

# Tree planting for climate and nature: making the most of woodland expansion in Scotland

## Introduction

**Climate change is one of the defining issues of our time** and the Scottish Government is putting policies in place to drive down harmful emissions such as those associated with heating our homes or transport. At the same time, there is a drive to sequester, or remove, carbon from the atmosphere by planting more trees. **RSPB Scotland supports this drive for woodland expansion, if approached carefully.** An increase in woodland cover in Scotland could be fantastic for nature. We could see an expansion of native woodlands that could lock up carbon for the long term at the same time as allowing nature to flourish.

Equally, however, **woodland expansion could have its downsides.** A rush to increase planting rates could see plans brought forward that threaten important habitats or carbon rich soils, which could result in an increase in emissions over the short-term. Consequently, the **RSPB is keen to explore how woodland expansion might happen** and how we can seek to maximise the positive outcomes for both climate and nature whilst **avoiding any negatives.**

In order to inform our thinking and contribute to debates about woodland expansion, we have undertaken [some analysis](#)<sup>1</sup> to examine where the opportunities for tree planting occur and what sort of woodlands maximise the delivery of benefits for both climate and nature.

## Where could new woodlands go?

**What did we do?** In seeking to answer the question of where there might be opportunities to plant more trees **we completed a mapping exercise** which started with the land area of Scotland and then removed places where planting is not possible or problematic in order to see what was left and where<sup>2</sup>. To identify these areas, we excluded existing woodland, towns and cities, prime agricultural land, deep peat, designated sites and important open habitats for wildlife. Once these areas are excluded, the land left is where tree planting may be an option.

Additionally, **we looked at soil type to help assess the climate risks of woodland creation.** Woodlands created on carbon-rich soils could be seen as 'higher risk' from a climate perspective. Although new woodlands could be created on these soils, there is a danger that they could lose more carbon from the soil than the new trees would absorb, at least over the short-term. Woodlands planted on mineral soils could be seen as 'lower risk' from a climate perspective because they are less likely to result in high emissions from the soil. The higher-risk soils are shown in red and the lower risk, mineral soils, are shown in blue.

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<sup>1</sup> This work has been published as an online storyboard here: <https://arcg.is/0bXbOv>

<sup>2</sup> Methodology can be found [here](#).

What did we find for the UK?

**At the UK level, we found that there is just enough lower-risk soil to accommodate the most ambitious woodland expansion targets** (from the Climate Change Committee's 6<sup>th</sup> Carbon Budget). This is good news because, in theory, it suggests that proposed tree planting ambitions could be achieved without having to plant on carbon-rich soils and run the risk of increasing emissions over the short-term.

While in theory this is good news, this finding also presents a real challenge because focusing planting on the lower-risk mineral soils suggests that we will need to use more of the slightly better-quality (but not top quality) farmland. This in turn focuses attention on the need for farmers to plant more trees, but also on the potential trade-offs, for example between food production and carbon sequestration, that we might have to think about.

It is also important to note that, in practice, there could be other constraints on actual planting in this 'low risk' area which have not been assessed in this analysis, such as impact on wildlife outside of designated sites. In practice, therefore, it is likely that planting will also have to take place on the higher-risk land.

What did we find for Scotland?

**In Scotland, the picture is different because it appears that there is not enough lower-risk soil to meet Committee on Climate Change recommended planting targets** (see Annex). This means that planting will have to take place on the higher-risk carbon rich soils, which points to the **need for great care on ensuring appropriate siting to minimise carbon emissions and negative consequences for nature.**

Important caveats relating to our mapping work

In undertaking this work we had to make some decisions about what to include and exclude and all of these decisions can be questioned. For example, for the purposes of this analysis we excluded towns and cities. Yet we know that many more trees can and should be planted in urban and peri-urban areas for the many co-benefits they deliver. It is just that for the purposes of this analysis we necessarily had to work at a broad scale and much urban planting is likely to involve small areas with great complexity that could not be captured in this project.

Similarly, we excluded designated sites. We know that there is scope for planting in some designated sites, but we excluded them because of the difficulties associated with including some and excluding others in the analysis. This means that the map implies no scope for planting in some obvious areas, but it is important to remember that this is a broad-brush analysis to inform discussion rather than a precise mapping tool.

It is also important to recognise that our map is indicative rather than prescriptive. It does not indicate exactly where woodlands should be planted; it simply shows where potential exists for woodland expansion after removing inappropriate areas. Surveys will always be required to determine if tree planting is appropriate in specific locations.

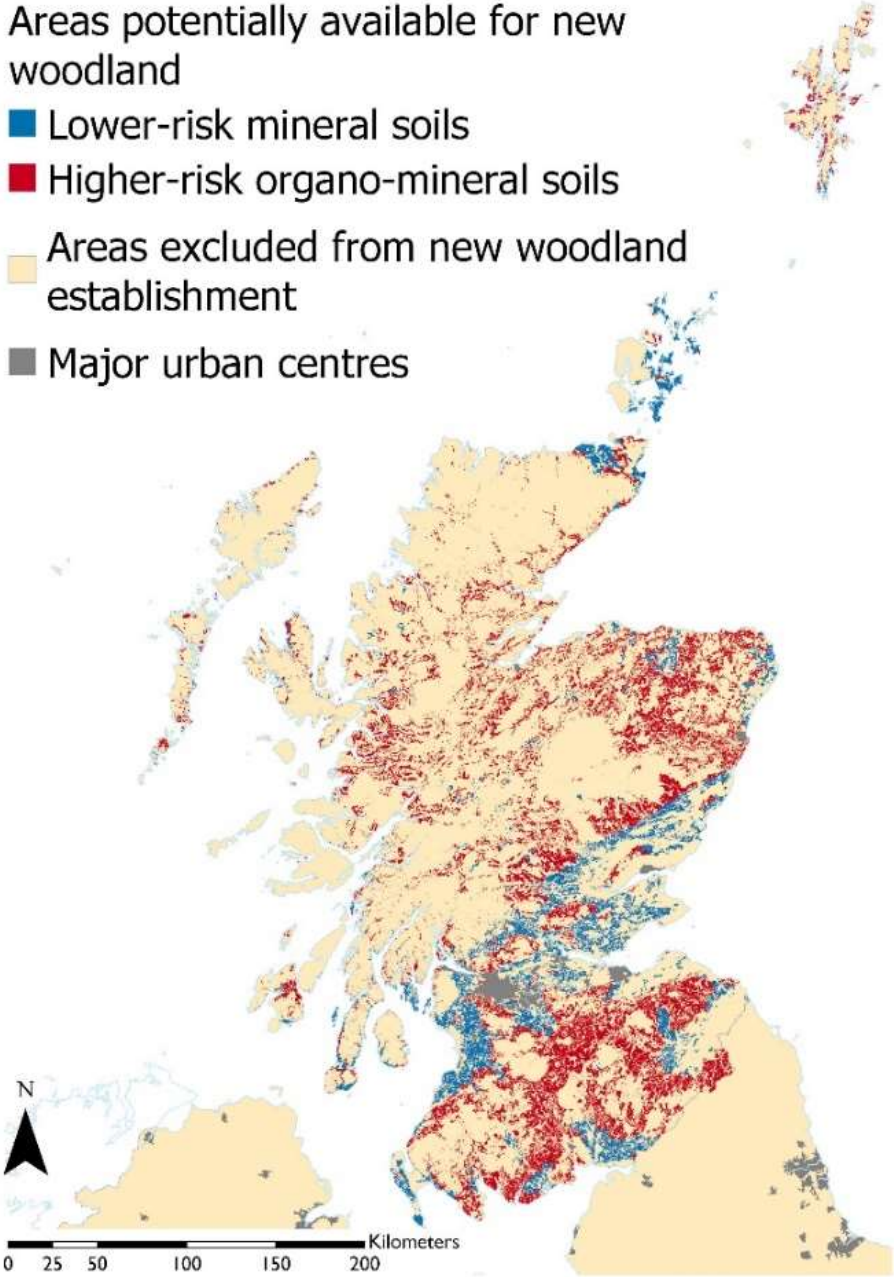
We would specifically want to ensure that any planting did not adversely affect upland breeding birds. Some areas identified on the map as possibilities for planting coincide with this habitat, but although this work may identify an area as potentially available for planting under the terms

of this project, it does not mean that it is actually available on the ground or that the RSPB would support planting in these places. Everything depends on the site in question and the RSPB will seek to defend important upland breeding bird areas from inappropriate planting. The purpose of this work is not to identify areas where the RSPB thinks planting would be acceptable; it is to open up a conversation about how we will meet our planting targets and balance climate and nature interests.

Figure 1:  
Opportunities for  
woodland  
creation in  
Scotland

### Areas potentially available for new woodland

- Lower-risk mineral soils
- Higher-risk organo-mineral soils
- Areas excluded from new woodland establishment
- Major urban centres



## What sort of woodlands would we like to see?

**We want to see more native woodland** because it delivers the best outcomes in terms of both climate and nature. The work we've done suggests that **native broadleaf woodlands are better for locking up carbon over the long-term** than Sitka spruce plantations under standard productive management (see figure 2).

The large drops in sequestration in Sitka spruce plantations are due to carbon released in rotational harvesting. Carbon stored in harvested wood products is included, but these often have short lifespans compared to long-term carbon stores in woodland.

In presenting this information we are not seeking to dismiss today's dominant forms of forest management. We acknowledge that forestry is an important sector in rural areas and that there is a demand for timber and wood products produced domestically and we recognise that much of this is likely to come from production forestry and the growing of conifers. But, given the evidence on carbon flows, we think there is lots of room for increasing the area of native woodlands and that we actually need to do more native woodland planting because of the benefits for climate and nature.

Our concern is that in a rush to plant trees for carbon sequestration, all trees and forms of woodland management are seen as equally good and that, as a result, the focus is on the more commercial species. We simply point out that if we think about the issue in the broader context of the climate and nature emergency, we should be trying to increase the amount of native woodland too.

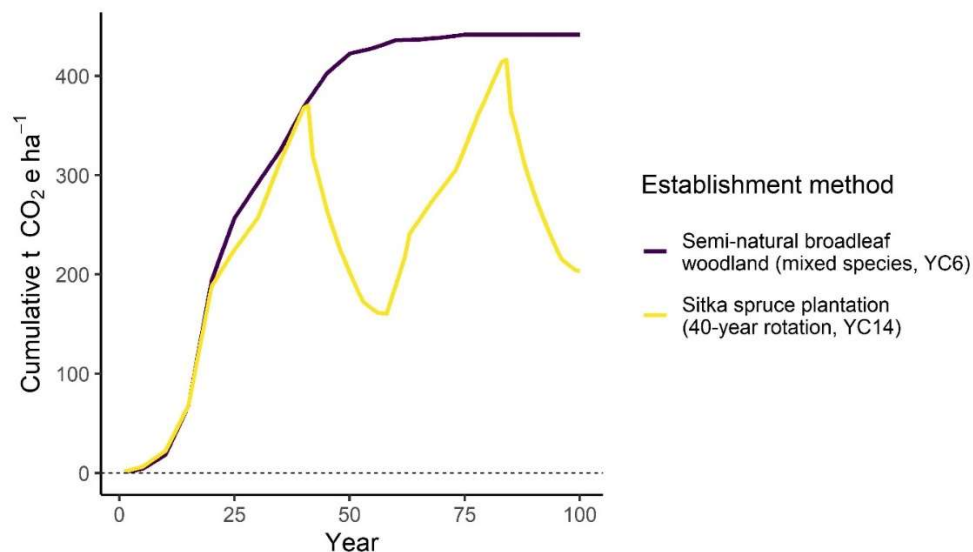


Figure 2: Comparison of mixed broadleaf vs. Sitka spruce, cumulative CO<sub>2</sub>e sequestration per hectare over 100 years

## What does all this mean for our thinking on woodland expansion?

### 1. We think we need a strategic approach to woodland expansion

- Given the likelihood that much tree planting in Scotland will take place on high risk land, it will be vital that robust environmental assessments are undertaken to protect species, habitats and soil carbon and maximise the benefits of new woodlands.
- On a broader scale the implications of large-scale land use change need to be considered in an integrated, strategic way. The proposed Regional Land Use

Partnerships should provide a forum for this sort of integrated analysis and discussion.

- Woodland expansion plans should be embedded in overall objectives for nature. There is a real opportunity here to develop a Scottish Nature Network establishing a network of diverse and connected habitats.

## **2. We should prioritise native woodland**

- While recognising the importance of the current forest industry, we think that public money should be focused on expanding native woodland habitats to secure multiple benefits for nature, climate and people. This aligns with the first transformative action in our Nature Recovery Plan<sup>3</sup>, which seeks a significant expansion in Scotland's native woodlands annually from 2020.
- Long-term funding for restoration and enhancement of existing habitats should be provided, including Ancient and Semi-Natural Woodlands, woodland protected sites, and open habitats.

## **3. We should protect our peat**

- This means continuing to prevent planting on deep peat and restoring afforested peatlands, but also adopting a much more precautionary approach to planting on organo-mineral soils, such as shallow peat. This planting should only take place if nature and carbon benefits can be demonstrated.

## **4. We need high standards for all woodlands**

- This means enhancing the UK Forestry Standard through the forthcoming review to maximise biodiversity benefits in commercial forestry for timber, nature and climate outcomes and get more woodlands into the UK Woodland Assurance Standard.
- It also means taking a robust approach to implementing environmental regulations and consultation to ensure woodland expansion delivers genuine benefits for climate and nature.

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<sup>3</sup> See: <https://www.rspb.org.uk/globalassets/downloads/nature-recovery-plan---scotland/nature-recovery-plan.pdf>



## Annex – Analysis of Climate Change Committee woodland creation scenarios

The Climate Change Committee recently published its 6<sup>th</sup> Carbon Budget, including updated woodland creation scenarios. A welcome development was a greater emphasis in some of these scenarios on the role that woodland can play to recover nature, as well as mitigate climate change. These scenarios are summarised in Table 1 below.

Table 1 – CCC woodland creation scenarios<sup>4</sup>

Scenario	Broadleaves : Conifer ratio	% open ground	Total area required (ha)
Headwinds	~50:50	15%	897,000
Balanced Net Zero	67:33 W & NI 80:20 England	15%	1,431,750
Widespread Engagement	50:50 Scotland	20%	1,992,042
Widespread Innovation	33:67 E, W & NI 25:75 Scotland	10%	1,438,250
Tailwinds	~50:50	10%	1,909,040

The Balanced Net Zero pathway is the CCC's central scenario. Of these, the RSPB supports the Widespread Engagement scenario given its greater focus on biodiversity alongside climate change mitigation.

Table 2 below sets the land identified in the RSPB analysis as potentially available for woodland creation against the highest total land required by the these CCC scenarios ("Widespread Engagement").

Country	Highest CCC ambition	Potential area, lower climate risk (ha)	Potential area, higher climate risk (ha)
UK	1,992,042	2,059,105	2,588,716
Scotland		549,595	1,358,122
Wales		161,075	606,243
England		1,029,076	553,248
Northern Ireland		319,359	71,103

The CCC do not provide UK country breakdowns for their woodland creation scenarios. However, looking at the balance of lower and higher risk areas based on our analysis, it is clear that a higher proportion of the total in Scotland and Wales is weighted toward higher climate risk, organo-mineral soils. This has significant implications for woodland creation plans, reinforcing the need to take a strategic approach to new woodland creation. It is undoubtedly the case that the economics of land values (often lower in areas dominated by these higher-risk soils) and existing forestry infrastructure is already driving new planting into these higher risk areas in southern Scotland, northern England and parts of Wales.

<sup>4</sup> These have been taken from the 6<sup>th</sup> Carbon Budget [methodology report](#)