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

COED CADW
WOODLAND
TRUST

Contents

"Right now, young people are feeling trapped. Although our time on Earth has really just begun, even we can see that trees, plants and wildlife are declining within our communities. A concrete jungle is developing around us, with less and less space available for the nature we love.

Our vision for the future is to live alongside nature fully, having it within our cities and within our homes. As young people, our favourite activities, shows and passions involve wildlife.

Watch the joy on our faces in schools when you take us outside in nature; when you use nature to educate us about how ecosystems work, or the history hidden within our ancient trees. Nature can be used to teach us in many different ways, and we learn best by being within these spaces, not in classrooms watching videos.

These natural places shouldn't be a distance away; we want them on our doorstep!

Our ask is that you prioritise restoring nature, bringing together communities and people from all backgrounds to save our wildlife.

Please use inclusive ways to involve all of us in solving this too, because our differences lead to innovative and unique ideas. We need your help in ensuring that the generation after us won't have to continue to watch our beautiful trees and wildlife wither away.

Don't let our future generations' connection with nature be severed and replaced by TikToks or YouTube videos of long-lost extinct wildlife."

Tammie Esslemont
Blackwood, Wales

" 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 Wales' 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 Welsh Parliament has declared a nature emergency [1]. Wales Environment Link, of which we are a member, has set out 10 key areas for investment in nature's recovery across Wales[2]. The People's Plan for Nature provides a compelling overview [3]. There are some challenges requiring leadership only governments can take. The Welsh Government's 'Biodiversity Deep Dive' has identified key themes and actions [4], many of which are reflected in our recommendations overleaf.

This report is aimed at policymakers in national and local government whose job is to develop the strategies for nature recovery, but we hope this will be of interest to anyone who cares about woods and trees and their wildlife. "

Natalie Buttriss
Director of Wales

1. Overview and recommendations

Recommendations for government in Wales

It is crucial that everyone works together to recover nature, underpinned by actions that only government can lead. Coed Cadw – the Woodland Trust – believes those actions should be to:

1. Urgently enshrine **Nature Positive Wales in law** by the end of 2024, with an independent environmental governance body and legally binding nature recovery targets.

2. Embed nature **recovery across the public and private sectors**, providing sufficient resources and an audit framework for high-integrity private finance, and investing in a Nature Service Wales.

3. **Create a Townscapes and Treescapes Nature Recovery Programme** including: collaborative landscape actions; Tree Towns and Woods for People programmes; ancient woodland and temperate rainforest restoration plans and grants, and a Veteran Tree Protection Fund

4. **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.

5. **Better protect woods and trees,** with more monitoring to show there is no further loss of ancient and semi-natural woodland habitats and species. Measures needed include more resources for protected sites, stronger protection from development, and new protections for ancient trees.

6. **Confront the drivers of biodiversity decline in the wider countryside and urban areas** by dealing chronic threats such as pollution and invasive species, and establishing a suite of metrics and targets that will drive improvement.

7. Implement **legally binding targets to protect and manage for nature at least 30% of land** (and sea) – applying robust criteria that work for native trees and woodland.

8. **Create a designation framework for landscapes rich in ancient trees, woods and hedgerows** that supports collaborative and nature-friendly regional tree and forestry initiatives.

9. **Use native tree cover to deliver more than half the woodland expansion target,** especially through supporting the expansion of hedges and edges, agroforestry, native tree regeneration and open woodland habitats.

10. Make more urgent and substantial progress with the process of **restoration of all degraded ancient woodland,** especially on the public forest estate and for the restoration of Celtic rainforest.

Recommendations for local authorities

County councils, national parks and community/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** in preparation for a Nature Positive Act and embed into the council's Tree and Woodland Strategy the actions needed to restore nature.

2. **Employ a specialist ecologist and a tree officer** to ensure that biodiversity is at the heart of all decision making.

3. **Deliver more collaborative multi-landowner initiatives, especially in national parks and Areas of Outstanding Natural Beauty (AONBs):** applying tree cover to help drive landscape-scale nature recovery and deliver the priorities identified in Area Statements.

4. **In urban areas, protect woods and trees** and associated semi-natural habitats, and support active conservation management through rigorous application of Planning Policy Wales and Natural Resources Wales (NRW) guidance to reduce pressure on nature.

5. **Co-design and implement tree strategies with communities** – building community understanding and resilience across all departments and delivering increased access to nature while supporting its recovery.

Coed y Foel upper cherry grove

2. Introduction – the value of nature

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. We like nature, it is good for our health and wellbeing, and we value it in many ways[5]. The Woodland Trust's expansion since its creation in the 1970s is testimony to the very strong emotional connection that people have with trees. This illustrates the Biophilia Hypothesis[6] and the Welsh concepts of 'hiraeth' and 'cynefin' that reflect the instinctive bond between human beings and other living systems. Loss of species is cultural decline as well as biological impoverishment[7].
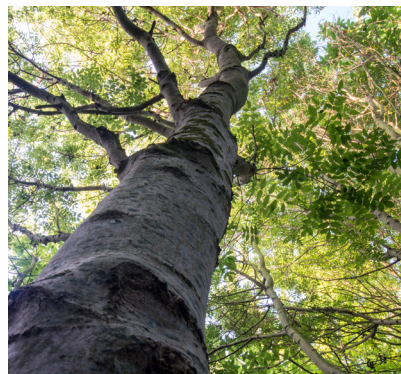

Ash tree

JOHN BRIDGES/WTML

Restoring nature, while a moral imperative, also has tangible direct benefits for people. Nature-rich environments improve mental and emotional health and stress recovery and provide for physical activity and recreation[8]. Trees and woodland are crucial for nature-based solutions, such as mitigating flooding and pollution; providing the critical vertical dimension of green space, crucial for birds and pollinators; ameliorating the impact of heatwaves; and soaking up heavy rain. Trees also help intercept and filter noise and air pollution and provide visual screening. They are currently the only successful way of pulling carbon out of the atmosphere to mitigate climate change. Woodland and trees provide unparalleled ways of directly connecting people and nature, through recreation and outdoor education[9] and particularly through the action of planting a tree. These benefits combine to mean that nature and tree-rich districts attract inward investment and higher property prices[10].

Ancient woodland is rare. In Wales it covers only 4.5% of the land surface and a third of that has been over-planted with non-native conifers. Centuries old, it has developed a complex soil ecology and special communities of plants, insects and animals not found elsewhere. These woods have seen all human history and are richly represented in Welsh mythology and culture. Of the 542 species listed of 'principal importance for biodiversity' in Section 7 of the Wales Environment Act, 210 rely wholly or partly on woodland habitats[11].

However, nature is in deep crisis every bit as serious as the climate crisis. Wales is one of the most nature-depleted countries in the world, ranking 224th out of 240 countries on the Biodiversity Intactness Index[12]. The statutory report on the State of Natural Resources in Wales (SoNaRR) concludes that the decline in ecosystem diversity is accelerating, and most habitats are in poor condition[13]. The abundance and distribution of species has, on average, declined since 1970, with 30% of all species having decreased in abundance and 17% threatened with extinction[14].

Despite these declines there is still room for hope. The Welsh Government has acknowledged the challenge of the climate and nature emergencies, with the Wales Environment Act and the Wellbeing of Future Generations Act requiring that the public sector "maintains and enhances biodiversity". These obligations are slowly translating into more sustainable farming and forestry practices and into the requirements in Welsh planning policy for "biodiversity net benefit" and green infrastructure networks.

The Welsh Government has committed to bringing in Nature Positive legislation to protect and manage 30% of land for nature by 2030 and to establishing an independent oversight body to provide a route for citizens to raise complaints, investigate breaches, undertake inquiries, and take enforcement action where necessary.

Government in Wales – Recommendation 1: Urgently enshrine Nature Positive Wales in law by the end of 2024, with an independent environmental governance body and legally binding nature recovery targets.

Local authorities – Recommendation 1: Declare a nature emergency in preparation for a Nature Positive Act and embed into the council's Tree and Woodland Strategy the actions needed to restore nature.

3. Resources and actions for nature recovery

Restoring nature to ensure a viable biosphere is in all our interests. The effort and cost of doing so has to be shared across all parts of government and society; it cannot be only the responsibility of environmental organisations or one government department. Government must embed nature recovery throughout the public sector and assign sufficient resources to Natural Resources Wales and other public bodies to fully deliver nature recovery and enforce environmental regulation.

The cost of ten priority programmes for nature recovery in Wales, over eight years to 2030, is estimated at £4.8 billion (£4,777.6 million), of which £1.3 billion (£1,264 million) is additional to existing expenditure[15]. The management and use of the environment in Wales, including multiplied economic effects, was estimated in 2003 to generate spending of around £9 billion each year to Wales – meaning almost £1 in every £10 of Welsh GDP is dependent on the environment[16].

A report for the Heritage Lottery Fund emphasises that public and philanthropic commitments alone will not be sufficient to deliver the UK's nature recovery ambitions[17]. There is an urgent need to unlock additional sources of investment to close the nature funding gap. The need for government to put in place a suitable regulatory framework is stressed in a recent report on natural capital markets[18]. This must provide criteria and benchmarking standards to create a code for private-sector funding of nature recovery that enables both independent auditing to protect against greenwash, and confirms quality of biodiversity benefits.

The Future Generations Office has highlighted the significant skills gap in fulfilling the potential of nature-restoration-based green job creation in Wales. They suggest that a "green and just recovery" could deliver good quality livelihoods while supporting rapid decarbonisation and improving biodiversity in Wales. This relies on having the right skills and training in place[19]. Investing in a new Nature Service Wales, as part of the Net Zero Skills plan, could provide thousands of jobs and skills-development opportunities in urban, forestry and agricultural improvement, and deliver nature-based solutions through habitat restoration, management and creation at scale[20]. This will require co-ordinated action across the Welsh Government's Education, Economy, Health and Climate Change portfolios.

Initiatives, including the Valleys Regional Park, and partnerships such as suggested for the Dyfi Biosphere and northern Cambrian Mountains, could provide scalable, transferable models. These would establish paid, new entry-level opportunities in farming and horticulture incorporating conservation land-management skills and a land and labour bank.

Government in Wales – Recommendation 2: Embed nature recovery across the public and private sectors, providing sufficient resources, an audit framework for high-integrity private finance and investing in a Nature Service Wales.

JERRY LANGFORD/WTML

Teify Valley hedgerows Llanybydder

We propose a series of initiatives, funded from multiple sources, to deliver tree and woodland nature recovery in an inclusive and comprehensive way:

1. A collaborative Landscape Action Programme, aligning the new Sustainable Farming Scheme with Area Statements[21] and the National Forest for Wales to deliver regional multi-owner river catchment, woodland creation and woodland restoration initiatives.

2. A £24.5 million per year[2] Ancient Woodland Restoration Fund to energise the restoration of ancient woodlands which are being damaged by non-native plantations, including a Temperate Rainforest Restoration Programme, under the National Forest for Wales, to protect, restore and extend all remaining fragments of this internationally important habitat. This should work across protected sites, the public forest estate, and willing private owners.

3. A £3.9 million per year[2] Veteran Tree Protection Fund. This would support the extension of the Ancient Tree Inventory and provide advice and assistance to landowners on essential protection measures such as fencing for the most special ancient trees.

4. Support local authorities to make every town in Wales a 'Tree Town', providing revenue funding for staff capacity [22] to engage with their communities on a long-term Tree and Woodland Strategy that informs health and wellbeing plans, and as a backbone for green infrastructure assessments and active travel planning.

5. A £4.3 million per year[2] Woods for People Fund, involving communities in the creation of a new generation of accessible publicly owned wildlife-rich woodland in locations where this is currently lacking. This would aim to deliver 20% tree cover in urban areas and 30% tree cover for all new developments.

Government in Wales – Recommendation 3: Create a Townscapes and Treescapes Nature Recovery Programme including: collaborative landscape actions; Tree Towns and Woods for People programmes; ancient woodland and temperate rainforest restoration plans and grants, and a Veteran Tree Protection Fund

Local authorities – Recommendation 2: Employ a specialist ecologist and a tree officer to ensure that biodiversity is at the heart of all decision making .

Red-headed cardinal beetle
GEOFF FOALE/WTML

Common lizard
JOHN BRIDGES/WTML

Dormouse
BLICKWINKEL / ALAMY STOCK PHOTO

Red squirrel
JOHN BRIDGES/WTML

Pine marten
ALAMY/WTML

Dog violet
ROBERT READ/WTML

4. The state of woods and trees in Wales

Wooded habitats and species are in trouble. The Trust's State of the UK's Woods and Trees 2021 report[9] shows that for woodland wildlife, the picture is bleak. Just 9% of Wales's native woodlands are currently in favourable ecological condition. 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[23]. As a consequence, woodland wildlife has decreased and one third of all woodland species are in decline.

The hazel dormouse, which declined by 79% between 1993 and 2014[24] and is listed as vulnerable on the IUCN*Red List[25], is dependent on deciduous woodland, hedgerows and scrub. Red squirrel, listed as endangered on the IUCN Red List, has been lost from >60% of its range in the last 13 years[26] – the main cause being transmission of disease from grey squirrels. Red squirrels remain in very few locations. Anglesey is a stronghold.

The breeding **woodland bird** index for the UK (which comprises 37 species) declined by 30% between 1970 and 2018, and 5% over the recent short-term period. These declines are greater than documented previously, driven by the declining numbers of woodland specialists – down 46% since 1970[27]. 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%. Probable causes are likely to include a lack of appropriate habitat management and increased deer-browsing pressure. Both result in a reduced diversity of woodland structure and reduced availability of suitable nesting and foraging habitats.

Declines are also apparent in those species dependent on tree cover outside woodland. Birds that nest in hedgerows, such as yellowhammer and tree sparrow, both Red-List species, are in sharp decline. Trees provide roosting sites for three quarters of all species of bat[28], including the serotine and barbastelle bats, both classed as vulnerable on the IUCN Red List. The most likely driver of brown hairstreak decline in west Wales is the widespread annual trimming of farm hedgerows, which removes both the over-wintering eggs and food for any caterpillars that survive. Reducing the severity and frequency of hedge cutting would be beneficial for this butterfly and many other species[29].

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.
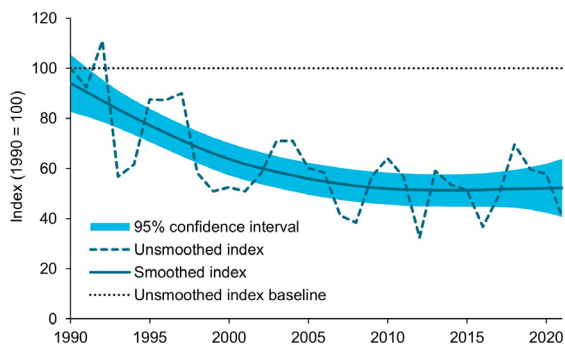

Figure 1. Trend for butterflies of the wider countryside in UK woodland, 1990 to 2021
Source: Defra (2021) with permission from JNCC
Insects of the wider countryside – JNCC
jncc.gov.uk/our-work/ukbi-c6-insects-of-the-wider-countryside
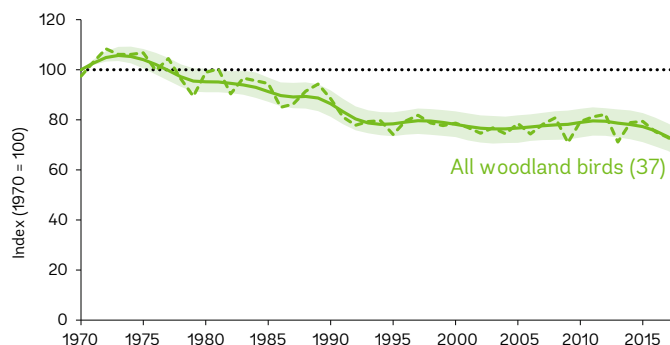

All woodland birds (37)

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

*International Union for Conservation of Nature

Drivers of decline

The State of the UK's Woods and Trees 2021 report[9] and the SoNaRR report[30] summarise the barrage of overlapping threats affecting woods and trees in Wales, 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. In addition to more unpredictable and extreme weather, 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[31]. 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.

Government in Wales – Recommendation 4: 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.

Nitrogen deposition is eroding woodland ecology. Nitrogen air pollution from traffic and intensive farming kills lichens and causes a fertiliser effect – where aggressive plants outcompete more delicate woodland flowers and disrupt ecosystems. Ninety percent of the internationally important habitat in Special Areas of Conservation (SACs) in England and Wales received excessive levels of nitrogen. The situation is probably even worse for ancient woodlands as a whole, with critical loads for nitrogen exceeded for 92–98% of all UK woodlands[32].

Ash dieback

Built development and transport infrastructure continue to result in loss of irreplaceable ancient woodlands and trees and to further fragment semi-natural habitats. One hundred and fourteen ancient woods were under threat in Wales in the years from 2020 to 2022, with permanent loss or damage affecting 12 woods.

Intensification of farmland and forestry management has led to a loss of many mature trees and the small patches and networks of habitat that are essential to maintain once common species. A quarter of all hedgerows in Wales were removed between 1984 and 1990, and 78% of remaining Welsh hedgerows are in 'unfavourable condition'[33].

Planning requirements need to be changed to recognise the full cultural and heritage values of old and large trees. For tree protection, this includes reforming Tree Preservation Orders (TPOs) in line with the recommendations made to the Welsh Government by the Law Commission[34]. Important trees could be better protected by ensuring consistent public information on TPOs, widening the circumstances when TPOs can be used, raising their profile, and delivering better enforcement and stronger deterrents for felling trees with TPOs without permission. In Section 8 we suggest additional measures to conserve our oldest 'heritage' trees.

Ancient woodland, including Celtic rainforest, should be better covered by strong legal protection such as Site of Special Scientific Interest (SSSI) designation, and there should be an end to permitting damaging development on SSSIs. NRW needs to be supported in making site protection work effectively, and improve the condition, connectivity and resilience of protected sites. This requires more professional guidance and support for owners and more resources for long-term management and monitoring to bring sites into favourable conservation condition.
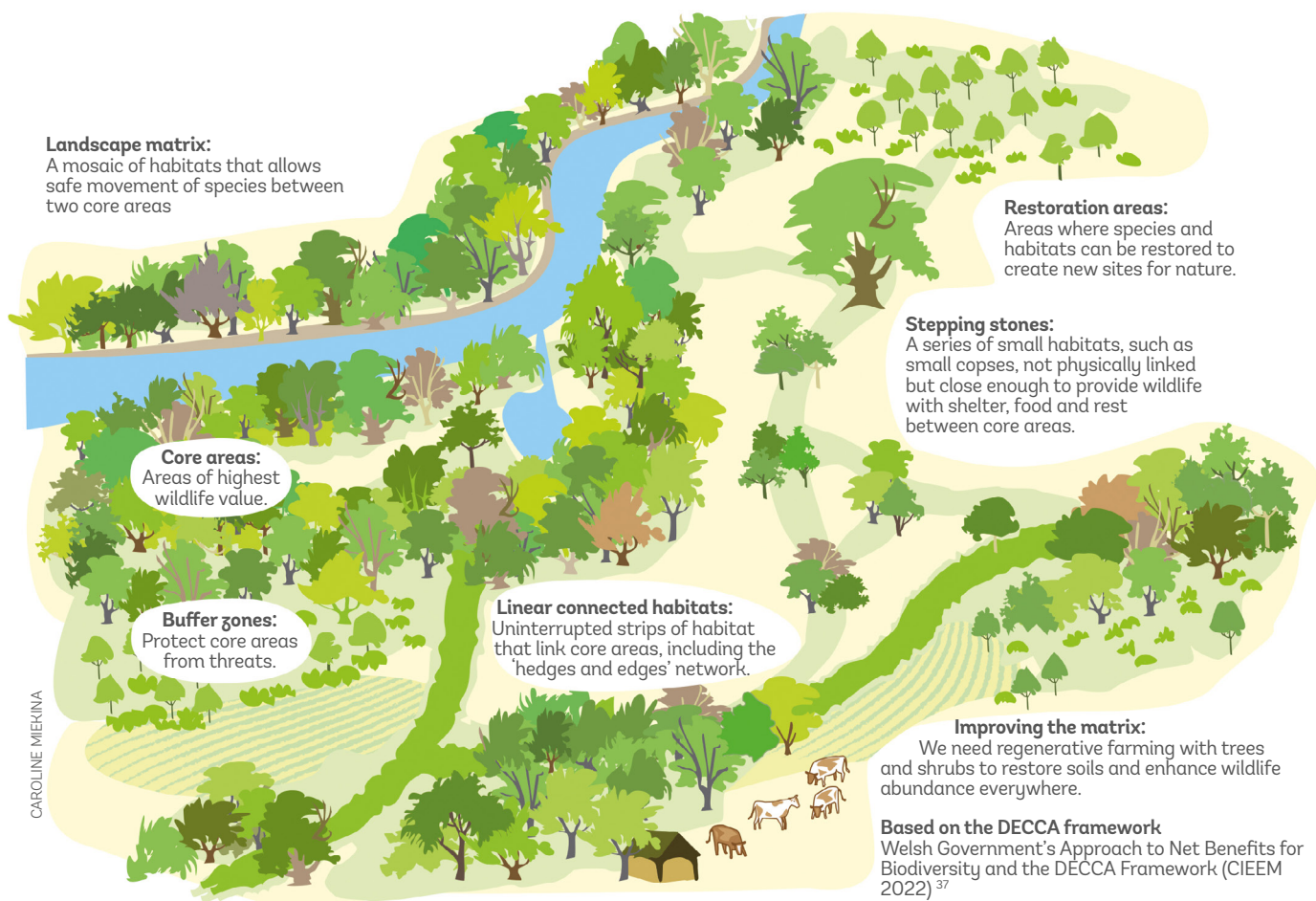
Government in Wales – Recommendation 5: Better protect woods and trees, with more monitoring to show there is no further loss of ancient and semi-natural woodland habitats and species. Measures needed include more resources for protected sites, stronger protection from development, and new protections for ancient trees

More effective regulation of pollution is needed, especially to limit the combined impact of multiple sources. The effective management of invasive species such as rhododendron, deer and grey squirrel, requires multi-landowner collaborations across the landscape.

The National Forest Inventory provides good information on the ecological condition of woodland[23]. Better understanding of changes in woodland requires monitoring woodland species abundance and diversity and woodland connectivity. The suitability of Defra's woodland wildlife indicator species should be considered[35].

Government in Wales – Recommendation 6: Confront drivers of biodiversity decline in the wider countryside and urban areas by dealing with chronic threats such as pollution and invasive species – and establishing a suite of metrics and targets that will drive improvement.

5. What is nature recovery?

Landscape matrix:
A mosaic of habitats that allows safe movement of species between two core areas

Restoration areas:
Areas where species and habitats can be restored to create new sites for nature.

Stepping stones:
A series of small habitats, such as small copses, not physically linked but close enough to provide wildlife with shelter, food and rest between core areas.

Core areas:
Areas of highest wildlife value.

Buffer zones:
Protect core areas from threats.

Linear connected habitats:
Uninterrupted strips of habitat that link core areas, including the 'hedges and edges' network.

Improving the matrix:
We need regenerative farming with trees and shrubs to restore soils and enhance wildlife abundance everywhere.

Based on the DECCA framework
Welsh Government's Approach to Net Benefits for Biodiversity and the DECCA Framework (CIEEM 2022) [37]

CAROLINE MIEKINA

To develop the resilient, complex and dynamic habitats needed to recover nature and reverse the decline of Wales's vulnerable wildlife species, we need to establish resilient ecological networks.[36] The outcomes needed are bigger, better and more joined up areas of wildlife habitat in accordance with the DECCA* framework[37] for ecosystem resilience – enhancing diversity, extent, condition, connectivity, and adaptability.

Wooded landscapes in good ecological condition are diverse, structurally complex and rich in wildlife species, with full food webs. They have dynamic ecosystems – driven by natural processes and appropriate active management – that create mosaics of habitat which change in space and time while sustaining many niches for species. They are free from, or resilient to, threats from invasive species, disease, pollution, climate change and development. The following section on landscape-scale nature recovery describes what the DECCA framework means for conserving woods and trees.

Government in Wales – Recommendation 7: Implement legally binding targets to protect and manage for nature at least 30% of land (and sea), applying robust criteria that work for native trees and woodland.

We welcome the Welsh Government's support for the international initiative on a global deal for nature and people with the central goal of protecting at least 30% of the world's land and ocean by 2030[38]. This '30x30' target is a global target which aims to halt the accelerating loss of species and protect vital ecosystems that are the source of our economic security.

*A framework for ecosystem resilience in policy and practice covering the attributes of Diversity, Extent, Condition, Connectivity, and Adaptability (DECCA)

For nature targets to work for trees and woodland, the areas designated for nature, including on the public forest estate, must have strong long-term protection, be managed for nature as a priority, and be subject to monitoring and reporting that shows they are in good or recovering condition[39]. Ancient woodland and ancient trees need to be properly represented in these targets. Wales's ancient woodland comprises just over 30% of all woodland in Wales (94,910 ha). The UK and devolved Governments' UK Forest Standard, endorsed by all national and devolved governments within the UK, aims to ensure the sustainability of woodland, should be interpreted to require management for nature as a priority for all ancient woodland, including those which have been converted to coniferous plantations.

The priorities for designated landscapes, NRW Area Statements[21], and the National Forest for Wales, need to be aligned with nature recovery and a landscape-scale approach to designations. Veteran trees, ancient hedges and ancient riparian woodland could be best conserved by developing new landscape-scale Nature Recovery Exemplar Areas and other wider designations.

National Parks and AONBs can lead this alignment of priorities with nature recovery, sharing experience with tree and woodland strategies and guiding the purpose and plan of the proposed new national park in northeast Wales.

Government in Wales – Recommendation 8: Create a designation framework for landscapes rich in ancient trees, woods and hedgerows that supports collaborative and nature-friendly regional tree and forestry initiatives.

Local authorities – Recommendation 3: Deliver more collaborative multi-landowner initiatives, especially in national parks and AONBs, applying tree cover to help drive landscape-scale nature recovery and deliver the priorities identified in Area Statements.

The Punchbowl, Abergavenny view north

6. Landscape-scale nature recovery

Ancient woodland protected and restored

Diverse habitat mosaics

Mixed methods of woodland creation

Agroforestry systems protect soils and benefit wildlife

Access allows experience and enjoyment of nature recovery

Hedgerow trees enable species to thrive and move

Veteran trees protected as keystone structures

Riparian woodland for healthy rivers

Re-meandered river

Shelterbelts deflect air pollution

Transitional habitats support a rich array of wildlife

Locally distinct native tree and shrub communities

Leaky dam

Interpretation to educate and inspire

Abundant decaying wood supports fungi and invertebrates

Habitat creation links isolated fragments

Increased urban canopy cover

Green space for mental and physical health

CAROLINE MIEKINA

Principles for landscape-scale nature recovery with woods and trees

The following principles arise from applying the DECCA framework in 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 ancient woodland and tree ecosystems and the ancient soils that support them provide the foundations on which to build wider ecosystem recovery. The primary importance of these irreplaceable components must be recognised and protected – and managed appropriately.

- **Abundant and diverse native trees and shrub habitat**
  More **DIVERSITY** at every level and scale, from genes to species, and from habitats to landscapes. 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 comprising native species have adapted over time, and natural regeneration best maintains genetic diversity.

- **More and bigger areas of habitat**
  Bigger, more **EXTENSIVE**, and more naturally functioning core wooded-habitat areas are more able to persist, resist and recover from disturbance. Buffering and extending existing woods and trees protects and increases core habitat and allows for natural colonisation and species movement from the existing to the new habitat.

- **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.

- **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**
  CONDITION of wildlife sites can be improved by management interventions that maintain mosaics of habitats – sustaining many niches for different species. Damage by deer or grey squirrels should be assessed and is best reduced through collaborative management at landscape scale. Similarly, invasive species like rhododendron can only be controlled through co-ordinated action by many landowners across large areas. Wider advocacy is needed to reduce emissions of damaging nitrogen air pollution, including from intensive farming systems.

- **Use active conservation management**
  All our tree and woodland habitats are semi-natural; they have been managed and modified for thousands of years. The habitat quality of woods and hedgerows can be enhanced by protective and low-impact active conservation management, maintaining a wider range of niches than would otherwise be present, and boosting their value for declining species.

- **More joined-up natural habitats**
  Landscape-scale nature recovery should focus on the creation and restoration of habitat in areas that expand existing patches and provide better **CONNECTIVITY** between and within habitats. Expanding areas of core habitat, strengthening the network of hedges and edges and increasing tree cover all helps species' resilience by aiding dispersal and colonisation of new habitat.

- **Restore natural processes and dynamism where appropriate and practicable**
  Habitats and species are not static, and we need to plan for changes to species distributions, the composition of ecological communities, and ecosystem function and process. Planning for nature recovery should aim to allow habitats and their associated species to **ADAPT** naturally as the geography and land use changes around them. Nature-based solutions that re-establish more natural vegetation and river systems help drive self-powered ecological recovery and adaptation to changing conditions, and promote habitat niches that can't be easily created artificially. Large herbivores such as cattle can be used to help to achieve this.

- **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.

JERRY LANGFORD/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 native habitat in their own right, as vital natural components of other habitats, as essential parts of large-scale habitat and green infrastructure 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 native wooded habitats

Nature recovery must include the protection, restorative management and creation of wooded habitats. Native woodland creation is considered in this section, while protection, restoration and management are considered in Section 7 (Woodland-scale nature recovery). Total tree cover in Wales is low by European standards, at about 15% for woodland plus another 4.6% for tree cover outside woods[40]. Woodland cover in Wales and the wider UK has been steadily increasing for more than a century – much of the expansion consisting of plantation conifer.

Creating more resilient nature-rich native woodlands, expanding those we have and managing them for ecological resilience, will be vital for nature recovery. There is substantive evidence that well positioned and designed native woodland creation can have strong positive effects on biodiversity, especially by expanding existing woodland, reversing fragmentation and increasing the diversity of woodland structure and open space[41].

Increasing native woodland will require long-term planning and investment, both in new woodland creation and in the restoration of ancient woodland converted to conifer plantation. Local tree strategies must engage with landowners and stakeholders to identify the best locations to enhance habitat networks, reduce flood risk, improve water quality, and create high-quality access to nature.

Wales's ambitious target to expand tree cover to help deliver net zero by 2050 is the opportunity to do this. The chart overleaf shows this 180,000-hectare target in relation to the 416,000 hectares of existing tree cover and suggests how it could be met through creating a range of different sorts of tree cover. Our 10 asks of the Sustainable Farming Scheme[42] are aimed at maximising the wildlife and species-richness benefit of doing this by supporting more use of native trees in farming by way of hedges and edges and agroforestry. In the uplands, funding should prioritise native tree regeneration and planting to: enable ancient woods and Celtic rainforest to expand, protect freshwater habitats, encourage slow and partial native tree regeneration along upland valleys, and restore dynamic successional habitats and ecotones.

How to create another 180,000 hectares of tree cover in Wales by 2050 - achieving the recommendations of the Climate Change Committee, December 2020[43]

Existing plantation 214,059

Existing ancient woodland 94,941

Existing trees outside woods 92,700

Existing urban tree canopy 14,342

New urban tree planting 6,800

New agroforestry, inc hedges 40,000

Regeneration of upland wood pasture 40,000

New multi purpose native 32,500

New commercial softwood 60,700
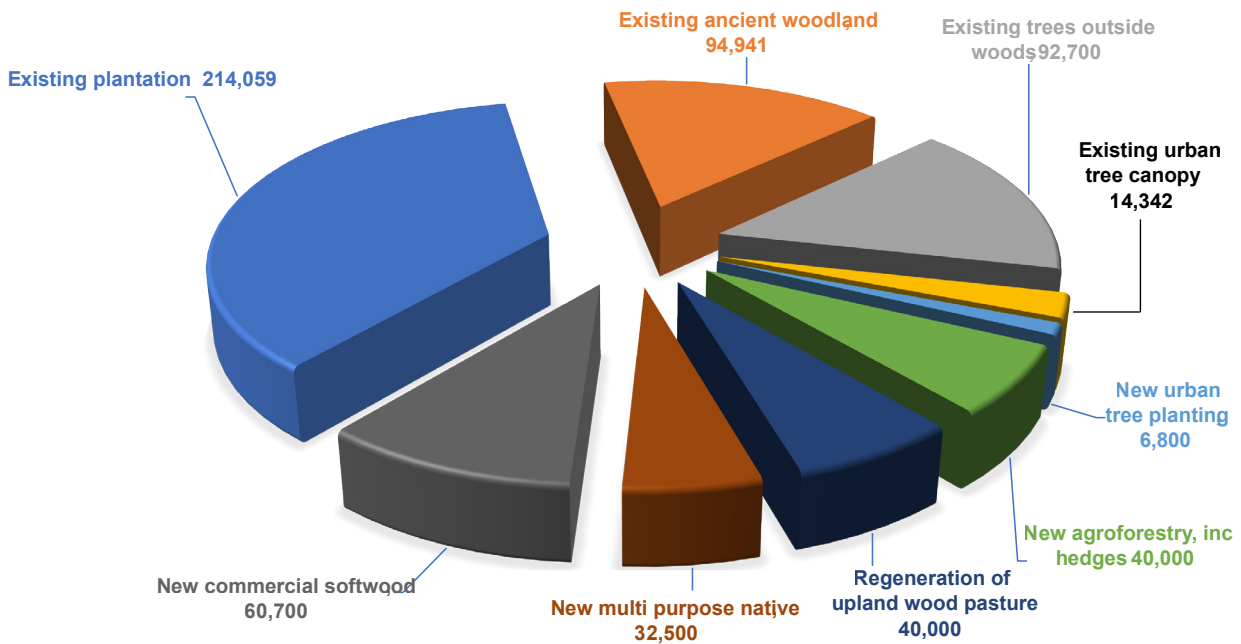
Trees and scrub as vital natural components of other habitats

Nature recovery means making all habitats better for wildlife. Native trees and scrub are natural components of nearly every UK habitat – including grasslands, heathlands, peatlands and wetlands – where they add structure, diversity and resources for birds, invertebrates and mammals. Many priority species in grassland are associated with scrub, hedges and scattered trees, including species such as the brown hairstreak 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[44].

Large-scale habitat mosaics

For many species, it is the 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[45], including birds[46], 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.

Government in Wales – Recommendation 9: Use native tree cover to deliver more than half the woodland expansion target – especially through supporting the expansion of hedges and edges, agroforestry, native tree regeneration and open woodland habitats.

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
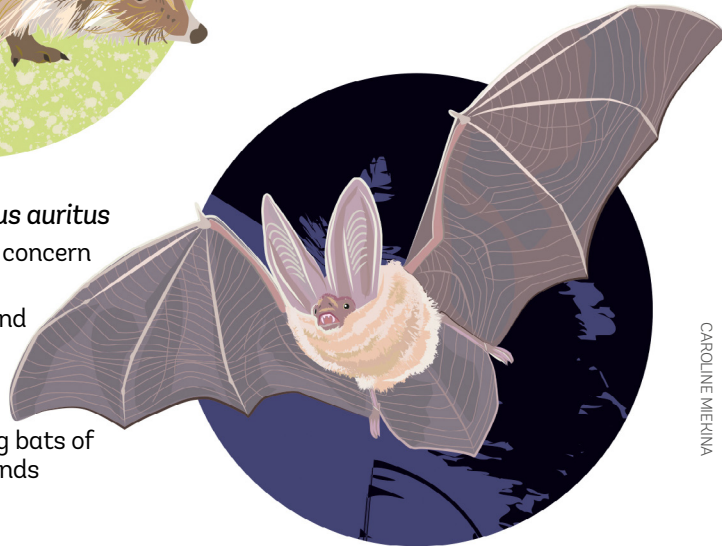
CAROLINE MIEKINA

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. Many native woodland specialists are poor dispersers, so for woodland creation sites to have the most value they should be targeted to areas where plenty of native woodland exists 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.

Hedges and edges – the agroforest

More than 80% of land in Wales is farmed. Since the Second World War there has been extensive loss of on-farm trees, hedgerows and traditional orchards, resulting in significant decline –especially in specialist farmland species[47]. There is huge potential for nature recovery in our farmed landscape.

The native tree canopy cover of hedgerows, field and stream edges, and shelterbelts, is a vital natural resource for farm business and for the survival and recovery of wildlife. It provides the most extensive habitat network in the lowland countryside and can be managed to provide shade, shelter, materials and other benefits. For example, trees on poultry farms improve bird welfare and egg quality and are a haven for wildlife .

It is vital that the forthcoming Sustainable Farming Scheme gives priority to supporting this[48] . Agroforestry has the potential to more than double average farm-biodiversity levels and there should be a significant expansion of this approach .
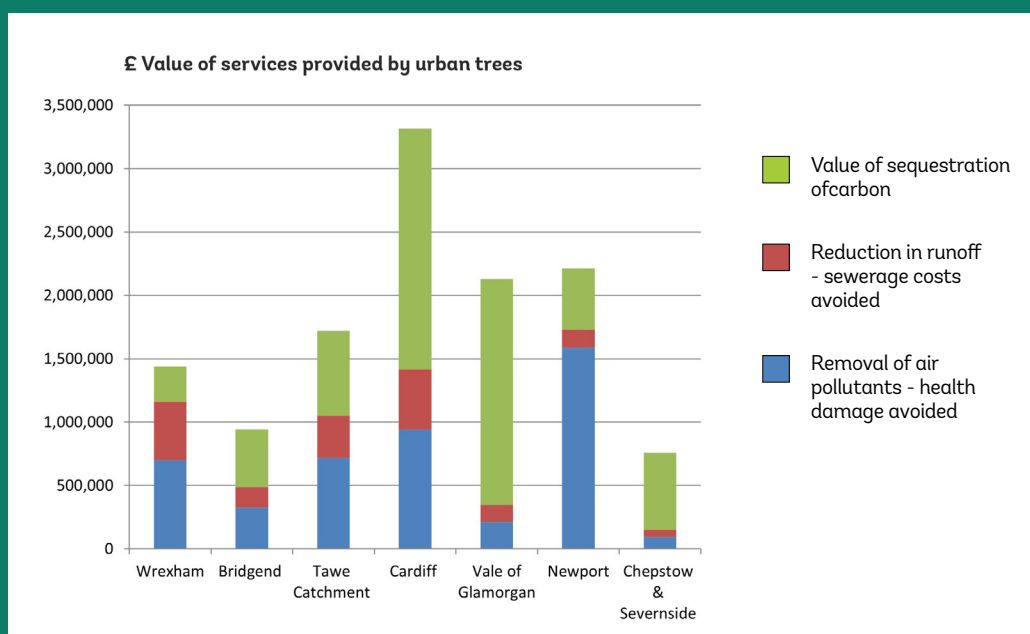

Misty hedge cribyn

JERRY LANGFORD/WTML

The urban forest

Urban tree populations comprise a mix of small woods, street trees, trees and shrubs in parks, trees along rivers and in allotments and gardens, and include a diverse mix of native and non-native species. This is the core of the 'Green Infrastructure' that brings habitat and wildlife and all the associated benefits into urban areas where 80% of people in Wales live. In a survey carried out in Wrexham in 2017, 71% of people strongly agreed with the statement that '*Trees and woods have a positive effect on people's health and wellbeing*'.

£ Value of services provided by urban trees

Legend:
- Value of sequestration of carbon
- Reduction in runoff - sewerage costs avoided
- Removal of air pollutants - health damage avoided

The value of some of the benefits of tree cover in areas where detailed 'i-tree assessments' have been carried out[49].

In Wales, in 2016, only 23.6% of people had access to a woodland of more than two hectares within 500 metres of their home[50]. 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.

Welsh government planning guidance instructs local authorities to have regard for and protect, trees, woodland and hedgerows and adopt a strategic and proactive approach to green infrastructure. Our 'Recommendation 3' for government in Wales includes supporting local authorities to make every town in Wales a 'Tree Town' and establishing a Woods for People Fund to create additional publicly accessible and nature rich woodland.

Tree and woodland strategies should be the backbone for green infrastructure assessments. They are strategic tools for embedding the benefits of tree cover in the whole suite of statutory local and regional plans such as those covering development, wellbeing, active travel and nature recovery. A successful Tree Strategy will include:

a. mapping and assessing existing woodland tree canopy and accessible nature-rich woodland

b. identifying high-value mature trees, tree-lined streets and woodland

c. engaging communities in 'tree-equity opportunity' mapping, especially on local authority land, to identify priorities for tree-cover expansion to increase accessible green space provision and the protection and connection of existing wildlife-rich habitat

d. meeting the Future Generations Commissioner's challenge[51] to ensure "everyone has access to nature-rich green space which can be reached within 300 metres of where they live, whether on foot or by wheelchair"

e. delivering and sustaining at least 20% tree cover in urban areas – especially targeting areas deprived of green space and tree cover – with at least 30% in all new housing development and where people gather

f. supporting community tree nurseries to meet requirements for future tree planting

g. identifying metrics and data on losses of tree cover

h. status and recovery targets, including for key woodland and indicator species

i. establishing targets for outcomes, plans, progress assessments and reviews, and using these to maintain fully costed delivery plans.

Local authorities – Recommendation 4: In urban areas, protect woods and trees and associated semi-natural habitats, and support active conservation management through rigorous application of Planning Policy Wales and NRW guidance[52] to reduce pressure on nature.

Local authorities – Recommendation 5: Co-design and implement Tree Strategies with communities – building community understanding and resilience[36] across all departments, and delivering increased access to nature while supporting its recovery.
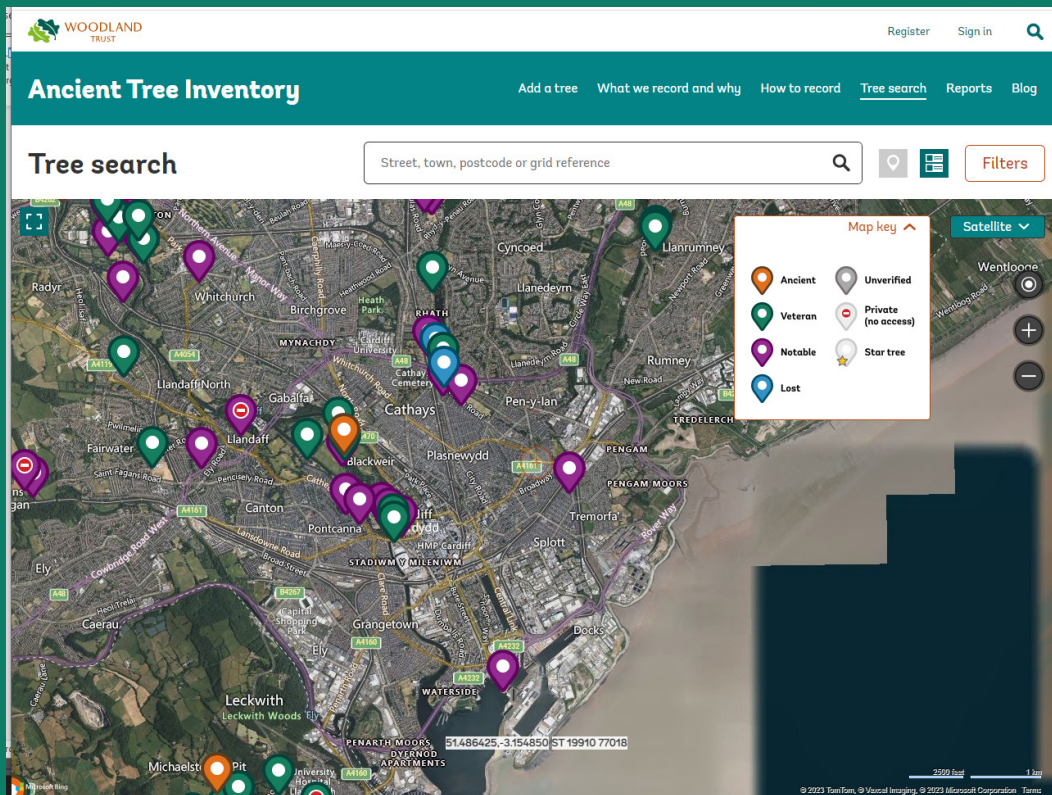
Supporting council tree strategies

The Woodland Trust's Emergency Tree Fund has supported Cardiff City Council and Wrexham County Borough Council in developing tree strategies and addressing barriers that hold back ambitious plans for increasing and enhancing tree cover in urban areas.

Wrexham's Woodland Connections project is supporting the Wrexham Forest partnership by building momentum and broadening engagement and support for their Tree and Woodland Pledge. NRW is supporting this partnership to undertake tree-equity mapping. A detailed register of potential tree planting sites in the borough is being compiled, including non-council-owned land which can be made available to partners, businesses and communities who wish to undertake tree planting. Tree planting projects are being delivered in areas of lowest tree canopy cover, working with communities to strengthen their connection with new and existing woodland.

Cardiff Council's Coed Caerdydd project is aiming to increase canopy cover in the city from 18.9% to 25% by 2030. The Trust is supporting actions under the city's One Planet Cardiff strategy, including tree planting with volunteers and local communities in five deprived wards, volunteer involvement in a tree nursery providing locally grown trees, and researching the carbon impact of increasing the after-use of materials arising from tree and woodland management.

Retention of existing trees is crucial to the city's plans to increase canopy cover and the council is clear that new planting alone will not reach this target. Volunteers are being trained as ancient and veteran tree recorders to improve understanding of the tree heritage of the city and to encourage the valuing and protection of trees.

Ancient Tree Inventory records in Cardiff

7. Woodland-scale nature recovery

Structural diversity and dynamism

Deer managed to sustainable levels

Groves of denser trees

Open wooded habitats with transition zones

Invasive species removal

Diverse habitat niches support many species

Decaying wood is valued and retained

Glades with flower-rich grasslands and wetlands

Natural regeneration promotes adaptation

CAROLINE MIEKINA

Principles for woodland-scale nature recovery

These principles reflect the familiar conservation hierarchy of protect, restore, manage and extend.

They can be applied to any woodlands of any size, 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, 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 while preventing sudden and dramatic change. Necessary interventions may include selective and gradual felling programmes, invasive species management or the introduction of large herbivores or keystone species.

Ancient woodlands are some of our richest and most diverse wildlife habitats and support many priority and protected species[53]. A large proportion of these are lower plants, fungi and invertebrates, dependent on microhabitats[45]. Ancient woodland has had time to develop rich and interconnected ecosystems, shaped by geology, soils, climatic conditions and their interaction with people.

However, a third of ancient woodlands in Wales have been cleared and replanted with non-native timber species, creating plantations on ancient woodland sites (PAWS)[54]. The Welsh Government's 'Woodlands for Wales' strategy[55] recognises the need to restore most of these woods to a more natural condition and set a target for the Welsh Government Estate. Progress has been slow, with only 95 hectares actively managed in 2018/19 against a target of 581 hectares[9]. The wholesale clearfelling of larch because of Phytophthora ramorum disease has further damaged some of these woods.

As discussed in Section 4, many ancient woods suffer from a lack of protective management and are in poor ecological condition: suffering from low structural diversity, declining species diversity, little old or deadwood, few open areas, and from damaging or invasive species such as rhododendron or deer.

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

PHIL MCMENEMY/WTML

What do woodlands need in order to recover nature?

Only about 17% of ancient woodland in Wales is protected as a Site of Special Scientific Interest (SSSI). While more should be considered for designation, other approaches that ensure protective management are needed to ensure the retention and protection of small ancient woods and landscapes rich in native and ancient tree cover. If Wales is to meet the target of protecting 30% of its land area for nature, this will need to be a higher priority for national parks, AONBs and the public forest estate.

Protection must be supported by suitable management, and regular condition assessments to ensure sites are in good ecological condition. This is not currently taking place. Two thirds of Special Areas of Conservation in Wales are in unfavourable condition and there is inadequate data on the condition of other statutory protected sites in Wales[9].

Our 'Recommendation 3' for government in Wales includes establishing an **Ancient Woodland Restoration Grant** with the aim to support private woodland owners in this. A grant scheme is needed to counter over-felling – driven by dependence on timber income to fund work – and should support the unprofitable selective thinning needed to reduce shading levels and release surviving native trees, take control of damaging species, and apply appropriate grazing management.

Government in Wales – Recommendation 10: Make more urgent and substantial progress with the process of restoration of all degraded ancient woodland, especially on the public forest estate and for the restoration of Celtic rainforest.

Maximising ecological integrity involves preventing damage, such as the removal of deadwood and old trees, and balancing management interventions with natural processes. **Active conservation management** is required to improve woodland ecological condition, including managing light levels, increasing structural and microhabitat diversity, creating dynamism in the system, and tackling persistent threats such as browsing pressure. Woodland specialist species can be provided for by targeted management. RSPB and Forestry Commission research[56] 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, productive plantations can also provide a valuable contribution to nature recovery. There are a number of steps that can ensure that productive plantations significantly provide for nature such as using a greater proportion of native species, maintaining a network of open habitat along rides and watercourses, and retaining deadwood and older trees[57].

Tools like the **Woodland Wildlife Toolkit**[58] have been developed to refine woodland management to meet the needs of rare and declining woodland species. The toolkit makes the link between species declines, woodland condition, and management required to improve species diversity and abundance.

The role of woodland expansion in nature recovery is covered in Section 6.

Some of the attributes of woodland in good condition

Mix of tree sizes and ages

Standing and fallen large-diameter deadwood

Diverse ground flora

Abundant natural regeneration
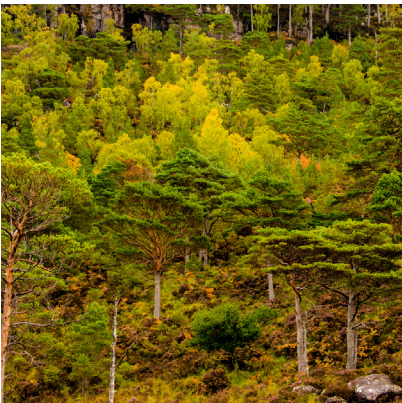
Mix of tree species

Open habitats/glades and rides

Thinning to waste at Coed Felenrhyd

Case study:

Restoring the Celtic temperate rainforest

Temperate rainforest is a globally rare woodland type along the Atlantic seaboard of Europe. These native and ancient woods are characterised by very high rainfall and consistent year-round mild temperatures, creating woodland of high nature conservation importance for their lichens and bryophytes which festoon the trees and give them an otherworldly appearance[59]. They contain numerous species that are rare and threatened at the regional, national and international levels[60].

However, these rainforests have shrunk to a fraction of their former extent and are under threat from the presence of invasive non-native species such as rhododendron, as well as inappropriate grazing pressure, past conversion to coniferous plantation, and now lack of restorative management and diseases such as ash dieback.

Across Snowdonia and the Mawddach valley we are working with private and public sector partners in the Celtic Rainforest Wales[61] project to start the long-term process of restoring and extending this rainforest. Initial work has focused on surveying the condition of these woodlands where they are within and adjacent to the network of sites protected as Sites of Special Scientific Interest. We now have baseline information on habitat condition which enables us to plan and start vital restoration work.

One example is Coed Felenrhyd[62], bought by the Woodland Trust in the early 1990s and now under gradual restoration from conifer plantation. Work began with the clearing of dense rhododendron, uncovering a fantastic diversity of surviving rare lichens. Other 'first aid' work was to fell conifer trees shading the streamsides and the surviving old oaks and hazels. Successive gentle thinning of planted conifers has continued to allow the regeneration of native trees.

We have supported similar work in the privately owned Coed Llwybr Caerynwch, one of two areas of non-native conifers that are part of the larger Coedydd Dyffryn Wnion SSSI. Careful thinning work has given space to mature broadleaves in the canopy and increased light levels to the plants surviving on deeply shaded forest floor. Felling work is carried out gradually so as not to destabilise the sheltered and humid conditions needed by the mosses and lichens in the surrounding native woodland.

The next phase, within our 'Recommendations 3 and 10', is to form a Wales Rainforest Alliance to make the case for coordinated scaling up of rainforest recovery through a Temperate Rainforest Restoration Programme across the wet 'oceanic' landscapes of north and west Wales.

8. Tree-scale nature recovery

Next generation of ancient trees identified or established

Irreplaceable veteran trees have space to grow old

Rooting area and soils protected from damage

CAROLINE MIKINA

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.

The UK has Europe's best array of ancient and veteran trees – with more than 180,000 recorded on the Ancient Tree Inventory[63] (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[64].

In habitats such as wood pasture, many species – includ[ing] 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 legally protected wildlife sites. Our 'Recommendation 5' for government in Wales explained in Section 4 calls for government policies to protect all our most important trees from loss and deterioration, by improvements to Tree Preservation Orders. The oldest trees should be protected by introducing a registered list of trees with 'Natural Monument' status, with support for management and provision to replace those lost to disease or age.

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
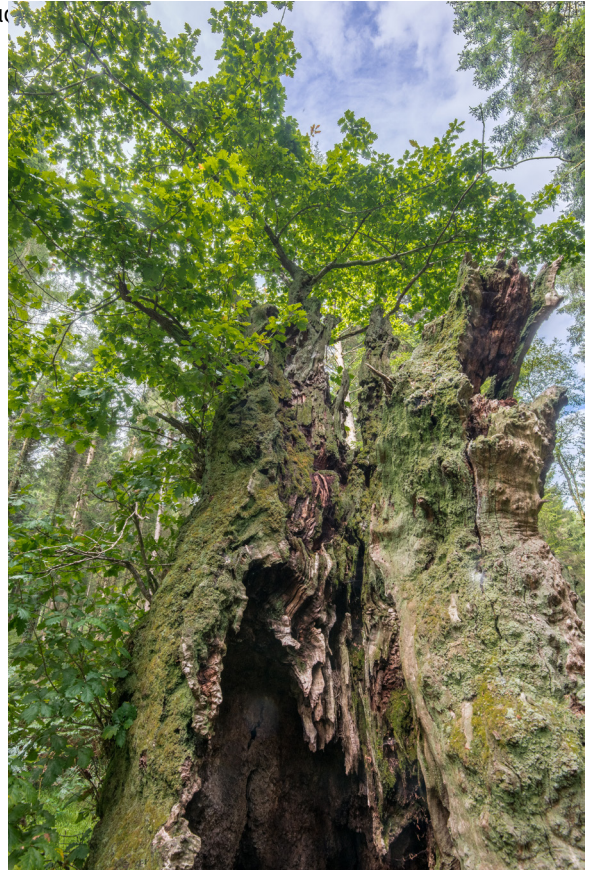
Curley Oak, Wentwood, Llanfair Discoed

MARK ZYTYNSKI/WTML

Our 'Recommendation 3' for government in Wales includes creating a Veteran Tree Protection Fund to deliver this.

Citizen scientists in action

BEN LEE/WTML

Coed Cefn bluebells

9. Data and monitoring

Tree strategies 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**[63] (held by the Woodland Trust) and the **Ancient Woodland Inventory**[65] (managed by Natural Resources Wales). These should be supplemented by additional local evidence and national data sets[66], including soils, geology and species data from local record centres.

It is vital that all plans and strategies include monitoring and evaluation to measure the progress and success. This must be 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.

Monitoring should follow the commonly accepted 'Pressure–State–Response' framework. Applied to tree strategies, this requires identification of environmental pressures; tracking of tree and woodland loss; evaluating the condition of trees and woodland; and monitoring actions, including the success of wooded habitat restoration. Monitoring, using a range of woodland wildlife indicators (e.g. birds, butterflies and plants), should continue via the UK Joint Nature Conservation Committee's national species-monitoring schemes[67].

10. Coed Cadw – our resources for nature recovery in Wales

Much of our work supports nature recovery. This section summarises what assistance we can provide to others and the resources we invest in our own work.

Support for schools and community groups

We provide around 80,000 native trees each year as free tree packs for schools and community groups: www.woodlandtrust.org.uk/plant-trees/schools-and-communities

Tree tools for schools: treetoolsforschools.org.uk/categorymenu/?cat=activities

Advice on campaigning to protect trees and woodland in your community: www.woodlandtrust.org.uk/protecting-trees-and-woods/campaign-with-us/campaign-in-your-community/

Protecting ancient woodland

We investigate threats to ancient trees and woodland from development. In 2020 and 2021 we looked into 40 cases involving 114 ancient woodlands under threat in Wales. Eleven of those cases were withdrawn, 12 were lost and the remainder are ongoing.

Support for landowners

We provide some 325,000 native trees on average to landowners each year – check our website for the current woodland and hedge creation support schemes available: www. woodlandtrust.org.uk/plant-trees/trees-for-landowners-and-farmers/

In addition, we can give advice in priority areas and through partnerships for native woodland restoration and creation in Wales. Contact wales@woodlandtrust.org.uk

We can also signpost landowners to Welsh Government and other grant schemes. Contact plant@woodlandtrust.org.uk

Our estate in Wales

We have 3,000 hectares of woodland and land across 120 sites which we own in Wales and manage for nature. About one third of those sites are all or part SSSI. Our annual direct spend on nature conservation on our Wales estate is around £700,000 each year and is funded through fundraising, timber sales and grants.

The Trust's estate is open to the public. Our Find a Wood database also includes open-access woodland owned by others: www.woodlandtrust.org.uk/visiting-woods/find-woods

We encourage low-impact community and educational use and welcome biological recording and use for research. Contact Wales@woodlandtrust.org.uk or visit: www. woodlandtrust.org.uk/about-us/what-we-do/research-and-evidence/conservation-research-grants/using-our-sites-and-data

Citizen science

Nature's Calendar – track the effects of weather and climate change on wildlife near you www. woodlandtrust.org.uk/visiting-woods/things-to-do/natures-calendar

Ancient Tree Inventory – recording ancient and veteran trees: www, woodlandtrust.org.uk/visiting-woods/things-to-do/ancient-tree-inventory

Observatree – tree health monitoring: www.observatree.org.uk

Information and advice

Woodland Trust research and evidence: www.woodlandtrust.org.uk/about-us/what-we-do/research-and-evidence

Ancient Woodland Inventory (Wales) – Natural Resources Wales / Ancient Woodland Inventory (naturalresources.wales/evidence-and-data/research-and-reports/ancient-woodland-inventory/?lang=en)

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

How we restore ancient woodland – The Woodland Trust: www.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: www.woodlandtrust.org.uk/media/51153/ancient-and-veteran-trees-an-assessment-guide.pdf

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

Woodland creation Site assessment handbook – The Woodland Trust: www.woodlandtrust.org.uk/publications/2023/04/site-assessment-handbook

Woodland creation Tree species handbook – The Woodland Trust: www.woodlandtrust.org.uk/publications/2022/03/tree-species-handbook/

11. References

1. Senedd Research (2022). COP15: Time to tackle the nature emergency. research.senedd.wales/research-articles/cop15-time-to-tackle-the-nature-emergency

2. Wales Environment Link (2023). Pathways to 2030: 10 key areas for investment in nature's recovery across Wales. waleslink.org/pathways-to-2030-report

3. The People's Plan for Nature (2023). A plan created for the people, by the people of the UK. peoplesplanfornature.org

4. Welsh Government (2023). gov.wales/biodiversity-deep-dive-recommendations-html#105980

5. Kenter, J., Christie, M., and Griffiths, H., (2023). Nature positive: a multiple values approach. woodlandtrust.org.uk/publications/2023/06/wood-wise-nature-positive-economy/

6. Gullone, E.(2000). The Biophilia Hypothesis and Life in the 21st Century: Increasing Mental Health or Increasing Pathology? link.springer.com/article/10.1023/A:1010043827986

7. Collie, M (2021). Ash Stories: A Spell Against Forgetting. performancephilosophy.org/journal/article/view/320

8. NHS Forest Evidence database. nhsforest.org/evidence

9. Reid, C., Hornigold, K., McHenry, E., Nichols, C., Townsend, M., Lewthwaite, et al. (2021). State of the UK's Woods and Trees 2021 report, the Woodland Trust. pp 114–118. www.woodlandtrust.org.uk/state-of-uk-woods-and-trees

10. Warwick District Council. warwickdc.gov.uk/info/20323/trees/577/the_benefits_of_urban_trees

11. Senedd Research (2021). Forestry and Woodland in Wales. Research Briefing. 26 pp. research.senedd.wales/media/yvbhbee2/21-10-forestry-and-woodlands-in-wales.pdf

12. RSPB. Biodiversity Loss: The UK's global rank for levels of biodiversity loss. https://www.rspb.org.uk/globalassets/downloads/projects/48398rspb-biodivesity-intactness-index-summary-report-v5-1-1.pdf

13. NRW (2020) The Second State of Natural Resources Report (SoNaRR). https://naturalresources.wales/evidence-and-data/research-and-reports/state-of-natural-resources-report-sonarr-for-wales-2020/?lang=en

14. State of Nature (2019. A summary for Wales. nbn.org.uk/wp-content/uploads/2019/09/State-of-Nature-2019-Wales-summary.pdf

15. Wales Environment Link (2023). Pathways to 2030: 10 key areas for investment in nature's recovery across Wales waleslink.org/wp-content/uploads/2023/03/Pathways-to-2030_-Full-Report.pdf Tables 2 and 3

16. National Trust (2003) Valuing Our Environment: The Economic Impact of the Environment of Wales https://www.rspb.org.uk/globalassets/downloads/documents/positions/economics/wales-valuing-our-environment-technical-summary.pdf

17. Heritage Fund/Finance Earth (2022). UK Green Finance Review. https://finance.earth/wp-content/uploads/2022/04/Finance-Earth-UK-Green-Finance-Review-Heritage-Fund-February-2022.pdf

18. Food, Farming and Countryside Commission (2023). New analysis of natural capital markets ffcc.co.uk/news-and-press/new-analysis-of-natural-capital-markets

19. Future Generations Commissioner for Wales. futuregenerations.wales/resources_posts/skills-through-crisis-upskilling-and-retraining-for-a-green-recovery-in-wales

20. Wales Environment Link (2023) Nature Service Wales: The Vehicle for Nature's Recovery. In press

21. Natural Resources Wales. Area Statements. naturalresources.wales/areastatements?lang=en

22. Davies, H.J. et al. (2017). Challenges for tree officers to enhance the provision of regulating ecosystem services from urban forests. sciencedirect.com/science/article/pii/S0013935117304942

23. Forestry Commission (2020). National Forest Inventory: woodland ecological condition in Wales: classification results. https://cdn.forestresearch.gov.uk/2022/02/fr_nfi_condition_scoring_results_wales_cxzeel5.pdf

24. NRW (2020). SoNaRR: Assessment of the achievement of sustainable management of natural resources: Woodlands. cdn.cyfoethnaturiol.cymru/media/693279/sonarr2020-ecosystem-woodlands.pdf

25. IUCN. Red List of threatened species. iucnredlist.org/

26. Mammal Society. Red List for Wales' Mammals. mammal.org.uk/wp-content/uploads/2020/07/MS_RL20_Wales-1.pdf

27. British Trust for Ornithology. Bird Indicators. bto.org/our-science/publications/developing-bird-indicators

28. Bat Conservation Trust, About Bats: Bat roosts. bats.org.uk/about-bats/where-do-bats-live/bat-roosts/roosts-in-trees

29. Butterfly Conservation (2022). The State of the UK's Butterflies 2022. https://butterfly-conservation.org/state-of-uk-butterflies-2022

30. NRW (2020) SoNaRR: Key Pressures. https://naturalresources.wales/evidence-and-data/research-and-reports/state-of-natural-resources-report-sonarr-for-wales-2020/?lang=en

31. Hill, L. et al (2019). The £15 billion cost of ash dieback in Britain. sciencedirect.com/science/article/pii/S0960982219303318

32. The Woodland Trust (2019). Assessing air pollution impacts on ancient woodland – ammonia. Technical Advice Note. www.woodlandtrust.org.uk/publications/2019/04/ammonia-impacts-on-ancient-woodland/

33. NRW (2020). SoNaRR: Enclosed Farmland. cdn.cyfoethnaturiol.cymru/media/693343/sonarr2020-ecosystem-enclosed-farmland.pdf

34. Welsh Government (2020). Detailed Response To The Law Commission's Report On Planning Law In Wales. https://www.gov.wales/detailed-response-law-commission-report-planning-law-wales

35. England biodiversity indicators: A strategy for England's wildlife and ecosystem services; Biodiversity indicators: 2022 assessment. gov.uk/government/statistics/england-biodiversity-indicators

36. Garrett H.M., and Ayling S.C. (2021).Terrestrial and freshwater Resilient Ecological Networks: a guide for practitioners in Wales. NRW Report No. 483. cdn1.cyfoethnaturiol.cymru/media/693356/resilient-ecological-networks-practitioner-guide.pdf?mode=pad&rnd=132612537907570000

37. CIEEM (2022). Briefing: Welsh Government's Approach to Net Benefits for Biodiversity and the DECCA Framework cieem.net/resource/cieem-briefing-welsh-governments-approach-to-net-benefits-for-biodiversity-and-the-decca-framework/

38. High Ambition Coalition (2022). Countries secure 30x30 target in the Global Biodiversity Framework and commit to implementation. United Nations Kunming-Montreal Global Biodiversity Framework. 15th Conference of the Parties (COP15). hacfornatureandpeople.org/home

39. Wales Environment Link (2021). 30 by 30: Land and sea for nature's recovery in Wales. https://waleslink.org/wp-content/uploads/2021/05/30-by-30-Land-and-sea-for-natures-recovery-in-Wales-with-internal-hyperlinks.pdf

40. Senedd Research (2021). Forestry and Woodland in Wales: Research Briefing. research.senedd.wales/media/yvbhbee2/21-10-forestry-and-woodlands-in-wales.pdf

41. Beauchamp, K. et al. (2020). National Forest Evidence. Annex-1 : Biodiversity. https://research.bangor.ac.uk/portal/files/34988854/ERAMMP_Rpt_37_NF_Annex_5_Ecosystem_Services_v1.0_en.pdf

42. Woodland Trust (2023). Our 10 asks of the proposed new sustainable farming scheme woodlandtrust.org.uk/protecting-trees-and-woods/campaign-with-us/urge-senedd-nature-restoration/sustainable-farming-scheme-10-asks/

43. Climate Change Committee (2020). Advice Report: The Path to a Net Zero Wales. theccc.org.uk/wp-content/uploads/2020/12/Advice-Report-The-path-to-a-Net-Zero-Wales.pdf

44. The Woodland Trust (2022). Woodland Creation Guide. www.woodlandtrust.org.uk/media/50673/woodland-trust-woodland-creation-guide.pdf

45. Webb, J.R., Drewitt, A.L. and Measures, G.H.(2010). Managing for species: integrating the needs of England's priority species into habitat management. Natural England Research Report NERR024 publications.naturalengland.org.uk/publication/30025

46. Bellamy, P. (2018). Woodland Edges: why their structure is important for birds. RSPB community. https://community.rspb.org.uk/ourwork/b/science/posts/woodland-edges-why-their-structure-is-important-for-birds#:~:text=Species%20such%20as%20blackbirds%2C%20carrion,woodland%20specialists%20and%20farmland%20birds. .

47. Farming Connect (2023). Silvopoultry: Three birds, one stone. https://businesswales.gov.wales/farmingconnect/news-and-events/technical-articles/silvopoultry-three-birds-one-stone

48. The Woodland Trust (2022). Farming for the future: how agroforestry can deliver for nature and climate www.woodlandtrust.org.uk/publications/2022/11/farming-for-the-future

49. Forest Research. i-Tree Eco Projects. forestresearch.gov.uk/research/i-tree-eco/i-tree-eco-projects/

50. Forest Research. 2017 – Space for People. forestresearch.gov.uk/tools-and-resources/statistics/forestry-statistics/forestry-statistics-2017/recreation-6/public-access-to-woodland-3/space-for-people-3/

51. Future Generations Commissioner for Wales (2020). Green Spaces are Important. futuregenerations.wales/news/green-spaces-are-important-thats-why-were-asking-welsh-government-to-ensure-people-can-access-nature-within-a-four-minute-walk/

52. NRW. Advice to planning authorities considering proposals affecting ancient woodland. https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/our-role-in-planning-and-development/advice-to-planning-authorities-considering-proposals-affecting-ancient-woodland/?lang=en#:~:text=NRW%20advice%20on%20developments%20affecting%20ancient%20woodland,-Planning%20Policy%20Wales&text=We%20advise%20that%20planning%20permission,there%20are%20wholly%20exceptional%20reasons.

53. Forest Research. Habitats and Rare Priority Protected Species (HaRPPS) species. forestresearch.gov.uk/research/habitats-and-rare-priority-protected-species-harpps/habitats-and-rare-priority-protected-species-harpps-species/

54. The Woodland Trust (2018) The current state of ancient woodland restoration. www.woodlandtrust.org.uk/media/1704/current-state-of-ancient-woodland-restoration.pdf

55. Welsh Government (2021). Woodlands for Wales: The Welsh Government's Strategy for Woodlands and Trees. gov.wales/sites/default/files/publications/2018-06/woodlands-for-wales-strategy_0.pdf

56. Bellamy, P.E. et al. (2022) Impact of woodland agri-environmental management on woodland structure and target bird species. sciencedirect.com/science/article/pii/S0301479722007940

57. Hipkin, C, (2021) Biodiversity and Recombinant Ecology in Conifer Plantations. https://www.britishwildlife.com/article/article-volume-32-number-6-page-420-429/

58. Bat Conservation Trust, Butterfly Conservation, Forestry Commission, Natural England, Plantlife, RSPB, Sylva Foundation and the Woodland Trust. Woodland Wildlife Toolkit. woodlandwildlifetoolkit.sylva.org.uk

59. Woodland Trust. Temperate Rainforest. www.woodlandtrust.org.uk/trees-woods-and-wildlife/habitats/temperate-rainforest

60. Bosanquet S, Dines T. (2011). A Bryophyte Red Data List for Wales. Plantlife. https://www.yumpu.com/en/document/view/20133510/download-this-publication-plantlife

61. Celtic Rainforest Wales. celticrainforests.wales/our-work

62. Undiscovered Wales. https://undiscovered-wales.co.uk/2021/02/04/reconnoitring-wales-celtic-rainforest-a-walk-in-the-woods-of-coed-felenrhyd-and-coed-llennyrch/

63. The Woodland Trust. Ancient Tree Inventory. ati.woodlandtrust.org.uk/tree-search

64. Mitchell, R.J. et al. (2019). Oak-associated biodiversity in the UK, UK CEH Environmental Information Data Centre. catalogue.ceh.ac.uk/documents/22b3d41e-7c35-4c51-9e55-0f47bb845202

65. NRW 2023). Ancient Woodland Inventory. naturalresources.wales/evidence-and-data/research-and-reports/ancient-woodland-inventory/?lang=en

66. Data Map Wales: Data Catalogue. datamap.gov.wales/search/?limit=20&offset=0

67. Joint Nature Conservation Committee(JNCC). Surveillance Schemes. https://jncc.gov.uk/our-work/surveillance-schemes/

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