

Carbon finance: does it streamline Scottish woodland creation?

Measurability makes plantation forestry the most valuable form of woodland creation in the carbon economy, as Theo Stanley explains.



Woodland fragment in a ravine, Western Highlands. Photo: Theo Stanley.

“Carbon finance is the pot of treasure at the end of the rainbow we have been dreaming of,” smiled the landowner, as she showed me round her famous estate in the Eastern Highlands. She explained that her whole life, despite her passion for ecosystem restoration, she had been forced to maintain traditional economic pursuits on her land. There had been no other financial option. Now, beaming with relief and excitement, she had an income stream for restoring nature: creating native woodlands and selling the carbon units.

Conversations like this were common across the interviews I have conducted as part of my PhD research. The price of carbon credits is growing rapidly, especially from native woodland projects. These projects can sell ‘charismatic carbon’, charging higher prices for the carbon grown in ostensibly ecologically minded ways. With carbon finance, nature restoration has never been such a viable business option. But as environmental social scientists have highlighted, there are many common problems that emerge when carbon finance funds woodland creation [1]. Forest creation projects financed by carbon credits have often been streamlined to maximise the amount of carbon credits that can be produced [2]. Maximising carbon provides the best returns for landowners or investors. And when one element of an ecosystem is measurable and valuable, such as carbon, other ecological considerations are often sidelined [3]. This can lead to ecological simplification. Furthermore, it is not carbon sequestration itself that is maximised. Instead, it is the carbon sequestration that is measurable [4]. Forests are therefore often grown in standardised, uniform systems that are easily measurable to maximise the amount of carbon that can be known.

Herein lies the tension. Carbon finance brings a potentially unprecedented income stream to nature restoration. But it also shifts how nature restoration takes place. Drawing on this insight, and developed from interviews with 60 members of the nature restoration movement in Scotland, this article asks: what effect is carbon finance having on woodland creation in Scotland?

Accreditation

First, it is important to understand how carbon finance for woodland creation operates in the UK. To generate and sell carbon credits, a new forestry project must be validated by the Woodland Carbon Code (WCC). The WCC sets criteria that a woodland creation scheme must pass, effectively determining which forests can sell carbon units. Woodland creation projects must follow the UK Forestry Standard (UKFS), a set of rules which all new woodlands must adhere to. And the project must demonstrate additionality—that the new woodland captures carbon over and above that which would have happened anyway. This involves proving that the project would not have gone ahead without carbon finance.

It is not the carbon stored that is translated into carbon credits, but the *additional* carbon sequestered in a new forestry project. In the UK, the carbon stored in existing trees or forests that must be legally restocked are not additional and therefore are not legible for carbon finance. The WCC independently estimates the amount of carbon that a woodland is expected to capture and generates Pending Issuance Units (PIUs), which are effectively a promise of future carbon sequestration. PIUs can be sold to generate revenue for a woodland creation scheme. The WCC then verifies a project five years after its establishment. This involves checking

GREEN LAIRDS?

that the trees promised have actually grown, which determines the number of Woodland Carbon Units (WCUs) that are generated. WCUs are sold as genuine offsets that companies can use in their carbon accountancy.

With this income stream, forests that previously had an economic barrier to being planted now have a chance of being economically viable. For example, a representative of the WCC explained how “big-scale mixed broadleaf planting, which is definitely something we want to see more of, just doesn’t happen as much naturally.” But now, mixed broadleaf planting has become more economically lucrative. Many carbon brokers speculated that mixed native broadleaf plantations would become one of the most valuable types of forest in the carbon economy.

Standardisation

Forests must be measured in a standardised way, so that projects can be validated and verified equally, efficiently and fairly. Standardised measurement allows the WCC to maintain its political neutrality and avoid the accusations of cronyism or data-fudging that have haunted other forest carbon projects, especially in Reducing Emissions from Deforestation and forest Degradation (REDD+) schemes in the Global South. To minimise uncertainty relating to tree growth and carbon sequestration, the WCC bases its calculations of carbon sequestration on well-established datasets about tree growth.

Conservative measurement and minimising uncertainty are crucial for maintaining the integrity of the WCC—and the entire woodland carbon market. If a project is validated and PIUs are sold, but the trees do not grow as planned, or at all, the companies who have bought and sold the promised carbon sequestration are left in an awkward economic position. The sellers might need to return money because the trees did not grow, and the buyers might need to change their forecasted pathways towards net zero. Moreover, although standardised measurement and minimising uncertainties might sound like arcane technical specifications,

they have strong consequences for which forms of forest creation become economically valuable.

Natural regeneration

For many woodland ecologists I interviewed, natural regeneration is the pinnacle of ecosystem restoration. For example, a senior executive of a rewilding charity referred to natural regeneration as the “holy grail” for achieving ecological outcomes in forest restoration, whilst the CEO of another rewilding organisation described it as “ecologically speaking, the most productive way of going about producing native woodland”. The landscape is left untouched by heavy machinery, leading to less ecosystem impact as forests grow, often in unexpected ways.

The WCC does allow for natural regeneration. However, as several carbon brokers explained to me in interviews, it is often difficult to create a carbon income for these schemes, especially compared to plantation forestry. As mentioned above, estimations of carbon sequestered must be conservative because in natural regeneration schemes there is a high level of uncertainty about the trees’ future growth. The spacing between trees, growth rate and species composition are often difficult to predict. The carbon measurement for natural regeneration must be standardised, and therefore carbon calculations must be at the low end to accommodate for this uncertainty and avoid overcounting carbon stores.

Several carbon brokers explained that it is difficult for natural regeneration

schemes to generate an income stream from investors at an early phase, as projects struggle to sell ‘risky’ PIUs. As a representative from the WCC explained, “most naturally regenerating schemes that we deal with don’t want any PIUs. They don’t want upfront ‘risky’—in their mind and our minds to a degree—units. They’ll say... ‘I’ll just register, I’ll just claim the WCUs as they come to fruition.’”

Contrastingly, schemes following standard tree planting techniques can predict future sequestration with relative certainty and therefore can attract outside investment for PIUs, from companies or individuals who want a more certain financial return. Planting native broadleaves creates a predictable and measurable stock of carbon that can easily be translated into PIUs and will likely grow as expected and create a predictable quantity of WCUs. These are less risky projects to invest in.

Ecological outcomes

This has detrimental effects on the capacity of carbon finance to realise genuinely regenerative forms of nature restoration. Ecologists frequently told me that they were subtly forced to prioritise tree planting ahead of natural regeneration, in the pursuit of carbon finance. The senior representative of a rewilding charity gave me an example. At a nature restoration project in the Western Highlands, his organisation’s ecologists had recommended that the restoration of the site should focus on regenerating pockets of existing native woodland. Instead, his organisation had been subtly forced to plant native trees to guarantee an income for



Natural Regeneration in Glen Nevis, Western Highlands. Photos: Theo Stanley.

themselves and the landowner they were working with, who was “just not up for the risk that comes with regen, or he wants more guaranteed return.”

‘Mike’ (not his real name), another prominent ecologist, was frustrated by the ways rewilding organisations were scaling up native tree planting ahead of other forms of woodland creation, partly in pursuit of carbon finance. As Mike put it, “Rewilding has been using the same model of tree planting as commercial forestry but has changed the tree species. It hangs onto the same system and people think it goes from being something damaging to something brilliant!” For him, it is bizarre to focus on planting new forests when fragments of existing native forests, often on the same estate, are left to die.

Potential change is on the horizon. The WCC has recently been updated to render remnant ancient woodland restoration projects eligible for carbon credits (see article on page 27). Carbon finance can cover the cost of deer fencing, making the conservation and regeneration of these sites more financially viable. No doubt these ancient woodland restoration projects can generate revenue from selling ‘charismatic carbon’ units. But as ecologists repeatedly stressed to me, ecological nuances can be difficult to communicate, especially with investors or companies looking to offset. In the words of one rewilding CEO, all that businesses want is “a story that corporates can tell”. Native woodland plantations can also sell a ‘story’ of ecosystem restoration, promising habitat creation and biodiversity gain alongside carbon sequestration. Although loaded with promise, it is far from certain that this update to the WCC’s criteria will usher in a radical shift in woodland creation.

Other benefits

The WCC is a sophisticated and valuable scheme for accrediting and calculating woodland carbon. The WCC’s commitments to conservatism, integrity and standardisation are valuable and should be lauded. These commitments maintain the credibility of the carbon units produced

Natural Regeneration at Mar Lodge Estate, Cairngorms National Park. Photo: Theo Stanley.



through the WCC and build trust in the carbon market. The WCC’s continued tightening of its criteria to exclude companies “gaming the system” should also be heralded as best practice for carbon measurement. For example, despite huge pressure from commercial forestry interests, in summer 2022 the WCC updated its tests for economic additionality. This effectively excluded many large-scale Sitka-dominated commercial forests, which were clearly not requiring carbon finance (i.e., they were not additional) from being carbon accredited.

But there are clearly difficulties in financing nature restoration solely through carbon. Even a representative of the WCC told me that he “... would never endorse people focusing solely on the carbon.” He encouraged maximising other benefits *alongside* the carbon, to alleviate some of the perverse outcomes of carbon finance. Currently, there is no consensus about how best to measure benefits such as biodiversity and flood protection, let alone monetise them. As new measurement technologies and markets will inevitably be created, the whole nature restoration sector

needs constant reflexivity. Remember, metrics and measurement technologies do not only measure. They also shape what is measured.

woodlandcarboncode.org.uk

References

1. Carton, W., *et al.* (2020). Negative emissions and the long history of carbon removal. *Wiley Interdisciplinary Reviews: Climate Change*, 11(6), 11:e671. doi.org/10.1002/wcc.671.
2. Markusson, N. (2022). Natural carbon removal as technology. *Wiley Interdisciplinary Reviews: Climate Change*, 13(2), e767. doi.org/10.1002/wcc.767.
3. Gifford, L. (2020). “You can’t value what you can’t measure”: a critical look at forest carbon accounting. *Climatic Change*, 161(2), 291–306.
4. Mackenzie, D. (2009). Making things the same: gases, emission rights and the politics of carbon markets [Article]. *Accounting, Organizations and Society*, 34(3–4), 440–455.

Theo Stanley is a doctoral researcher at the Oxford University Centre for the Environment.
E: theo.stanley@hertford.ox.ac.uk