by Natural England and placed on areas of very high conservation value.

Sub-compartments

Areas of forest comprising a more or less homogeneous crop in terms of age, species composition and condition. Their boundaries may change as the forest develops after felling and restocking.

Strategic Plan

Serves as a guide to the management of woodlands within South East England Forest District. It divides the district into zones for the purpose of management and ensures that forestry activities reflect the local ecological, social and cultural individuality of woodland. Strategic objectives for each zone are presented within the context of the Government's strategic priorities for forestry in England (e.g. forestry for rural development; forestry for economic regeneration; forestry for recreation, access and tourism and forestry for the environment and conservation).

Succession

Applied to the natural sequence of species change on a site over time, or more simply, the following on of one thing after another. So successional open space is the open space and the plants associated with it, that persist for a short time after felling of trees.

Thinning

The removal of a proportion of the trees in a sub-compartment to improve the quality of the remaining trees, accelerate individual tree growth and provide income.

UK Biodiversity Action Plan

The UK government response to the Convention on Biological Diversity at Rio de Janeiro: includes actions to safeguard key habitats and species.

UK Forestry Standard

The Government's criteria and standards for the sustainable management of forests in the UK.

UK Woodland Assurance Scheme (UKWAS)

A voluntary scheme for the independent assessment of forest management in the UK. The Scheme has been developed by a partnership of forestry and environmental organisations in response to the growing consumer demand for timber products from sustainably managed forests. It has been designed to ensure that it reflects the requirements of both the Government's UK Forestry Standard - and through this the guidelines adopted by

European Forestry Ministers at Helsinki in 1993 - and the Forest Stewardship Council's (FSC's) GB Standard.

Uniform Shelter wood System

A management system that allows young crops to become established under the overhead shelter of existing crops. The existing tree crop is evenly and gradually removed over time in successive regeneration fellings to bring about natural regeneration on the ground beneath.

Veteran tree

A tree that is of interest biologically, aesthetically or culturally because of its age, or a tree that is in the ancient stage of its life, or a tree that is old relative to others of the same species.

Windthrow (or sometimes windblow)

Uprooting or breakage of trees caused by strong winds.

11. Management Prescriptions

(Ref: Management Map)

Clearfelling

This is the main form of timber harvesting in Thetford Forest. All the trees are felled across the site or 'coupe' with the timber part of the tree extracted to the forest road where it is taken away by lorry. The smaller branches and tops are left on site where they may be chipped, mulched or raked in to rows so that enough bare ground is available to plant the next rotation of young trees. The creation of the bare planting ground is an important part of the management of the Breckland Forest SPA/SSSI, as it is this bare ground that is the nesting habitat for Woodlark and Nightjar.

Thinning

This is an important part of the management of Thetford Forest as nearly all the trees planted in the forest will require thinning at some point. Thinning performs three separate functions; removing small, dying or diseased trees; providing space for the dominant trees to continue growing; provide a small economic return in advance of clearfelling. Due to the size of Thetford Forest, thinning is a continual process that works around the forest on a five year cycle.

Long Term Retention

In some areas trees are retained beyond their normal clearfell age to provide non-timber benefits such as bat roosts, raptor nests and landscape interest. Generally, these are thinned to encourage large crowned stable trees.

Continuous Cover Forestry (CCF)

This is a general term for the management of trees without clearfelling them all. There are a number of CCF silvicultural systems but all of them are based on thinning the crop on a regular cycle and removing a proportion of the trees thereby making space for seeds to germinate and new saplings to grow and fill the resulting space.

CCF is often used in areas of high public access to maintain the visual impact of large mature trees as these trees are maintained for their aesthetic value. CCF is also used to manage most of the broadleaf crops in Thetford and all the mature conifer crops in areas of high conservation value as these trees often provide important nesting habitat e.g. Firecrest.

Open space

Temporary open space follows felling when coupes are prepared for planting or to encourage natural regeneration.

Permanent open space will be centred on conservation sites and the heritage sites—see open space on page 9.

Minimum Intervention & Natural Reserves

These two management types are similar in that they are areas where natural processes are left to progress unhindered unless there are tree safety issues e.g. a tree has died adjacent to a footpath and creates a hazard to the public. The natural reserve areas have been identified as a permanent feature in the plans where as minimum intervention is the current management type in these areas but could change in the future.

12. Tolerance Table

	Adjustment to felling coupe boundaries	Timing of Restocking	Changes to species	Windthrow & DNB clearance
FC Approval normally not required	0.5 ha or 5% of coupe	Up to 3 planting seasons after felling	Change within species group e.g. conifers; broadleaves	Up to 2ha
Approval by exchange of letters and map	0.5ha to 2ha or 10% of coupe	Up to 4 planting seasons after felling	Change from other conifers to Corsican Pine	> 2ha to 10ha
Approval by formal plan amendment	> 2ha or >10% of coupe	Over 4 planting seasons after felling	Change from broadleaves to conifers	> 10a