TREES AND WOODS: AT THE HEART OF NATURE RECOVERY IN ENGLAND

WOODLAND TRUST

Policy Paper

June 2023

Contents

"Healthy woods and trees are the beating heart of abundant nature-rich habitats throughout England. Yet, only 9% of England's woods are in good ecological condition. With a legal commitment to tackle our nature crisis, halt the decline of species abundance by 2030, and restore nature thereafter, now is the time for urgently needed action. Following from the *Emergency Tree Plan* (2020) and the *State of the UK's Woods and Trees* (2021), this report shows the role that woods and trees can play in nature recovery and provides recommendations for national and local government to implement to make this happen. Everyone benefits when our woods and wider landscapes are thriving for people and brimming with wildlife, and this report should inspire us all to take action for vital nature recovery."

Dr Darren Moorcroft
Chief Executive,
The Woodland Trust

1. Overview and recommendations

Anyone who has spent time in a woodland in spring will know first-hand how important these places are for wildlife and people. The soundtrack of birdsong and humming insects, the unfurling leaves and the vivid colours of flowers are all signs that you are in a place which is home to important wildlife. These sights and sounds often bring feelings of joy and contentment to people, yet the reality is that very few woodlands are in good condition for wildlife, and many are a shadow of what they could be.

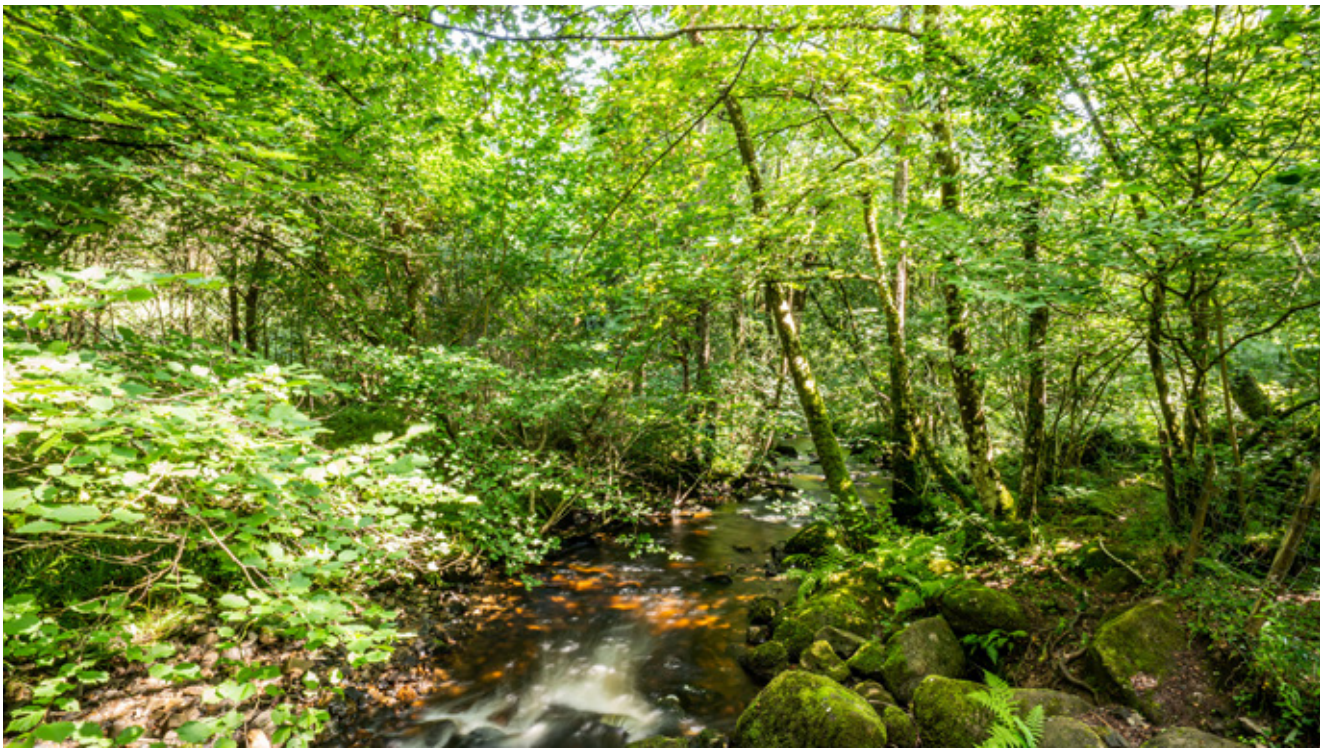
Wildlife declines in England, including the plants and animals that live in our woods, are well documented. Decisions and plans, including Local Nature Recovery Strategies, are currently being made which could offer hope. The future of some of our most important habitats and wildlife is at stake. In some places, there is an unbroken history of continuous woodland that reaches back thousands of years. Our oldest trees are more than a thousand years old. Successive generations of birds, insects and mammals have made their home in these habitats. Together with other habitats like peatlands, meadows and semi-natural grasslands, rivers and streams, our woods and trees are the backbone of our natural systems.

In England, for the first time, we have a legally binding government target – and responsibility – to recover nature. But nature recovery is impossible without the recovery of our native woods and trees. In this report, we show the central role that our native natural and semi-natural woods and trees could and should play in restoring England's nature. We set out principles for nature recovery at three scales – landscape, wood, and tree – and demonstrate the need to better protect woods and trees, restore more wooded habitats to good ecological condition, and create new native woods and trees to form wildlife-rich mosaics with other habitat types. The report is aimed at policymakers in national and local government whose job it is to develop strategies, make decisions and allocate funding that supports nature recovery. It will require us all to take action to turn around the decline in our wildlife, and we hope this report will be of interest to anyone who cares about woods and trees and their wildlife.

Achieving nature-rich, resilient landscapes to harness nature's recovery requires collective urgent action. Together, we need to:

- improve protection of existing native woods and trees
- incentivise excellence in conservation land management to restore nature-rich woodlands
- create new native wooded habitats
- bring nature closer to where people live
- implement Local Nature Recovery Strategies (LNRSs) that also help us build resilience and adapt to a changing climate.

Bovey Valley Woods



BEN LEE/WTML

Recommendations for government in England

It is crucial that everyone works together to recover nature, underpinned by actions that only government can take. The Woodland Trust believes those actions should:

1. **Set out plans to meet, and ideally exceed, the target to halt the decline of species by 2030,** and then increase the abundance of wildlife by 10% by 2042. The 2042 target should use data from a 2022 baseline and should include:
   - plans for investment and regulation
   - a requirement to monitor woodland species and report on their status.
2. **Set a new target to increase native tree canopy cover in England to 16%,** through woodland creation and rollout at scale of agroforestry, supported by ring-fencing of £325 million a year, primarily from ELMs, to deliver semi-natural woodland habitat and wildlife corridors. Both the quantity and quality of canopy-cover expansion should be monitored and reported, including short, medium and long-term targets for increases in priority species.
3. **Launch a new £1 billion woodland nature-recovery funding package over five years comprising:**
   - a £350 million **Woodland Nature Resilience Fund** for landscape-scale projects which will tackle the key drivers of biodiversity loss for wooded habitats and associated species
   - a £250 million **Ancient Woodland Restoration Fund** to kick-start the restoration of ancient woodlands which are being damaged by non-native plantations (this should include direct support to Forestry England to restore the circa 39,000 hectares of ancient woodland currently under plantation forestry)
   - a new £150 million **Temperate Rainforest Restoration Fund** for the restoration of this globally rare habitat in England
   - a £100 million **Habitat Condition and Species Monitoring Programme** for woodland management grants to inform and monitor policy and programme design
   - a £100 million **Woods for People Fund** to purchase land to support the creation of a new generation of accessible, publicly owned, wildlife-rich woodland in locations where this is currently lacking
   - £50 million initial investment to help the sector develop the **infrastructure, skills and capacity** it will need for confidence and assurance in its ability to deliver woodland habitat restoration, management, and creation projects at scale.
4. **Publish and implement a delivery plan, with full resourcing, to show how the Government will deliver its *Keepers of Time* policy ambition to bring the majority of ancient and native woodland into restoration by 2030.** This should include an independent review of current forestry regulation, public land management, and grant support.
5. **Increase and better protect woods and trees to ensure there is no further loss of semi-natural woodland habitats and species.** The resourcing of long-term management to bring sites into favourable conservation condition, and their ongoing monitoring, is essential for nature recovery and a requirement for them to count towards the Government commitment to protect and manage 30% of land and sea by 2030. This should include:
   - strengthening policy to ensure no further loss of ancient woodlands
   - protecting and managing more of our ancient woodland through designation as a Site of Special Scientific Interest (SSSI), and closing loopholes that enable damaging development in the National Planning Policy Framework and in National Policy Statements
   - designating all remaining fragments of temperate rainforest
   - creating a new additional category of 'long-established woodland' (woodlands that have been in situ since 1840), protected through the planning system
   - introducing new legal protections for our most ancient and important trees and improving protections for trees through reform of the Tree Preservation Order (TPO) system
   - developing a new designation category of 'Nature Recovery Area' (or 'Wildbelt') to protect priority sites for nature recovery for their potential value – identified through Local Nature Recovery Strategies (LNRSs)
   - increasing the extent and ecological quality of National Nature Reserves
   - ensuring that the primary statutory purpose of all protected landscapes (national parks and Areas of Outstanding Natural Beauty [AONBs]) is the protection and recovery of nature.

6. **Ensure that the Government's woodland wildlife indicator species[1] are embedded into all relevant government policy and investment plans** as a measure of success, with a duty to monitor and publicly report on their status.

7. **Ensure that Local Nature Recovery Strategies (LNRSs) deliver the nature recovery of woods and trees** by making sure that they:
   - connect up as part of England's Nature Recovery Network
   - are informed by the latest and most comprehensive local and national data sets, including species and habitat data and the Ancient Tree Inventory and Ancient Woodland Inventory
   - set targets for the recovery of woodland wildlife species, and regularly monitor and report progress using the Government's biodiversity indicators
   - are embedded into the planning system through strengthened legislation
   - maximise the potential of protected landscapes to provide landscape-scale nature recovery opportunities
   - are well co-ordinated with Environmental Land Management (ELM) scheme design and targeted to focus investment on the most impactful nature recovery
   - provide opportunities for high-integrity private finance that complements and does not replace public funding.

8. **Incentivise locally sourced and grown trees through public procurement** by investing in commercial, local authority and community tree nurseries now. This will enable a rapid expansion of UK and Ireland sourced and grown (UKISG) trees – to both reduce the risk of importing tree diseases and improve biosecurity.

9. **Implement a duty to protect and recover nature for all of Defra's Arm's-Length Bodies (ALBs), including Forestry England, and fully resource Natural England to a minimum of 2010 levels of funding to reflect the scale of the nature crisis and to meet the Environmental Improvement Plan (EIP) commitment around increasing public access opportunities**. National parks and Areas of Outstanding Natural Beauty (AONBs) should have increased powers, duties and funding to support the renewed mission to recover and enhance nature and monitor nature outcomes.

10. **Where appropriate, resource reintroductions of keystone species and recovery programmes for vulnerable and threatened species,** such as beaver, wildcat and pine marten, as parts of healthy thriving woodland ecosystems.

PHILIP FORMBY/WTML

Recommendations for local authorities and councils

Local authorities and parish and town councils all have an important role to play in supporting nature recovery. The Woodland Trust believes that the priorities for action by local government should be to:

1. **Declare a nature emergency** and set out a clear response to address it.
2. **Protect woods and trees and associated semi-natural habitats, and support active conservation management** through rigorous application of planning policy protections.
3. **Ensure that woodland wildlife indicator species (birds, butterflies and plants) are embedded into local policy and investment plans** as a measure of nature recovery success, with regular monitoring and public reporting.
4. **Increase access to nature** while supporting its recovery by:
   a. **ensuring that everyone has access to nature-rich green space which can be reached within 10 minutes of where they live, whether on foot or by wheelchair**
   b. **ensuring that tree-lined streets and access to nature-rich woodlands are guaranteed in all new housing developments through a minimum of 30% tree-canopy** cover for a development area, including retaining mature trees (which can be revised up or down, depending on local opportunities and constraints)
   c. **increasing tree-canopy cover in existing housing estates where it is below the England urban average (16%),** to ensure ecologically and locationally appropriate species, diverse in age and structure.
5. **Ensure that LNRS creation includes the active participation of local communities.** Local authorities have a key leadership and convening role to play in enabling inclusive community and stakeholder engagement and promoting community understanding of, and participation in, nature recovery.
6. **Embed LNRSs in Local Plans and other relevant policies** such as green infrastructure strategies, neighbourhood plans, wellbeing strategies and tree strategies.
7. **Ensure LNRSs are based on the best available data and include:**
   a. native woodland and tree-canopy expansion targets
   b. woodland species recovery targets and indicator species, with a duty to monitor and report on their status
   c. a map of priorities for buffering and connecting existing wildlife-rich habitat
   d. a fully costed delivery plan
   e. measurable outcomes, progress assessments and success evaluations, with shared learnings and funding sources
   f. a 'tree equity' assessment in urban and peri-urban areas
8. **Maximise the potential of protected landscapes (national parks and AONBs) to support LNRS delivery,** and deliver landscape-scale nature recovery outcomes.
9. **Prioritise the use of their land holdings for well-targeted habitat creation and restoration** as exemplars for nature recovery and climate mitigation.
10. **Employ a specialist ecologist and a tree officer** to ensure that biodiversity is at the heart of all decision making.

BEN LEE/WTML

2. Introduction

Nature is the variety of all life on Earth and includes all species of animals and plants, their genetic diversity, and the natural ecosystems that support them. Humans are part of nature and our health and wellbeing and livelihoods are dependent on healthy ecosystems.

JOHN BRIDGES/WTML

Willow tit

Natural and semi-natural wooded habitats and trees are an essential and integral part of England's nature, from mixed broadleaved woodlands, upland oak and ash woods and the wet woodland of river valleys, to the hedges which criss-cross farmed landscapes and the trees scattered across our towns and countryside. These wooded habitats and microhabitats are home to some of England's most iconic wildlife species and play a role in providing us with a range of wider benefits, including clean air and water, carbon storage, flood management, pollination and recreation.

However, nature is in deep crisis every bit as serious as the climate crisis. England is one of the most nature-depleted countries in the world, ranking 228th out of 240 countries on the Biodiversity Intactness Index[2]. The State of Nature for England shows that the abundance and distribution of species has, on average, declined since 1970 – with 35% of all species having decreased in abundance and 13% threatened with extinction[3].

Many of the species declining at alarming rates are associated with native woods and trees, either woodland specialist species or generalist species which use wooded habitats as part of their lifecycle. For example, the hazel dormouse, which has suffered a 48% decline over 10 years[4] and is listed as vulnerable on the IUCN* Red List[5], is dependent on deciduous woodland, hedgerows and scrub. Farmland birds such as yellowhammer and tree sparrow, both Red-List species in sharp decline, nest in hedgerows on farms. Trees provide roosting sites for three quarters of all species of bat[6], including the serotine and barbastelle bats, both classed as vulnerable on the IUCN* Red List.

ADAM BURTON/WTML

* International Union for Conservation of Nature

The health of England's wildlife species' diversity and populations is dependent on the ecological condition of their habitat, as well as their location and extent. Although woodland cover is expanding, woodland wildlife is decreasing[7]. For example, the decline of the purple emperor butterfly was caused by the widespread loss and fragmentation of ancient woodland as well as the 'tidying up' of areas of goat willow – its foodplant; and the white-lettered hairstreak declined in the 1970s when its foodplants were reduced by Dutch elm disease. We need more structurally diverse native or native-dominated wooded habitats that are well managed and in good ecological condition.

Despite these declines, there is still room for hope. Local Nature Recovery Strategies (LNRSs) – a flagship requirement of the Environment Act 2021 – provide an opportunity to positively reset the direction for wildlife across England. A growing number of local authorities and councils are declaring nature emergencies, and up and down the land people are taking action in their local communities to protect and restore nature.

The Government commitment to protect and manage 30% of land for nature by 2030[8], to action a legally binding target to halt the decline in species abundance by 2030[9], and the promised Environmental Land Management schemes, may also be reasons for hope if well funded and implemented. But promises are not enough. They need to be translated into meaningful policy design, investment, action and monitoring.

In this short report, we show the central role that our native natural and semi-natural woods and trees could and should play in restoring England's nature. We provide principles for nature recovery at three scales – landscape, wood and tree – and demonstrate the need to better **protect** woods and trees, **restore** more wooded habitats to good ecological condition, and **create** new native woods and trees to form wildlife-rich mosaics with other habitat types. This will provide the resilient, dynamic ecosystems needed to stabilise and then increase the populations of England's most vulnerable and threatened species, and keep common wildlife species common.

GEOFF FOALE/WTML

Red-headed cardinal beetle

JOHN BRIDGES/WTML

Common lizard

MATT BERRY/WTML

Purple emperor

JOHN BRIDGES/WTML

Red squirrel

ALAMY/WTML

Pine marten

ROBERT READ/WTML

Dog violet

3. The state of woods and trees in England

Wooded habitats and species are in trouble. The Trust's *State of the UK's Woods and Trees* report shows that for woodland wildlife, the picture is bleak. **Just 9% of England's native woodlands are currently in good ecological condition** (7% at the Britain scale). Those in poor ecological condition are characterised by low levels of deadwood, few veteran trees and a lack of open habitats within woodlands, as well as insufficient diversity in tree age and – in some cases – low tree-species diversity. As a consequence, woodland wildlife has decreased and **one third of all woodland species are in decline**.

There was a 41% decline in the **woodland butterfly** index (which comprises 25 species) for the UK between 1990 and 2019. The **woodland bird** index (which comprises 37 species) contains both generalist birds which are found in a variety of habitats, and specialist birds – particularly those which are highly dependent on woodland habitats. In 2019, the 'all woodland bird index' for England was 28.7% lower than in 1970.

KIM TAYLOR/NATUREPL.COM

In warmer springs, oaks leaf earlier, causing an earlier peak in caterpillar abundance. However, blue tit chicks hatch too late to take full advantage of peak caterpillar numbers.

Five woodland specialists – lesser spotted woodpecker, lesser redpoll, spotted flycatcher and willow tit – have declined by over 80% relative to 1970 levels, with willow tit down by 94%. Declines in resident birds such as lesser spotted woodpecker and willow tit are due to factors on their breeding grounds. Probable causes for this are still being investigated, but are likely to include a lack of appropriate habitat management and increased deer-browsing pressure, both of which result in a reduced diversity of both woodland structure and availability of suitable nesting and foraging habitats.

Since 2015, the broadleaved **woodland and hedges** index (which includes 64 species) has declined by 18%.

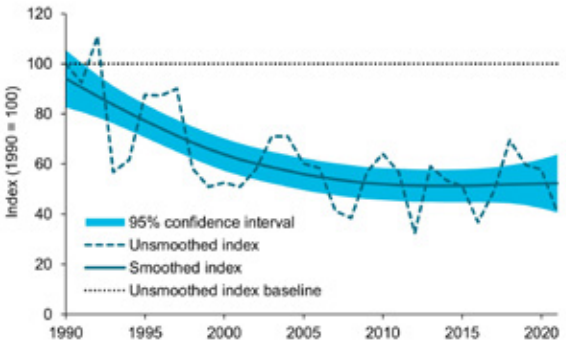


Figure 1. Trend for butterflies of the wider countryside in UK woodland, 1990 to 2021
Source: Defra (2021)[10] with permission from JNCC

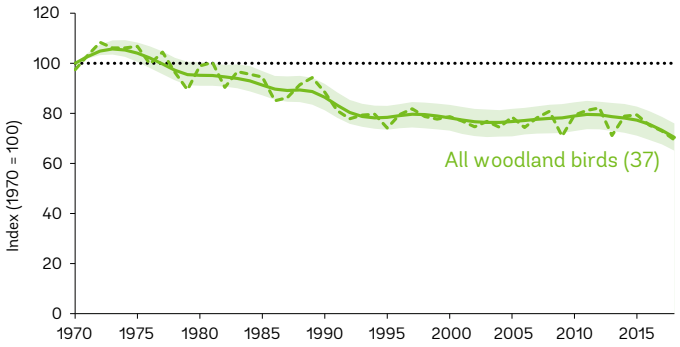


Figure 2. Trend for breeding woodland birds in the UK, 1970 to 2019
Source: Defra (2020)[11] with permission from JNCC

Threats affecting woods and trees include a barrage of coinciding pressures – from direct loss of habitat area to more insidious influences such as climate change, pollution, disease, and built infrastructure. These diminish the value of woods and trees for people and wildlife.

Climate change is one of the greatest threats to natural systems across the globe. Long-term phenology records (i.e. the seasonal timing of natural events such as bud burst) show that the beginning of spring is now happening on average 8.4 days earlier when comparing the 1998–2019 period to the historic 1892–1947 period. This matters because not all plants and animals which are interdependent can keep up with this range, and it may create a mismatch in their food supply as evidenced by, for example, blue tit chicks starving when the caterpillars they feed on are unavailable in years of early leaf emergence.

Invasive pests and diseases driven by plant imports are an increasing threat to native woodlands and the wildlife dependent on them. It is estimated that ash dieback alone will cost Britain £15 billion from the loss of millions of mature ash trees, and will result in local extinction of wildlife dependent on ash[12]. Around half of our ancient woodlands have been damaged by either plantations of non-native trees and/or invasion of rhododendron. Excessive deer browsing causes significant damage which negatively affects woodland structure, species composition, and regrowth – resulting in wildlife declines.

Nitrogen deposition is eroding woodland ecology. Nitrogen air pollution from agriculture strips trees of their layer of protective lichens and causes a fertiliser effect – where grasses outcompete more delicate woodland flowers and disrupt ecosystems.

Built development and transport infrastructure continue to result in loss of irreplaceable ancient woodlands and trees and to further fragment semi-natural habitats. More than 800 ancient woods in England are currently under threat from development, and during the last 21 years at least 612 have been permanently lost or damaged.

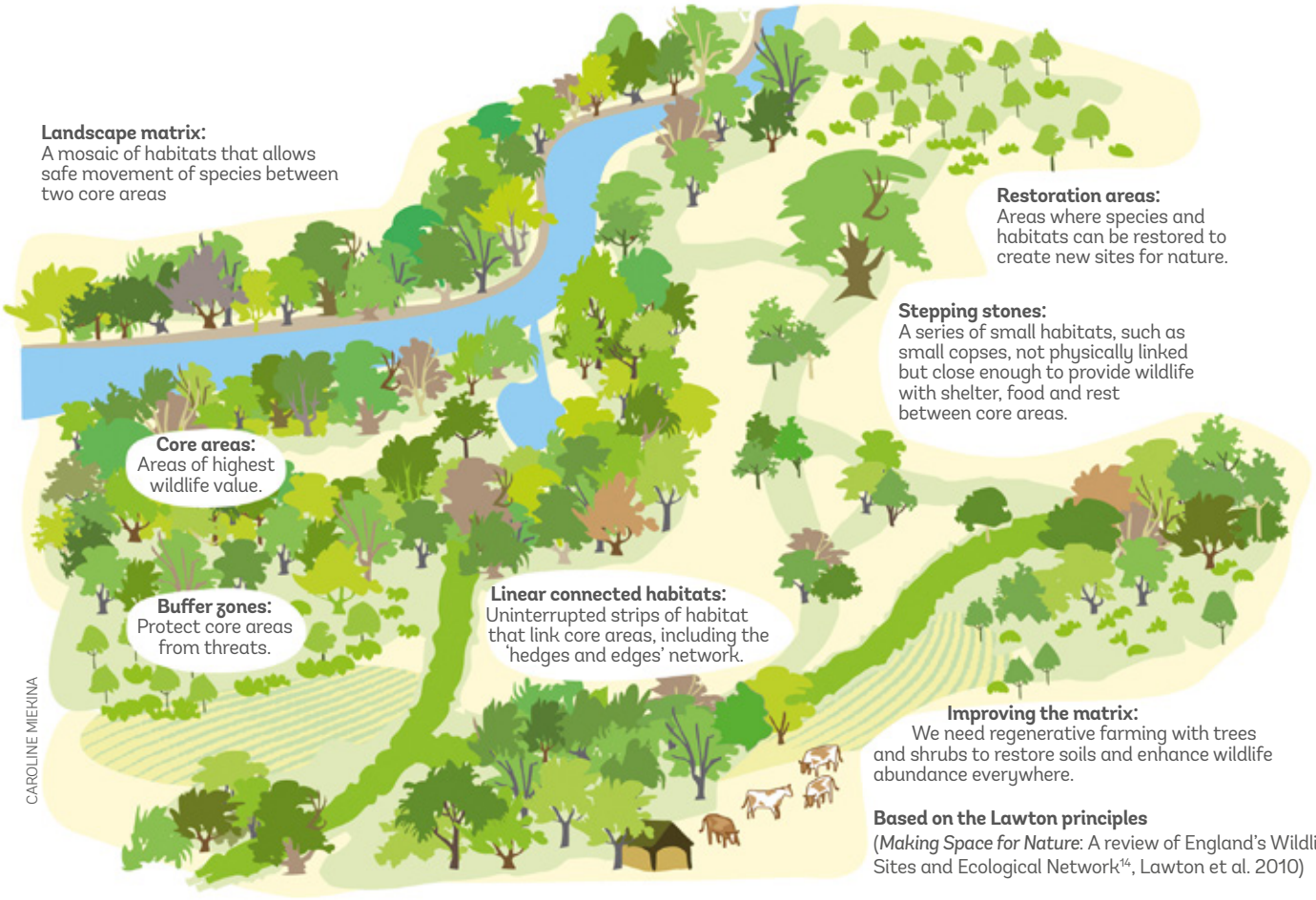
PHIL LOCKWOOD/WTML

Ash dieback at Pound Farm

High Speed 2 train-line protest

ROB CALENDAR/WTML

4. What is nature recovery?



To develop the resilient, complex and dynamic habitats needed to recover nature and reverse the decline of England's vulnerable wildlife species, we need to restore and create **more, bigger, better and joined up** natural and semi-natural habitats and landscapes. These principles were enshrined in the Lawton Report (2010) and have been updated and further developed by Natural England (2020)[13].

For native woods and trees, we need:

- **more natural and semi-natural wooded habitats and more trees in the landscape** to replace past losses and create new habitats which support diverse and abundant wildlife species
- **bigger** and more naturally functioning wooded-habitat areas by buffering and extending existing woods and trees to provide the sources of biodiversity to colonise the rest of the landscape
- **better** existing wildlife sites by making them:
  - structurally complex, with mosaics of habitat that provide more niches for species
  - diverse and rich in wildlife species, with full food webs
  - dynamic well-functioning ecosystems with mosaics which change in space and time, driven by natural processes and by active management where appropriate
  - free from, and resilient to, threats from invasive species, disease, pollution, climate change and development
- **joined-up** core habitat by reducing the distance, and increasing the cover, of semi-natural habitat in the area between core sites to allow species dispersal – supporting colonisation and enhancing resilience to climate change.

Planning for nature recovery should aim to reflect how habitats and associated species are naturally provided for by the geography and geology of the landscape, and by maximising opportunities for the provision of nature-based solutions – particularly in building resilience to future climate change and by providing benefits to local communities.

5. Landscape-scale nature recovery

Principles for landscape-scale nature recovery with woods and trees

The following principles can be applied to any landscape appropriate for trees and woods, and together will underpin effective high-quality nature recovery:

- **Protect and restore the surviving nature resource**
  The surviving remnants of our natural ecosystems and the ancient soils that support them provide the foundations on which to build wider ecosystem recovery, and should be protected and managed appropriately.
- **Bigger and more habitat**
  To allow for nature recovery, the habitat area should be expanded by buffering and extending wooded habitats and trees where they exist, and creating new large woodlands in areas where they do not. Buffering increases woodland area and allows for natural colonisation and species movement from the existing to the new habitat.
- **Abundant and diverse native trees and shrubs should be prioritised**
  Native trees are best adapted to most local natural environments and have a high genetic diversity which enables populations to be resilient in the face of climate change. Wildlife communities have adapted over time with native tree species and will be best supported by these.
- **A blend of woodland-creation methods should be used**
  Appropriate methods include natural colonisation, direct seeding, and planting using locally sourced and grown trees (UKISG-assured) to prevent importation of pests and diseases. Adaptation to climate change and locally prevalent disease can be supported through a focus on natural regeneration and colonisation.
- **Threats to habitat condition should be addressed**
  Threats such as over browsing by deer and grey squirrels should be reduced at a landscape scale to enable growth of saplings, shrubs and diverse woodland flowers. Invasive species like rhododendron should be removed at a landscape scale. Emissions of damaging nitrogen air pollution, including from intensive farming systems, should be reduced.
- **Restore natural processes and dynamism where appropriate and practicable**
  Such restoration will help drive self-powered ecological recovery and adaptation to changing conditions – promoting habitat niches that can't be easily created artificially. Large herbivores like cattle can help to achieve this.
- **Use active conservation management**
  The habitat quality of woods and hedgerows can be enhanced with active conservation management – boosting their value for declining species.
- **Mosaics of semi-natural habitat of different types should be integrated**
  Many wildlife species use resources across a range of habitat types. Transitionary habitats at woodland margins, where they blend into grassland via scrub, are often the richest for wildlife.
- **More joined-up natural habitats**
  Landscape-scale nature recovery should focus on the creation and restoration of habitat in areas that join together existing patches of wooded habitat and trees to increase the permeability of the landscape, and to allow dispersal between otherwise isolated parts of habitat networks.
- **Reintroductions of keystone species**
  Where appropriate, the reintroduction of keystone species, such as beaver, wildcat and pine marten, should be supported as parts of healthy, thriving woodland ecosystems.

BEN LEE/WTML

The role of native woods and trees

Native wooded habitats, including woods, trees, hedgerows and scrub, play four main roles in landscape-scale nature recovery: as semi-natural habitat in their own right, as vital natural components of other habitats, as essential parts of large-scale habitat mosaics, and as arteries of connectivity to support movement and dispersal of wildlife. Here, we consider each of these roles in turn and then look at the particular issues and opportunities affecting woods and trees in the farmed environment, the urban forest, and the globally rare temperate rainforest.

Creating more wooded habitats

Nature recovery must include the protection, restoration, better management and creation of wooded habitats. Native woodland creation is considered in this section, while protection, restoration and management are considered in section 6 (Woodland-scale nature recovery).

Woodland cover in England is one of the lowest in Europe – just 10% compared with a 37% average across the European Union[15]. While tree cover in England and the wider UK has been steadily increasing for more than a century, much of the expansion has consisted of plantation conifer. In the same time period there has been a continued loss of biodiversity. Creating more resilient nature-rich native woodlands, and expanding those we already have with active management for ecological resilience (covered in more detail in section 6), will be vital for nature recovery.

The Government has set a long-term target to increase tree canopy cover to 16.5% of England. Unfortunately, much of this target could be met by commercial forestry and non-native planting, which may not benefit biodiversity. Instead, the Government should set an ambitious native tree cover target. Native woodland cover in England is currently only 6–7%[16], and rectifying this will require long-term planning and investment. To maximise the benefit to biodiversity and species richness, we need to aim for 30% native tree cover over 30% of England (the wooded landscape conservation-priority areas). In all other areas, an objective should be to reach a minimum of 10% native tree cover (based on Woodland Trust research). This gives an **overall target of 16% native tree cover in England as the minimum needed to recover nature**.

By 2050, a total of 300,000 hectares of new native woods and trees should be established in England, and of a standard that contributes to the Government's target for 500,000 hectares of new nature-rich habitat (EIP 2023)[17]. Its value for nature recovery should be optimised by targeting to improve connectivity and expanding existing woodland through buffering. There should be a focus on natural regeneration, colonisation and direct seeding, and planting using locally sourced and grown trees assured to UKISG (UK and Ireland Sourced and Grown) standards. Progress should also be monitored using UK Biodiversity Indicators[18].

Local Nature Recovery Strategies (LNRSs) must identify the best places for new and expanded woodlands, with geology, soil type and hydrology indicating which distinctive woodland vegetation communities will thrive. Opportunities to reduce flood risk, improve water quality, and create high-quality access to nature, should be factored into decision making.

JUDITH PARRY/WTML

Trees and scrub as vital natural components of other habitats

Nature recovery means making all habitats better for wildlife. Trees and scrub are natural components of nearly every UK habitat – including grasslands, heathlands and wetlands – where they add structure, diversity and resources for birds, invertebrates and mammals. For example, 31% of priority species in grassland are associated with scrub and scattered trees, including species such as the Duke of Burgundy butterfly. Trees and scrub should be part of these habitats at appropriate levels to optimise the ecological value of these sites, with the right trees in the right places, while being mindful that in some places the best approach for nature is no trees at all.

Large-scale habitat mosaics

For many species, it is a mosaic of habitats – including trees, woods, hedges, heathlands, wetlands and grasslands – that is important to meet their various lifecycle needs and sustain viable populations. Mobile species, such as mammals and birds, tend to need a range of habitats in which to breed, nest or roost, and others in which to feed or forage. Providing a mosaic of these elements across the landscape – ranging from tall trees through layers of scrub to herbs and grasses – will go a long way to meet the needs of many species.

An **ecotone** is the transition between two patches of habitat, such as woodland or grassland. The broader the ecotone, with a gradual blend of communities, the greater the variety of microhabitats it will contain, which in turn will accommodate a greater variety of species. A large proportion of wildlife species[19], including birds[20], are associated with these soft scrub herb interfaces on the edges of woodland, glades and rides, and their creation and long-term management is of vital importance for wildlife.

ALASTAIR HOTCHKISS/WTML

Examples of once common species which would benefit from improved protection, restoration and creation of semi-natural wooded habitats:

Hedgehog *Erinaceus europaeus*

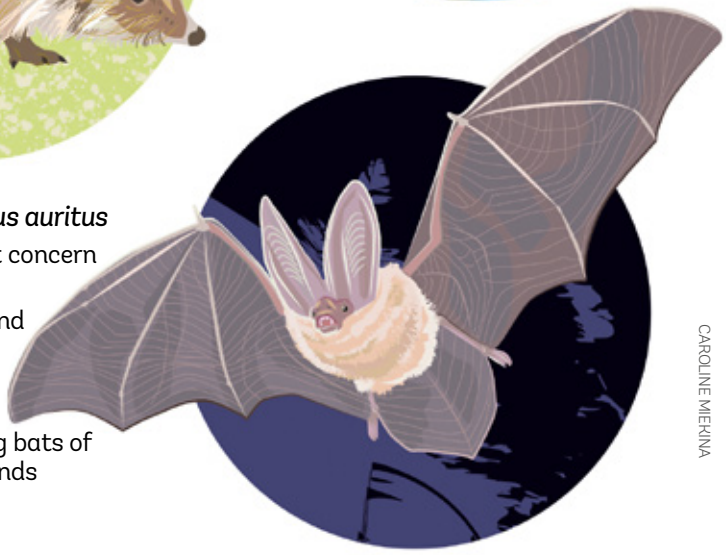
- Red List classification: Vulnerable
- Uses woods, trees and hedgerows for hibernation and feeding
- Population declined by approximately 70% since 2000
- Threatened by loss and damage of hedgerows and woodland, use of pesticides in farms and gardens, and increased built development

Cuckoo *Cuculus canorus*

- Red List classification: Vulnerable
- Population declined by 27% between 1980 and 2015
- Uses woods and trees for nesting where host species nest (e.g. dunnock)
- Threatened by loss of habitat and the knock-on effects to their host species, and by deforestation and hunting on migration routes

Brown long-eared bat *Plecotus auritus*

- Red List classification: Least concern
- Population currently stable
- Uses woodland for feeding and roosting, and hedgerows for navigation
- Threatened by loss of their woodland habitats, depriving bats of roost sites and hunting grounds



CAROLINE MIEKINA

Essential for connectivity and dispersal

Woods, trees and hedgerows play an essential role in providing connectivity for species. Landscape-scale nature recovery should focus on the creation and restoration of habitat in areas that join together existing patches and increase the permeability of the landscape. Evidence suggests that providing 'stepping stones' and improving the 'permeability' of the matrix are usually more important than providing physical corridors through which nature can disperse[21]. Many native woodland specialists are poor dispersers, so for woodland creation sites to have the most value they should be prioritised to areas with plenty of native woodland existing within 1km.

Successful dispersal between patches is vital because it ensures the genetic health of populations, enables species range shifts in response to climate change, and other ecological processes integral to biodiversity conservation.

The agroforest

Currently, 69% of England's land is used for agriculture (8.9 million hectares[22]) and since the Second World War there has been extensive loss of on-farm trees, hedgerows and traditional orchards, resulting in significant species declines[23].

There is huge potential for nature recovery in our farmed landscape. It is vital that the spatial targeting and prioritisation of options within ELMs incentivises the most effective actions for nature recovery as identified in the LNRSs. Agroforestry has the potential to more than double average farm biodiversity levels, and there should be a significant expansion of this approach[24].

ANDREW TRYNER/WTML

Deborah and Martin Hofman, Wheeldon Trees Farm, Earl Sterndale

The temperate rainforest

Temperate rainforest is a globally rare woodland type along the Atlantic seaboard of England, western Scotland and western Wales. Native and ancient woodland characterised by very high rainfall and consistent year-round mild temperatures have resulted in woods of high nature-conservation importance for their lichens and bryophytes which festoon the trees and give them an otherworldly appearance. They contain numerous species that are rare and threatened at the regional, national and international levels.

However, these rainforests are under threat from the presence of invasive non-native species such as rhododendron and laurel, as well as inappropriate grazing pressure, lack of management, and diseases like ash dieback. The scattered fragments that remain now cover less than 1% of Britain[25], although 20% of Britain has a sufficiently wet and mild climate in which such habitat can flourish. Recent analysis has revealed that almost three quarters of England's temperate rainforest sites are not protected by SSSI designations[26]. A strategy to protect and restore this important habitat is vital.

PHILIP FORMBY/WTML

The urban forest

Trees in urban environments deliver a multitude of benefits to the 82% of the population who live in towns and cities, including improvements to air quality, noise levels, temperature extremes and water management. They also provide important and connecting habitat for wildlife. Because urban trees need to cope with environmental extremes, they tend to be a varied selection of native and non-native species across a mix of small woods, street trees, trees and shrubs in parks, trees along rivers and in allotments and gardens.

Access to nature, including woods and trees, is important for people's physical and mental health and wellbeing. Of 2,000 people polled in April 2020 for Natural England's People and Nature survey[27], 89% agreed or strongly agreed that green and natural spaces are good places for mental health and wellbeing. However, the number of people with easy access to nearby woodland has declined since 2016. In 2020, 16.2% of people in the UK had access to a wood of at least two hectares within 500 metres of their homes, and 66.6% had access to a wood of at least 20 hectares within four kilometres of their homes. Furthermore, there is stark inequality in terms of access to green spaces, with those living in the most disadvantaged areas the least likely to have access to green spaces close to where they live. Adopting the tree equity principle for tree cover in urban areas would help to support nature recovery in our towns and cities as well as address inequalities in health and wellbeing.

Some councils are already taking action, such as Liverpool City Council which has become the first local authority in England to set an ambition that no resident in Liverpool will live more than a 10-minute walk from a high-quality green space which is protected in perpetuity.

A broad and diverse range of community groups should be involved in Local Nature-Recovery Strategy development, which should include plans for an equitable and sufficient level of nature-rich green spaces so that all residents have close and easy access to nature for health and wellbeing.

KRIS ASKEY/WTML

Community action: Edlington Community Wood

Edlington Town Council (Doncaster, South Yorkshire) received funding in 2016 from the Woodland Trust's Community Woods programme to plant a new community woodland on four hectares of abandoned allotment sites, which – after 20 years of neglect – had turned into a wasteland. The funding paid for the group to clear and level the site and for the planting of new woodland. The group described the project as a 'lifesaver', and reported that the area had gone from an eyesore and potential hazard to a valued community recreational facility. It also generated a huge amount of community involvement and enthusiasm in this deprived post-mining area.

6. Woodland-scale nature recovery

Principles for woodland-scale nature recovery

These principles can be applied to any woodland at any scale, and together they will underpin nature recovery:

- **Protect, restore and better manage the surviving ancient and native woodland resource**
  The surviving remnants of our natural ecosystems, their genetic diversity, and the soils that support them, provide the foundations on which to build wider ecosystem recovery.
- **Improve woodland ecological condition by increasing tree and shrub species diversity and enhancing structural complexity to support a variety of wildlife habitats**
  This should comprise mosaics of dense groves, open glades, and open wooded habitats. Each patch should have a diverse range of tree age and size classes, dead trees and standing and fallen decaying wood, a shrub layer, regeneration, and a range of flowering plants. This provides habitat and resources for many different species at the same time.
- **Use active conservation management to enhance the habitat quality of wooded habitats**
  This will boost the value of wooded habitats for declining species.
- **Restore natural processes and dynamism where feasible**
  These processes (such as canopy-gap creation, tree death, natural regeneration, pollination and seed dispersal) drive self-powered ecological recovery and adaptation to changing conditions – and promote habitat niches that can't be easily manufactured. Often, they require considerable restoration management to set them on the right track, such as the introduction of large herbivores or keystone species, tree felling or invasive species management.

Native woodlands are some of England's richest and most diverse wildlife habitats and support a quarter of the UK's priority species for conservation[28]. A large proportion of these are lower plants, fungi and invertebrates, dependent on microhabitats[29]. Ancient woodland – where there has been continuous woodland cover for hundreds if not thousands of years – has had time to develop rich and interconnected ecosystems, shaped by geology, soils, climatic conditions and their interaction with people.

However, up to 40% of England's ancient woodlands have been cleared and replanted with non-native timber species (plantations on ancient woodland sites – PAWS), with numerous woodlands suffering from a lack of active management. The population of deer is higher today than at any time in the last 1,000 years.

Over the last 50 years, many woodlands have become darker due to the loss of regular coppicing and the growth of conifer plantations. They have also lost structural diversity through browsing of the understorey shrubs, the curtailing of opportunities for natural regeneration of trees and a reduction in diversity of their tree and flowering plant-species composition. These changes have had a devastating impact on some woodland specialist wildlife species, including birds such as lesser spotted woodpecker and willow tit, and butterflies like the pearl-bordered fritillary.

PHIL MCMENEMY/WTML

Conifers in plantations on ancient woodland sites create unfavourable shady conditions for native trees and ground flora

What do woodlands need in order to recover nature?

Maximising ecological integrity involves balancing management interventions with natural processes. To recover native woodlands and achieve their potential for wildlife, **active conservation management is required to improve woodland ecological condition** – enhancing light levels and structural and species diversity, creating dynamism in the system, and tackling persistent threats like browsing pressure.

Woodland management should be targeted to support and increase populations of priority species. The conservation needs of almost three quarters of them can be met by carefully managing the habitats to create the conditions they need, including the creation of component niches and the resources these species require[30]. Different species require a range of different woodland features. For example, 40% of species are dependent on glades, rides and edges, including the endangered pearl-bordered fritillary, and 23% of woodland species are associated with full shade and high humidity[31].

Some of the attributes of woodland in good condition

BEN LEE/WTML

Mix of tree sizes and ages

BEN LEE/WTML

Standing and fallen large-diameter deadwood

GLYNN BAKER/WTML

Diverse ground flora

Woodland in good ecological condition, along with wooded landscapes with appropriate diversity of structure and habitat types, will reverse declines and support recovery of species. RSPB and Forestry Commission research[32] found that woodland management such as glade creation and tree canopy reduction had a positive effect on 13 target species, including garden warbler and hawfinches.

While the evidence shows that native woodlands provide the most value to wildlife, **production-focused plantations can also provide a valuable contribution to nature recovery**. The UK imports a significant proportion of its timber, and there is a need to expand timber-focused plantations alongside native woodlands. There are a number of steps that can enhance the value of productive plantations for nature such as using a greater proportion of native species, creating open space, and retaining deadwood and veteran trees. At the moment, however, woodlands of all types are lacking many of these features. Improving the ecological condition of productive plantations will not only help wildlife, but will also support long-term production by underpinning the resilience of plantations to threats such as tree diseases.

LNRSs should identify the priority wooded habitats for restoration and better management, and describe the management actions required: enabling the development and delivery of management plans that will aid nature recovery.

Tools like the **Woodland Wildlife Toolkit** have been developed to refine woodland management to meet the needs of rare and declining woodland species. The toolkit[33] makes the link between species declines, woodland condition, and management required to improve species diversity and abundance.

Restoration of degraded ancient woodland has been encouraged by government policy since the ***Broadleaves Policy*** (1985)[34]. The 2022 update of the ***Keepers of Time*** policy[35] has the target that '...by 2030, the majority of planted ancient woodland sites are either being improved or under gradual restoration to native woodland'. Despite 35 years of public policy, a considerable amount of the UK's ancient woodland remains under plantation forestry, and much of this is still likely to be in a critical or threatened condition. A clear policy commitment **and delivery plan** is needed to begin the restoration of at least half the PAWS in England on privately owned land (45,000 hectares) by 2030.

Forestry England must be supported to manage ancient woodland sites across the nation's forests to improve their ecological value and ultimately restore all plantations on ancient woodland sites to resilient native woodland.

Only 16% of ancient woodland is designated as a **Site of Special Scientific Interest (SSSI)**. An integral part of the Government's plans for nature recovery must include designating more ancient woodland as SSSIs and investing in their management to ensure that they thrive and deliver positive outcomes for nature recovery.

Furthermore, only 38% of terrestrial protected sites in England are in good condition. Support should be offered to land managers to manage protected sites; for example, ELM schemes should include support for bringing more woodland into good management.

Polling by the RSPB[36] found that the restoration of nature is the top priority for the public when it comes to **national parks** – with 68% of respondents choosing this. An England-wide assessment of the current state of nature in protected landscapes should be carried out.

CHRISTINE REID

Abundant natural regeneration

PHILIP FORMBY/WTML

Mix of tree species

CHRISTINE REID

Open habitats/glades and rides


BEN LEE/WTML

Ausewell Wood, Ashburton, Devon

Case study:

Building Resilience project in the South West's temperate rainforest

Building Resilience in South West Woodlands was a Plantlife-led, National Lottery Heritage-Funded project to raise awareness about the region's temperate rainforest, and improve its management. The Woodland Trust was a partner on the project through East Dartmoor National Nature Reserve (NNR), which it manages in partnership with Natural England. East Dartmoor NNR was a priority site, demonstrating how woodland condition can be assessed, and management recommendations such as removing lichen-shading species like holly along ancient boundaries put into practice.

The Woodland Trust is now leading the development of a 'South West Rainforest Alliance', to bring together landowners and organisations to protect, restore and create more temperate rainforest.

Case study:

Ancient woodland restoration at Gowbarrow Hall Farm

The Woodland Trust and National Trust were awarded funding from the Defra Green Recovery Challenge Fund to bring damaged ancient woodland habitats into positive management. Twenty two landowners across England engaged in active ancient woodland restoration.

Gowbarrow Hall Farm

Gowbarrow is a 230-hectare upland farm in the heart of the Lake District.

Anne, the farmer, became involved in the project after realising her woodland was in poor health. The canopy created by the ancient oaks was too full, and there was no understorey besides holly – a sign of the woodland's poor health. The thinning of the canopy and removal of some trees has increased light penetration, prompting natural regeneration and some emerging oaks.


ANGUS WALSH/CUMBRIA WOODLANDS

Kunekune pigs support natural tree regeneration of the woodland

7. Tree-scale nature recovery

Principles for tree-scale nature recovery

- **Ancient and veteran trees should be identified, valued, protected and properly managed**
  This can be achieved by ensuring there is a suitable buffer from damaging activity and by sensitive management. Ancient and veteran trees should be threat-assessed and action taken where necessary so they are secured for the long term.
- **Future veteran trees should be identified or established**
  This can be done both in and outside woods to ensure the connectivity and continuity of the microhabitats old trees contain.
- **Time is needed to develop old-growth characteristics**
  Habitats take time to develop their complement of species and processes. We need to think in 'tree time' in order to give wildlife a chance to recover, and to nurture the ancient trees of the future.

Individual trees and groups of trees outside woods – scattered through the landscape in hedges, fields, churchyards, gardens, parks and housing estates – have a hugely significant, yet unsung role in nature recovery.

England has Europe's best array of ancient and veteran trees – with more than 180,000 recorded on the Ancient Tree Inventory (ATI) to date, a figure thought to be only a fraction of their true number. They are of incredible importance for wildlife, supporting different species to those growing in closed-canopy woodland, and each tree is an ecosystem in its own right – providing a range of specialist habitats for animals, plants and fungi. There are over 2,300 species dependent on oak (as a tree species) for at least part of their life, 326 of which are only found on oak, and a further 229 species which are rarely found on any species other than oak[37].

SIENNA ANDERSON/WTML

The Dragon Tree at Brighstone, Isle of Wight

In habitats such as wood pasture, many species – including fungi, lichens and invertebrates – are in mutually beneficial relationships with veteran trees, particularly the decaying wood they contain. These species need a steady supply of trees of a suitable age if they are not to become locally extinct when the host tree dies. This will mean thinking in tree time and planning management up to 100 years in advance.

Individual trees are subject to development pressures, yet at least three quarters of our known ancient trees are found outside of legally protected wildlife sites. Government policies should protect all our oldest trees from loss and deterioration, support the management of all old and important trees, and make provision to replace those lost to disease or age. Improvements to Tree Preservation Orders (TPOs) would help to better protect important trees; for example, widening the circumstances when TPOs can be used, raising their profile, and providing better enforcement and stronger deterrents for felling trees with TPOs without permission.

Land management systems should help to support tree owners to **prolong the life of old trees** and the wildlife that relies on them, including actions such as:

- ensuring there are root-protection areas around the base of trees
- keeping deadwood in place
- reducing any threats to the tree from its surroundings
- identifying suitable trees to become the next generation of veteran trees; for example, maintaining mature trees in hedgerows and fields.

BEN LEE/WTML

Citizen scientists in action

8. Data and monitoring

MICHAEL HEFFERNAN/WTML

Local Nature Recovery Strategies (LNRSs) should be informed by the best available comprehensive national and local data, including both species and habitats, to identify the right local priorities and to map the opportunities for habitat restoration and creation. Full use should be made of the **Ancient Tree Inventory**[38] (held by the Woodland Trust) and the **Ancient Woodland Inventory**[39] (held by Natural England). These should be supplemented by additional local evidence, including soils, geology and species data from local record centres.

It is vital that a system of monitoring and evaluation to measure the progress and success of LNRSs is put in place at the outset, and sufficient resources allocated for the long term.

Baseline data should be gathered prior to the intervention and monitoring, and designed to ensure the accurate measurement of changes and impact of conservation activity. Progress for priority species should be monitored, potentially using Defra's UK Biodiversity Indicators[40].

Monitoring should use a simple and repeatable methodology that is standardised across the country, and Natural England/JNCC*/eNGOs should be appropriately resourced to deliver this.

Monitoring the success of wooded-habitat restoration using a range of woodland-wildlife indicators (e.g. birds, butterflies and plants) should continue via the UK/JNCC* national species-monitoring schemes. This will check that improvements to woodland condition are resulting in wildlife recovery as measured against Defra's UK Biodiversity Indicators[41] and recognised as an equally important measure of progress as tree expansion targets.

9. Useful resources

The Woodland Trust can help with identifying priority sites for woodland restoration and the best locations for woodland creation. We can also provide advice and support for the most effective conservation management for ancient woodland and ancient trees, and guidance on woodland creation that supports nature recovery.

Useful resources are available at:

Ancient Woodland Inventory (England) – data.gov.uk:
data.gov.uk/dataset/9461f463-c363-4309-ae77-fdcd7e9df7d3/ancient-woodland-england

Ancient Tree Inventory – The Woodland Trust:
ati.woodlandtrust.org.uk

How we restore ancient woodland – The Woodland Trust:
woodlandtrust.org.uk/protecting-trees-and-woods/ancient-woodland-restoration/how-we-restore-ancient-woodland

Ancient and veteran trees: an assessment guide – The Woodland Trust:
woodlandtrust.org.uk/publications/2022/06/green-recovery-avt-tree-assessment-guide

Woodland creation guide – The Woodland Trust:
woodlandtrust.org.uk/plant-trees/woodland-creation-guide

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woodlandtrust.org.uk/publications/2022/03/tree-species-handbook

State of the UK's woods and trees 2021 – The Woodland Trust:
woodlandtrust.org.uk/publications/2021/04/state-of-uk-woods-and-trees-2021

Trees and Woodland Strategy Toolkit – The Tree Council:
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