

KINGS
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.**



The mark of responsible forestry

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



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.

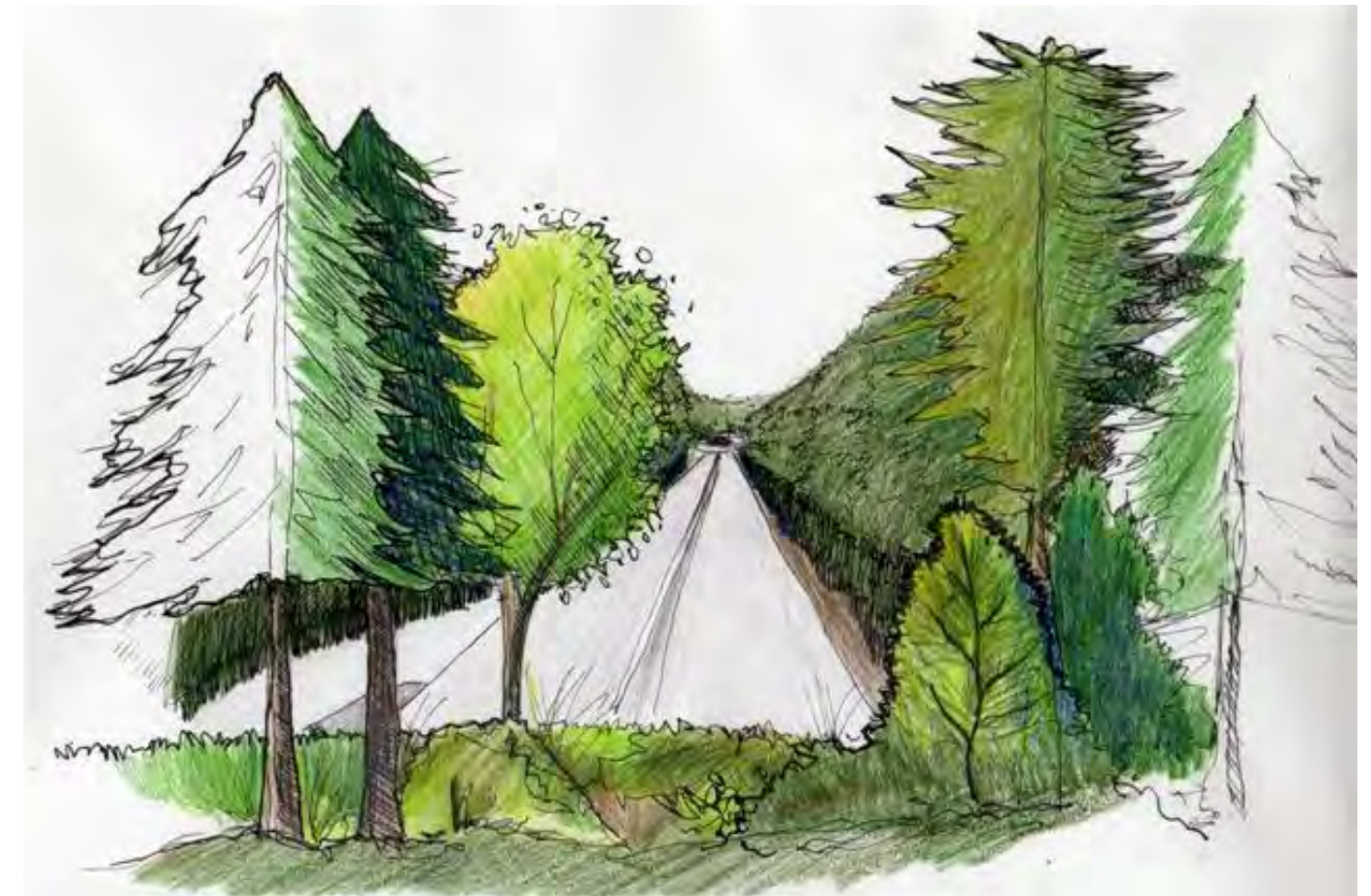
We have produced this draft plan to illustrate our management proposals thereby creating an opportunity for you to comment on the plan, whether you are a user, a neighbour or a member of one of the many stakeholder groups that have an interest in the woodlands. Information on how to get your comments 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. Historic England will approve management proposals for Scheduled Monuments (SM).

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 2333 hectares of Forestry Commission land which is part of Thetford Forest in the county of Suffolk. 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

At a national and regional level the Strategic Plan for the Public Forest Estate in England and Corporate plan 2015-2016 define our strategic direction. At a district level the East England Forest District Strategic Plan 2016-2021 sets our objectives to meet the 3 drivers of sustainable forest management:

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

Our vision and overall goal is "To secure and grow the economic and natural capital value of the English Public Forest Estate".

General Description of Plan Area

The plan area lies approximately 6 miles northwest of Bury St Edmunds and a similar distance southwest of Thetford. The woods are bordered to the North by Elveden Estate, Northwest by heathland and on the south by Lackford Lakes Nature Reserve, Fullers Mill Garden and West Stow Country Park. The plan area is surrounded 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 Suffolk, and is within the administrative boundaries of St Edmundsbury Borough and Forest Heath District Councils. It falls within four parishes including Culford, Wordwell, West Stow and Icklingham.

The whole plan area is held as freehold, acquired by the Forestry Commission in the 1920s and 30s. This is now dedicated as open access land under the Countryside and Rights of Way Act 2000 (CRoW Act).

The strategic priorities of the Government and Forestry Commission set the direction for the future management of the woodland. These along with the East England Forest District Strategic Plan and local knowledge are used to prepare a design brief for the Kings 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
- Economy
- People

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 and no more than 10% of coupes* <5ha as required under the SPA* designation.
- Where possible, incorporate open space areas as detailed in the Thetford Open Habitat Plan (appendix 1), encouraging distribution of rare flora and fauna.
- Selectively fell around (haloing) Great crested and Smooth newt ponds, to improve breeding habitat and allow sunlight in, encouraging increase and diversity in water flora and fauna.
- Agree Scheduled Monument (SM) management plans (appendix 2) with Historic England.
- Remove selective trees around Beeches Pit to protect underlying archaeology from falling branches and debris. Agree management plans (appendix 3) with Natural England.
- 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 Kings 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.



Forestry Commission
East England Forest District
Kings Forest

Analysis & Concept Map

- Access**
- Freehold woodland
 - Public right of access
 - Archery (No public access)
 - Settlement
 - House
 - Forest access barrier
 - FC Carpark/picnic site
 - Forest Road
 - Public Right of Way
 - FC trail
 - Public Road
- Environment**
- SSSI & SPA
 - FC Conservation Sites
 - Beeches Pit
 - Icknield Heath managed by the Norfolk Wildlife Trust
 - FC natural reserve
 - Surrounding SSSI sites to plan area
 - Scheduled Ancient Monuments
 - River Lark
 - Proposed Open Habitat plan network

Location & Context

Forest Plan area highlighted in yellow

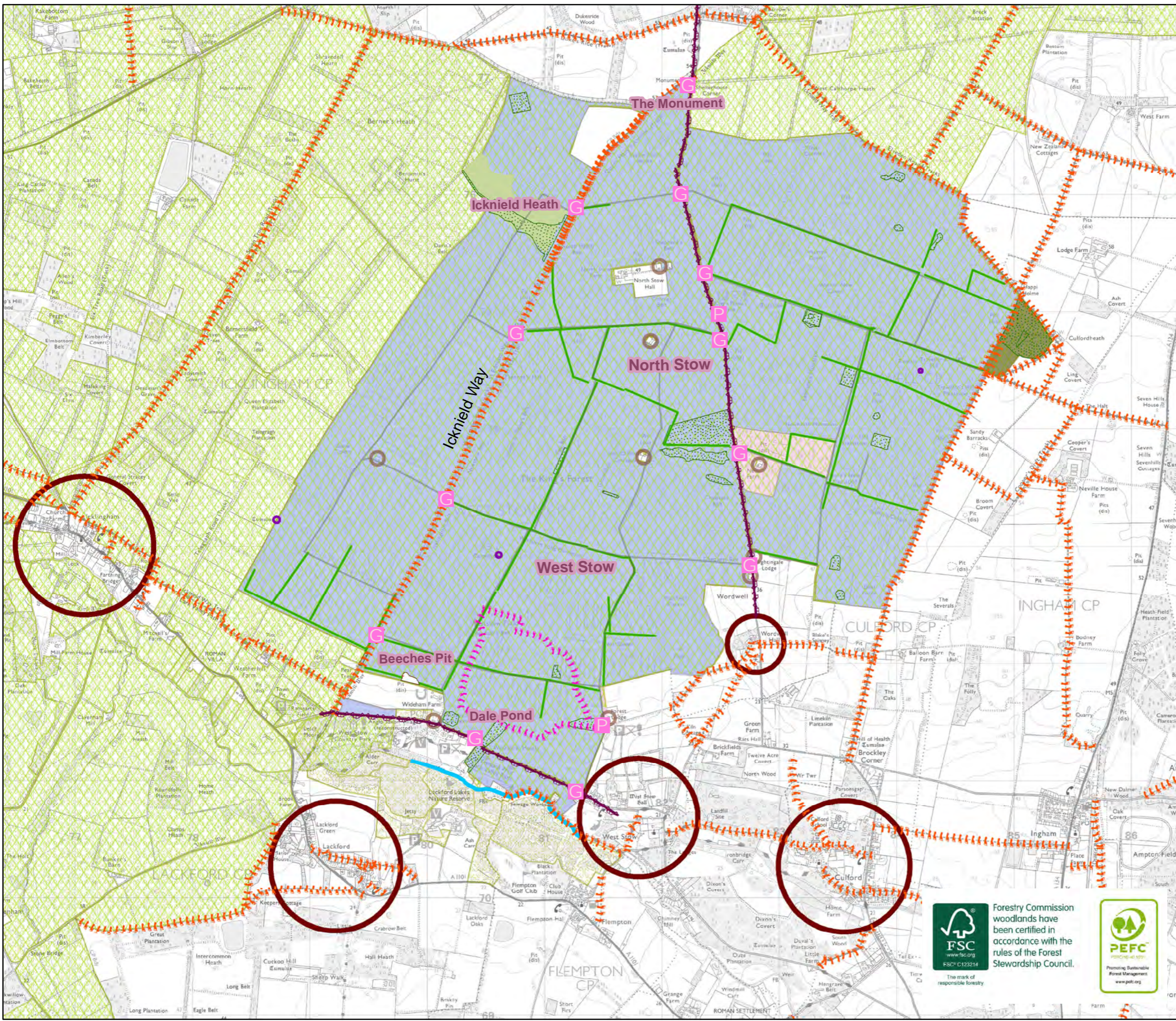


Design Brief

- Nature**
- Evenly distribute clearfell areas for Woodlark/Nightjar habitat as required under the SPA designation.
 - Implement Open Habitats plan where possible encouraging distribution of rare flora and fauna.
 - Selectively fell around ponds to improve great crested and smooth newt breeding habitat.
 - Selectively fell around and within Beeches Pit to protect underlying archaeology.
 - Maintain, manage and protect sensitive heritage features agreeing SAM* management plans with Historic England.
- 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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Ordnance Survey [100021242]

Scale: 1:31,000



5. Nature

Site Characteristics

Kings Forest lies within the Brecks in the heart of East Anglia. It is among one of the warmest and driest parts of the UK with relatively low rainfall of less than 600mm/year. East Anglia is generally flat with an undulating landscape and big open skies. Vast commercial conifer plantations bordered by broadleaf belts, form the forest landscape, a distinctive characteristic of lowland England. Heathland and agricultural land surrounds the plan area, often defined by scots pine and beech belts on the edge of the forest. The River Lark, which runs to the south of the area provides contrast to the dry landscape, fed by nutrient poor calcareous groundwater supporting important wetland habitat.

A distinctive feature of the Brecks is the thin mantle of sandy soil which covers the underlying chalk bedrock caused as a result of glaciations and the freeze-thaw conditions, which occurred in the final stages of the last Ice Age. The chalk solid geology lies close to the surface and is covered by deposits of sand and flint shown in the photo of the root plate. The last ice age produced intricate ground patterns containing large patches of calcium-rich soils interspersed with acidic conditions, present across Kings Forest today. These chalky soils support a limited range of tree species but a great diversity of plants, invertebrates and breeding birds adapted to live in forestry and arable habitats. Kings Forest supports nationally rare species including Wild grape hyacinth, Breckland thyme, the Dingy skipper butterfly and the Basil thyme case bearer moth.



The free draining, low fertility soils of Kings Forest provide high conservation value, reflected in the plan objectives aiming to increase numbers of internationally important species.

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

The Kings plan area is part of the Breckland Forest SSSI* (www.sssi.naturalengland.org.uk/citation/citation_photo/2000443.pdf) which covers most of Thetford Forest. The features of conservation interest include: the invertebrate communities of the open grassland areas; 20 species of rare plants found in grassland and disturbed areas; 2 species of bird known as Woodlark (*Lullula arborea*) and Nightjar (*Caprimulgus europaeus*). These birds nest on open ground and rely on the clearfell tree harvesting system to generate suitable nesting habitat.

Beeches Pit formerly notified as a separate SSSI lies within the plan area (see analysis and concept map) and is a Middle Pleistocene archaeological site. It is important for providing links between the geography, climate, environment and human history of East Anglia during this period. Further information is detailed in the heritage section.

Breckland Forest SSSI forms part of the Breckland SPA* designated under the European Birds Directive. The SPA designation supports populations of Woodlark and Nightjar, protecting breeding habitat. 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.



5. Nature

Ponds, watercourses and wetlands

A large pond known as Dale Pond lies to the south in the West Stow area. It supports a diverse range of species including smooth newts, dragonfly and damselfly populations, and provides a summer watering hole for many birds. A heronary lies to the west of the pond. The pond is surrounded by wet woodland species including Poplar and Birch adding diversity to a predominantly pine forest.

There are two small ponds within the plan area providing breeding ground for great crested newt species. These European protected species require both aquatic and terrestrial habitat. Aquatic vegetation is essential as a substrate for laying eggs. Therefore, these areas are managed under a CCF* system to avoid disturbance and provide shelter. Trees around ponds are selectively felled to allow light to reach ponds and vegetation to grow.

The River Lark runs through the south of the plan area and is the dividing line between the forest and Lackford Lakes, run by the Suffolk Wildlife Trust. Lackford Lakes Nature Reserve is a landscape of lakes, reeds and meadows providing a haven for a range of species of fauna and flora. The rich biodiversity in this area is supported by managing the surrounding forest under a CCF* system.



Dale Pond



Dingy Skipper

Grape Hyacinth

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 car park/picnic sites, heathland, glades and the extensive network of wide, open forest rides.

Kings forest supports a variety of nationally rare fauna and flora including the Basil thyme case bearer moth, Dingy skipper butterfly, Blue fescue, Breckland thyme and Wild grape hyacinth. For some species this is the only place in the forest where they are present. It is recognised that widening and linking rides to surrounding heathland within this plan will increase biodiversity for the priority habitats: lowland dry acid and calcareous grassland and lowland heathland, whilst improving species distribution. Tree removal around ponds (haloing) will also create open space whilst improving breeding habitat for the great crested and smooth newt populations.

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 habitats within the plan area are managed through mowing, discing and forage harvesting practices. Icknield heath re-creation site, managed by the Norfolk Wildlife Trust, will follow these same practices with the addition of grazing.

The Thetford Open Habitat Plan identifies priority habitats and aims to integrate 10% open space across 12 Thetford Forest plans (appendix 1), 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 Kings forest in the 1920's with a small number of early woodland blocks in existence before 1840. Historically the majority of the area was used for arable crops. Other areas were managed as heathland and woodland.

Kings Forest was named to commemorate the Silver Jubilee of King George V and Queen Mary. Queen Marys avenue and monument is located North just off the B1106 and follows the course of the Icknield way. King George V reigned during WW1. It is thought that the area of Kings Forest was used for battle training and tank testing before their use in WW1, in 1916. Kings forest was said to be the most secret place in England at the 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. Large pits can be clearly seen, shown in blue circles on the LiDAR* image opposite. It is thought these could be trench or bomb holes used/created during WW1 and WW2. A BNG project—Brecks Military History, led by the Breckland Society will explore and investigate the military history of the Brecks from the 1900's through to the First and Second World War.

There are 3 Scheduled Ancient Monuments within the plan area (see analysis and concept map). These are bowl barrows which are funerary monuments dating from the late Neolithic period to the late bronze age. The red circle on the LiDAR* image opposite shows Travellers Hill which is of national importance for providing information about the character, developments and density of the prehistoric population in the area. Two small barrows are also present either side although these are not scheduled. Scheduled Ancient Monuments are managed through strimming vegetation, tree removal where necessary and monitoring of mammal damage in order to keep them clear and undamaged. The management plan shown in appendix 2 will be agreed with Historic England and does not form part of the consultation process.

Beeches Pit is a Middle Pleistocene archaeological site dating back to about 300,000 years ago with clean geological exposures making it important for Quaternary studies and interpretation into the age of glaciation in East Anglia. Managed under a CCF system to avoid disturbance in the area. It is one of two interglacial tufa sites noted for richer assemblages of fossil land snails than any other middle Pleistocene deposits in Britain. The site has shown traces of human activity with evidence of repeated fire use, stone workings and knapping debris. It has been identified that selective felling in and around the pit will protect the underlying geology from future damage caused by falling branches and debris. The management plan shown in appendix 3 for this work will be agreed with Natural England and does not form part of the consultation.

The Icknield Way which runs through the west side of the plan area is said to be one of the oldest roads in Great Britain. The long distance track runs from Norfolk to Wiltshire. Roman coins, pottery, mirror fragments, cosmetic mortar and military belts have been found close to the Icknield Way. Also, On the north east side of the forest worked flints and Roman grey-ware was found.

In common with much of Thetford Forest, the plan area has good survival of features associated with previous land use history including struck flints, roads/trackways, parish boundary banks, arable boundary banks and warren banks.

Heritage features are considered as part of an OSA* process rather than as part of this Plan.



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6. People

Access and Recreation

The whole plan area is dedicated for unrestricted public access on foot under the Countryside and Rights of Way Act 2000. The forest is divided by the B1106 into an East and West side shown on the analysis and concept map. The main Kings Forest car park and picnic site is signed and located just off the B1106. There are several gateways along this road including the kings monument area next to the Ickniel way, which although not encouraged are often used for parking. The West Stow car park is signed and located just off the Icklingham road. The main forest users include dog walkers and horse riders. The waymarked yellow trail at West Stow offers a 2.5 mile circular walk through old pine and oak belts, as well as newly planted and mature conifers.

There are a few public footpaths which run along the eastern boundary of the plan area. The Lark Valley path, a 13 mile waymarked route from Mildenhall to Bury St Edmunds and the St Edmunds way, a 79 mile route across Suffolk, passes through the southern West Stow area. The Ickniel way trail, an 170 mile recognised regional route since 1992 divides the west side of the plan area. The byway runs from just opposite West Stow Country Park in the south to the kings monument at the Northern tip of the plan area.

Kings Forest Bowmen, a field archery club of around 130 members operate in the south east area of the forest. A club hut, three 14 target courses and a practice range are located here. An open shoot is held on the first Sunday of each month where any member of the English field Archery association or I.F.A.A affiliated member can attend.

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 Kings Forest and West stow providing information on the area including its history, recreation offer and the opportunity to provide feedback about the site. The web address is <http://www.forestry.gov.uk/forestry/beeh-a5ujdh>. There is also a Thetford Forest Facebook page.

Community

There are cottages within the forest on the west side and isolated houses neighbouring the woods across the area. The surrounding villages of West Stow, Culford and Wordwell have a population of 750 people and Icklingham 400 people. The nearest town to the plan area is Bury St Edmunds with a population of approximately 35,000. 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.

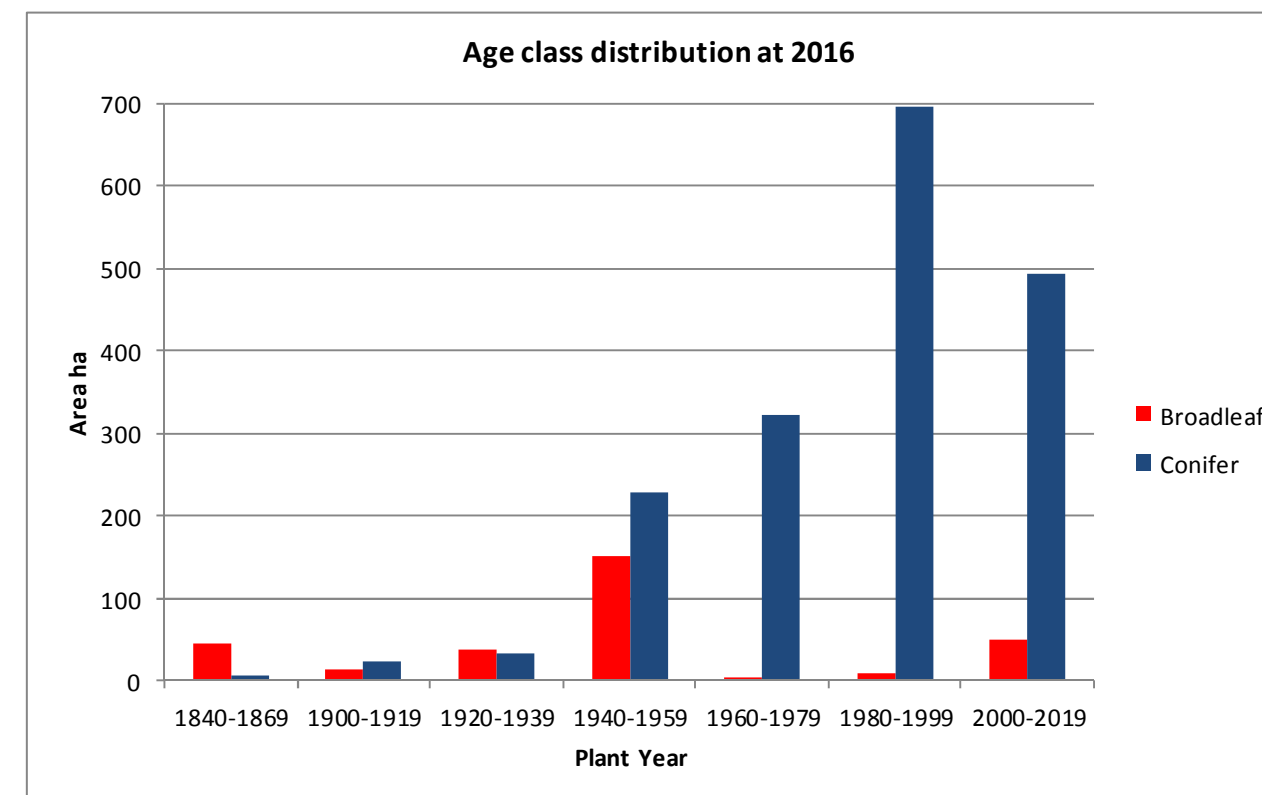
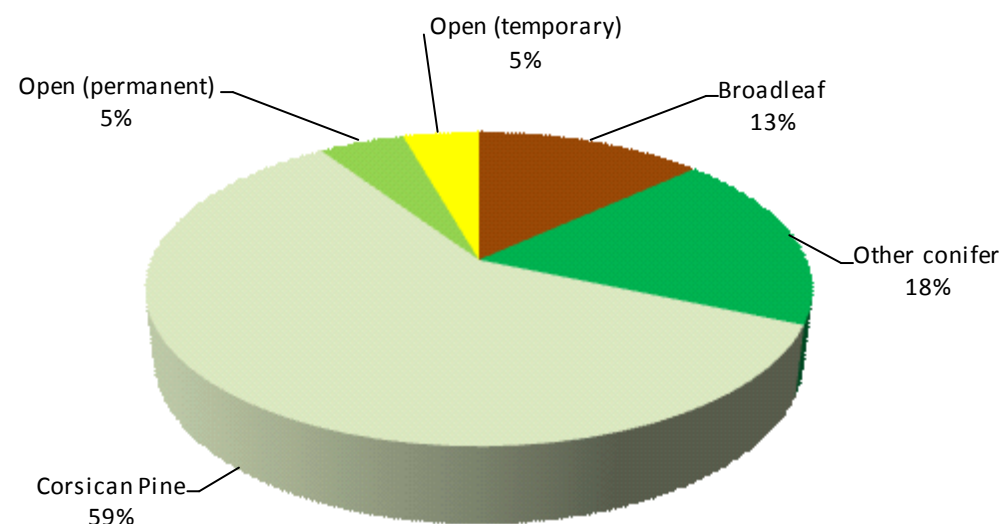
7. Economy

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 16.5ha of longstanding research plots looking into the effects of current thinning practices on Dothistroma Needle Blight.

Broadleaves make up 13% of the plan area, occurring in belts along the B1106, Icknield way and in small blocks throughout the forest. Open space including both permanent and temporary (e.g. recently felled areas) accounts for 10% 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 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. The split between conifer, broadleaf and open space are shown on the habitat and restock species map on pg. 15.



Forestry Commission
England
East England Forest District
Kings Forest
Scale: 1:25,000

Management Area

Legend

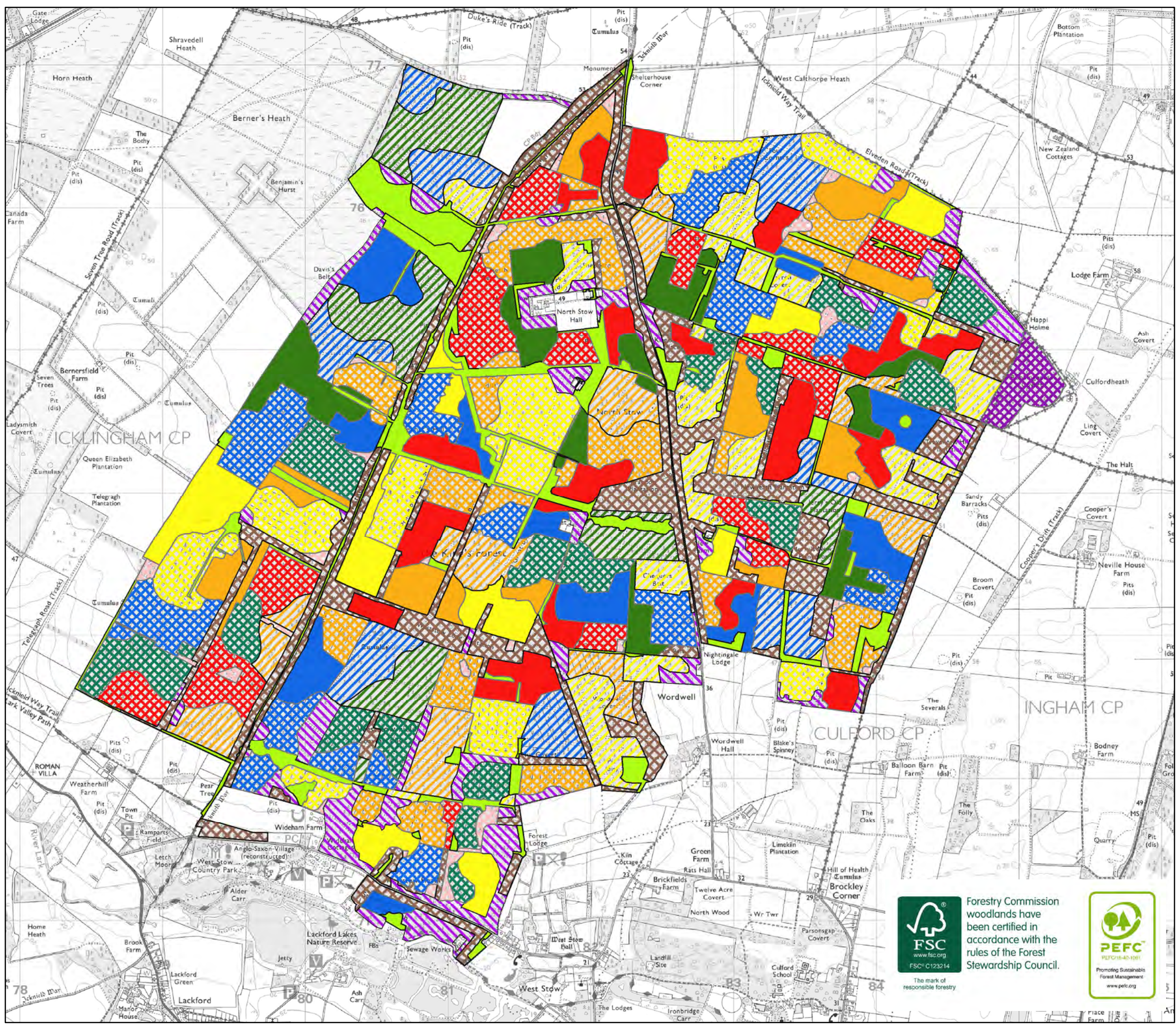
- Clearfell 2017-2021
- Clearfell 2022-2026
- Clearfell 2027-2031
- Clearfell 2032-2036
- Clearfell 2037-2041
- Clearfell 2042-2046
- Clearfell 2047-2051
- Clearfell 2052-2056
- Clearfell 2057-2061
- Clearfell 2062-2066
- Clearfell 2067-2071
- Clearfell 2072-2076
- Clearfell 2077-2081
- Clearfell 2082-2086

Continuous Cover Forest

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

Open/Other

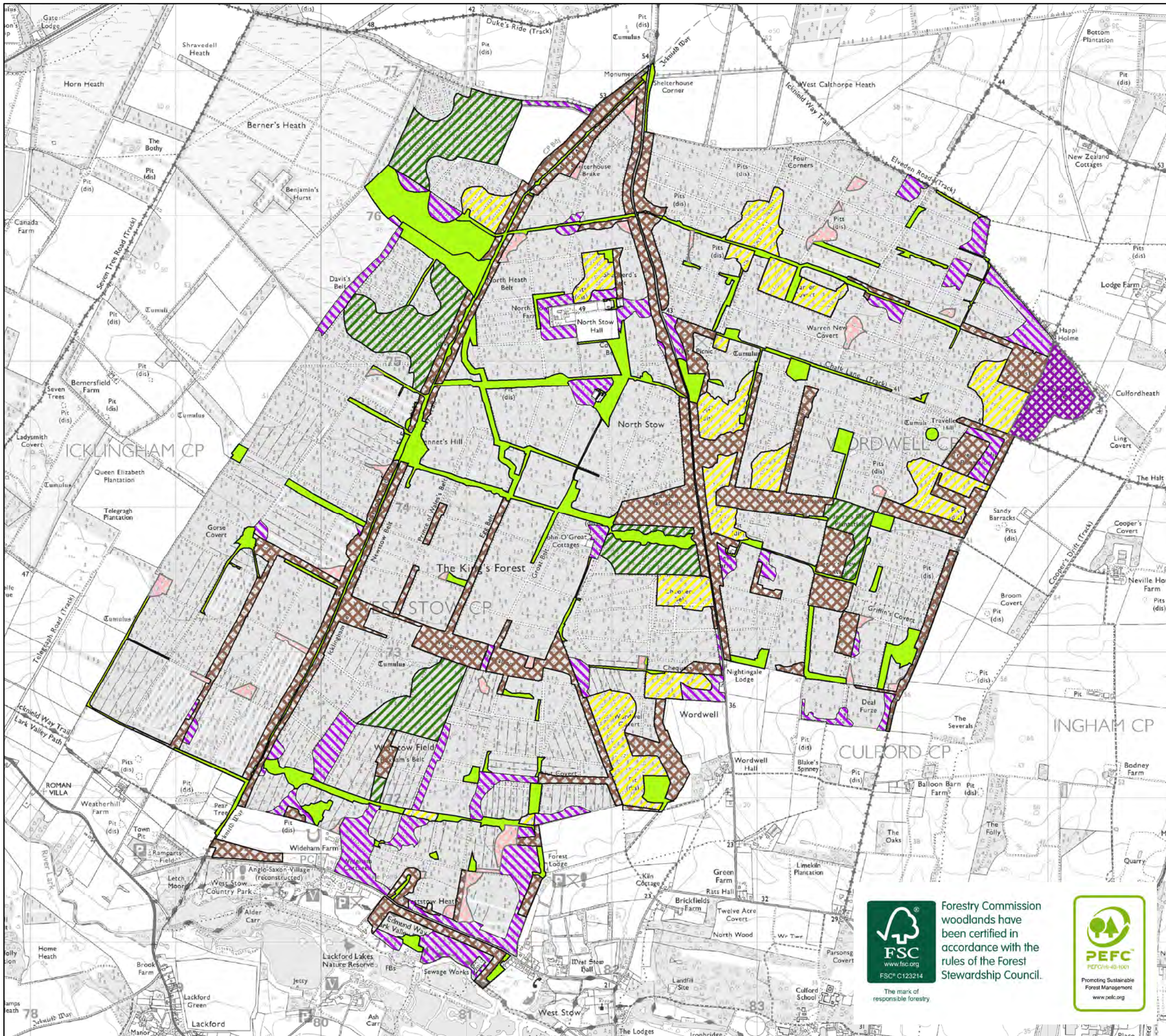
- Open



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July 2016

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Forestry Commission
England
East England Forest District
Kings Forest
Scale:1:25,000



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

Natural process

-  Natural Reserve

Open (managed through recreation, forage harvesting and discing practices)

-  Open/Other



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England

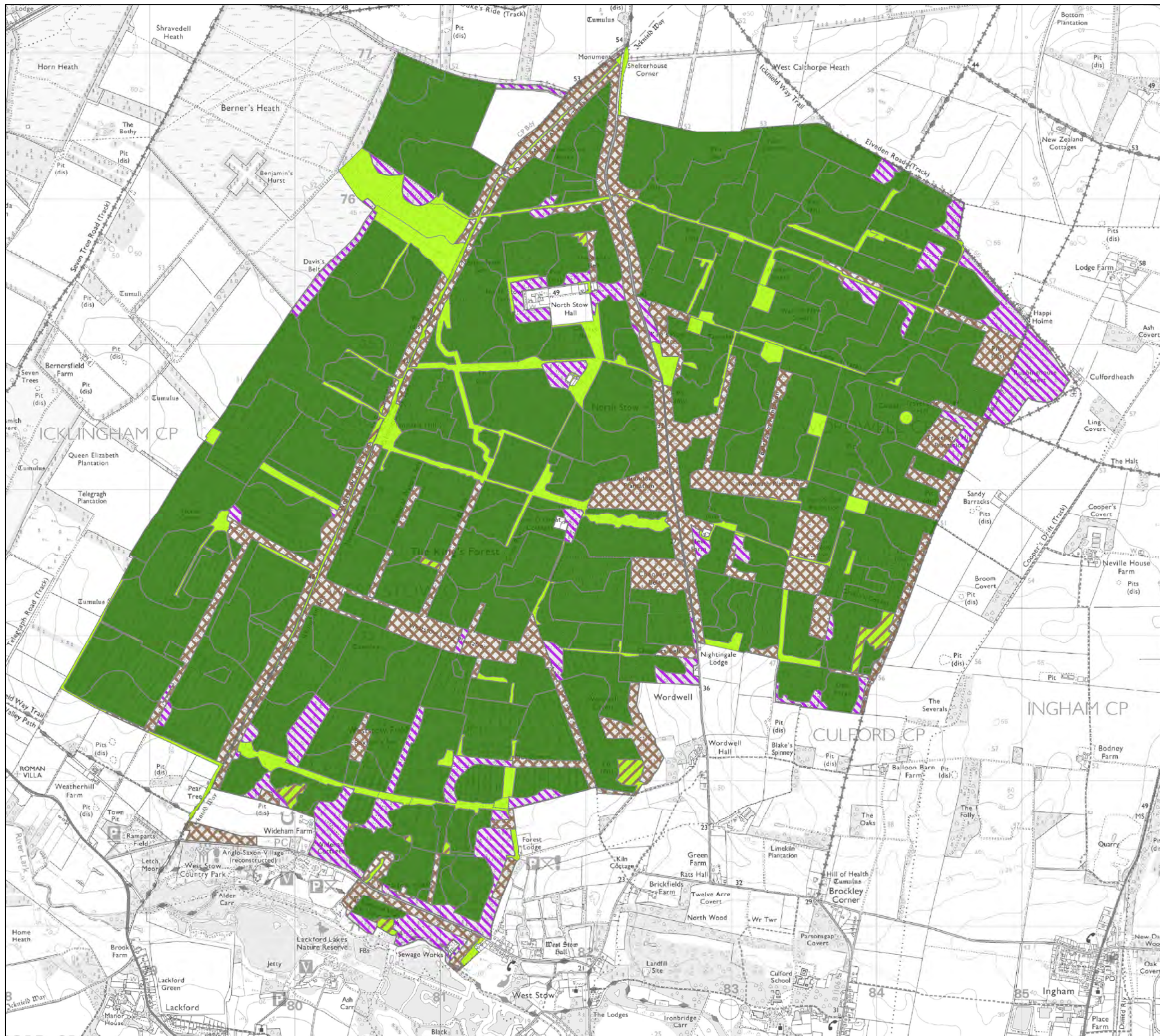
East England Forest District
Kings Forest

Scale:1:25,000

Habitat and restock species map

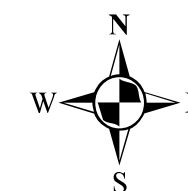
Legend

-  Conifer
-  Broadleaves
-  Mixed Conifers
-  Permanent Open Space
-  Temporary Open Space



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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 permanent open space within the plan has increased from 5% to 7% (including successional open space). 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, the proposed network across Thetford Forest can be seen in appendix 1. Kings Forest will be a key area for increasing the open space network encouraging greater distribution of internationally important species, a key objective in the design brief.

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 11ha. There is under 10% of coupes* <5ha, a key objective in the design brief.

People

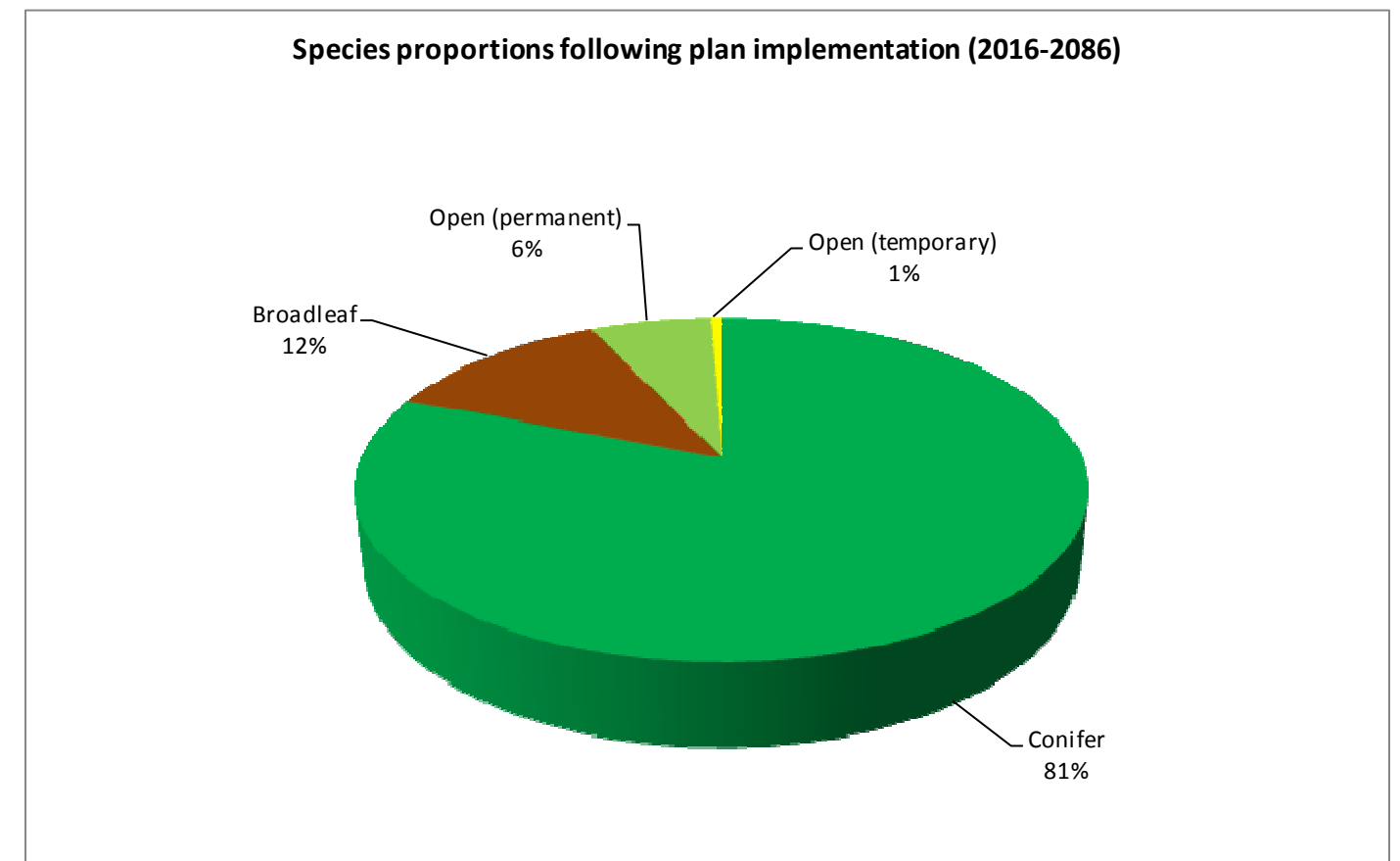
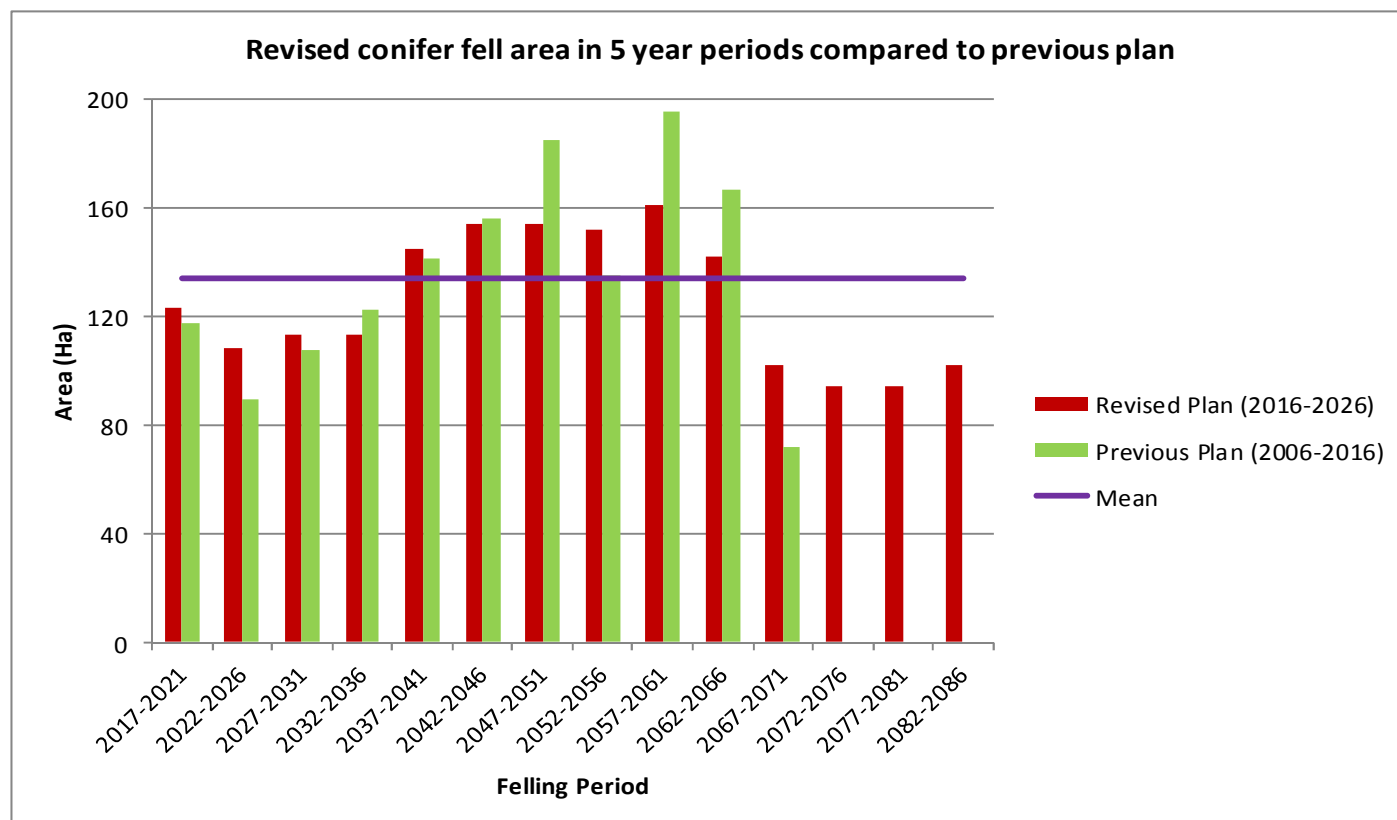
It is difficult to assess how pleasant a woodland environment is as this is subjective but maintaining areas of woodland under continuous cover systems, wood pasture and keeping patches of mature trees in long term retentions should create a pleasing environment for forest users and viewers.

The size and shape of the coupes planned for felling show 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 Kings 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 and reduction in Corsican Pine compared to the current species proportions (page 12). Due to poor soil quality and increases in disease and pests affecting tree health the selected tree species for restock are decided closer to the time of felling and therefore shown only as conifer below.



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 and restock map on page 15 gives an indication of the split between conifer, broadleaf and open space. 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. Currently 12 different conifer species are being trialled to find suitable restock species for the future.

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 21. 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: 5th September 2016

Expiry Date: 4th September 2026

Mid-Term Review Date: 5th September 2021

I seek approval to clear fell and restock 231ha 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 84ha within an area of 418 hectares (for the purpose of continuous cover forestry) during the period 1/9/2016 to 31/8/2026 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 1 million years ago and include artefacts, 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. For more information visit www.breakingnewground.org.uk.

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.

Yield Class

Yield class is a measure of the growth rate of a tree crop and is the maximum average rate of volume increment (increase) that a particular crop can achieve. For example, a crop capable of a maximum annual increment of 14 m³ per hectare has a yield class of 14.

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

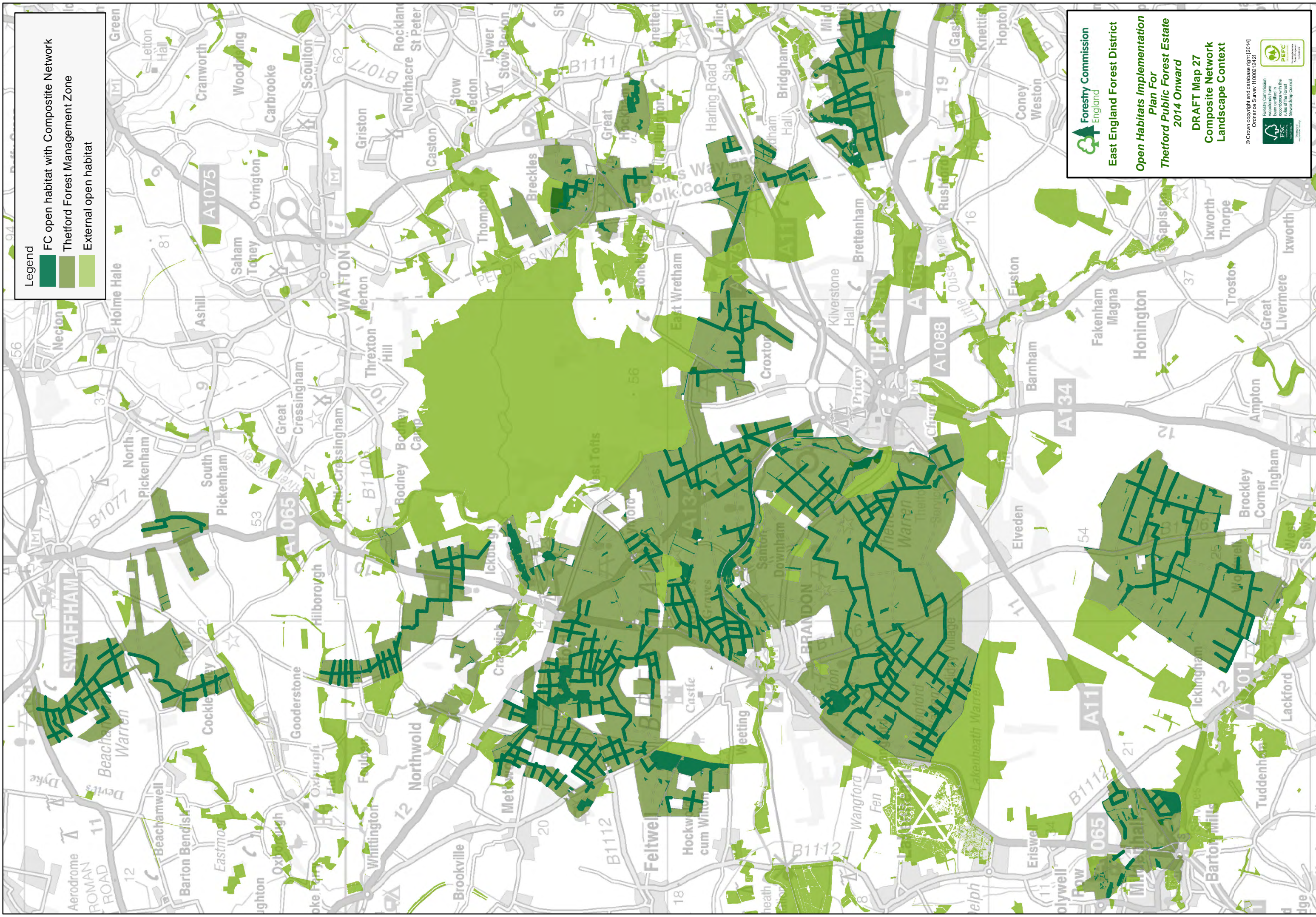
These two management types are similar in that they are areas where natural processes are left to progress unhindered unless there are tree safety issues e.g. a tree has died adjacent to a footpath and creates a hazard to the public. The natural reserve areas have been identified as a permanent feature 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

Appendices:

- 1. Thetford Forest Open Habitats Plan**
- 2. Scheduled Ancient Monument management plan.**
- 3. Beeches pit management plan.**



Legend

- FC open habitat with Composite Network
- Thetford Forest Management Zone
- External open habitat


Forestry Commission
 England

East England Forest District
Open Habitats Implementation
Plan For
Thetford Public Forest Estate
2014 Onward

DRAFT Map 27
Composite Network
Landscape Context

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 Ordnance Survey 1000212421

Forestry Commission
 woodland has
 been certified in
 accordance with the
 FSC
 Schemes
 Standard
 C-COC-1596

PEFC
 Programme
 Certificate
 No. SA-COC-1596

**Scheduled Monuments
Management Plan**

The Kings Forest Plan area includes three Scheduled Monuments (in purple on map). They are all Bowl barrows. This is the most numerous form of round barrow - funerary monuments dating from the Late Neolithic period to the Late Bronze Age, with most examples belonging to the period 2400-1500 BC. They were constructed as earthen or rubble mounds, sometimes ditched, which covered single or multiple burials. They occur either in isolation or grouped as cemeteries and often acted as a focus for burials in later periods. The proximity of these barrows to a number of other barrows in this part of the Breckland region give them additional interest. Together these barrows give some evidence of the character, development and density of the prehistoric population. Archaeological information concerning the construction of the barrows, the manner and duration of their use, and the local environment at that time will be contained in the mound, the fill of the surrounding ditch, and in soils buried beneath the mound and the external bank. The buried soils are also likely to retain evidence for earlier land use, predating the construction of the barrow.

Plan approved by
Historic England

Heritage at Risk Projects

Office of David Kilroy
UNAPPROVED

Signed:
DRAFT

Date:



Scheduled Monument Number: 31103; 1018045

Name of Monument:

Bowl barrow 650m south east of Telegraph Plantation

OS Grid Reference: TL78707322

Description: The monument includes a bowl barrow located on a gentle south facing slope on the west edge of the King's Forest. The barrow is visible as an earthen mound which stands to a height of about 0.8m and covers a roughly circular area with a maximum diameter of about 32m. It is thought that the mound is encircled by a ditch with an estimated width of 3m from which earth was quarried during the construction of the barrow. Although this has now become completely infilled and is no longer visible, it will survive as a buried feature. The fences which run across the mound, and the surface of the forest track which extends in a north-south direction on the eastern side of the monument are excluded from the scheduling, although the ground beneath them is included.

Size: 0.14 ha (HE designated sites shapefile)

Current condition: The monument straddles Forestry Commission land and Elveden Estate. The post and wire boundary fence runs across the monument. A post and rail fence is on mound on the Forestry Commission side, to divert vehicles from the ride that passed over it. The ride needs moving further east beyond the ditchline. A new route has been mulched.

Threats to monument:

Continued use of ride brings a risk of rutting.

Management purpose:

To preserve the monument and maintain its overall structure

Work proposed in the plan period (detailed plan/record of work in GIS SM work programme file):

Relocate ride away from ditchline and fence across old ride to enforce the diversion.

Cut vegetation from mound and ditch lines at least annually.

Monitoring plan:

Annual inspection with Historic England Officer.

Scheduled Monument Number: 31117; 1018101

Name of Monument:

Bowl barrow in the King's Forest, 1.3km north east of Wideham Barn

OS Grid Reference: TL80607292

Description: The monument includes a bowl barrow located on a low hill in the King's Forest, 1.3km north east of Wideham Barn. The barrow is visible as an earthen mound which stands to a height of about 1.2m and covers a roughly circular area with a maximum diameter of about 32m. It is thought that the mound is encircled by a ditch with an estimated width of 3m from which earth was quarried during the construction of the barrow. Although this has now become completely infilled and is no longer visible, it will survive as a buried feature.

Size: 0.15 ha (HE designated sites shapefile)

Current condition: The barrow is largely covered by rough grass with some nettle and elm suckers on the top. The ditchline is overlain by brash arisings following clearance of mature Corsican pine trees in June 2014.

Threats to monument:

Signs of metal detecting observed on the mound in 2014. There is a desire line along the north edge of the barrow currently not worn through vegetation.

Management purpose:

To preserve the monument and maintain its overall structure

Work proposed in the plan period (detailed plan/record of work in GIS SM work programme file):

Monitor wear on the path and divert off monument if it becomes necessary.

Cut vegetation from mound and ditch lines at least annually.

Monitoring plan:

Annual inspection with Historic England Officer.

Scheduled Monument Number: 31085; 1017788

Name of Monument: Bowl barrow known as Traveller's Hill tumulus

OS Grid Reference: TL84207449

Description: The monument, which includes a bowl barrow, is located on a gentle west facing slope in a plantation within the Kings Forest, Wordwell. The barrow is visible as an earthen mound, which stands to a height of approximately 0.9m and is about 38m in diameter. It is thought that the mound is encircled by a ditch from which earth was quarried during the construction of the barrow. Although this has now become completely infilled and is no longer visible, it will survive as a buried feature approximately 3m wide.

Size: 0.18 ha (HE designated sites shapefile)

Current condition: On the mound there are three standing historic Breckland (Scots) pine trees and another snapped off at above 1m. The trees are declining – they would normally be expected to decline by dying back in the crown rather than blowing over, although one has been blown over in the past when they were suddenly exposed again to strong winds when the surrounding coupe was felled. The vegetation is bramble and grass (including calamagrostis). There are rabbit burrows on the mound but these appear to have been diminishing in number over recent years.

Threats to monument:

Windblow of Scots pine trees.

Presence of rabbit burrows.

Management purpose:

To preserve the monument and maintain its overall structure

Work proposed in the plan period (detailed plan/record of work in GIS SM work programme file):

Monitor condition of pine trees for signs of instability.

Cut vegetation from mound and ditch lines at least annually.

Monitoring plan:

Annual inspection with Historic England Officer.

Beeches Pit SSSI Management Plan Appendix

SSSI reference: Breckland Forest SSSI Unit 005
Name of Unit: Beeches Pit
Unit ID: 1026655
OS Grid Reference: TL798719
Size: 0.484ha (NE designated sites shapefile)
Habitat: Earth Heritage
Current condition: Favourable
Threats to monument: No identified condition threat
Natural England condition assessment date 21/9/2010

Beeches Pit was a separate geological SSSI prior to the designation of the Breckland Forest SSSI, into which it was incorporated as a unit. The pit was formed by clay extraction which revealed important geological features and buried archaeological artefacts and faunal remains from the Hoxnian period over 400,000 years ago.

Environmental evidence for Beeches Pit makes it a rare example of a European Lower Palaeolithic site where human occupation can be related to the local environment and to changes in that environment during different parts of an interglacial/glacial cycle. The earliest evidence for occupation coincides with an open environment at the edge of a small pool, surrounded by marsh. Drier areas of calcareous grassland existed, as did patches of open woodland. Tufa-forming springs would have represented a reliable source of clean fresh water.

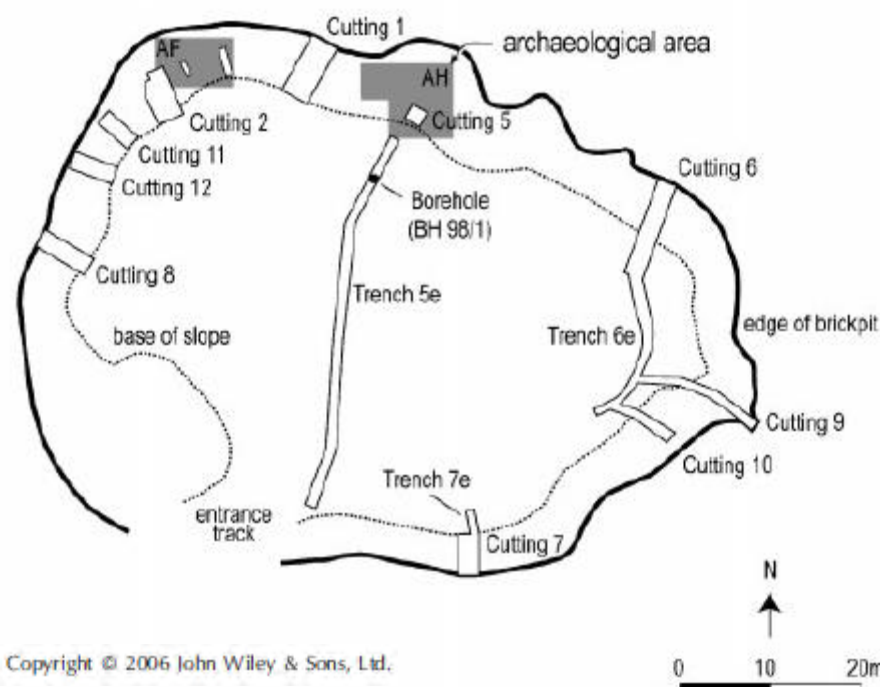
Association of mollusc communities and flint artefacts in the base of the tufa shows that the humans were active at the height of the interglacial in a local environment dominated by closed deciduous woodland. The land snail fauna is dominated by woodland taxa, including species with the most shade-demanding preferences. Components of the vertebrate fauna, such as squirrel, garden dormouse and wood mouse also attest to the presence of forest. Molluscan evidence suggests a slight opening of the woodland canopy in the upper levels of the tufa but otherwise a small mammal assemblage dominated by woodland taxa appears to have persisted until a major shift in the species composition occurred towards those characteristic of open country and shallow near stagnant waterbodies during a cold climate episode.

The rich lithic assemblage indicates in-situ flint tool manufacture. Discreet areas of burning associated with stone artefacts, suggest this is one of the earliest sites in Europe demonstrating human controlled use of fire. This marks a major turning point in the successful human occupation of northern environments.

Based on information supplied by the British Museum (N. Ashton) and reproduced from the journal article Preece, R. C., Gowlett, J. A. J., Parfitt, S. A., Bridgland, D. R. and Lewis, S. G. 2006. Humans in the Hoxnian: habitat, context and fire use at Beeches Pit, West Stow. Suffolk, UK. J. Quaternary Sci., Vol. 21 pp. 485–496. ISSN 0267-8179.



showing the locations of archaeological excavations (shaded), cuttings, trenches and the borehole



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Management purpose:

To *preserve the site* and maintain its overall structure
 To *promote understanding* of the importance of the site to visitors and Forestry Commission staff

Work proposed in the plan period:

Remove trees from the north western quarter of the pit and along the top edge to prevent them damaging the finite archaeological resource through windthrow. Do this without damaging the site interest, i.e. with no compaction or ground disturbance within the felling area.

Erect fence on the western edge of the pit to prevent any use of the site by cyclists or illegal motorbikes. Allow access along the existing desire line from the southern edge for visitors (the site is to be included and interpreted in the Breaking New Ground Heritage trail during 2016/17).

Adjust management to take account of any recommendations that arise through further investigation of the site or assessment of finds collections carried out during the plan period.

Monitoring plan:

6 yearly statutory inspection with Natural England Officer.
 Ongoing site investigation and interpretation by researchers.

Plan approved by Natural England Lead Adviser, Land Management and Conservation Norfolk and Suffolk Area Team (Ben Nichol)

Signed:..... Date:.....

UNAPPROVED DRAFT