THE CARBON FOOTPRINT OF PEATLAND RESTORATION

Image Credit: Barker & Bland Ltd.

Peatlands cover ~9.5% of UK land area, holding ~15% of the total UK terrestrial carbon store. Most of these peatlands are degraded, acting as carbon sources to the atmosphere, contributing an estimated 3.5% of total UK annual GHG emissions[1].

Peatland restoration is a key mechanism to cap and sequester atmospheric greenhouse gases, imperative in meeting the UK's ambitious climate change targets. Recognising public funding alone cannot meet these targets, blended finance models leverage private finance against claimed carbon credits/offsets traded in voluntary carbon markets. The UK impact investing market, including social and environmental impact (incorporating carbon markets) is currently estimated as worth £150 billion[2].

The IUCN UK Peatland Code[3] is the most widely adopted toolkit to estimate and verify GHG emission reductions from peatland restoration and convert these to saleable carbon credits. However, there has been little consideration of the carbon costs associated with the different interventions used to restore peatlands, and the impact this might have on claimed carbon credits through schemes like the IUCN UK Peatland Code.

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Overview

1. The IUCN UK Peatland Code and similar schemes are used to leverage private finance through carbon credit/offset markets from peatland restoration
2. The carbon cost of implementing different peatland restoration interventions are not presently factored into these schemes
3. We show that choices made in peatland restoration method have a considerable impact on carbon footprints and resulting carbon credit claims

This note is based on a research project within the Institute of Science & Environment, undertaken in partnership with Barker & Bland Ltd. and funded by the ERDF Eco-I NW programme.

The carbon calculator for peatland restoration has been developed within a UKRI-funded Accelerated Knowledge Transfer partnership (AKT-1382)

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The University of Cumbria in collaboration with Barker & Bland Ltd have developed a detailed carbon accounting tool estimating the carbon costs associated with the raw materials, transport and installation of different peatland restoration interventions. This is based on a one-way life-cycle assessment approach commonly used in environmental impact analysis.

Key Findings

- We have for the first time quantified the carbon costs of individual rewetting and per hectare revegetation interventions;
- There are considerable differences in carbon costs between different rewetting and revegetation interventions (Figures 1 & 2);
- Commonly used interventions such as stone dams or geotextiles have an estimated carbon cost >400 times greater than alternative approaches like peat bunds.

For a very small (~35 ha^{-1}) example peatland restoration scheme, the difference in interventions results in a range of carbon costs sufficient to cancel out between 1-8 years of initial carbon credits claimed as PIUs through the IUCN UK Peatland Code.

As private financing requires more robust monitoring and verification of claimed carbon credits for returns on investment, the carbon costs of landscape restoration illustrated here has a significant impact upon the early-scheme claims (first 5 years) for carbon credits.

[1]Artz, R., *et al.* (2019) The State of UK Peatlands: an update. IUCN report: https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2019-11/COI State_of_UK_Peatlands.pdf

[2]EFTEC (2018) Natural Capital Financing for Peatland. IUCN report: https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2019-07/Natural capital financing for peatland_eftec_final_311018.pdf

[3]IUCN UK Peatland Code: https://www.iucn-uk-peatlandprogramme.org/peatland-code-0/ww.iucn-uk-peatlandprogramme.org/peatland-code-0

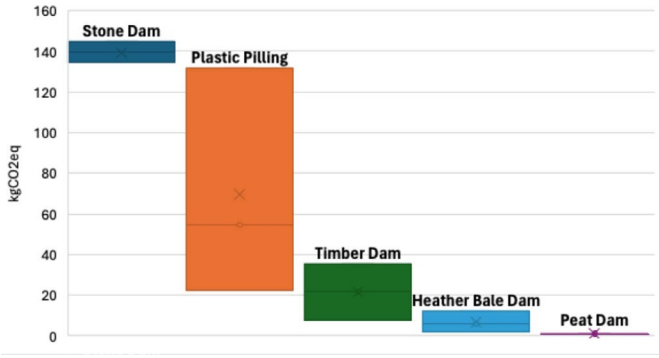

Figure 1: Predicted carbon footprint (kg CO_2 equivalent) of selected peatland rewetting interventions (calculated per dam)

"The choice of restoration intervention is often dictated by site-specific needs, but consideration of carbon costs can now be quantified and incorporated into restoration design."

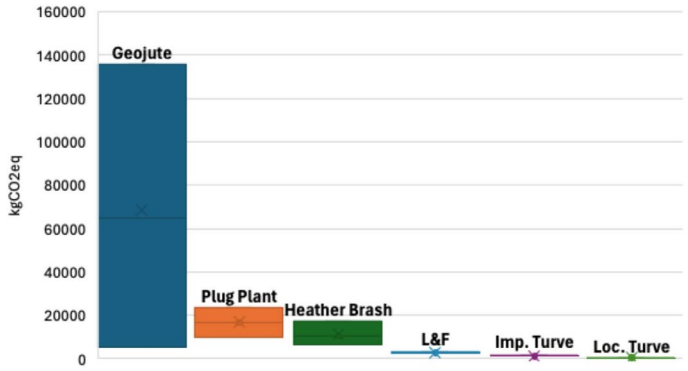

Figure 2: Predicted carbon footprint (kg CO_2 equivalent) of selected peatland revegetation interventions (calculated per hectare). L&F = lime and fertiliser, Imp. = imported, Loc. = local.

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