

CASE STUDY:

Registering a peat bog rewetting project with a carbon standard

CAIRNGORMS CONNECT

Peatland restoration on Wildland Ltd's Glenfeshie Estate

Cairngorms Connect © scotlandbigpicture.com



Background

The restoration landscape spans over 60,000 hectares in the Scottish Highlands and lies within the Cairngorms National Park. The area consists of floodplain, forests, heathland, blanket bog and high mountains, and has been altered by people over several centuries. Peatlands have been drained, floodplains converted to arable land and non-native tree species planted for timber harvesting, replacing native Scots pine. Vegetation has been degraded by domestic and wild herbivores.

The project aims to restore natural habitats by removing non-native conifers, propagating and planting Scots pine and other native tree species, establishing deer control and monitoring to decrease pressure on vegetation and allow natural regeneration to take place. Interventions to restore peatland habitats include re-profiling eroded peat bog channels and blocking or removing ditches. These actions will allow for more natural peat hydrology, recover bog vegetation and restart the build-up of peat. Across the Cairngorms Connect partnership area there is a total of 10,000 hectares of peat-rich habitats.

The peatland carbon project described below has an area of about 60 hectares. It is owned and managed by Forestry and Land Scotland, one of the members of the Cairngorms Connect partnership.

Partner organisations: [NatureScot](#), [RSPB](#), [Wildland](#), [Cairngorms Connect](#), [Forestry and Land Scotland](#)

Q and A with Sarah Nicholas, Carbon Projects Manager at Forestry and Land Scotland

How did you make a decision to sell credits and have you been successful?

Forestry and Land Scotland (FLS) had identified sites across Scotland with potential to become carbon projects in the course of a national scoping process and began to develop a pipeline of woodland and peatland projects. We want to scale up our habitat restoration works on public land by offering land-based carbon projects to partners looking to offset their unavoidable emissions. We have a few projects in the pipeline, including this one in the Cairngorms which is currently at the pre-restoration validation stage with the [UK Peatland Code](#) with restoration works expected to start late summer 2023.

For FLS, using carbon finance allows us to tap into private funds for some of the restoration work that we do, allowing us to be more ambitious while making public money stretch further. For example, part of our remit is forest-to-bog restoration, but this is not eligible under the Peatland Code. So, it makes sense to find private funding for restoration of open bogs, which are eligible, while financing non-eligible restoration entirely through Scottish Government funds.

What options were available to you? What aspect of the project restricted your options?

We considered the UK Woodland Carbon Code and the UK Peatland Code rather than global standards. It was important for us as a government agency to use established and credible government-backed standards. We identified the bog site in the Cairngorms National Park as particularly interesting because it's next to a ski resort car park, so it's unusually visible and accessible with great potential for engaging with the public and raising awareness about peatland restoration. It's also a significant site for biodiversity, with a complex mosaic of vegetation and protected species at high elevations, exposed to high winds and snow. These factors mean it's especially important to improve the peatland's condition, but it also makes restoration more complicated.

As a large land manager with potentially many sites generating carbon credits, FLS has decided to build capacity in-house to develop the project rather than hire a consultant to manage the carbon aspects. We had not worked with the Peatland Code before, but the principles and frameworks are similar to the UK Woodland Carbon Code, which helped.

What was the process of setting up the carbon project like?

This site was identified three years ago and was one of our first Peatland Code candidate sites flagged for consideration. First our peatland team and I did a walkover of the site, engaged in random peat depth sampling and discussion of potential restoration techniques to see if the site could be eligible and determine project boundaries for a full survey. The mosaic nature of the site means that there was increased uncertainty about the potential amount of carbon 'units' at the stage of the feasibility study. Because eligibility for the Peatland Code is determined by peat depth and condition, we don't know how much of the project area is actually eligible until a full survey is done, which can be expensive. So, the site is potentially risky. If only a small area is eligible, then it may become non-viable as a carbon project.



Figure 1. Cairngorms peatland restoration site to be registered under the Peatland Code. Picture by Sarah Nicholas.

We worked for several months with a contract surveyor to do a full field survey and crunch the GIS data in line with the Peatland Code. Because the Peatland Code is relatively new, there is limited guidance and experience among the contractor base – there was a lot of back and forth and some readjustments of budgets at this stage. It was estimated that the project can generate about 3,755 tCO_{2e} of emission reductions over a period of 55 years.

We went through a consultation process, both with statutory bodies and other stakeholders around the site. For example, we had to work closely with our neighbours at the ski-centre to co-ordinate access and timings of works to fit around other ongoing projects and public safety. In scoping the site, we also identified some erosion features on land outside our ownership boundary, and so we have come to an arrangement with our neighbours (Highlands and Islands Enterprise, another public body) to extend the restoration works onto a small part of their land to ensure the integrity of the peatland restoration across the hydrological unit.

We have now tendered the restoration works and submitted the project for validation, but do not expect to get feedback before work begins on site. This is due to a bottleneck for validating projects by accredited auditors - there is currently a wait of many months¹. This adds another level of risk, but with a limited window of opportunity for doing the restoration works between the end of the breeding bird season in the summer and the first snows in winter it's important to get started.

Under the Peatland Code, we will receive Pending Issuance Units (PIUs) once the restoration works are completed and have been checked by an independent auditor. These are *ex-ante* credits which are a prediction of emissions that will be avoided over time thanks to the restoration works. Five years later, then every 10 years, the independent auditor returns to site to check the peatland

¹ According to the Peatland Code, the backlog of projects is being resolved after two more validation bodies have been added

condition – at this point the PIUs can be converted into verified carbon offsets (Peatland Carbon Units - PCUs).

Table 1. Some of the initial costs of developing the Cairngorms peatland carbon project incurred by Forestry and Land Scotland (real and projected).

Type of cost	Amount (GBP or staff hours)
Initial site walkover and discussion	8 hours
Full field survey and analysis for carbon estimates	3,500 paid to surveyor
Stakeholder consultations	20 hours
Project design document and evidence to submit to Peatland code	80 hours
Payment to 3 rd party validator and PIU issuance fee	3,500

How will you find buyers for your credits? What will be important to consider?

We don't have a buyer for the credits generated by the Cairngorms site yet: we are not actively looking for buyers at the moment, although we do regularly get enquiries. We spoke to one buyer about this site, who ultimately decided the price per unit was too high for them. While everybody wants all the charismatic aspects of carbon credits like biodiversity and community benefits, the price is only so elastic, and currently isn't high enough to cover 100% of restoration works.

We are currently developing our business model for carbon sales and exploring different approaches. Initially we thought we would match buyers to specific sites, however this limits flexibility around volumes and timings of revenue. It will be interesting to test different strategies of selling PIUs now versus holding on to the credits until they are verified PCUs, and grouping or splitting projects in different ways. This may mean we are able to balance the higher cost of complex sites like this one with relatively simpler, cheaper projects to get a lower price per PIU overall.

We are also refining our due diligence framework, which includes buyers having credible net zero transition plans so only genuinely unavoidable emissions are being offset from the project.

Key Messages

Weigh the risks. Peatland carbon is new on the market so there is little experience to draw from. Projections of feasibility can be tricky for sites where peat content is not uniform.

Carbon credit price is only so elastic. While a good story, biodiversity uplift and social benefits can make your credits more marketable, ultimately there is a price ceiling: buyers will not be attracted by prices much higher than market rates.

Going in-house. Consider the trade-offs of building carbon project development capacity within your organisation, rather than hiring a consultancy.

Lessons learned from direct sales of emission reductions from peatland restoration

Restoration project: The Polish Society for the Protection of Birds or OTOP (Birdlife Poland) works to expand endangered Aquatic warbler habitat by restoring fen mire ecosystems across three sites in eastern Poland. The project was financed through the Operational Programme Infrastructure and Environment (OPIE) 2014-2020 and implemented in 2017-2021. Activities involved building 10 dykes to raise water levels in the area where the fen mires had been drained in the past and is currently under private ownership by various land owners. The project received a grant of €500,000, which required project developers to contribute 10 percent of the project costs.

Carbon project: The project employed the Greenhouse Gases Emission Site Type (GEST) methodology² to assess emissions for the area and understand the potential for reduction. This showed that rewetting the fen mires can contribute to over 20,000t CO₂e of emission reductions (ERs) over the course of 20 years. The project was aware of demand for carbon credits from an IT company they had previously engaged with, which was seeking to offset staff air travel. The project certified 586 tCO₂e ERs through a Greifswald Mire Centre affiliated research institute, DUENE e.V. The IT



Figure 2. Wooden dyke built to block an old draining ditch as part of the rewetting project to raise water levels and restore fen habitat for Aquatic warbler with a climate mitigation benefit. Near Krychów, Poland. April, 2022. Photo by Sviataslau Valasiuk

Barriers and lessons learned:

- It was a challenge to work with landowners, particularly as there is no legislation in Poland on ownership of carbon credits. Agreements had to be reached with over 20 landowners. Sometimes they were hard to find due to living abroad. Some were not happy to raise the water levels permanently as it makes it more difficult to cut hay. Difficult ownership structures make it hard to guarantee permanence as future owners may decide to sell land.
- Carbon and biodiversity values don't always align. For example, in one area trees had to be cut before rewetting and restoring the habitat preferred by the target species. This would be looked upon negatively if the project were to go through an established carbon standard. Grass must be cut regularly to keep the fen mire in an optimal state to attract Aquatic warblers, which is also seen as removing carbon by established standards.
- The carbon credits generated enough money to cover the 10 percent of project costs required by the grant. It helped the restoration project become economically feasible without going into debt.
- It may be challenging to find buyers for the ERs without verification under an established standard.

² [Assessing greenhouse gas emissions from peatlands using vegetation as a proxy | SpringerLink](#)

company purchased a certificate stating their contribution to the re-wetting project. The company further purchased another certificate for 7,000 tCO₂e but said that any further purchases would have to be verified through an established standard such as VCS or MoorFutures. The project is considering MoorFutures and has also sought the help of a consultant to assess options. Verification through VCS is too expensive making the price of these credits unattractive.

Further reading:

[Cairngorms Connect Endangered Landscape Project](#)

[Forestry and Land Scotland](#)

[Peatland Code project of the FLS \(registry entry\)](#)

[Presentation about the Aquatic warbler habitat restoration project](#)

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Disclaimer: The boundaries and names shown and the designations used on the map in this document do not imply official endorsement or acceptance by the United Nations.

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