

# Nature has enormous potential to fight climate change and biodiversity loss in the UK

May 12 2021

---



Credit: CC0 Public Domain

The report offers, for the first time, a complete assessment of the potential of nature-based solutions (NbS) to mitigate climate change and

benefit biodiversity in the UK. Incorporating contributions from over 100 experts, the comprehensive evaluation of the available evidence details the strengths, limitations and trade-offs of NbS in different habitats across the UK.

Professor Jane Memmott, President of the British Ecological Society, said: "The Nature-based Solutions report offers a real basis for setting effective policies and incentives that will maximise the benefits of nature-based solutions in the UK for the climate and biodiversity."

The report finds that NbS can provide a valuable contribution to climate change mitigation and can simultaneously protect and enhance biodiversity, improve human wellbeing, bring economic benefit, and provide a wide range of ecosystem services.

Despite the huge range of benefits NbS have, the report makes clear that they should be seen as complementary to other climate and conservation actions, not as a replacement to them.

A priority NbS identified in the report is the restoration of the UK's peatlands. The UK's 2.6 million hectares of peatland contain around 3 billion tonnes of [carbon](#), but most are in a degraded state and are no longer actively sequestering carbon. Estimates suggest that they could be emitting 23 million tonnes of CO<sub>2</sub>e annually, equivalent to approximately half the amount released through the nation's [agricultural sector](#).

Restoring degraded peatlands through rewetting and revegetation can reduce and eventually halt these emissions as well as bring benefits in terms of biodiversity conservation and [flood protection](#).

"Peatlands are nature's superstars." said Dr. Christian Dunn of Bangor University and lead author of the Peatlands chapter. "If we're serious

about carbon in UK we have to look after our peatlands first. We have to stop draining them immediately, and then begin restoring and managing them effectively."

Restoring UK woodlands can also make a significant impact as an NbS. Forests cover 13% of the UK and the report finds there is scope to expand this significantly to sequester more carbon, although the full benefits will not be felt before 2050. Reducing flood risk, providing shade and cooling, and biodiversity benefits from native woodland expansion are also highlighted as positive outcomes from woodlands as an NbS.

Professor David Coomes of University of Cambridge and lead author of the Woodlands chapter said: "For large-scale tree planting to be effective in capturing carbon, we will need to avoid species-rich grasslands, peat and other organic soils. Our focus should instead be on areas of low-quality grassland. However, this will reduce the UK's capacity to produce meat and dairy, meaning a shift in our diets would be needed to avoid importing more of these products and offshoring our carbon footprint elsewhere."

Grasslands are the most extensive habitat type in the UK, covering 40% of the land. However, only 2% of this is semi-natural grassland that is both biodiverse and carbon-rich. "Over the last 70 years grasslands have suffered a great loss of biodiversity through agricultural intensification." said Dr. Lisa Norton of the UK Centre for Ecology & Hydrology and lead author of the Grasslands chapter. "But this loss gives us great potential. Protecting our semi-natural grasslands and restoring lower quality grasslands will benefit biodiversity, reduce emissions through ploughing and make livestock farming more sustainable."

Marine environments that surround the UK can also offer significant NbS thanks to the large size of habitats. Saltmarshes and seagrasses are

important carbon sinks, and their restoration can contribute to climate mitigation. Saltmarshes also provide [coastal protection](#) from sea-level rise and storms and provide high-biodiversity coastal habitats, especially for bird species.

Professor Rick Stafford of Bournemouth University and lead author of the Marine chapter said: "In marine environments nature-based solutions changes are nearly always win-win. Investment in nature-based solutions that restore or protect coastal environments is an effective mechanism of achieving greater biodiversity, protection from storms and carbon capture with few trade-offs."

The implementation of NbS to help achieve net-zero commitments and tackle biodiversity loss will require shared knowledge resources and effective partnerships across different policy areas. Long-term policies, goals and government commitments will be necessary to support long-term investment, research and monitoring of NbS.

Although some habitats are highlighted as priorities, the report emphasises that all habitats covered can deliver NbS and play a role in addressing the climate and biodiversity crises.

## **Freshwater**

Freshwater ecosystems such as rivers and ponds hold high biodiversity, but this is threatened by [climate change](#), with changing rainfall patterns increasing the risk of flooding and drought.

Professor Chris Spray of the University of Dundee and lead author of the Freshwater chapter said: "Protecting these vulnerable ecosystems will require a 'wholescape' catchment approach that links natural environmental and socio-economic systems. Nature-based solutions can have multiple benefits, for instance, planting trees along riverbanks can

protect biodiversity by providing shade and creating thermal refuges as well as slowing the flow of water to help reduce flood risk."

## **Heathlands**

Heathlands store high levels of carbon, mainly in the soil, so avoiding soil disturbance will help prevent carbon emissions from this ecosystem. This disturbance could come from tree and shrub encroachment which would not offset the lost carbon for decades. Creating heathland from ex-arable land can also result in increased carbon sequestration in soils and vegetation.

## **Arable**

Agroforestry, where trees and shrubs are integrated into agricultural systems, is an NbS that provides carbon sequestration and storage with average storage estimated to be up to 63 tonnes of carbon per hectare due to the increased presence of trees. Agroforestry also reduces flood risk and soil erosion and increases biodiversity due to the [tree cover](#) and habitat provision for insects and birds.

## **Built Environment**

Urban trees mean that cities have substantial potential for carbon capture. One case study featured in the report found that despite the city of Leicester covering 0.03% of Britain's land area, it accounts for approximately 0.2% of Britain's aboveground carbon store, with over 97% of this is attributable to trees.

Urban trees also provide a localised cooling effect, estimated to save £22 million in annual energy consumption across inner London, for example. On top of this, trees enhance recreation and people's connection to

nature and benefit biodiversity through habitat creation and enhanced connectivity.

## **Woodlands**

Natural establishment of native woodlands should be encouraged where appropriate. Establishing native woodlands in agricultural landscapes, even on a small scale, could help reconnect fragments of ancient woodland and protect wildlife.

## **Marine**

Investment in NbS that restore or protect coastal environments delivers a range of benefits with few trade-offs. As well as protection from storm waves, alleviating coastal flooding and human wellbeing benefits, healthy coastal ecosystems have high [biodiversity](#), serving important ecosystem roles like nursery grounds for fish.

## **Peatlands**

Rewetting and revegetating peatlands can slow the flow of water during some storm events and regulate catchment water flows during dry periods. Peatlands can also act as an NbS for improved drinking water quality.

## **Grasslands**

Grazing grasslands by a diverse range of animals such as sheep, cattle, horse, goats and alpacas on the same area can have a positive effect on grassland sward diversity and resultant greenhouse gas emissions. Shifts away from continuous grazing towards rotational or mixed grazing can also reduce emissions.

Provided by British Ecological Society

Citation: Nature has enormous potential to fight climate change and biodiversity loss in the UK (2021, May 12) retrieved 26 June 2024 from <https://phys.org/news/2021-05-nature-enormous-potential-climate-biodiversity.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.