STATE OF THE UK'S WOODS AND TREES

Trees and woods in a changing world – a summary for Scotland

Summary report

WOODLAND TRUST SCOTLAND

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Contents

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Introduction

Woods and trees are vital to life in Scotland. They provide habitats for a huge range of wildlife and are one of the most effective ways of reversing decades of nature decline. They can help reduce flooding, protect soils and restore rivers. They provide shade and shelter which will be increasingly important to people, livestock and wildlife in a changing climate. And they are an important carbon store with the potential to lock up significantly more through expansion and good management.

People are part of nature too and woods and trees are important for human wellbeing. They provide a diversity of sustainable wood products, food for the forager and spaces of joy and discovery to exercise and unwind in. They inspire art and provide a sense of place and continuity that links generations past, present and future.

So, how good are Scotland's native woods? How well is Scotland progressing against targets for expansion and restoration? And how resilient are they to the changing climate and a new of array of pests and diseases on the horizon? This summary report uses new data included in the Woodland Trusts recently published *State the of UK's Woods and Trees 2025* to answer these questions, and summarises recent data on the extent, condition and value of woods in Scotland. Its purpose is to drive positive change for Scotland's native woods by identifying key threats and clearly laying out what needs to happen to improve their condition and secure their future.

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Key results

Scotland's woods have expanded from a historic low of around 5% at the end of the 1800s to 19.4% today, still well below the European average of 38%. There is room for considerable woodland expansion across Scotland, but targets set by the Climate Change Committee and Scottish Government have not been met for the last five years and budgets have been cut to a level which makes these targets unreachable, despite growing landowner interest in woodland creation.

Scotland's urban tree canopy cover is close to the UK average, but in towns and cities, people living in the most well-off neighbourhoods have over 40% more tree canopy cover than more deprived neighbourhoods. The Woodland Trust's new Tree Equity tool highlights which urban neighbourhoods should be a priority for urban tree planting to ensure that the benefits of urban trees are enjoyed by all.

Research also shows that people in Scotland have a strong affinity for woodlands, but as with tree equity, access to beneficial woodland biodiversity is not distributed equally, and several components of woodland biodiversity continue to decline.

Most of Scotland's native woods are not in good condition. Ancient woodlands are some of Scotland's most important habitats, but 60% are not in satisfactory condition, while 70% of Scotland's rainforest is not in satisfactory condition.

The principal threats to Scotland's native woodlands are:

- Overgrazing by deer, which threatens the long-term future of woodland as old trees mature and die without a new generation of young trees growing up to replace them. Overgrazing also significantly reduces woodland biodiversity.
- Invasive non-native species (INNS) which are spreading through woodlands, displacing important native plants and the valuable species that depend on them. *Rhododendron ponticum* is one of the most significant, occurring in approximately 40% of Scotland's rainforest sites.
- Plantations on ancient woodland sites (PAWS), where fast-growing, non-native trees are rapidly shading out the valuable ground flora and, in many cases, threaten the survival of the remaining native trees.
- Pests and diseases. Following the devastation of Dutch elm disease, Scottish woods are now suffering from ash dieback, a fungal disease that was probably introduced by nursery stock imported from Europe. As global trade continues to increase, the risk of new pests and diseases will continue to grow unless biosecurity measures are strengthened.
- Climate change. Compounding the above is the overarching impact of climate change that is already leading to increased fires, storms, drought and flooding, as well as conditions that are likely to aid the spread of pests and diseases and favour the spread of invasive non-native species.

These threats can and must be tackled if the nature restoration ambitions set out in the Scottish Government's biodiversity strategy are to be achieved. The penultimate section of this report outlines, in detail, the policies and practical measures that can be taken to ensure that Scottish woods have the resilience to survive and thrive for nature and future generations in a changing climate.

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Policy asks

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

1. Reduce deer populations across Scotland to sustainable levels.
2. Restore plantations on ancient woodland sites (PAWS).
3. Deliver on commitment to establish a Rainforest Restoration Fund.
4. Incentivise the restoration and management of ancient woodland.

To **expand and connect woodland and tree cover**, the government should:

1. Prioritise native woodland expansion in areas where the greatest benefits for nature can be achieved.
2. Develop financial mechanisms that support significant integration of woods and trees into farms and crofts.
3. Recognise Tree Equity and increase tree canopy cover in our towns and cities.

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

1. Create a comprehensive National Register of Ancient Woodland.

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

1. Improve native tree supply.
2. Reduce the risks of pests and diseases.

1. Extent and condition

Extent

Although the drivers have changed, increasing woodland cover has been a long-standing policy focus for Scotland since early last century. From its low point of approximately 5% in the early 1900s, woodland cover in Scotland today stands at 19.5%, comprising around 1.5 million hectares and accounting for 46% of the UK's woodland cover.

Forest Research analyses UK woodland creation using a split between broadleaf and conifer. These are sometimes used as a proxy for non-native timber plantations vs native woodlands, which isn't particularly appropriate in Scotland, which has a significant component of native pinewoods and many broadleaved woodlands containing non-native species. However, the statistics suggest that Scotland hosts around two thirds of the UK's softwood timber forests and around a quarter of its native woodland.

Condition

Most of Scotland's native woods are not in good condition. Across a range of surveys and data sources, the message is the same.

The National Forest Inventory (NFI)'s woodland ecological condition data shows that only 3% of native woodland habitat in Scotland is in favourable condition.

Using a different methodology, the comprehensive Native Woodland Survey of Scotland (NWSS) found that 54% of Scotland's native woodland area is not in satisfactory condition. The situation is even worse in Scotland's ancient woodlands, where 60% are not in satisfactory condition (NWSS), while 70% of Scotland's rainforest is not in satisfactory condition, according to the State of Scotland's Rainforests report.

More recently, the comprehensive Caledonian Pinewood Recovery Project, which surveyed most of Scotland's ancient pinewoods in detail over several years, found that 23% are critically threatened and will be lost without urgent action.

Data is available from NatureScot regarding the condition of Scotland's Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) woodlands. Whilst some woodlands haven't been assessed since 1998, the data

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indicates that 68% of sites are in unfavourable condition, and these are the sites that are designated as special areas most worthy of protection.

Woodland condition is assessed by aggregating different woodland characteristics in different ways. Across all surveys, the principal reasons for the poor condition of Scotland's native woodlands are overgrazing by deer, invasive non-native plants and plantations of non-native trees that have been planted on native woodland sites. These threats are more fully described in 3. Threats to native woodland.

Ancient woodland

Ancient woodlands are Scotland's oldest and most valuable for nature. They often have a history of continuous woodland cover going back thousands of years. Scotland has approximately 148,000ha of ancient woodland, comprising around 1.9% of its land area. In addition, there are around 59,000ha of ancient woodland sites that were underplanted with non-native trees, mostly conifers, for timber production. Most still contain important remnants of ancient woodland ecosystems and should be a priority for restoration.

Rainforest

Temperate rainforests are globally rare habitats that occur in regions across the temperate zone, mostly in coastal regions with high levels of rainfall and equitable climates. Scotland's rainforest is a unique habitat of ancient and native woodlands, open glades, boulders, crags, ravines and river gorges that are characterised by high humidity and rare lichens, mosses, liverworts, fungi and other plants – some found nowhere else in the world. Scotland is a key stronghold of this globally important and rare habitat that once spread along the Atlantic coastline of Europe. But even here there is as little as 30,325 hectares left. These remnant oak, birch, ash, native pine and hazel woodlands are small, fragmented and isolated from each other. They are over mature and often show little or no regeneration. They are in danger of being lost forever.

Ancient and veteran trees

Ancient trees are hugely significant for nature, hosting many species that rely on their decaying wood including fungi, lichens and invertebrates. 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.

Many of Scotland's ancient trees are not single stemmed maiden ancient trees in wood pasture and parkland settings. Many, particularly in the uplands, are either old coppice stools or phoenix trees that have blown over but continue to grow. They are not always large, physically impressive trees, and they don't always have the same decaying wood habitat as old parkland oaks, but they are genuine ancient trees nonetheless and deserve the same levels of protection.

Ancient trees are also important for their cultural and landscape value and their ability to connect people to previous eras in history. Indeed, the oldest tree in the UK is the Fortingall Yew in Perthshire which is estimated to be between 2,000 and 3,000 years old.

The Ancient Tree Inventory (ATI), held and managed by the Woodland Trust and made openly available, is a dataset of records of ancient, veteran and notable trees in the UK, collected by citizen scientist volunteers and validated by specially trained volunteers. As of August 2024, 233,201 ATI records of ancient, veteran trees and notable have been verified in the UK, with 18,344 of those occurring in Scotland, however the ATI is an incomplete dataset.

This is only a small fraction of Scotland's ancient trees, and there is still a remarkable lack of understanding of how many of these special trees exist, their condition and what action is needed to preserve them.

Urban woods and trees

Urban forest includes trees in parks, gardens and schools, street trees, urban woodlands, trees along canals and rivers, and naturally regenerating trees and shrubs that grow in the 'in between places' in towns and cities. Urban woods and trees form a crucial lifeline for nature, giving birds, insects and other animals food and shelter and enabling them to move through the urban landscape safely. Urban woods and trees are also an important element of Scotland's climate adaptation, helping to keep people, buildings and streets cool in a warming climate, regulating water and flood management and reducing both energy consumption and carbon emissions.

Scotland has an average of 18.8% urban tree canopy cover (UTCC), comparable with the UK average of 19.3%. However, urban woods and trees are not distributed equally. On average, less well-off neighbourhoods have significantly lower tree canopy cover than wealthier neighbourhoods. The urban neighbourhoods with the highest income have over 40% more tree canopy, compared to the least well-off neighbourhoods.

There are also clear correlations with health. Scotland's healthiest urban neighbourhoods have on average 40% more tree cover compared to the least healthy neighbourhoods. As the climate warms, this disparity will become increasingly significant as people in more deprived communities will be subject to greater extremes of heat. Urban neighbourhoods that remain coolest during periods of extreme heat have, on average, over 300% more tree cover per person than the neighbourhoods that get hottest.

The Woodland Trust has developed the Tree Equity Score and tool to highlight this disparity and help local planners and communities address it. 4,953 data

zones in Scottish towns and cities have been given a Tree Equity Score. These data zones are home to approximately 70% of the Scottish population. Over 1.4 million people live in a data zone considered high or highest priority for action to improve tree equity. Increasing tree canopy cover in these areas will have the greatest impact for the wellbeing of people living in Scotland's urban areas.

Management

The area of woodland under certified sustainability programmes gives an indication of the extent of woodland under sustainable management. In 2024, 60% of Scotland's woods were certified against the UK Woodland Assurance Standard (UKWAS) compared to 44% across the UK. However, much of this woodland will be exotic conifer woodland managed primarily for timber. It is also important to acknowledge that woodland that is not certified may also be managed sustainably.

Woodland creation

Despite the significant increase in woodland cover, Scotland is still well below the European average of 38% and the global average of 31%. There are compelling reasons to continue woodland expansion in Scotland.

- New native woodlands offer a significant opportunity to contribute towards Scotland's ambition and targets for nature recovery.
- The Government has recommended an additional 1.38 million hectares of new woodland creation across the UK.
- Increasing trees and woods in and around towns can support public health and help us adapt to a warming climate.
- Trees on farms and crofts can improve farming productivity and resilience.
- The UK is still one of the biggest importers of wood products and there is an environmental, economic and strategic rationale for growing more of that at home.

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Scotland still has scope for very significant levels of new woodland creation. The Climate Change Committee projects that 39% of the trees the UK needs to plant between 2025 and 2050 will be planted in Scotland, and the Scottish Government's Woodland Expansion Advisory Group and its subsequent update concluded that approximately 35% of land area is potentially suitable for woodland creation.

The Scottish Government has a target of creating 18,000ha of new woodland per year by 2025. In 2023/24, 15,000ha was created (51% of which was native) but funding for woodland grants was cut dramatically (by 41%) last year.

Over the last five years, Scotland has continued to create the majority of new woodland in the UK, including new timber plantations and native woodlands (which can also include a timber production objective). The UK as a whole achieved an average of 14,896ha per year between 2020 and 2024, with this breaking down to an average of 11,084ha/year in Scotland.

A total of 45,726ha has been created under Scottish Forestry grant programmes between 2021 and 2025 inclusive, of which 21,244ha comprises new native woodland. This excludes woodland creation on public land by Forestry and Land Scotland. It is worth noting that most new native woodland is being created in the North and West of Scotland – with almost all new woodlands in the Highlands and Islands being native.

For reference, at a UK level over the period 2021 to 2024, a total of 60,800ha of new woodland was planted. Over the same period, 29,110ha of broadleaved woodland (taken here as a broad proxy for native woodland) was planted in the UK (again excluding woodland creation on public land).

Trees on farms and crofts

When integrated carefully into farm and crofting systems, woods and trees can be good for business as well as nature. They can provide shade and shelter in a warming climate, protect and improve soils and produce a range of useful products, from forage and wood chip bedding for livestock to a range of marketable products including timber, firewood and fruit. The current grant support system for this kind of agroforestry only had eight applications last year – and along with the National Farmers Union of Scotland and the Scottish Crofting Federation, the Woodland Trust has developed detailed recommendations for the Scottish Government on how payments for trees on farms and crofts should be integrated into Scotland's future farm support system.

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2. People, wildlife and carbon

Access and wellbeing

There is strong evidence 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.

As part of the Woodland Trust funded BIO-WELL Project, over 5,000 people representing a diverse cross-section of the public from across England, Wales, Scotland and Northern Ireland were surveyed online. Overall, 90% of people report positive wellbeing responses to the biodiversity in their local woodlands. Researchers at the University of Kent also mapped the distribution of woodland species known from previous work to possess wellbeing effect traits, aspects of biodiversity which elicit feelings of wellbeing. The maps indicate that the richness of these wellbeing effect traits across Scotland is not distributed equally, with woodlands in more socioeconomically deprived areas generally having fewer wellbeing effect traits. However, at a UK level, areas of Scotland represent hotspots for high wellbeing-quality woods.

Scotland is fortunate in having a right of responsible access, which makes woodlands in Scotland more accessible to the public than those found in the rest of the UK. Woodlands are in the top three most visited type of natural spaces in Scotland. In the most recent survey of public opinion on forestry in Scotland, 79% of respondents had visited woodlands in the last 12 months, a pattern that is fairly consistent over the last couple of decades. 65% said they would like to visit at least once a month and respondents consistently reported feeling in better health when spending time in woods. Mental and physical health are consistently reported as the primary benefit of visiting woodlands.

The annual mental health benefits associated with visits to Scotland's woodlands were estimated (at 2020 prices) to be £26 million. The annual valuation of overall health benefits from recreation in woodlands in Scotland was estimated at £163 million.

While it is difficult to distinguish exactly which characteristics of woodlands are most beneficial for mental health, a study across 12 European countries, including Scotland, found a strong preference across all surveyed countries for more structurally complex forests that include older trees with diverse tree species.

Biodiversity

The Biodiversity Intactness Index ranked Scotland 212th out of 240 countries on a scale of biodiversity loss, and the most recent State of Nature Report for Scotland shows that one in nine species in Scotland is threatened with extinction and that 43% of monitored species have declined strongly in the last decade. In addition, the results from the Bunce survey reveal a decline in woodland management and associated microhabitat and gap creation across the UK, with implications for woodland biodiversity.

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However, woodland birds are generally bucking the trend in Scotland and showing a steady long-term increase in population over the last couple of decades. NatureScot Breeding Bird Indices reveal that of the 23 woodland species monitored between 1994 and 2023, 20 have increased and three have decreased (capercaillie, chaffinch and common buzzard). It is not clear what is driving these changes, but it's likely that the significant increase of native woodland in Scotland over recent decades will be one factor.

In contrast, the NFI reports that only 8% of woodland ground flora in Scotland is in favourable condition with excessive grazing (mostly by deer) a key driver. Poor ground flora equates to poor levels of nectar which will have knock-on impacts for woodland invertebrates.

Scotland also has several native tree species that have official 'endangered' status according to the International Union for Conservation of Nature. Arran Whitebeam (*Sorbus arranensis*) is one of the rarest and most endangered trees in the world. At last count, there were only 407 trees growing in the wild. Despite its scarcity, this is a key species for biodiversity and plays a crucial role in Arran's ecosystem. Montane woodland has almost disappeared as a habitat in Scotland's uplands, and three of Scotland's upland willows are now classified as vulnerable (*Salix lanata* and *Salix lapponum*) or endangered (*Salix myrsinites*) in the *Red Data Book of UK Vascular Plants*.

Carbon

Woods and trees play a significant role in the carbon cycle and Scotland's climate change mitigation and net zero strategy. Existing woodland cover stores huge amounts of 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.

The total carbon stock of Scotland's forests is about 559 million tonnes, accounting for approximately 51% of the UK's total stock. 70% of that carbon is stored in forest soils.

Analysis by Forest Research modelled that the carbon stock of living trees within ancient and long-established woodland in Great Britain is set to double over the next 100 years, from c. 77 million tonnes to c. 155 million tonnes. Ancient woodland carbon storage is dependent on location, soil type and growing conditions, with higher stocks generally being found in conditions that favour larger trees and greater canopy cover.

Carbon isn't just held in the woody material above ground. It's also held in large quantities in forest soils. It is important to caveat that some of these soils are in woodlands that have been planted on deep peat, and it is estimated that at a UK level, around 76% of this forest cover on peat comes from historic afforestation of organic and peaty soils in Scotland.

New woodland creation has the potential to significantly contribute to atmospheric carbon removals. However, on carbon rich soils in slow growing environments, woodland creation can release soil carbon into the atmosphere in the initial years, particularly where planting involves an element of soil disturbance. In these cases, it can take decades for net carbon sequestration to begin. Despite this, native woodland expansion on carbon-rich soils can still be an appropriate strategy for nature restoration when designed carefully, to maximise biodiversity and other ecosystem services.

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3. Threats to native woodland

Section 1 outlined the poor condition of Scotland's native woodlands. In this section the primary threats to native woodland and drivers of poor condition are described.

Deer

Wild deer are an integral part of Scotland's wildlife. Native red and roe deer belong in the Scottish landscape and are an important part of our native woodland ecosystems. However, population levels of these, and introduced deer species, are higher than at any point in the last 1,000 years due to a lack of natural predators and high populations that are actively maintained by some landowners.

Excessive grazing threatens the long-term future of woodland as old trees mature and die without a new generation of young trees growing up to replace them. The NFI reports that 53% of native woodlands are in unfavourable condition for grazing. The Native Woodland Survey of Scotland found that in 33% of Scotland's native woods, grazing was at such high levels that tree regeneration is unlikely to be successful. This means that without action around a third of the native woods in Scotland will ultimately disappear from the landscape. This has already happened at scale, with the NWSS estimating that around 90% of ancient woodland loss in Scotland over the last 40 years is due to overgrazing by deer.

High deer numbers have other significant negative impacts for native woodlands including:

- Diminished woodland ground flora and understorey – and associated negative biodiversity impacts for insects, birds, mammals and fungi.
- Preferential browsing skews tree species composition in native woods resulting in less diverse tree composition.
- Disruption of natural selection as an important resilience mechanism to allow trees and woods to respond to new pests and diseases and the changing climate.
- High cost (financial and environmental) woodland creation through erection of deer fences and use of plastic and non-plastic high energy tree shelters which treat the symptoms of the issue rather than the cause.

While there are legal protections in place to stop ancient woodlands being destroyed by development, there are no such protections for damage by deer and no sanctions on owners who allow their woodlands to be grazed out of existence.

More positively, there is growing evidence of the ability of native woodland to regenerate and expand when deer numbers are reduced, typically to levels of 1 – 4 per square kilometre for larger species in the uplands. Achieving these population levels requires management at landscape scale and apart from the very largest estates requires collaboration between neighbouring landowners.

Low canopy cover

The NFI excludes woodlands of less than 20% canopy cover, which means that it doesn't include 'ghost woods' where ancient woodlands are already so degraded

that they are on the verge of disappearing. However, recent analysis by Future Woodlands Scotland of canopy cover of ancient woodlands in Scotland has revealed that around 10,000ha have a canopy cover of less than 20%. This indicates that around 20% of Scotland's ancient woodlands are on a trajectory to disappear altogether in the coming decades without urgent action. The primary driver of this loss is excessive grazing by deer.

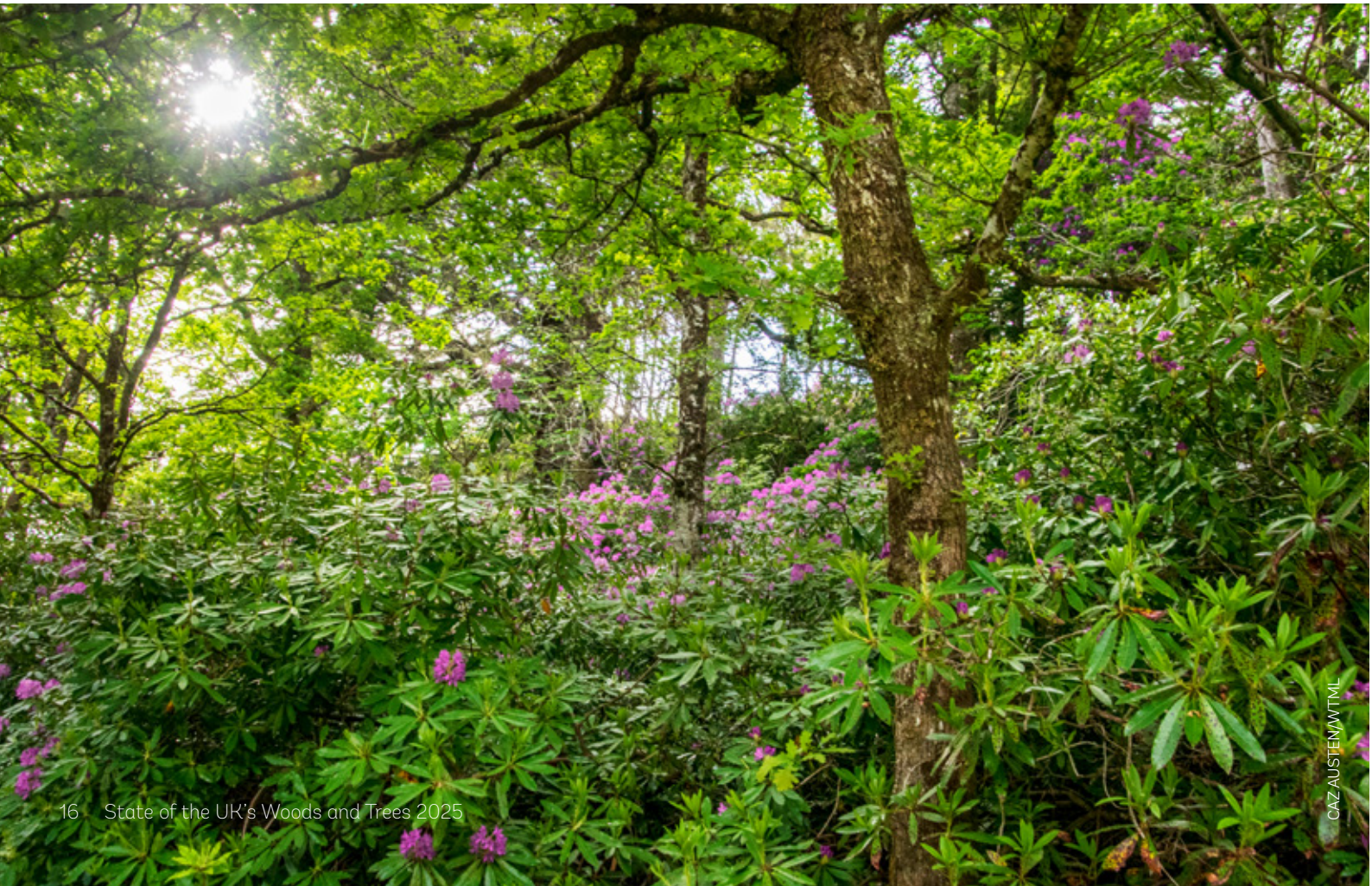
Plantations on ancient woodland sites (PAWS)

39% of Scotland's ancient woodland area (around 59,000ha) was underplanted by non-native timber trees in the last century due to a focus on timber production and lack of appreciation of their value for nature. These fast-growing non-native trees are rapidly shading out the valuable ground flora and, in many cases, threaten the survival of the remaining native trees. Across Scotland, oak and pine trees that have stood in ancient woodlands for hundreds of years are now being shaded out and dying. There is no data available on the levels of PAWS restoration in Scotland over the last five years, but anecdotal evidence suggests that there is not enough action to prevent large areas of precious ancient woodland being lost forever.

50% of PAWS are owned by the public body Forest and Land Scotland, which has a commitment to restore at least 85% of PAWS to native woodland. However, there is no timescale for this work, no dedicated budget, no measurable objectives and no publicly available data on progress.

Invasive non-native species (INNS)

Some of Scotland's native woods are being steadily colonised by species that are not native to Scotland or the UK. As they spread, these plants displace rare



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and important native plants and the valuable species that depend on them. Both the NFI and NWSS found that 7% of Scotland's native woodlands were in an unfavorable condition because of the presence of INNS. While there is a growing range of damaging INNS, two of the most significant are *Rhododendron ponticum*, which occurs in approximately 40% of Scotland's rainforest sites, and Sitka spruce. The latter is one of Scotland's most important commercial conifer species and is increasingly seeding into ancient and native woodlands, presenting a growing threat to future generations of native woods and other important non-woodland habitats.

Pests and diseases

Following the ravaging of our woods by Dutch elm disease over the last 40 years, many of our native woods are now suffering from ash dieback, a fungal disease spread through the air by spores that were probably introduced into the UK by nursery stock imported from Europe.

Recent studies suggest that ash dieback mortality rates may reach 70-85% for some woodlands. Forest Research cites a figure of 95%, with catastrophic implications for the 958 species that are associated with ash trees, 44 of which are only found on ash and cannot survive on any other tree species.

Analysis in *State of the UK's Woods and Trees 2025* has determined that the UK hosts 121 pests of our native tree species which are either introduced or have uncertain origin. This impact is wide reaching, including the potential for every native tree species to play host to one of these pests. It is unknown how many trees the UK loses each year to these pests. Statistics from control of *Phytophthora ramorum* suggest the losses could be high, and management costs are staggering. An estimated £919.9 million is spent each year in the UK on managing only six pests.

This impact of new diseases is well illustrated by the Woodland Trust's Urquhart Bay wood on the shores of Loch Ness. One of the best examples of ancient wet wood in the UK, the wood has lost most of its elm and ash trees, which made up a large percentage of the canopy of this woodland type. A new unwelcome arrival in 2024 is *Phytophthora alni*, which can be fatal for alder, one of the remaining tree species.

As global trade and transport continue to increase, the risk of new pests and diseases arriving in Scotland will continue to grow unless biosecurity measures are strengthened.

Lack of structural diversity

Scotland has significantly expanded the area of native woodland, particularly over the last 30 years. Although this is a conservation success story, it means that most native woods are relatively young and so lack many of the positive characteristics of good condition, such as the presence of ancient trees, deadwood, structural complexity and age class diversity. These characteristics can develop over time, but only with appropriate management.


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Climate change

Compounding all the above is the overarching impact of climate change on Scotland's native woods, with models pointing to the likelihood of warmer, wetter winters and hotter, drier summers and an increase in the intensity of extreme weather events. That means increased likelihood of fires, storms, drought and flooding as well as conditions that are likely to aid the spread of pests and diseases and favour the spread of invasive non-native species.

Changes in growth rates, locations, altitudes, aspects and species composition of native woodlands are expected in response to the changing climate.

Rainforest

Seventy per cent of Scotland's rainforest is not in good condition. Almost all is over-grazed by deer to a degree that will prevent it from re-growing. Invasive rhododendron is found in 40% of rainforest sites where it threatens to choke the woodlands and prevent the distinctive rainforest flora from surviving. Twenty-one per cent of rainforest sites have been planted up with exotic conifer plantations which threaten the survival of rainforest features. Ash dieback, climate change and air pollution are set to decimate the last refuge for the rare plants that make the rainforest so special to Scotland and the rest of the world.

More positively, the profile of Scotland's rainforest has risen significantly in recent years through the collaboration of many partners in the Alliance for Scotland's Rainforest. This profile is turning into action with 10 landscape-scale projects covering over 15% of the rainforest zone having been set up to begin the restoration process.

4. Policy asks

If the nature restoration ambitions set out in the Scottish Government's biodiversity strategy are to be achieved, then native woodlands must be restored to good condition, protected from future threats and expanded in ways that build connectivity and create functional, resilient ecosystems. This section outlines the policies that are required to make this happen.

Enhance and protect

1. Reduce deer populations across Scotland to sustainable levels

NatureScot, Scottish Forestry and the Scottish Government Directorate of Agriculture and Rural Economy should collaborate on the design of a financial support mechanism to incentivise landscape-scale deer reduction to levels that allow natural regeneration of trees across multiple land ownerships.

The Scottish Government should:

- Reintroduce the public interest test to land reform legislation. Deer management in the public interest should be one such consideration for land management plans, reflecting ongoing changes to deer legislation.
- Fund the ongoing work of the Common Ground Forum, to encourage more positive and collaborative conversations and actions between traditional deer estates and the environmental sector.
- Direct Forest Research to work with Scottish Forestry and land managers to develop a programme of research, development and innovation in deer management for forest protection.
- Implement the remaining recommendations of the Scottish Government's Deer Working Group.
- NatureScot should assess the feasibility of reintroducing lynx as a natural predator for roe deer.
- Scottish Forestry should redesign public funding for woodland creation and management to focus on funding the reduction of deer numbers to sustainable levels and reducing reliance on fencing and plastic tubes.

2. Restore plantations on ancient woodland sites (PAWS)

The Scottish Government should fund Forestry and Land Scotland to develop and deliver an action plan with clear targets for the restoration of the 50% of PAWS in its ownership. Progress against these targets should be published every three years. Eighty per cent of its PAWS sites should be in active restoration by 2030.

Scottish Forestry should develop a strategy and action plan to restore 50% of PAWS on private land (approximately 15,000ha) by 2045. This could also count towards the Government commitment to protect and manage 30% of land and sea for nature by 2030.

Scottish Forestry should create a PAWS restoration grant that exceeds the grant levels for creating new native woodland.

3. Deliver on commitment to establish a Rainforest Restoration Fund

The Scottish Government should:

- Deliver on its commitment to create a Rainforest Restoration Fund that would fund the costs of *Rhododendron ponticum* control in the rainforest.

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- Direct Forest Research to develop a programme of research and development focusing on reducing the cost and maximising the impact of invasive non-native plant control, with an initial focus on *Rhododendron ponticum*.
- Pursue a ban on the sale of *Rhododendron ponticum*.

Scottish Forestry and NatureScot should develop a strategy for controlling *Rhododendron ponticum* in Scotland's rainforest and controlling regeneration of shade-casting, non-native trees in ancient woodlands. This should focus on the well-established principles of prioritising areas for treatment, catchment-scale action, removal before it becomes well established and long-term maintenance.

4. Incentivise the restoration and management of ancient woodland

Scottish Forestry should increase the amount of funding available for ancient woodland restoration under the FGS. A minimum of 10% of the annual FGS grant budget should be set aside to support management of existing woods for improved nature and public access outcomes.

The Scottish Government should use land reform legislation to require the development and delivery of ancient woodland restoration plans as part of future land management plans.

Expand and connect

5. Woodland expansion

Woodland expansion should be prioritised in areas where the greatest benefits for nature can be achieved. Scottish Forestry should:

- Develop a mountain woodland creation option under the Forestry Grant Scheme (FGS) that will unlock the creation of mountain woodland at scale and restore a natural tree line to the uplands.
- Develop an effective standalone riparian woodland creation option under the Forestry Grant Scheme that reflects the technical and financial challenges, and the significant environmental benefits of riparian woodland creation.
- Provide higher rates of grant for woodland creation which expands and connects existing fragments of ancient woodland.
- Where achievable, support woodland creation through deer density reduction rather than deer fencing. This must include providing financial support for deer management.

The Scottish Government and its agencies should:

- Recognise that nature restoration in the uplands will lead to the loss of some existing highly modified habitats and their associated species.
- Develop a framework to ensure that conservation designations do not inadvertently prevent wider nature and ecosystem restoration.

The UK Government should uplift ringfenced capital funding for woodland creation in Scotland, given that Scotland creates around three quarters of all new woodland in the UK each year due to its ability to work at scale.

6. Agroforestry

The Scottish Government should develop financial mechanisms that support significant integration of woods and trees into farms and crofts through the lower tiers of the new agricultural support scheme that is currently being developed.

The Woodland Trust and Soil Association Scotland have developed detailed recommendations based on consultation with farmers and crofters.

7. Tree equity

Improve Tree equity by considering whether a standalone urban woodland option could be introduced under the Forestry Grant Scheme, or whether the existing Woods In and Around Towns (WIAT) support can be reviewed and expanded.

The Scottish Government must recognise tree equity as a useful tool for promoting social justice, empowering urban communities to improve their streets, clean up their air quality, increase their resilience to climate change and enjoy the many benefits that urban trees bring.

It should also support local government to deliver tree equity, building it into local plans, working with housebuilders and communities to plant trees where they are most needed.

Improve the evidence

8. A National Register of Ancient Woodland

The Scottish Government should deliver on its long-standing commitment to create a comprehensive National Register of Ancient Woodland for Scotland. This is a vital tool which allows for the appropriate protection and management of ancient woodland and is needed to replace the current Ancient Woodland Inventory which contains significant errors and omissions.

The Scottish Government should also ensure planning authorities are properly funded and trained to ensure the important protections within NPF4 Policy 6 are upheld.

Invest in the future

9. Improve native tree supply

The Scottish nursery sector is not yet producing the breadth of native tree species of suitable genetic origin that is required for large-scale nature recovery. Tree seed supply for some species and many northern, western and island provenance is poor.

Scottish Forestry should work with the nursery sector to address important supply chain issues. This should include the establishment of tree seed stands for a range of pioneer tree species (including mountain willow) that are currently unavailable, and which could quickly produce seed.

Scottish Forestry should invest in supporting Scotland's tree nursery sector, including small and community nurseries, to reduce the risk of importing tree diseases and to support Scottish businesses and jobs.

10. Reduce the risks of pests and diseases

Scottish Forestry should require all grant-aided planting to use trees that are sourced and grown in the UK and Ireland (UKISG17) to avoid importing new pests and diseases into Scotland. It should also develop a breeding resistance programme for Scottish ash, which is not adequately covered by wider UK work. This should begin with identifying potentially resistant ash trees from which a breeding programme could begin.

MATILDA SCHARSACH/WTML

5. What is the Woodland Trust doing?

Ancient woodland restoration

Stretching across more than 1,000ha, Loch Arkaig Pine Forest is an important remnant of ancient Caledonian pinewood located in the heart of Scotland's rainforest. Like many of Scotland's ancient woodlands, it was planted with fast growing non-native conifers in the middle of the last century, which shaded out much of its rare ground flora and killed many of its veteran trees. In 2026, the Woodland Trust will complete the removal of non-native plantation trees with 85,000 tons of timber removed from the forest over five years. Natural processes are starting to flourish once again – processes such as natural regeneration of native trees, which was previously prevented through high deer browsing and dense shading under non-native plantation.

The forest is co-managed with Arkaig Community Forest, with community decision making and community staff central to how the sensitive woodland and habitat mosaics are restored. Community-led volunteering, deerstalking and a community-owned deer larder and tree nursery ensure genuine community decision making and delivery and demonstrate how local people can benefit from managing a forest for environmental objectives.

Two significant neighbouring landowners have recently joined a new collaboration called Beò Airceig – Living Arkaig. Together, we have an ambition to restore and connect the fragmented ancient pinewoods and rainforest in the Glens around Loch Arkaig covering an area bigger than Edinburgh. With the involvement of Achnacarry Estate and Forestry and Land Scotland, the collaborative represents highland land ownership in microcosm – a traditional estate, community group, government agency and nature conservation charity – working to deliver nature restoration at scale.

Case study: Currie Wood

At 21ha, Currie Wood in Mid Lothian is on a different scale to Arkaig. Nevertheless, it is a beautiful ancient woodland, much loved by local people and set in a steep-sided valley, overlooked by Borthwick Castle. Much of the woodland was planted with shade-bearing conifers in the 1960s and the Trust has been gradually restoring it since it acquired the woodland in 1989. The narrow roads to the property and the lack of management access makes removing the conifers very challenging. A very gradual approach has also been taken, including ringbarking some of the conifers and halo-thinning around the older veteran native trees to gradually return it to native woodland.

MATILDA SCHARSACH/WTML

RAREBREEDPRODUCTIONS/WTML

Case study: The Alliance for Scotland's Rainforest

The Alliance for Scotland's Rainforest (ASR) is an alliance of 24 organisations, including environmental NGOs and Scottish Government agencies, who share a common vision. By 2045, we want all of Scotland's rainforest to be restored and its size doubled, so it becomes a better functioning and more resilient ecosystem. The mosaic of woodland and other habitats that make up the rainforest will be bigger and in better condition and thus more resilient to threats, shocks and change and better able to survive and thrive in the long term. To date, around 200,000ha of landownership comprises ASR projects to expand and reconnect rainforests, enable the spread of wildlife and support an even greater abundance of the rare mosses, liverworts and lichens that make the rainforest so special.

Native woodland creation

The Assynt Foundation, Woodland Trust Scotland and insurance company Aviva are collaborating on a 30-year project to revitalise a vast area in the North West Highlands of Scotland. Containing iconic mountains Suilven, Canisp, Cùl Mòr and Cùl Beag set amongst a vast patchwork of rivers and lochans, the Foundation's land covers 44,000 acres (almost 70 square miles) and is around the size of the City of Glasgow.

The South Assynt Project aims to create 2,000-2,500 acres of new woodland in 10 years, amongst a wider mosaic of trees, open moorland and mountains. Open ground habitat, peatlands and riparian areas will be improved through a 30-year rolling work programme. 500-1,000 acres of existing ancient woodlands including remnants of Scotland's rainforest, will be restored and expanded.

The project includes an innovative approach to sharing carbon income with the local community and aims to deliver a landscape that provides benefits for nature and the local community alike.

Case study: Croft Woodlands Project

The Croft Woodlands Project offers free planting and woodland management advice to crofters, common grazings and smallholders in the north and west of Scotland. This includes the Western Isles, Orkney and Shetland where establishment and management of trees offers both unique challenges and benefits.

The project is a significant, decade-long partnership between the Scottish Crofting Federation, Scottish Forestry, Point & Sandwick Trust, Shetland Amenity Trust, the Orkney Woodlands Project, Communities Housing Trust, the Woodland Croft Partnership Trust and the Woodland Trust. It has supported the planting of 1.25m new trees and helped bring approximately 750 hectares of native woodland into sustainable management. Key to its success are five local advisers who offer technical advice and small loans to bridge the gap between purchasing materials and receiving grants in the traditional crofting counties.

Enabling others

A challenge to expanding Scotland's native woodland is the availability of tree seeds for some trees, particularly for montane species and island/north/west provenances. We are addressing this through two innovative projects.

Through a collaboration with Trees for Life, around 100 volunteers and montane woodland experts are collecting seeds from tree species and provenances that are in short supply. This is usually because the trees are in remote and inaccessible locations or because the species are hard to grow e.g. juniper and aspen. Over two years, 341kg of seed has been collected, representing millions of future native trees. The project covers the whole seed journey from collection through processing, donation to tree nurseries, monitoring of growing seedlings and the final supply of trees to woodland creation projects across Scotland.

Case study: Seed stands

Seed stands can simplify seed collection for some species by producing many seeds in an accessible location. For some pioneer species, this can happen within a few years. There are already some native tree seed stands in place but there is an opportunity to scale up this work to rapidly provide seeds for important native species and provenances that are currently hard or impossible to source. The Woodland Trust has carried out a scoping study to assess this opportunity and is now working with partners to expand native tree seed stands across Scotland.

WTML

Training forestry professionals in ancient woodland restoration

A lack of awareness and expertise can lead to poor practice in the management and restoration of ancient woodland. To address this, the Woodland Trust has developed specialist training for commercial forestry companies. This initially focused on their graduate trainee programmes but has since been expanded to include more experienced practitioners. We're also embarking on a training programme for planners from Argyll and Bute Council (which hosts much of Scotland's Rainforest) to equip them to assess and manage development threats to ancient woodland

Innovation

Developments in technology offer the opportunity to improve the effectiveness and reduce the cost of native woodland protection, restoration and creation. We are working with partners to explore innovative approaches and the development of new technologies with a current focus on supporting deer management and rhododendron control.

Research

There is still a lot that is not known about native woodlands. In collaboration with Trees for Life, Borders Forest Trust, Future Woodlands Scotland and Edinburgh University, the Woodland Trust is working with native woodland practitioners across Scotland to identify research topics that will have the biggest impact on the protection, restoration and expansion of native woodlands. This will assist the research community to identify projects that will have the greatest practical benefits for nature conservation.

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