Position Statement on

Habitat Creation and Restoration for Tackling the Climate Emergency

July 2021

In recent years, there has been an increased recognition of the important role habitats and wider ecosystems play in addressing the climate emergency, with the term Nature-based Solutions (NbS), referring to "*actions to protect, sustainably manage and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, while simultaneously providing human well-being and biodiversity benefits"* (World Conservation Congress 2016), becoming increasingly integrated into climate discussions and leading as one of the major themes of UN Climate Change Conference COP26.

There is currently a strong national emphasis on tree planting and peatland restoration as NbS to capture carbon and help mitigate against climate change, along with major reductions in greenhouse gas emissions. We agree that peatland restoration is a critical aspect of climate mitigation plans. Tree planting, however, is not a panacea for carbon capture as the carbon lost on establishment can outweigh that being stored for many decades while the trees mature. Urgent removal of atmospheric carbon dioxide is needed if we are to keep warming below 1.5 degrees Celsius. This position statement sets out our arguments for a wider portfolio of NbS to capture carbon from the atmosphere on a more immediate time-scale.

Recent reviews by Anderson (2021), the British Ecological Society (Stafford *et al.* 2021), and the Natural England report by Gregg *et al.* (2021) all come to similar conclusions: that there is a wide range of habitats that provide opportunities for substantial greenhouse gas absorption and storage. These habitats include marine and coastal ecosystems such as seagrasses, salt marshes and mudflats; rivers and wetlands such as floodplains, ponds and lakes; and open habitats including heathland, species-rich grasslands, blanket bogs, raised bogs and fens.

To date, action to increase the creation of habitats to address the climate emergency has largely focused on tree-planting schemes, with the UK Government pledging to treble the tree planting rate in England and Scotland's targets rising from 12,000 to 18,000 hectares in 2024/25. The UK Government's independent advisors, the Climate Change Committee (CCC), have also, in their reports, focused on the need for new planting (with a recommendation of 30,000ha per year until 2050), peatland restoration (recommending restoration of 50% of upland peat and 25% of lowland peat by 2050), enhanced urban greening and low-carbon agricultural practices.

While we agree that bold action in these areas is necessary to reduce carbon and in many cases support biodiversity, this advice must be expanded to recognize the latest research that promotes utilising the full suite of high-carbon habitats outlined above, in areas that are suited to their edaphic and climatic requirements. This does not always mean taking land out of production, as many of these habitats can occur alongside regenerative farming techniques.

Recommendations for Utilising Habitats and Soils to Address the Climate Emergency

1. **A wide range of habitat restoration and creation projects, supporting both short-term and long-term carbon sinks, are needed to address the climate and biodiversity crises.**
2. **The long-term protection and enhancement of soils is essential to maintain carbon storage.**

   Soils globally hold 3-5 times more carbon than vegetation. Long-term protection of this store can be achieved through habitat protection, but also alongside other land uses, including paludiculture on agricultural peatlands, agroforestry and low carbon agriculture methods supported by the CCC. A site-specific understanding of soil type is critical in determining the best habitat for creation schemes, however, the carbon content of soils is rarely measured.

3. **Protecting and improving the ecological condition of existing habitats important in carbon storage must be a priority.**

   As the review by Anderson (2021) notes, "*Field et al. (2020) estimate a near doubling of the potential carbon sequestration just in peatlands and heathlands if they were in good condition, equivalent to nearly 32% of the annual emissions from agriculture*" (p.12).

4. **The halting of damage to, and supporting restoration of peatlands is essential to halt the release of carbon from damaged, drained soils.**

   Damage to peatlands, including peat extraction and drainage, results in a net increase of carbon from the soils. Full restoration may take decades, so long-term, well-resourced projects are vital to restore peatlands and their hydrology to safeguard our peatlands and provide for new carbon sequestration and storage. Restored peatland can prevent the loss of and capture up to 21.3t.CO_2/ha/yr: the highest measurement achieved of any habitat.

5. **When planting woodland, a full assessment of the carbon losses and gains over time must be made, alongside assessments of ecological impacts.**

   New woodlands may take 30 years or more to become a significant carbon sink, depending on the soil type and level of disturbance during establishment, what habitat they are replacing and the tree species used. We recommend semi-natural type broadleaf woodlands on mineral soils.

   Assessments of losses and gains will determine whether woodlands are the best option and whether they should be planted or could be generated through natural colonization, which can deliver a more immediate carbon sink. Woodland sequestration rates are very variable depending on age, density and timber use and change with time, but models suggest a range of 2 to 13t.CO_2/ha/yr and 11-22t.CO_2/ha/yr for mixed broadleaved woodland (Gregg et al, 2021) and conifer plantations (Anderson, 2021)

over their life cycles respectively. The latter does not take into consideration the losses on establishment. Meanwhile, a semi-natural old, unmanaged woodland can sequester between 4.77 and 17.97t.CO_2/ha/yr.

6. **The scale and carbon sequestration potential of marine habitats mean that they should be an essential part of the UK's climate mitigation strategy.**

   In the UK, marine habitats have the greatest potential for carbon sequestration through large scale sediment-trapping over centuries (Stafford *et al.,* 2021). Salt marshes typically sequester 4.40–5.50 tonnes of carbon per hectare per year (t.CO_2/ha/yr)), seagrass beds (5.06 t.CO_2/ha/year on average) and estuarine muds (0.31-0.54tC/ha/yr) which is significantly more than most terrestrial habitats.

7. **High diversity open habitats must also form part of the UK climate mitigation strategy in order to provide rapid carbon sequestration on a large scale**

   High diversity grasslands, acidic, neutral and wet in particular, supporting good cover of deep rooting legumes (like red clover on neutral soils) are high value habitats that can also capture significant amounts of carbon (11.62t.CO_2/ha/yr, Anderson, 2021). These could be restored on a larger scale than woodland creation while retaining low input agricultural use, compared with new woodland that excludes this. Options for wood pasture, more better hedges, shrub patches and new trees would all add to the wider environmental and nature conservation benefits.

   Good condition heathlands are also good carbon sinks (up to 12.65t.CO_2/ha/yr). Such habitats provide many other public goods.

8. **Habitat creation and restoration must be planned and implemented by biodiversity professionals that hold the expertise and understanding of the relevant species, habitats and ecosystems.**

   It must also be planned in consultation with local communities and stakeholders, and consideration given to its place in the wider landscape.

9. **The Climate Change Committee must utilise their leadership role in addressing the climate emergency to encourage the promotion of employing the full suite of high-carbon habitats** on the right soils and in the right locations to support biodiversity and other environmental benefits, through their advice to government on Nature-based Solutions. We would also ask the Committee to consider the key issue of timeliness in relation to removing CO_2 from the atmosphere through offsetting schemes, particularly those that involve Nature-based-solutions.

References

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