STATE OF THE UK'S WOODS AND TREES

Trees and woods in a changing world – a summary for Northern Ireland

WOODLAND TRUST
NORTHERN IRELAND

Summary report

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Contents

Introduction

Our climate is changing: 2024 was the warmest year on record globally and the first year that was more than 1.5°C above pre-industrial levels. The Met Office outlook for 2025 suggests that it is likely to be one of the three warmest years for global average temperature, along with 2024 and 2023. As well as a changing climate, Northern Ireland is facing a biodiversity crisis. Northern Ireland is among the most nature-depleted countries globally, ranking 12th worst out of 240 countries on the Biodiversity Intactness Index. Additionally, 12% of assessed species in Northern Ireland are at risk of extinction.

Northern Ireland has set ambitious targets to address climate change and nature loss to meet the Paris Agreement and the Global Biodiversity Framework requirements, and although our knowledge of how to do this is comprehensive, the support needed to do so is not there.

Native trees and woodlands are one part of the solution; sensitive management supports woodland biodiversity and appropriate tree planting can increase carbon capture. However, climate change and biodiversity loss also pose threats to our woodlands by undermining their ecological functioning, making them more vulnerable to threats, and eroding their ability to deliver the many benefits they provide. Action to increase forest resilience against these threats is more urgent than ever.

The first State of the UK's Woods and Trees report data to produce the first detailed assessment of the state of the UK's native woodlands. *State of the UK's Woods and Trees 2025* tracks updates of what is happening with woods and trees across the UK – their state, the threats they face, and what can be done to address them.

2025 is a pivotal year for action – only five years away from 2030, the deadline for climate and nature targets. These include the legal target to halt the decline in species and to protect 30% of land for nature by 2030. In early 2025 the Climate Change Committee (CCC) published its Seventh Carbon Budget, updating its advice to the UK Government on the measures needed to reach net zero greenhouse gas emissions. This summary report utilises new data included in *State of the UK's Woods and Trees 2025*, and summarises recent data on the extent, condition and value of woods in Northern Ireland. Its purpose is to drive positive change for Northern Ireland's native woods by identifying key threats and clearly laying out what needs to happen to improve their condition and secure their future.

Recommendations

To **enhance and protect existing woods and trees**, the Northern Ireland government should:

1. Support stronger legal protection for our oldest and most significant trees.
2. Commit to the restoration of Northern Ireland's remaining fragments of ancient and long-established woodlands.

To **expand and connect woodland and tree cover**:

1. The Department of Agriculture, Environment and Rural Affairs (DAERA) should launch a co-design process with the sector and stakeholders to develop a new forestry strategy.
2. Local councils should adopt a tree equity approach to prioritise urban tree planting, helping to address low urban tree cover where it's needed most.

To **improve the evidence**, DAERA should:

1. Increase investment in research and data collection to address evidence gaps in the State of the UK's Woods and Trees relevant to Northern Ireland.
2. Commission a countrywide deer census to establish baseline data on the extent and distribution of Northern Ireland's deer population.
3. Commit to supporting the mapping and assessment of Northern Ireland's temperate rainforests.

To **invest in the future**, the Northern Ireland government should:

1. Restore the availability of the TreeCheck platform in Northern Ireland to enable early detection, rapid response, and effective management of tree pests and diseases.
2. Address skills shortages in forestry and arboriculture through funding and training.
3. Invest in local tree nurseries to support the supply of locally sourced and grown trees.

Key results

Extent and condition

Woodland extent in Northern Ireland has remained relatively constant since the last State of Woods and Trees report, and there is currently no consistent, centralised data available on woodland condition in Northern Ireland.

Northern Ireland contains thousands of ancient and veteran trees, and woodlands that could be classified with any degree of certainty as ancient make up just 0.04% of the country's land area, but these habitats need better protection and management. Northern Ireland also has relatively low urban tree canopy cover compared to the rest of the UK, and this is not distributed equally.

People and wildlife

Across the UK woodland biodiversity continues to decline, and woodland management to benefit woodland biodiversity is needed. Nature is beneficial for people's mental and physical wellbeing, and people in Northern Ireland value access to nature. However, as with urban tree canopy cover, access to beneficial woodland biodiversity is not distributed equally.

Threats

Woodlands in Northern Ireland continue to face threats including pollution, introduced pests and pathogens, extreme weather and herbivore impacts from deer and grey squirrels. These threats all have the potential to threaten conservation objectives, but a lack of funding for woodland management and a skills gap in the conservation sector limit the action that is needed.

What's happening?

Current tree planting rates in Northern Ireland fall short of the ambitions set out in the 2020 Forests for Our Future programme and remain significantly below the levels recommended by the UK Climate Change Committee, and increased planting rates are needed.

Woodland management and restoration of plantation on ancient woodland sites offer opportunities to meet nature recovery, climate emergency adaptation and tree cover targets, while benefiting people and communities.


MICHAEL COOPER/WTML

1. Extent and condition

Extent

Trees and woodlands are varied and valued parts of the landscape of Northern Ireland. They are essential habitats for a large number of species and provide a range of ecosystem services essential to landscape function, human health and wellbeing, and the economy. To ensure woodlands can withstand and adapt to the threats and challenges they face, they need to be protected and restored, while new woodlands also need to be created. Increasing the cover of woodlands adds to resilience by providing greater buffering, more transition zones and corridors and larger areas for species to thrive in. Increasing woodland cover requires a comprehensive understanding of where they currently are; woodland cover statistics allow for analysis of woodland cover over time.

State of the UK's Woods and Trees 2021 showed that woodland covered 13.2% (3.2m ha) of the UK's land surface. This was split roughly equally between native and non-native species, with ancient woodland making up 2.5% of the UK's land

area. Below an update on these figures relevant to Northern Ireland is provided using data from the National Forest Inventory (NFI):

- There has been a slight increase in canopy cover in the UK since the last report, with woodland now covering 13.5% of the UK. Woodland area in Northern Ireland has remained relatively constant since 2020, now covering 8.6% of total land area. The total area of woodland in the UK in 2024 was estimated to be 3.28 million hectares. Of this total, c. 0.12 million hectares is in Northern Ireland.
- There is a total of 609,990ha of ancient woodland in the UK, covering 2.5% of the land area of the UK.
- The Northern Ireland Ancient Woodland Inventory includes all ancient and long-established woodlands identified through the Woodland Trust's "Back on the Map" project, which ran from 2002 to 2007. The inventory reveals that Northern Ireland has a total of 9,970ha of woodland across all ancient and long-established categories, covering 0.7% of the land area in Northern Ireland. However, just 549ha of woodland could be shown with a high degree of certainty to be ancient, representing just 0.04% of the country's land area. Additionally, 1,357ha of plantations on ancient woodland sites (PAWS) exists, covering 0.1% of Northern Ireland.
- Despite their importance, ancient woodlands are now a rare and fragmented feature on the island of Ireland. Ancient Woodlands Ireland is a four-year research project funded by the Department of Agriculture, Food and the Marine (DAFM) and the National Parks and Wildlife Service (NPWS). This four-year (2024–2028) all-island project seeks to update the inventories of ancient and long-established woodlands in Northern Ireland and the Republic of Ireland.
- A LiDAR survey covering Northern Ireland is also underway. Due to its scale and complexity, it is being rolled out on a zonal basis, with all the zones due to be completed by 2026. This survey has the potential to provide an assessment of the extent of Northern Ireland's current woodland cover.

Condition

Having woodlands in good ecological condition is vital as they provide habitats for wildlife and ecological functioning. Woodlands in good condition are more likely to be able to provide these services and to be resilient and able to adapt to future changes in climate.

In Great Britain, woods are monitored for their ecological condition to help inform management decisions. However, no consistent, centralised condition data exists for Northern Ireland.

Ancient and veteran trees

Ancient and veteran trees have an extraordinary ability to resonate with hearts and minds. They are valuable as custodians of cultural heritage and are disproportionately important for biodiversity compared to younger trees, offering niches for a range of species which aren't found anywhere else. The UK's oldest and most special trees include internationally renowned collections of ancient and other veteran trees, as well as trees termed heritage trees.

- The Ancient Tree Inventory (ATI), held and managed by the Woodland Trust and made openly available, is a data set of records of ancient, veteran and other notable trees in the UK, collected by citizen scientist volunteers and


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validated by specially trained volunteers. As of August 2024, 233,201 ATI records of ancient, veteran trees and notable trees have been verified in the UK, with 4.1% (or 9,615) occurring in Northern Ireland, although it is important to note that the ATI is not a complete data set.

- To carry out effective conservation of ancient, veteran and notable trees a better understanding of their extent, distribution, and population trends is needed to inform planning, decision making, and to identify conservation priorities. In England and Scotland, stratified sampling techniques have been developed to identify high priority sites for recording ancient and veteran trees. Unfortunately, work for Northern Ireland is lagging and there are currently no strata predictions available to identify high priority sites for sampling.

Temperate rainforest

- Temperate rainforests are globally rare habitats that occur in regions across the temperate zone where there are high levels of rainfall and oceanicity. Temperate rainforests are found along coastal and upland windward slopes where high humidity and low temperature fluctuations create conditions that are suitable for the growth of specialised plants and fungi, bryophytes, ferns and lichens. Temperate rainforests are characterised by a layer of epiphytes growing on and within the canopies of trees and are unique and culturally significant woodlands.
- In Northern Ireland, the current situation with temperate rainforest is different to the other UK countries. Although the majority of the island of

Ireland could be argued to fall inside the climatic conditions for temperate rainforest, the term rainforest is not currently widely used.

- The rainforests of the island of Ireland are predominantly in ancient woodland, and this is the focus of much of the restoration and protection work in Northern Ireland. For example, Mourne Park and the Faughan Valley have characteristics of rainforest and there is extensive restoration, buffering and connectivity work happening in these areas.
- Due to the lack of terminology around rainforest currently in Northern Ireland, there is no data on the extent and condition of the rainforest. Building on existing ancient woodland data, adding new information so that some of these can be categorised as rainforest, is vital in improving understanding of where these precious habitats are and what is needed to restore them to a favourable condition.
- Categorisation as temperate rainforest may also help improve wider funding for rainforest protection and restoration, which currently has no direct funding stream for maintenance of woodland and instead comes in on a project-by-project basis.

Urban tree cover

The 'urban forest' – comprising all the trees and woodlands within urban areas – provides vital ecosystem services such as shading and cooling, supporting physical and mental wellbeing, and stormwater management. These services help mitigate the effects of climate change and impact public health, and the urban forest provides most people's primary form of contact with trees and woods. Despite the vital importance of the urban forest, information about levels of urban tree canopy cover (UTCC) across the UK is relatively scarce.

- Significant variation in UTCC exists at every administrative level in the UK, but UTCC figures for UK cities are well below the European average.
- The average UTCC across the UK was 19.3%, with a figure of 15.2% for Northern Ireland, the joint lowest UTCC observed across all regions. Wide differences in UTCC are apparent between and within cities, although Belfast exhibits an intermediate value.
- Northern Ireland also features the lowest average UTCC at individual electoral ward and local authority level at 13.4% and 14%, compared to UK averages of 18.3% and 19.2%, respectively. Indeed, Causeway Coast and Glens was one of the five electoral wards with the lowest UTCC and was also the local authority with the lowest individual mean UTCC value at 3.5%.
- As the data above highlights, urban woods and trees are not distributed equally. The Woodland Trust has developed the Tree Equity Score and tool to highlight this disparity and help local planners and communities address it. Over 500 neighbourhoods in Northern Ireland have been given a Tree Equity Score, which ranges from 0 to 100. These neighbourhoods are home to approximately 60% of the Northern Irish population, and over 90% of these neighbourhoods have inadequate tree cover. The lower the score, the greater priority for tree planting. A score of 100 means the neighbourhood has enough trees. Using the Tree Equity Score and tool, expansion can be targeted in areas which need it most and where the benefit will be greatest.

MICHAEL COOPER/WTML

2. People and wildlife

Access and wellbeing

There is consensus that spending time in nature can decrease the risk and burden of poor health, and elevate people's wellbeing, leading to considerable savings to the health system. Publicly accessible natural spaces are therefore vital infrastructure for supporting the health and wellbeing of the population.

- Woodland access data (provided by Outscape) shows that in Northern Ireland 2.38% of households are within 400m of woodland, 7.22% are within 1km of woodland and 18.94% are within 2km of woodland.
- A YouGov survey of 589 people in Northern Ireland, commissioned by the Woodland Trust in 2023, found that 45% of respondents indicated they would feel sad, and 36% said they would feel angry if a large tree in their local area was cut down for new developments.
- Woodlands are in the top three most visited type of natural spaces in Northern Ireland and are an important habitat type when it comes to delivering wellbeing benefits.
- The annual mental health benefits associated with visits to the UK's woodlands were estimated to be £185 million per year (at 2020 prices). In Northern Ireland this value is £6 million.
- The annual valuation of overall health benefits from recreation in woodlands was estimated at £1.149 billion in 2022. In Northern Ireland this value is £28 million.
- As part of a Woodland Trust-funded research project, over 5,000 people representing a diverse cross-section of the public from across England, Wales, Scotland and Northern Ireland were surveyed online to quantify people's wellbeing responses to biodiversity. Overall, people reported experiencing positive wellbeing in response to biodiversity within a woodland local to them, with an average score of 61.7 out of 100 (where values above 50 represent positive wellbeing in response to biodiversity).
- Using this data, the University of Kent has mapped the cumulative modelled distribution of woodland species known to possess wellbeing effect traits. The maps indicate the richness of these wellbeing effect traits across Northern Ireland is not distributed equally, with a negative association between species richness and socioeconomic deprivation reported.

Biodiversity

Biodiversity is both worthy of protection in and of itself and essential for woodland resilience in a changing world. Ancient woodland, being our most diverse terrestrial habitat, supports more flora and fauna than any other. However, the results of the Bunce survey and indicator data for a wide range of woodland species reveal that woodland biodiversity is continuing to decline.

- At a UK level, the results from the Bunce survey and indicator data for a wide range of woodland species indicate that woodland biodiversity is continuing to decline. Many of the woodland-associated species experiencing ongoing declines are those which require open spaces and diverse vegetation structure within woodlands to thrive, and this trend is consistent with the

general trend of canopy closure described in the Bunce report. Additional drivers affecting the composition of woodland flora include eutrophication, tree disease and deer browsing, while a warming climate is also favouring certain species.

- In Northern Ireland, the woodland bird index used in the 2023 State of Nature Northern Ireland report reveals that woodland birds declined by 18% between 1996 and 2021, particularly in the last 10 years, while an abundance index for six bat species increased by 55% between 2003 and 2021. These trends are consistent with population patterns at the UK level.
- While drivers of population dynamics in different species are complex and dynamic, the differing results reported above may reflect differing reactions to long term changes in woodland management and the general trend towards more mature and shaded woodlands identified in the Bunce report.
- It is essential that Northern Irish woodlands are resilient to the threat of climate change and extreme weather events. Increasing conservation management, and therefore niche availability, within woodlands is one way to build back complexity in woodlands, which will have the dual benefit of benefiting declining woodland specialist species and increasing overall resilience.

Carbon

Woods and trees play a significant role in the carbon cycle and the UK's climate change mitigation and net zero strategy, and existing woodland cover stores carbon in both tree biomass and in forest soils. Protecting and strengthening the stability of these carbon stocks needs to be prioritised as declining condition, pests and diseases and the impacts of climate change may lead to significant losses of carbon. In *State of the UK's Woods and Trees 2025* the latest evidence regarding carbon stocks in woods and trees in Northern Ireland and the UK as a whole is summarised.

- The total carbon stock of UK forests is about one billion tonnes of carbon (1095 Mt C), while total carbon stock of forests in Northern Ireland is ~45 million tonnes (45 Mt C). However, recent LiDAR assessments of native trees suggest traditional methodologies may be underestimating the carbon stock of the above ground biomass of semi-natural native broadleaf woodland by nearly 80%.
- New woodland creation has the potential to significantly contribute to atmospheric carbon removals. However, it must balance carbon objectives alongside other priorities such as nature recovery, climate change adaptation and resilience and ecosystem services.
- The timing of woodland creation matters, due to the slow initial rates of carbon sequestration as trees grow. In the UK, it's estimated that missed creation targets between 2020-2021 and 2023-2024 would have removed 8.5 million tonnes of carbon dioxide (Mt CO_2e) by 2050.
- Currently, planting rates are significantly off track in meeting the required woodland creation targets to achieve the Climate Change Committee's net zero pathway, and further analysis is needed to allow for a greater understanding of the role of woods and trees in carbon sequestration in Northern Ireland.

EDWARD PARKER/WTML

3. Threats to native woodland in Northern Ireland

Introduced pests and pathogens

Introduced pests and pathogens ('pests') have the capacity to cause widespread impacts on and losses of trees, as witnessed with Dutch elm disease and ash dieback. *State of the UK's Woods and Trees 2021* reported a significant rise in the incidence of serious pest introductions post-1990.

- The UK plays host to 121 pests of our native tree species which are either introduced or have uncertain origins. This impact is wide reaching, including the potential for every native tree species to play host to one of these pests.
- Ash dieback is widespread across Northern Ireland, and while *Phytophthora ramorum* is known to be widespread across the UK, data on its distribution in Northern Ireland was not available.
- International trade of live plants and plant products is considered a key driver of pest and pathogen introductions, especially alongside climate change which is predicted to aid pest arrival and/or establishment in the future. Climate events which may cause increased stress in trees are also likely to increase host susceptibility to pests (although it is unknown whether provenances of UK native species differ in terms of their susceptibility to existing or novel pests and diseases).
- Continued treatment of pests that have become established is extremely costly, with the annual cost of managing just six pests across the UK estimated to be around £920 million. In Northern Ireland, the cost of

managing the three of these pests which are present comes to £81.4 million, £80.9 of which relates to ash dieback.

- Compared to the rest of the UK, data on both the presence and distribution of introduced pests and pathogens in Northern Ireland is sparse. Whilst both Great Britain and Ireland have access to online platforms for reporting tree pests and diseases, no such facility is currently available in Northern Ireland.
- To protect woods and trees in Northern Ireland effective biosecurity systems for imported trees are needed, and trees should be sourced and grown on the island of Ireland to reduce the risk of importing pests and pathogens.

Deer

At lower densities deer can perform important ecological functions, however, unsustainable deer population levels prevent tree regeneration and therefore threaten the future of woodlands. High deer densities can also negatively affect woodland structure and ground flora species richness and the abundance of birds, small mammals and invertebrates. Across the UK, deer populations are increasing, with many woodlands now hosting unsustainable population levels.

- Five deer species are now confirmed to be established in Northern Ireland: one native (red deer) and four invasive (roe, sika, muntjac and fallow). In addition, new species pose a potential future threat. Despite this, Northern Ireland still lacks accurate and representative baseline data on the distribution and true species makeup of the deer population. This information is essential to inform appropriate and adaptive woodland management at a landscape scale.

NATIONAL FOREST

- While no UK-wide datasets on deer population dynamics exist, in Woodland Trust sites, increasing numbers of deer are being recorded. Without significant investment and intervention across the sector, woodland structure and ecology is, and will be, adversely impacted.

Extreme weather

With the changing climate increased frequency and intensity of extreme weather events, including fires, storms, drought and floods is expected. Recent storms in Northern Ireland have highlighted the vulnerability of trees and woods to extreme weather events. Storms Darragh and Éowyn, which struck in December 2024 and January 2025 respectively, brought widespread damage, with high winds uprooting trees and causing significant woodland losses.

It is thought that these events will have impacts on trees and woods, which will need to be able to adapt to make them more resilient. There is an urgent need for increased monitoring, resilience-building, and adaptive management to help Northern Ireland's trees and woodlands withstand the growing challenges posed by climate change and extreme weather.

- The UK Climate Projections 2018 show that the projected climate change trends over land for the 21st century are for warmer, wetter winters and hotter, drier summers, as well as increased frequency and intensity of extreme weather events.
- Additionally, a recent government report used expert assessment to understand which habitats in the UK are likely to be the most sensitive to the impacts of climate change such as extreme weather events. Woodland habitats exhibited varying degrees of sensitivity to climate change, although degradation of habitat condition was found to increase sensitivity in those habitats which exhibit lower levels of sensitivity when in good condition. Although DAERA was not involved directly with this study, the findings are likely to be highly relevant to Northern Ireland.
- No long-term datasets on effects of extreme weather exist to show if these events are currently increasing with climate change at a UK or Northern Ireland level. There is also no Northern Ireland specific data available which indicates how susceptible Northern Irish woodlands may be to climate change and extreme weather at present or in the future.
- Further research, explicitly aiming to determine the effect of extreme weather on Northern Irish woodlands, is required.

Pollution

Pollution is an underappreciated threat to woodland integrity and a driver of systemic change, acting on every level from soil chemistry to species dynamics. The fragmented nature and large edge area of UK woodlands heightens their susceptibility to environmental pollution. Pollution will also play a major role in moderating the response of UK woodlands to the effects of climate change.

- Despite gradual reductions in exceedance, critical loads for excess acid and nitrogen are still widely exceeded across UK woodland habitats, with hot spots in agricultural regions such as Northern Ireland where dairy farming is intensive. The level of exceedance for woodland habitats is slowly decreasing in every country apart from Northern Ireland.

- The area of coniferous or broadleaved woodland with excess acidity is decreasing across every country of the UK. There has been little change in the extent of nitrogen deposition across common woodland types on a UK-wide or regional basis since 2003. However, the magnitude of exceedance for these habitats is gradually decreasing across the UK, apart from broadleaved, acidophilous oak and mixed woodland habitats in Northern Ireland.
- Ammonia (NH3) is also a significant problem in Northern Ireland. 30.1% of the mapped area of N sensitive habitats in the UK was exposed to ammonia concentrations above the critical level of 1 µg m-3 in 2020; the percentage area exceeded was as high as 93.2% for Northern Ireland. Additionally, 0.5% of the area of nitrogen sensitive habitats in the UK was exposed to ammonia concentrations above 3 µg m-3 in 2020, compared to 5.7% in Northern Ireland.
- In 2019-2021, the annual atmospheric concentration of NH3 exceeded a critical level for risks of impacts on sensitive lichens and bryophytes across 64.3% of the UK land area, including most of Northern Ireland. In the same period, the annual atmospheric concentration of NH3 exceeded a critical level for impacts on sensitive vascular plants in agriculturally intensive regions of Northern Ireland.
- Herbicide drift also negatively affects woodland plant species and may also be a long-term stressor for woodland in agriculturally intensive regions, such as Northern Ireland. The effects of other pollutants such as particulate matter and material from fly tipping are less well understood in a Northern Irish context.

Grey squirrels

Grey squirrels can cause extensive damage to trees by stripping off the outer bark and ingesting the underlying phloem tissue and can affect woodland creation and management goals and woodland condition and resilience.

- At a UK level, the estimated direct cost of grey squirrels is £40.6 million, of which Northern Ireland comprises £2.5 million. However, coordinated NFI data on bark stripping damage is not available for Northern Ireland.
- Red squirrels retain strongholds in parts of Northern Ireland, but beyond their negative impacts on red squirrel populations through the spread of disease and competition for resources, the effects of grey squirrels on wider biodiversity are poorly understood.
- The severe impacts of grey squirrel damage on broadleaf trees has significantly influenced landowners' choice of tree species for planting, preventing important native broadleaves (e.g. oak and beech) from being planted. This reduces the ability of woodlands to promote biodiversity and mitigate and adapt to climate change.

Funding and skills gaps

The benefits woodlands provide in terms of biodiversity, recreation, ecosystem services, health and wellbeing, and increasing resilience to climate change are delivered much more effectively when woodlands are appropriately managed. Reviewing the current grant schemes shows that whilst support for creation of new woodlands is widely available, management and restoration of existing woodlands does not receive the same level of funding. A skills gap in the sector,

JOHN BRIDGES/WTML

and lack of training and development opportunities, is also evident in the review.

- Northern Ireland is currently in the process of developing new funding schemes, although the lack of government in Northern Ireland has delayed developments on replacing the Environmental Farming Scheme. The Sustainable Agriculture Programme, will offer options for all farm businesses across Northern Ireland, including the Farming with Nature scheme, which replaces the Environmental Farming Scheme.
- Currently in Northern Ireland, there are four established grant schemes and the new Farming with Nature Scheme, all of which are for creation. There are no grants available for ancient woodland restoration currently available in Northern Ireland.
- £110.6 million was paid in grants for forestry by the Forestry Commission, Scottish Forestry, Welsh Government and Forest Service Northern Ireland in 2023/24. £5.3 million was spent in Northern Ireland, representing a 10% decrease from the previous year.
- In 2023/24 in Northern Ireland, 433ha of woodland was planted under Forest Service grant schemes (Forest Service Annual Report).
- The Green Growth agenda in Northern Ireland has given forestry a high profile but shows little acknowledgement of a skills gap.

Provenance

Trees and shrubs face considerable challenges in adapting to the impacts of climate change as their long lifespans equate to slow rates of population change and consequently of evolutionary processes, and climate projections of generally wetter winters, drier summers, and higher frequency of extreme events have raised significant debate about whether UK native species have the ability to adapt naturally to these new conditions.

In the latest State of the UK's Woods and Trees report, the current and latest evidence is reviewed to understand the adaptive potential of native tree species in response to climate change to inform provenance decisions for nature conservation. While adaptive or transformative woodland management practices such as assisted geneflow and assisted migration may play a role in mitigating the impacts of climate change, for native woodlands with conservation objectives, management practices that support or enhance natural processes like regeneration and enable trees to harness their evolutionary potential to adapt to climate change should be prioritised.

Results relevant to Northern Ireland are summarised below.

- A National Forest Tree Gene Conservation Strategy and Action Plan for Ireland has been proposed which incorporates a 'near-nature', approach, focusing on natural processes to create resilient, sustainable woodlands, ideally on an all-Ireland basis. It prioritises native species and diverse, mixed-age forests that mirror natural ecosystems, encouraging minimal intervention and natural regeneration to enhance biodiversity and ecosystem services. Provenance plays a key role, with an emphasis on using local seeds to preserve genetic integrity and adaptability. While it supports introducing non-local provenances to adapt to future climate conditions, this should be done cautiously to maintain ecological balance and prevent genetic disruptions.
- However, a current paucity of local tree nurseries may limit the feasibility of this approach in Northern Ireland. Additionally, there are currently no national or sub-national tree seed programmes – trade in seed takes place at the UK scale in both private and public sectors and is controlled by the Forest Reproductive Material Regulations (Northern Ireland) 2002.
- Grants to support woodland expansion by natural colonisation are not currently available in Northern Ireland.
- Previous studies have found that Irish tree species hold a larger proportion of their genetic variation within populations than among them. For example, in Northern Ireland, alder populations display greater genetic diversity within populations than between them.

PAUL ARMSTRONG

4. What's happening?

Creation

Across the UK, there are ambitious and challenging targets intended to increase the extent of native woods and trees to tackle the climate and nature crises and create landscapes rich in native woods and trees, for people and wildlife. However, while woodland extent is increasing, the rate of expansion has slowed in recent years, with a 1% increase over the last two decades. In order to meet net zero and nature recovery targets, it is vital that ways to address the underlying reasons for this lack of progress are identified.

- Northern Ireland has the lowest woodland cover in the UK and Ireland. In 2023 the UK Climate Change Committee advised that to reach the region's target of net zero by 2050 Northern Ireland would need to reach 14% woodland cover by 2050. At the time this advice was published, to achieve this woodland creation needed to increase to 3,100 hectares annually by 2035 and 4,100 hectares annually by 2039, remaining at this level until 2050.
- A study commissioned by the Woodland Trust Northern Ireland to guide the setting of achievable woodland establishment targets, particularly in the context of nature recovery and climate action, found that 18% of Northern Ireland's total land area falls into the 'most suitable' category for woodland establishment. This available land exceeds more than twice the area required to meet the Climate Change Committee's recommendation.

NICK PATTERSON/WTML

- Average rates of creation have increased in every country over the past five years (2020-2024) compared to the previous reported (2016-2020). The UK as a whole achieved an average of 14,896ha per year, with this breaking down to an average of 384ha/year in Northern Ireland. However, planting rates are still nowhere near the averages required to meet net zero as advised by the Climate Change Committee, with the greatest deficits seen in Northern Ireland (only 19% achieved on average) and Wales (only 11% achieved on average).
- Indeed in 2020, the Northern Ireland Forest Service launched the Forests for Our Future programme, aiming to create 9,000 hectares of new woodland over 10 years. Planting rates since the programme's launch have consistently fallen short of what would be required to meet this target. Between 2020/21 and 2023/24, 1,700ha of new woodland have been planted, leaving 7,300ha still required by 2030 to meet the programme's ambition.
- Land-use change has often been treated as either a biophysical (land suitability) or economic issue, being seen as a predictable and rational process, rather than the social (or negotiation) process between groups of people with different values that it often is. Incorporating social and cultural values into woodland creation plans should be considered from the start of any project.
- Research has identified a comprehensive land-use strategy as the most important policy to prioritise in terms of delivering land use transitions. While Scotland has had a Land Use Strategy since 2011, this is still lacking for Northern Ireland.

Management

The multitude of benefits that can be gained from managing woodlands appropriately requires support and incentives that allow landowners to realise and achieve these benefits. It is well accepted that there are minimal risks to biodiversity from the recommencement of management, and many studies show that broadleaved woodlands are at their most diverse when canopy cover is well below 100% and woodland vegetation is varied.

The ecological, economic and social benefits of bringing woodlands back into appropriate management cannot be ignored. Woodlands in good condition as a result of planned and active management are likely to make the greatest contribution to ecosystem service provision and to be more resilient to external threats.

Implementing actions to increase forest resilience is challenging because of the diverse and complex set of interrelated issues that currently threaten woodlands. However, action is urgently required. Time invested now into bringing woodlands into good condition will pay dividends in the future. Forward-thinking decisions will enable woodlands to survive and hopefully thrive under future conditions.

- The number and extent of Northern Irish woodlands under management is hard to ascertain due to a lack of data, however figures for certified woodland areas are often used as an indicator of sustainable forest management. In 2024, the total area of certified woodland (woodland in the UK has been independently audited against the UK Woodland Assurance Standard (UKWAS)) in the UK was 1.44 million hectares (44% of the total UK woodland

area). This is 56% in Northern Ireland, although it is important to note that these figures relate to all woodland within the UK, and the majority of certified woodlands may be productive conifer forests. Woodland that is not certified may also be managed sustainably.

Ancient woodland restoration

Ancient woodlands, by definition, have developed over centuries and are known to be one of the UK's richest and most complex terrestrial habitats. These woodlands have a long, uninterrupted presence (continuity) and so are often associated with high biodiversity. In Northern Ireland, these woods are defined as those woods that can be shown, with a reasonable degree of certainty, to have been wooded continuously since 1600. Ancient woodlands are referred to as being irreplaceable. This is because it would take centuries to replicate the ancient woodland communities and the services they provide; they cannot simply be created. They are also significant carbon stores and hold immense cultural and historical value.

Ancient woodland which can be shown with a high degree of certainty to be ancient is now extremely rare, making up around just 0.04% of the total land cover of Northern Ireland (compared to 0.7% for ancient and long-established woodland of all categories). This is because ancient woodlands have faced a barrage of historic and current threats, such as historic planting of monocultures over the sites (plantations on ancient woodland sites or PAWS), development, pests and diseases, invasive species, climate change and surrounding intensive land use. In addition to fragmenting them and reducing their extent, these threats have also affected their condition and subsequent resilience to these threats, and ability to provide services are weakened.

The need to restore ancient woodland is more urgent than ever as this is a unique point in time. Most PAWS are now at, or beyond, the age for commercial felling and their future decided. This future could either be clear-felling and replacing with another non-native conifer plantation, or beginning the process of restoration to help improve their condition and ecological functioning. Key results relevant to ancient woodland restoration in Northern Ireland are provided below.

- UK-wide data on conifer PAWS is available from the Northern Ireland Ancient Woodland Inventory. In Northern Ireland there is currently 1,357ha of PAWS, comprising 0.1% of total land cover.
- Approximately 50% of the PAWS in Northern Ireland is on the Public Forest Estate, managed by Northern Ireland Forest Service. All ancient woodland sites (including PAWS and ancient semi-natural woodland (ASNW)) were surveyed in 2013-14. 709ha were considered 'secure'; not under any widespread threat from impacts such as invasive plant species or shade from non-native tree canopy. A work programme was drawn up for the 302ha of ancient woodland in a threatened or critical condition. The areas identified as threatened or critical in 2013 were assessed again in 2019. The area classified as threatened had decreased by 99ha, and the area classified as secure had increased from 709ha to 809ha. Whilst 194ha remained in a threatened condition, only 9ha was considered to be critical.

5. Recommendations

The woods and trees of Northern Ireland provide a suite of benefits to biodiversity, climate objectives and local communities. However, they also face a barrage of threats and if the benefits they can provide are to be maximised, action is needed. This section outlines the policies that are required to ensure this action is enabled and enacted.

Enhance and protect

Ancient and veteran trees

The Northern Ireland government should support stronger legal protection for our oldest and most significant trees including:

- Enhancing the safeguards provided by Tree Preservation Orders.
- Supporting our oldest trees by granting them protections equivalent to those of our historic buildings and monuments.
- Protecting ancient and long-established woodland, along with our oldest and most significant trees, from building developments and infrastructure.

Ancient woodland restoration

DAERA should commit to the restoration of Northern Ireland's remaining fragments of ancient and long-established woodlands by setting a target to restore and fund at least 3,000 hectares of woodland containing ancient and long-established trees by 2030. This commitment would help preserve these irreplaceable habitats, enhance biodiversity, contribute to climate and nature resilience and count towards the Government commitment to protect and manage 30% of land and sea for nature by 2030.

MICHAEL COOPER/WTML

Expand and connect

Creation

DAERA should launch a co-design process with the sector and stakeholders to develop a new forestry strategy to replace the 2006 Forestry Strategy, aiming for at least 14% woodland cover by 2050, as recommended by the Climate Change Committee. The strategy should include interim targets to ensure measurable progress and support the long-term growth and sustainability of Northern Ireland's woodlands.

Urban tree cover

Local councils should adopt a tree equity approach to prioritise urban tree planting, helping to address low urban tree cover where it's needed most by ensuring that the benefits of trees reach the areas and communities with the greatest need.

Improve the evidence

Data and evidence

DAERA should increase investment in research and data collection to address evidence gaps in State of the UK's Woods and Trees relevant to Northern Ireland. This would ensure that conservation and restoration efforts are effectively targeted, maximising their impact and securing the long-term resilience of Northern Ireland's woodlands.

Deer

DAERA should commission a countrywide deer census to establish baseline data on the extent and distribution of Northern Ireland's deer population to inform proactive management and control.

Temperate rainforest

DAERA should commit to supporting the mapping and assessment of Northern Ireland's temperate rainforests. A comprehensive survey would provide essential baseline data to guide targeted restoration, secure funding, and inform long-term conservation for sustainable management.

Invest in the future

Tree health

DAERA must restore the availability of the TreeCheck platform in Northern Ireland to enable early detection, rapid response, and effective management of tree pests and diseases, helping to protect Northern Ireland's woods and trees from emerging threats.

Funding and skills gap

DAERA should address skills shortages in forestry and arboriculture through funding and training, supporting green growth and meeting the demand for woodland creation, urban tree planting, and effective tree and woodland management, ensuring the necessary expertise is in place to support these ambitions.

Provenance

DAERA should invest in local tree nurseries to support the supply of locally sourced and grown trees. This investment would create green jobs, reduce the risk of pests and diseases, and ensure a resilient, sustainable supply of trees for woodland creation and urban tree planting.

6. What is the Woodland Trust doing?

Case study: Mourne Park woodland restoration

In 2021, the Woodland Trust acquired Mourne Park, encompassing 156 hectares of land, including 73 hectares of ancient woodland. This acquisition marked a significant step in conserving one of the largest expanses of ancient woodland in Northern Ireland.

Further expanding the protected area, an additional 32 hectares of neighbouring land were acquired in 2023.

For over four years, the Woodland Trust has been actively engaged in major restoration efforts within the ancient woodland.

- Invasive species removal: Each year, up to five hectares of invasive species, such as rhododendron and laurel, are removed.
- Natural regeneration: This targeted removal allows the native ancient woodland to regenerate naturally, fostering the return of diverse native flora.

This ongoing work demonstrates the Woodland Trust's commitment to restoring and protecting this invaluable ancient woodland ecosystem.

JILL JENNINGS/WTML

MICHAEL COOPER/WTML

Case study: Glas-Na-Bradan Wood – native woodland creation in the Belfast Hills

Glas-na-Bradan Wood is a 98-hectare site in the Belfast Hills. Acquired by the Woodland Trust in 2021, the site has undergone a significant transformation to become a native woodland. Through a public vote, the site was named Glas-na-Bradan Wood, reflecting the community's deep involvement in its creation.

In a pioneering effort for the Woodland Trust in Northern Ireland, the planting of Glas-na-Bradan Wood was entirely undertaken by the public. A five-year programme engaged a diverse range of community members, including schools, youth groups, scouts and local residents, in the ambitious undertaking of planting 150,000 trees. This collaborative effort not only resulted in the creation of a valuable woodland resource but also fostered a strong sense of community ownership and environmental stewardship.

Glas-na-Bradan Wood serves as an example of the positive impact of urban greening initiatives, demonstrating the power of community engagement in environmental conservation. The creation of this native woodland significantly enhances biodiversity within the Belfast area, providing vital habitat for wildlife and improving the overall quality of life for city residents.

Case Study: Faughan Valley Woodlands – from fragments to thriving forests

The Faughan Valley Woodlands are home to a significant portion of rare ancient woodland habitat in Northern Ireland. Since 2000, the Woodland Trust has strategically acquired several small clusters of native woodlands along the Faughan Valley, including Brackfield, Oaks, Red Brae, Burntollet, and Killaloo Wood. These woodlands, despite their ecological importance, were fragmented, hindering wildlife movement and ecosystem resilience.

For over a decade, the Woodland Trust envisioned a connected network of woodlands within the Faughan Valley, benefiting both nature and people. Thanks to generous funding from The National Lottery Heritage Fund, DAERA's Rural Development Programme, and support from Derry City and Strabane City Council, this vision has become a reality.

Key actions:

- Habitat connectivity: The project has focused on connecting the fragmented woodlands along and across the River Faughan, even beneath the newly constructed A6 road.
- Invasive species control: Invasive species, such as rhododendron, have been removed, and these areas are being repopulated with native trees, creating vital corridors for wildlife movement.
- Community engagement: The Woodland Trust is actively collaborating with local landowners and farmers to restore and protect existing ancient and long-established woodlands by creating buffer zones of native trees.
- Enhance resilience: Create larger blocks of native woodland to increase habitat resilience.
- Support landowners: The MOREwoods scheme provides funding, saplings, and expert advice to landowners, encouraging tree planting and offering benefits such as flood reduction and carbon offsetting.

The Faughan Valley Woodlands project exemplifies the successful restoration of fragmented habitats. By reconnecting these vital ecosystems, the Woodland Trust is ensuring the long-term survival of biodiversity within the region and creating a more resilient landscape for future generations.

Case Study: Ancient Woodlands Ireland – a collaborative approach to mapping ancient woodlands

The Ancient Woodlands Ireland project, a collaboration between Maynooth University, Teagasc, Dundalk Institute of Technology and the Woodland Trust Northern Ireland, is a four-year research initiative funded by the Department of Agriculture, Food and the Marine (DAFM) and the National Parks and Wildlife Service (NPWS). Building upon previous research, the project aims to create a comprehensive all-island inventory of ancient woodlands in Ireland. Researchers will employ a multidisciplinary approach, using historical data analysis, palaeoecological investigations, and ecological indicator studies to achieve this goal. The Woodland Trust Northern Ireland will contribute valuable data and learnings from its Back on the Map project, enhancing the project's impact. This research will provide crucial data to improve the protection of Ireland's ancient woodlands and guide prioritisation for restoration efforts, ensuring the long-term conservation of these vital ecosystems.

WOODLAND TRUST
NORTHERN IRELAND

The Woodland Trust, Kempton Way, Grantham, Lincolnshire NG31 6LL.

woodlandtrust.org.uk