

Thetford Open Habitat Plan

2023-2026



Forestry England

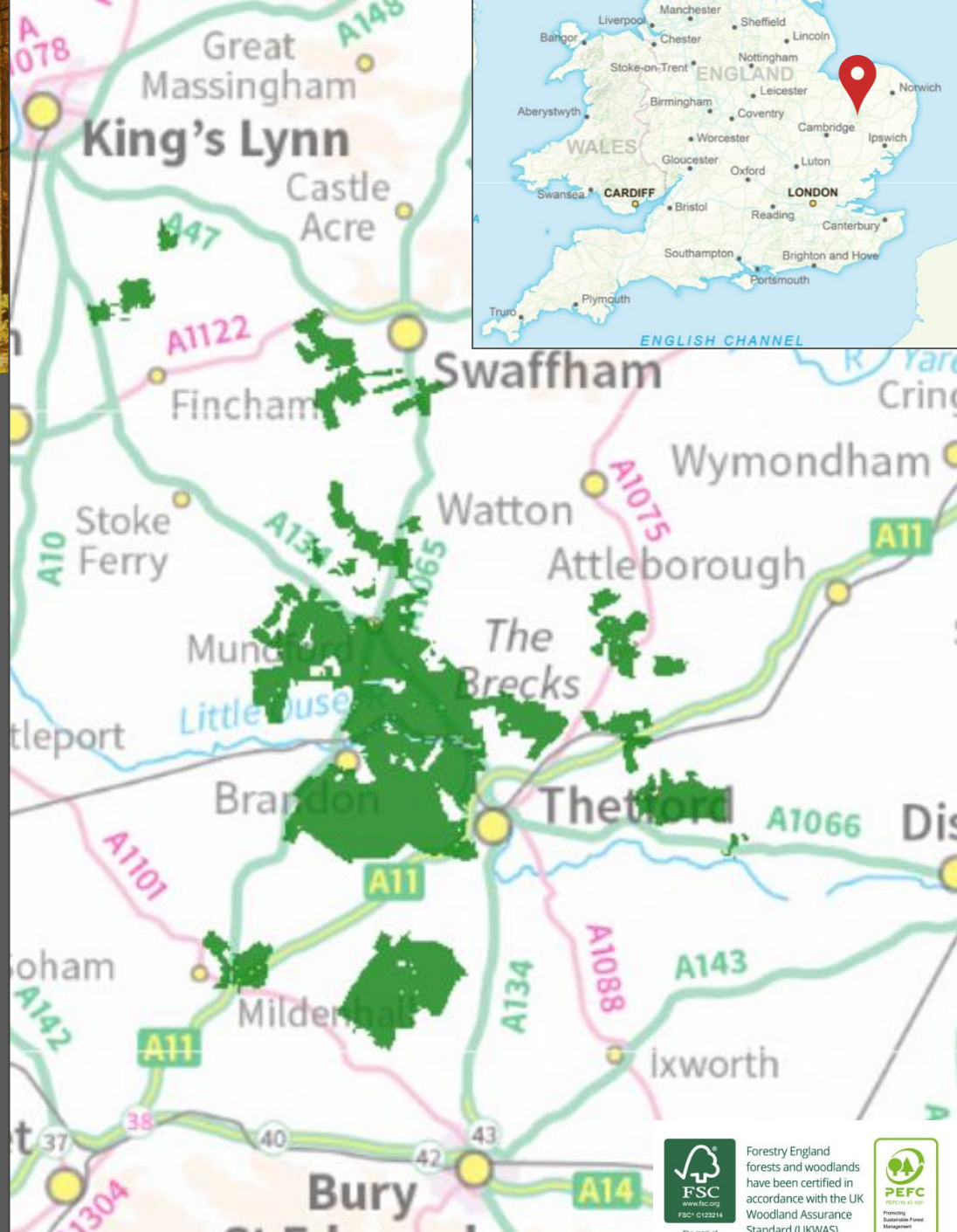
East Forest District

Location

Thetford Forest is situated in Breckland, East Anglia, and is the largest lowland pine forest in the UK at 18,730 hectares.

From pine forest and wet woodland along river valleys of the Little Ouse and River Wissey, to open wetland, fen, and heathland, Thetford's habitats support fascinating and internationally rare wildlife.

A report on biodiversity in Breckland found over 2000 species of conservation interest in the region¹. Making up just 0.4% of the UK's land area, Breckland has 72 species which are only or mostly found in Breckland.





Site of Special Scientific Interest

Thetford Forest is designated as a Site of Special Scientific Interest (SSSI)² for rare plants, invertebrates, ground nesting birds, geological features, and red squirrel³.

The forest supports:

- Five vascular plants listed on Schedule 8 of the Wildlife and Countryside Act
 - Prostrate perennial knawel - *only found in Breckland*
 - Red-tipped cudweed
 - Maiden pink
 - Breckland mugwort
 - Spiked speedwell - *only found in Breckland*
- Nationally rare assemblages of plants
 - *largely restricted to East Anglia*
- Exceptionally rich invertebrate fauna
 - *129 nationally scarce species*
- Woodlark and Nightjar
 - *internationally significant numbers in Thetford*

These SSSI species are dependent on **open habitats** within the forest.

Woodlark and Nightjar use open heathland, newly felled forest clearings, and open margins. The plants and invertebrates are found in heathland, calcareous and acidic grassland along the edge of forest tracks.

At present, the SSSI is in '*unfavourable recovering condition*' due to low numbers of these species across the forest and reduction in habitat availability and quality.

Improving SSSI condition is a key objective in the Environmental Improvement Plan⁴ 2023 and the Government's 25 Year Environment Plan⁵, with the following target:

75% of protected sites to be in '*favourable condition*' by 2042

Our ambition is to protect and restore resilient biodiversity. We aim to accelerate the rate of SSSI condition improvement across the nation's forests to meet this target.



Resilient Forests

Forestry England East District aim to manage Thetford Forest in a sustainable way to ensure it can thrive in the future, despite the challenges of climate change and tree health issues.

The UK Forestry Standard states that sustainably managed forests should include 10% open space

Currently, in Thetford Forest this 10% is made up of a combination of permanent open habitat and temporary open space created through our forest operations. In the long-term, the balance between permanent and temporary open space will change.

The Open Habitat Project will increase the area of permanent open habitat so that it can be managed specifically for target SSSI species, particularly rare plants and invertebrates.

Meanwhile, we will adapt our forest management systems for success in future climate conditions whilst also providing habitat for ground nesting birds.

The aim is maintaining 10% open habitat in the form which is best for the widest range of species.

Evidence In Theory

Lawton Principles

The Lawton Report⁶ proposes a landscape scale nature recovery network approach should be adopted to counteract fragmentation of populations and allow species to disperse through the landscape in response to climate change.

Following the Lawton principles, the plan should be implemented at a landscape scale, within Thetford Forest and beyond, connecting with the [Breckland Farmers Wildlife Network](#) as well as existing heathland and priority habitat sites.

Academic Research

A key piece of research into the best form of open habitat within Breckland is the Breckland Biodiversity Audit (BBA)¹, which identifies Breckland priority species and their habitat requirements. Findings from the BBA and other research conclude:

- Breckland species at highest risk of extinction are those that depend on physically disturbed bare ground conditions ¹.
- The importance of the existing forest ride system as the main habitat of Thetford Forest's plant and invertebrate populations and for providing habitat connectivity ^{8,9,10,11,12}.
- Widened open rides provide nesting habitat for Woodlark and foraging habitat for Woodlark and Nightjar ^{13,14,15}.

An open habitat network, building on the existing ride system, is the optimal form for open space within Thetford Forest.



Field Trials

Various methods of ride widening and creating disturbed ground habitat have been trialled from 2009-2017 on a variety of soil types. These trials have provided positive evidence for the creation of open habitat along ride edges.

1. **Increase in breeding Woodlark from 1 to 3 pairs in a 5.4 Ha area**
2009, Elveden, Acidic soil, Mulching with subsequent removal of organic material.
2. **Re-colonisation by Dingy Skipper butterfly**
2011, Kings Forest. Calcaerous soil, Litter stripping of organic material.
3. **Growth of acid and neutral grassland**
2014, West Tofts, Acidic-neutral soil, Litter stripping of organic material.
4. **Increase in Woodlark from 1 to 3 pairs and increase in numbers of Basil Thyme, Sickle Medic, and 5-banded tailed digger wasps.**
2017, Kings Forest, Calcaerous and acidic soil, Mulching, stripping and forage harvesting.

Ecological Modelling

Research has been done to identify the best quality and most connected open habitat network through Thetford ⁷.

Step 1 - Existing priority sites within and around Thetford Forest identified. *Based on existing open habitat, priority plant locations, adjacent Sites of Special Scientific Interest, and agricultural cultivated margins.*

Step 2 - New priority sites for Breckland plants and invertebrates identified. *Based on over 53,000 biological records and environmental predictors.*

Step 3 - Priority sites combined with site factors to map areas of suitability. *Based on adjacency to existing priority sites, soil type, previous land use, and crop age.*

Step 4 - Mapped suitability areas used to find shortest distance and best habitat links to connect priority sites via existing tracks.

Evidence
In Practice

Our Plan

Bigger, Better, and More Connected
Lawton principles⁶

We will create networks of permanent open habitat to enhance habitat availability and quality for the benefit of SSSI species and wider biodiversity. This is an exciting opportunity to work at a landscape scale, taking bold steps to reverse the biodiversity crisis in the UK.

Based on research, pilot trials, and ecological modelling, we propose to create a network of widened tracks (known as rides) through the forest to create open habitat and connect existing areas of heathland.

The forest rides are open verges along tracks throughout the forest which support a huge variety of SSSI plant and invertebrate interest, as well as foraging habitat for Woodlark and Nightjar. The proposal is to widen some of the tracks from 15m to approximately 40m to create species rich and thriving grassland corridors through the forest.



Our Plan

A network of **open habitat corridors** is the **optimal form of open space** to provide for the widest range of SSSI species in Breckland.

Research has been commissioned to identify the optimal locations for these widened rides⁷, considering:

- soil type
- existing species records
- historic land use
- existing conservation habitat locations

Following the recommendations from this research, we are seeking to create **375 Ha of open habitat corridors**.

Evidence from field trials also demonstrate that widened rides provide nesting habitat for Woodlark as well as foraging habitat for Woodlark and Nightjar. We also propose to create **40 Ha of heathland** adjoining existing heaths to provide nesting habitat for Nightjar.

This will enable us to continue to meet the UK Forestry Standard requirement for 10% open space.

The creation of a total of **415 Ha of permanent open habitat** will, therefore, support two of our major statutory requirements:

- enhancing the Site of Special Scientific Interest
- sustainable forest management (UKFS)

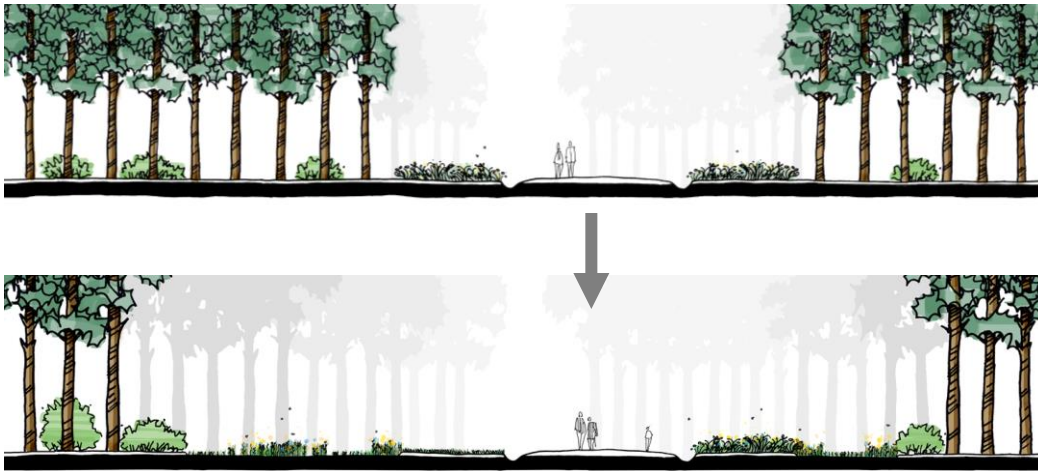
To support the development of the plan, we commissioned an extensive field and LiDAR study of heritage features within the proposed open habitat network area. The location and condition of the features are accurately recorded, and we will follow expert advice to protect features. Creating open space around these features will be beneficial for allowing for easier maintenance, monitoring, and reduced damage from tree roots.

This will
increase permanent open habitat
within Thetford Forest by
2.2%

Open Habitat Corridors

15m → 40m

The existing forest rides are 15 metres wide on average. This plan seeks to increase some rides to 40 metres wide.



The 40m width is based on maximising the length of time for ride to be bathed in sunlight, even when the surrounding trees are at full maturity.

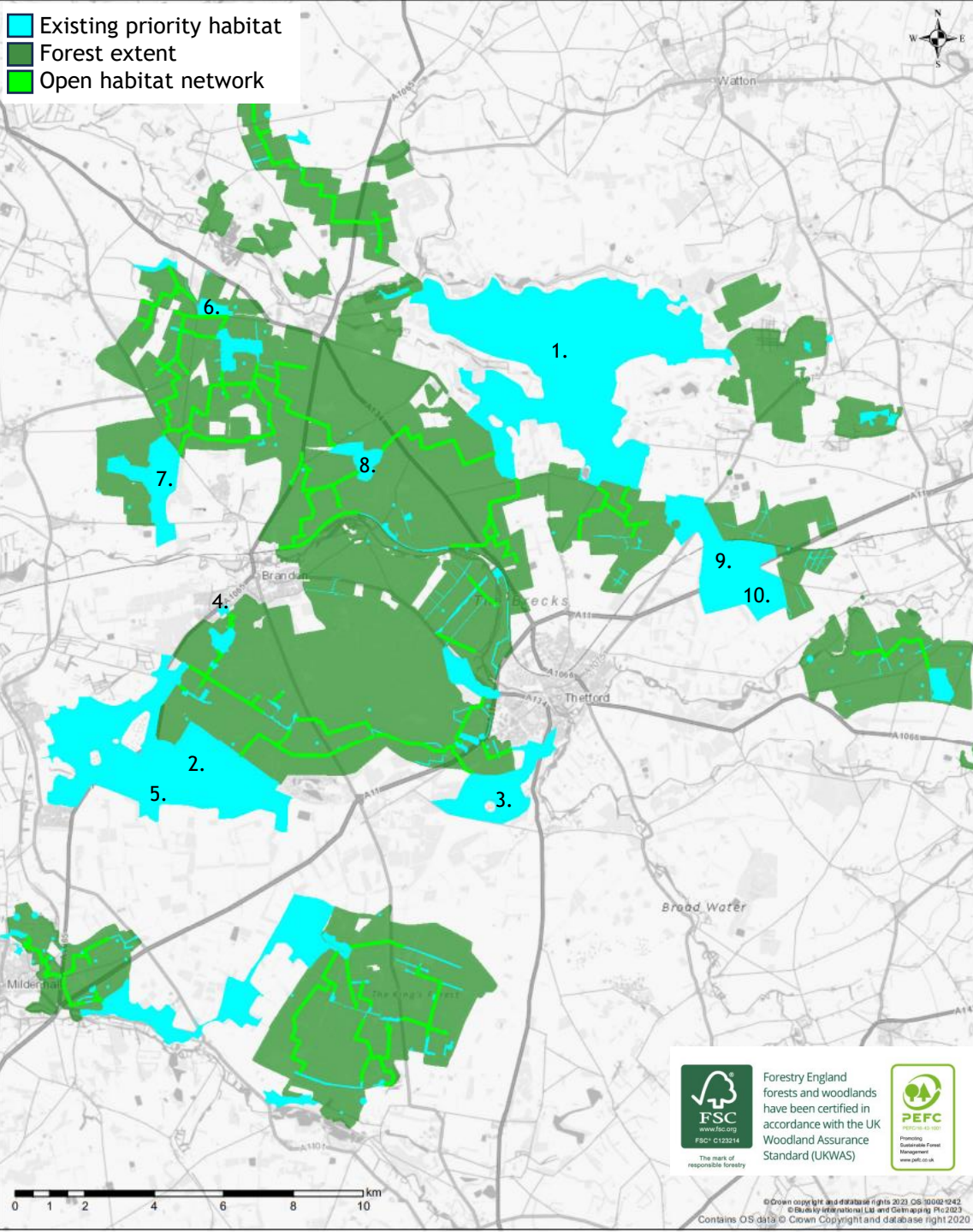
Sunlight, soil type, and successional patches of bare ground and grassland are the key components for functioning open habitat in this setting.

The open habitat along the ride will swap over from one side to the other to create a weaving corridor through the forest. The corridors will narrow and widen at various points creating visual features of interest in the landscape.



Open Habitat Map

- Existing priority habitat
- Forest extent
- Open habitat network



The Open Habitat Network will provide ecological connectivity between 10 Sites of Special Scientific Interest

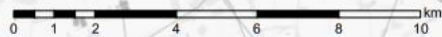
- | | |
|---------------------------|----------------------|
| 1. Stanford Training Area | 6. Cranwich Camp |
| 2. Lakenheath Warren | 7. Weeting Heath |
| 3. Thetford Heath | 8. Grimes Graves |
| 4. Brandon Heath | 9. Bridgham Heath |
| 5. Breckland Farmland | 10. Brettenham Heath |

The network will connect all 181 priority sites identified within the forest and surrounding landscape

Additional benefits of widened ride network

- Widened rides act as strategic fire break
- Allows for increased air flow between forest areas to reduce conditions which accelerate disease spread
- Protects the forest roads from damage from tree canopy drip line
- Increases habitat diversity

Forestry England forests and woodlands have been certified in accordance with the UK Woodland Assurance Standard (UKWAS)

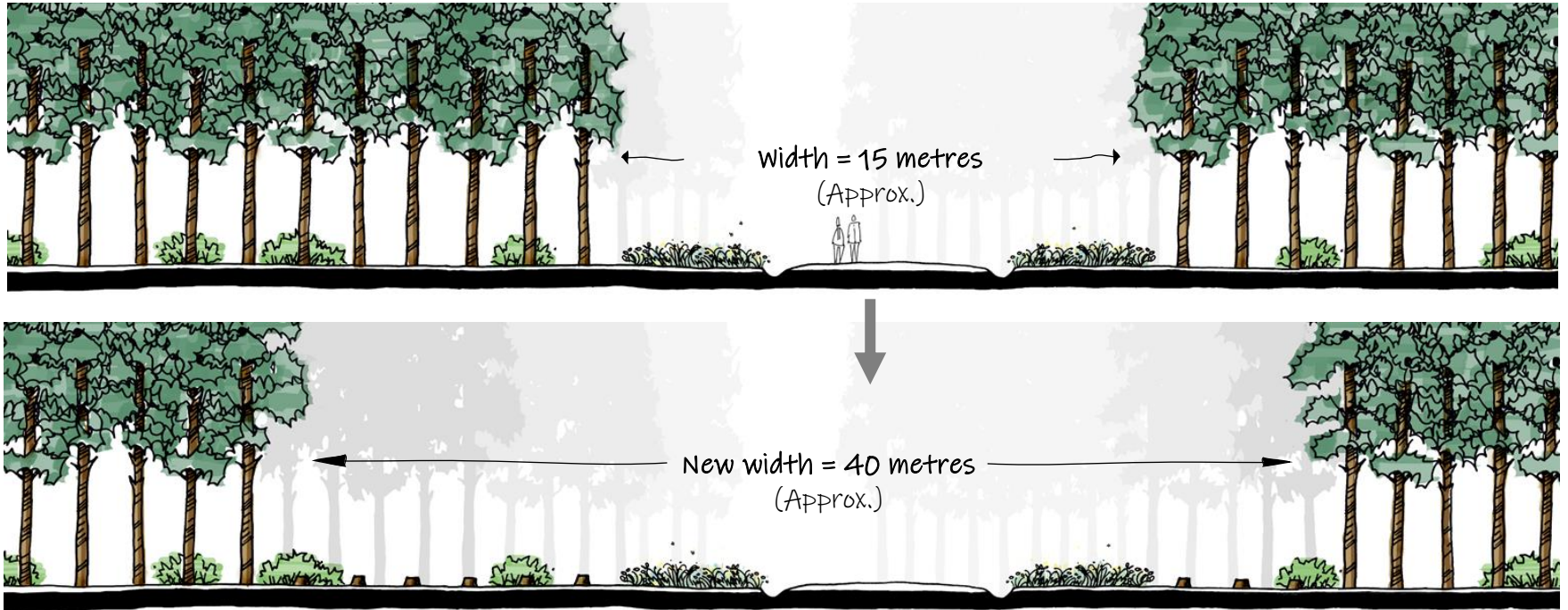


© Crown copyright and database rights 2023. OS 100021942. Contains OS data © Crown Copyright and database right 2023.

Habitat Creation

Habitat creation work will take place from **early 2024 until March 2026**.

This will affect access along a variety of forest tracks across Thetford Forest, but we will work block by block to minimise disruption.



The operation will include felling approximately 25m off the forest blocks along the rides which have been selected as part of the network. If there are mature feature trees or trees of special interest within the proposed widening zone, we will retain these feature trees for landscape and habitat diversity.

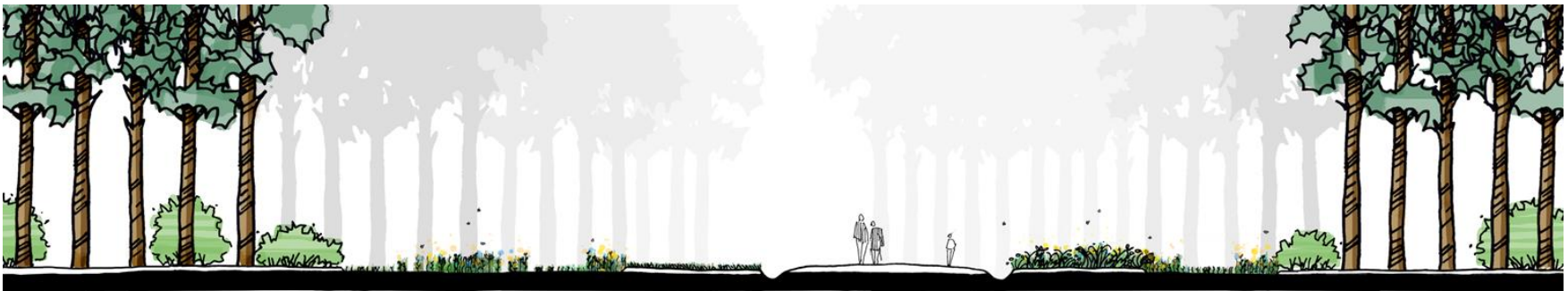
Where required and possible, remove the top few centimetres of organic soil to expose the mineral soil (sand / chalk) underneath. The calcareous or acidic mineral soil is the ideal medium for plants of conservation interest to grow.

Habitat Management

Once these areas have been created, grassland, bare ground, and scrub habitat will begin to form.



In the first few years, cutting and removal of vegetation regrowth (known as forage harvesting) is needed to continue to remove nutrients and to control any dominant vegetation which outcompetes SSSI plants. Various techniques will be used to maintain patches of bare ground within the open habitat area. The aim is to create a dynamic mosaic of microhabitats of bare ground and calcareous / acidic grass sward within the ride.



After 5-10 years, the habitat should begin to take form and start delivering benefits for biodiversity. With a combination of staff, volunteer and contract support, we will monitor the development and success of the habitat.

Heathland

In Breckland, Nightjar predominantly use rotational forest restock sites and open sites with some ground vegetation for nesting.

Whilst Nightjar will use the widened rides for foraging, we propose an **additional 40 Ha of heath areas** managed for Nightjar nesting habitat.

**Two areas proposed:
Brandon Heath extension
&
Thetford Rifle Range area**

Brandon Heath extension:

A logical addition to an existing heath area. Following removal of the trees in 2019, the area has provided excellent Nightjar habitat. Therefore, we propose to maintain this 10 Ha extension area as open habitat specifically for Nightjar.

This will involve installing a fence to house grazing livestock, with pedestrian gates for walkers and medium mobility vehicles as well as vehicle gate for maintenance and emergency access. Livestock will only be on site outside of the nesting season to maintain the vegetation cover.

Thetford Rifle Range area:

Also selected to be maintained as open space as neighbouring sites have demonstrated particularly high densities of Nightjar.



Plan Approval and Amendments

The Thetford Open Habitat Plan, along with all the comments received from the consultation, will be submitted to Forest Services to request approval for the creation of the open habitat. This decision will be guided by the policy paper on ‘When to convert woods and forests to open habitat in England’¹⁶. The plan shall be carried out in line with the tolerances below. Formal plan amendments will be published on the public register.

	Adjustment to preferred ride side for felling	Adjustment to the network route	Adjustment to overall area
FC approval normally not required	<p>Change within species group e.g., conifers; broadleaves.</p> <p>Change from broadleaf to conifer side.</p> <p>Change due to protection for heritage or conservation feature.</p>	<p>Diversion to avoid sensitive feature (e.g., heritage with 50m buffer zone) but diverted section still connects with original network. Assess diverted section against other tolerance table thresholds.</p>	
Approval by exchange of letters and a map	<p>Change from conifer to broadleaf side.</p> <p>Change of ride side for other reasons.</p>	<p>Changes to <10% of the network location (calculated by % of the length of the overall network).</p>	<p>Any further increase in permanent open habitat required to maintain UKFS 10%.</p>
Approval by formal plan amendment		<p>Changes to >10% of the network location (calculated by % of the length of the overall network).</p>	<p>Any increase in permanent open habitat area above the 10% UKFS baseline.</p>

Get involved

The Thetford Open Habitat Project is about delivering landscape scale habitat enhancement for biodiversity. This is an important and exciting project which will shape the landscape of Thetford.

We would love to hear your views and seek opportunities for collaboration.

- Please visit <https://consult.forestryengland.uk/> to share your thoughts.
- Want to be kept informed of progress and future opportunities to be involved? Visit our webpage below.
- For other enquiries, please contact openhabitat-thetford@forestryengland.uk

Please visit www.forestryengland.uk/article/thetford-open-habitat-project for more details.



Forestry England

References

- 1 - Dolman, P.M., Panter, C.J., Mossman, H.L. (2010) Securing Biodiversity in Breckland: Guidance for Conservation and Research. First Report of the Breckland Biodiversity Audit. University of East Anglia, Norwich. ISBN: 978-0-9567812-0-8
- 2 - Breckland Forest SSSI designation citation:
<https://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=S2000443&SiteName=Breckland&countyCode=&responsiblePerson=&SeaArea=&IFCAAarea=>
- 3 - Unfortunately, due to high density of grey squirrels and habitat fragmentation, reintroduction of red squirrels area was unsuccessful.
- 4 - Environmental Improvement Plan <https://www.gov.uk/government/publications/environmental-improvement-plan>
- 5 - 25 Year Environment Plan <https://www.gov.uk/government/publications/25-year-environment-plan>
- 6- Lawton, J., 2011. Making Space for Nature. *Envtl. L. Rev.*, 13, p.1.
- 7 - Hawkes, 2022. Forestry Open Habitat Network Report. Details can be provided on request.
- 8 - Morrison, C.A., Salliss, D. & Dolman, P.M. 2019 Analysis of territory density and habitat quality of Breckland Forest SSSI Woodlark and Nightjar populations to inform a Habitat Regulations Assessment of novel silvicultural practices.
- 9 - Pedley, S.M., Bertonecelj, I. & Dolman, P.M. (2012) The value of the trackway system within a lowland plantation forest for ground-active spiders. *Journal of Insect Conservation*. DOI:10.1007/s10841-012- 9491-2
- 10 - Lin, Y-C., James, R. and Dolman, P. M. (2006) Conservation of heathland ground beetles (Coleoptera, Carabidae): the value of lowland coniferous plantations. *Biodiversity and Conservation* 16:1337-1358
- 11- Eycott, A.E. (2005). Plant population and community dynamics in a forest landscape. PhD thesis. University of East Anglia, Norwich.
- 12 - Eycott, A.E., Watkinson, A.R., and Dolman, P.M. (2006b). The seed pool of a lowland conifer forest: effects of forestry rotation and implications for heathland restoration. *Forest Ecology and Management* 237: 280-289.
- 13- Dolman, P.M., 2010b. Woodlark and Nightjar Recreational Disturbance and Nest Predator Study 2008 and 2009 Final Report to Breckland District Council.
- 14 - Hawkes, R., Smart, J., Brown, A., Jones, H., & Dolman, P. (2019). Experimental evidence that ground-disturbance benefits Woodlark *Lullula arborea*. *Ibis*, 161(2), 447-452. <https://doi.org/10.1111/ibi.12696>
- 15 - Goldsmith 2021 PhD Thesis under supervision of Bill Sutherland. Provided on request.
- 16 - When to convert woods and forests to open habitat in England, March 2010. <https://www.gov.uk/government/publications/when-to-convert-woods-and-forests-to-open-habitat-in-england-march-2010>

Images

Page 2 - Thetford Forest, Forestry Commission

Page 3 - Dingy Skipper, Forestry Commission

Page 4 - Thetford Forest, Forestry Commission

Page 5 - Thetford Forest, Forestry Commission

Page 6 - Thetford Forest, Forestry Commission

Page 7 - Kings Forest, Forestry Commission

Page 8 - Thetford Forest, Forestry Commission

Page 9 - Kings Forest, Forestry Commission

Page 10 - Thetford Forest, Forestry Commission

Page 13 - Brandon Heath, Forestry Commission

Visualisations provided by Forestry England's Landscape Architecture Team, with thanks to Eliza Blackwell