

New major study shows importance of nature in hitting net zero

Researchers from Natural England have developed a picture of the impact that different UK habitats can have in taking carbon out of the atmosphere and helping us hit net zero by 2050, whilst delivering for both biodiversity and conservation.

In the most comprehensive [report](#) to date on the impact of the nation's landscape on carbon storage and sequestration, researchers found that peatlands and native woodlands are habitats which have the greatest capacity to store carbon, but that many others, including coastal and marine habitats such as saltmarsh and sea grass meadows have a significant role to play a role in helping the UK hit net zero by 2050.

The report also highlights the importance of protecting traditionally managed habitats such as hedgerows, hay meadows, heathlands and old orchards as a way of preserving carbon stocks and wildlife that may have taken centuries to develop. There are also good opportunities to create new patches of habitat and hedgerows within farmed landscapes for biodiversity and carbon storage.

Future environmental land management schemes for farmers and land managers will reward farmers for the creation and maintenance of habitats, such as native woodlands and peatlands, with the Landscape Recovery scheme being designed to incentivise major land management changes and habitat restoration within our wooded and peatland areas across England.

The study looked at a wide range of the UK's natural habitats, finding that:

- Woodlands have high rates of carbon sequestration – depending on the species, age and location. New native woodlands can support biodiversity at the same time as taking up carbon. Old woodlands can become substantial carbon stores, with a hectare of native woodland sequestering the equivalent CO₂ each year as flying London to Rome 13 times.
- Saltmarshes can be highly effective carbon stores, as well as helping coasts adapt to future climate change. Restoration of sea grass meadows also has potential to capture carbon from the atmosphere in its vegetation, and also trap carbon from elsewhere in sediments. One hectare of saltmarsh each year buries the carbon equivalent of an average car's annual carbon emissions.
- Orchards and hedgerows are effective at storing significant amounts of carbon but generally cover a smaller area than other habitats and are cut regularly, limiting the amount of carbon gain. Their sensitive management, however, can increase carbon storage whilst providing benefits for wildlife and the cultural heritage in farmed landscapes.
- Peatlands are the largest carbon stores. When in a healthy condition they soak up carbon slowly but can go on doing so indefinitely. Peatland soils can be over 10 metres deep, holding huge carbon stocks that have

developed over many millennia. Carbon held in the deep peat soils of fens and raised bogs hold eight times as much carbon as the equivalent area of tropical rainforest.

- Heathlands and grasslands store more carbon than modern agricultural landscapes but less than peatlands, saltmarsh and old woodlands. Protecting these old, established habitats is important for biodiversity, as well the carbon stocks they hold, as both may have taken centuries to accumulate.

Tony Juniper, Chair of Natural England, said:

This research reveals the fundamental importance of conserving and enhancing our natural environment in meeting the climate change challenge. Taking carbon out of the atmosphere to be stored in ecosystems, including woods, peatlands and salt marshes, is a vital part of our journey to net zero, and if done in an integrated manner will help meet our ambitions for nature recovery and also climate change adaptation, such as reducing the risk of flooding.

By combining different policies and strategies on land and at sea, then major climate related benefits can be achieved. Woodland creation incentives, peatland recovery, action on farms, renaturalisation of the coast and landscape-scale nature recovery projects can all contribute. The climate change and nature emergencies are two sides of the same coin and with this kind of information the UK can lead in showing how we can go low carbon and high nature at the same time.

Dr Ruth Gregg, Senior Specialist for Climate Change at Natural England, and lead author of the report, said:

Our natural and wild places will play a crucial role in tackling the climate crisis. This study gives the most complete picture of the impact of habitats around us in delivering carbon storage and sequestration. As well as highlighting the well-known importance of carbon stores such as peatland and woodland, we now have a much better understanding of the full impact of other habitats such as hedgerows and saltmarshes, and how we should manage these going forward.

Not only do our habitats capture carbon, but they provide many other benefits for biodiversity and the wellbeing of society. For habitat creation and restoration to achieve its full potential in helping the UK achieve net zero by 2050 we need to act now, basing decisions on robust science and taking a strategic approach. This report will support Natural England, the government, and environmental organisations across the country to do just that.

Darren Moorcroft, CEO, Woodland Trust said:

The Woodland Trust's State of Woods and Trees 2021 report provided new evidence for the substantial levels of carbon held in ancient woods, storing 36% of total UK woodland carbon, despite comprising only 25% of all woodland.

These carbon stores are expected to double over the next 100 years, demonstrating the importance of protecting and restoring these irreplaceable habitats. Acknowledging the significance of native woodlands and other valuable habitats as natural solutions to climate change and nature recovery is vital for tackling the climate crisis and we welcome this contribution from Natural England to the growing evidence base.

The research will provide an invaluable resource for government as part of its upcoming action plan for trees and woodlands, alongside a package of measures to promote the restoration of peatlands. It will also help environmental groups, local authorities and land managers as they work together to deliver biodiversity benefits and help the UK achieve net zero greenhouse gas emissions by 2050, while increasing the economic benefits for society through nature, as recently set out in the Dasgupta Review.