

COTSWOLDS CONSERVATION BOARD POSITION STATEMENT



WOODLAND CREATION AND TREE PLANTING IN THE COTSWOLDS AONB – TREE SPECIES AND PROVENANCE

The Board, in partnership with a range of organisations and forestry businesses, has produced the following guidance for woodland creation, restocking and individual tree planting that aims to develop resilience to climate change and disease whilst keeping in character with the Cotswold landscape and existing woodlands. This guidance is about what trees to plant and not about where to plant them. Guidance on where to plant is contained within the Cotswolds AONB Landscape Strategy and Guidelines¹.

Past guidance by the Board on woodland creation and restocking has sought the use of species native to the Cotswolds and ideally of local provenance. This has been based on the assumption that conditions in the Cotswolds will remain similar to those of the past. This is unlikely to be the case.

The Board recommends:

Future tree planting should seek to retain the character of existing Cotswold woodlands whilst considering species diversity, genetic diversity (provenance and origin) and assisted migration. Species selection also needs to take account of the context of the planting e.g. extending ancient woodland or creating a stand-alone plantation.

Provenance

Woodland creation and restocking after felling should comprise $\frac{1}{3}$ of trees from selected seed sources from the same Region of Provenance as the site to be planted (403 and 404 for the Cotswolds), $\frac{1}{3}$ from the region to the south (404 and 305) and $\frac{1}{3}$ from northern France to increase resilience to climate change as recommended by the Forestry Commission. Importing tree stock or seed should follow current biosecurity measures.

Woodland Sites of Special Scientific Interest (SSSIs)

Natural regeneration assisted by woodland management to create a diverse structure and enable woodlands to adapt is the stance currently taken by Natural England. Woodland, however, is unlikely to be able to adapt quickly enough and the introduction of small amounts of southern provenance stock should be considered more fully.

Assisted migration should also be considered particularly where there is clear evidence that species such as lime were formerly present.

Restocking ancient woodland including restoration of Planted Ancient Woodland Sites

¹ Cotswolds AONB Landscape Strategy and Guidelines <https://www.cotswoldsaonb.org.uk/our-landscape/landscape-strategy-guidelines/>

A precautionary approach should be taken, using species native to the Cotswolds. However, the inclusion of small amounts of southern provenance should be considered along with the re-introduction of 'lost' species such as small-leaved lime.

Extending and linking ancient woodland

Native species, reflecting the character of existing Cotswold native woodlands, are to be used for extending and linking ancient and ancient semi-natural woodland.

The inclusion of southern provenance stock is recommended

Naturalised species such as sycamore are acceptable if already present in the ancient woodland

Assisted migration should be considered, particularly where there is evidence that a tree species used to exist but has been selected against over time e.g lime

New stand-alone plantations

Free-standing plantations away from ancient woodland are open to the inclusion of a wide variety of species whilst ideally still reflecting the character of Cotswold woodland.

Nurseries and landowners

Nurseries, agents and Forestry consultants should be encouraged to adopt national guidance and recommend the inclusion of native trees of southern provenance in woodland creation and restocking schemes and for amenity tree planting projects. This needs to be supported by nurseries sourcing seed and plants with an origin of between 2° - 5° south of the planting location whilst ensuring good biosecurity measures are in place.

Grant giving bodies

Grant giving bodies such as the Forestry Commission and Natural England should be using and promoting this guidance and in turn expect to receive applications for proposals within the Cotswolds for woodland creation, restocking and tree planting in line with the guidance.

BACKGROUND

Woodland is a key characteristic of the Cotswolds covering 12% of the AONB. Cotswold woodlands can be broadly divided into three types. Two types are indigenous to the Cotswolds – beech woodland² and ash-maple-hazel woodland³. The third type is the estate plantation, planted with native and species alien to the Cotswolds and Great Britain, for commercial and/or sporting purposes, and ranges from broadleaved to conifer. The estate plantations tend to occur on the high wold and dip-slope, occasionally in groups. Along with these three principal types are a range of other types including alder carr, shelterbelts and wood pasture.

Trees outside of woodlands are also important in the landscape, whether in designed parkland, in hedgerows or fields or on the village green. These, often veteran, trees tend to be native species such as oak, ash or beech but can also be non-native species such as horse chestnut, sycamore and cedar.

Woodlands and trees in the Cotswolds AONB are coming under increasing stress from climate change and threat from disease, pests and over browsing by deer. The current spread of *Chalara* dieback of ash serves as a reminder and example that woodlands of the 21st century will not

² NVC types W12 *Fagus sylvatica-Mercurialis perennis* (beech – dog's mercury) woodland and W14 *Fagus sylvatica-Rubus fruticosus* (beech-bramble) woodland

³ NVC type W8 *Fraxinus excelsior-Acer campestre-Mercurialis perennis* (ash- field maple-dog's mercury) woodland

resemble those from the 20th century. A range of tree diseases and pests are already present in the British Isles such as Acute Oak Decline and Phytophthora sp. with others spreading steadily across Europe or poised to enter the country via imports from North America. Of particular concern is *Xylella fastidiosa* which is attacking a wide range of broadleaf species in the Americas.

Woodland and trees have historically seen environmental change but today's growing conditions are different from anything in the past and the rate of change may be up to 30 times faster than trees have ever managed to adapt to on their own⁴. The timescales involved with woodland mean that intervention to counter the anticipated impact of climate changes should, with the benefit of hindsight, have started years ago. Action to ensure Cotswold woodland survives in the future and retains its importance for landscape and biodiversity is urgently required.

To help ensure woodland is more resilient to climate change and disease, the Forestry Commission looks for woodland creation proposals to contain a wider range of species. The Cotswolds Conservation Board, whilst accepting the need for species diversity, has become concerned that woodland creation proposals seen over the past few years frequently contain species which are alien to the Cotswold landscape and to the character of Cotswold woodland, such as rowan and holm oak. Schemes can also exclude typical Cotswold species including beech.

Woodland resilience can also be increased by active management, in particular to create a diverse age and canopy structure

DEFINITIONS AND FACTORS

Native species

Native species of tree and shrub are those that naturally recolonised the British Isles after the last ice age and before Britain became separated from mainland Europe by the formation of the North Sea and English Channel. Native species include ash, English oak, sessile oak, small-leaved lime and beech. There are species native to northern Europe and where Britain is within their natural geographic range that did not make it to the British Isles in time such as sycamore.

Naturalised species

Naturalised trees and shrubs are species introduced into Britain which have spread naturally into the environment. Naturalised species include sweet chestnut and sycamore.

Provenance and origin

The Forestry Commission defines tree provenance as the geographic locality of a stand of trees from where the seed was collected⁵. Origin is the geographic locality within the natural range of a species where the parent seed source or its wild ancestors grew. Provenance and origin have long been used in forestry to select trees to match the site location, for timber quality and productivity etc. Tree planting, particularly of new native woodland has been based on local provenance on the assumption that local tree populations have become adapted over time to the range of climatic and soil conditions in the place in which they are growing. Ignoring provenance can lead to problems in establishment, survival and timber quality.

To ensure woodlands are resilient to climate change and disease the Forestry Commission now recommends the inclusion of trees of a species from between 2 and 5 degrees of latitude south of that currently used. For the Cotswolds this means sourcing some seed or young trees from native tree species from a range between Cornwall to La Rochelle in France. Likewise, nurseries from

⁴ John Weir, National Woodland Resilience Adviser, Forest Services

⁵ Choosing Provenance in Broadleaved trees, Forestry Commission 2006.

<https://cdn.forestresearch.gov.uk/2022/02/fcin082-1.pdf>

Manchester to Arbroath should be sourcing seed from the Cotswolds for growing on calcareous soils.

Great Britain is divided into 23 Regions of Provenance . The Cotswolds is split between two; 403 and 404, roughly along the A40 from Cheltenham to Oxford. The Forestry Commission recommends $\frac{1}{3}$ of trees for planting new woodland should be from selected seed sources from the same Region of Provenance as the site to be planted (403 and 404 for the Cotswolds), $\frac{1}{3}$ from the region to the south (404 and 305) and $\frac{1}{3}$ from northern France, to increase resilience to climate change.

There are concerns over using non-native tree stock. However, non-native tree stock has been imported and planted for many years, particularly from the low countries and eastern Europe. Although the trend has been for local provenance stock to be used in woodland creation for the past 10 – 20 years, many woodlands planted in the 1970s and 1980s contain a lot of trees imported from mainland Europe.

There is even evidence to suggest that some registered native seed stands in the Cotswolds originate from seed imported in the late 18th Century.

Beech

There has been much discussion about the future for beech in the Cotswolds due to the impacts of climate change and its ability to survive drier summers on thin brashy soils. When considering which tree species to plant, the Forestry Commission recommends the use of their Ecological Site Classification (ESC) Decision Support System⁶. ESC predicts the suitability of beech in the Cotswolds as marginal by mid-century and unsuitable over most of the AONB by the end of the century. ESC, however, is based on productivity and not survivability. Beech will not necessarily be killed by climate change but will struggle to establish and grow productively for timber by the end of the century. Due to its importance to the landscape and biodiversity of the Cotswolds, beech should continue to be included in tree planting schemes, using a percentage of more southerly provenance

Assisted migration

Assisted migration is a new approach for preventing the loss of biodiversity caused by climate change⁷. Assisted migration involves moving species, populations, or other biological units threatened by climate change to their predicted future climatic range, i.e., to areas where they should move on their own, but which they cannot reach due to dispersal barriers or lack of time. Assisted migration is controversial because it challenges core values of conservation, there may be biological risks involved and current regulation e.g. SSSI legislation, may prevent the implementation of assisted migration.

Assisted migration can be divided into 3 types

- Augmentation – boosting a small, genetically weak population by introducing fresh genetic stock from another location.
- Introduction – introducing a species to a site where it had not previously existed.
- Reintroduction – restoring a species to its native range

The SSSI woodlands along the Cotswold escarpment have a high percentage of beech, as beech has been favoured over the past decades and other species effectively weeded out. There is some evidence that small-leaved and large-leaved lime has been present in the past and could in some

⁶ <https://www.forestresearch.gov.uk/tools-and-resources/fthr/ecological-site-classification/>

⁷ LUOMUS, Finnish Museum of Natural History. http://luomus.fi/sites/default/files/poster102013_0.pdf

cases be reintroduced to diversify the woodland species. It is important to note that legislation prevents the introduction of lime into any beechwoods designated as SSSI. Natural England view natural regeneration as the way forward for Cotswold beechwoods, enabled by good woodland management. Lime would, however, be accepted if it arrived naturally.

Assisted migration could also apply to ash assuming a strain showing resistance to *Chalara* is found.

Management of woodland

Around 50% of woodland in the UK is not in appropriate active management and creating more woodland is adding to the problem. Unmanaged woodland may become even-aged with little or no regeneration, with a reduced or absent understorey and ground flora and it may become essentially moribund with little economic value other than for firewood.

Managed woodland provides benefits for landscape, biodiversity and the economy. Healthy, more resilient, woodland is the product of good, appropriate management. Resilient woodlands are likely to be characterised by an uneven age structure, a wide range of tree and understorey species, connected or close to other woodlands and ideally a varied topography and aspects.

Deer and Grey squirrel

There are currently four species of wild deer in the Cotswolds: fallow, muntjac, roe and a few sika in the Oxfordshire Cotswolds. Of these species only roe deer are native to the UK. However fallow deer have been present in the region since the Middle Ages and are seen as a traditional part of the Cotswold landscape. Muntjac were introduced into Britain in 1900 and sika 1874. Both species, through a combination of escape and release, are becoming numerous in the British countryside. Even though deer have been managed in the Cotswolds for many years, their geographic range and density has increased to a point where the population is out of balance with the environment.⁸

Many Cotswolds woodlands are suffering from the adverse impacts that high densities of deer can have. These impacts include browsing of young trees and regrowth, which reduces the natural regeneration of tree and shrub seedlings, reduces the survival of coppice stools, and may prevent other plants from flowering and seeding so reducing the biodiversity of woodlands. Browsing and fraying damage (territorial marking and removal of velvet from antlers by rubbing on young trees) also affect the quality and value of timber and coppice growth

Grey squirrel was introduced into Britain from North America between 1876 and the 1920s⁹ and has spread rapidly across the country. Grey squirrel cause damage to trees by stripping bark from the main stem and branches of trees leading to serious harm or death. Beech and sycamore are particularly vulnerable to squirrel damage. In serious cases entire stands of trees may be wiped out. This is of major significance in the Cotswolds for the conservation of woodlands and biodiversity and has led to a reluctance by some woodland managers to plant vulnerable species such as sycamore.

The management of deer and grey squirrel is essential for the future of Cotswold woodlands and requires a co-operative approach between landowners on a landscape scale. Unfortunately, management is currently 'patchy'.

Genetic modification

Research and development of genetically modified (GM) trees has taken place since 1988 to increase woodfuel production and to increase resistance to diseases and pests. To date, Brazil has licenced

⁸ The Management of Wild deer, Cotswolds Conservation Board, 2008

⁹ Controlling Grey Squirrels in forests and woodlands in the UK, Forestry Commission 2019.

<https://www.forestryresearch.gov.uk/publications/controlling-grey-squirrels-in-forests-and-woodlands-in-the-uk/>

GM eucalyptus for woodfuel and China has licenced two species of GM poplar created for disease resistance.

The potential for GM ash for resistance to ash-dieback and emerald ash borer has been identified. Scientists at Queen Mary University of London have sequenced the genome of the European ash tree (*Fraxinus excelsior*) and are currently sequencing the genomes of 30 other ash tree species¹⁰. However, there is no immediate likelihood that modified trees would be available or proposed for use in the Cotswolds.

NOTES

The Cotswolds Conservation Board has the statutory duty to pursue the following two purposes:

- a) to conserve and enhance the natural beauty of the AONB; and
- b) to increase the understanding and enjoyment of the special qualities of the AONB.

In fulfilling these roles, the Board shall seek to foster the economic and social well-being of people living in the AONB.

This is one of a series of position statements published by the Board which help to expand on the Board's policies within the Cotswolds AONB Management Plan or explain the Board's approach to new and emerging issues such as renewable energy, affordable housing, tranquillity, and energy crops. All position statements can be found on the Board's website at:

<http://www.cotswoldsaonb.org.uk/conservation-board/position/>

The Board is comprised of members appointed by the local authorities, elected parish council representatives and individuals appointed by the Secretary of State. The Board, formed in December 2004, is the only organisation that looks after the AONB as a whole.

The Cotswolds AONB was designated in 1966 and extended in area in 1990. It is one of 38 Areas of Outstanding Natural Beauty across England and Wales. It is the largest AONB, covering 790 sq.miles (2038 sq.km). It is a landscape of equal importance to National Parks such as Snowdonia and the Lake District.

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¹⁰ Ash Tree Genomes, Queen Mary University of London <http://www.ashgenome.org/>