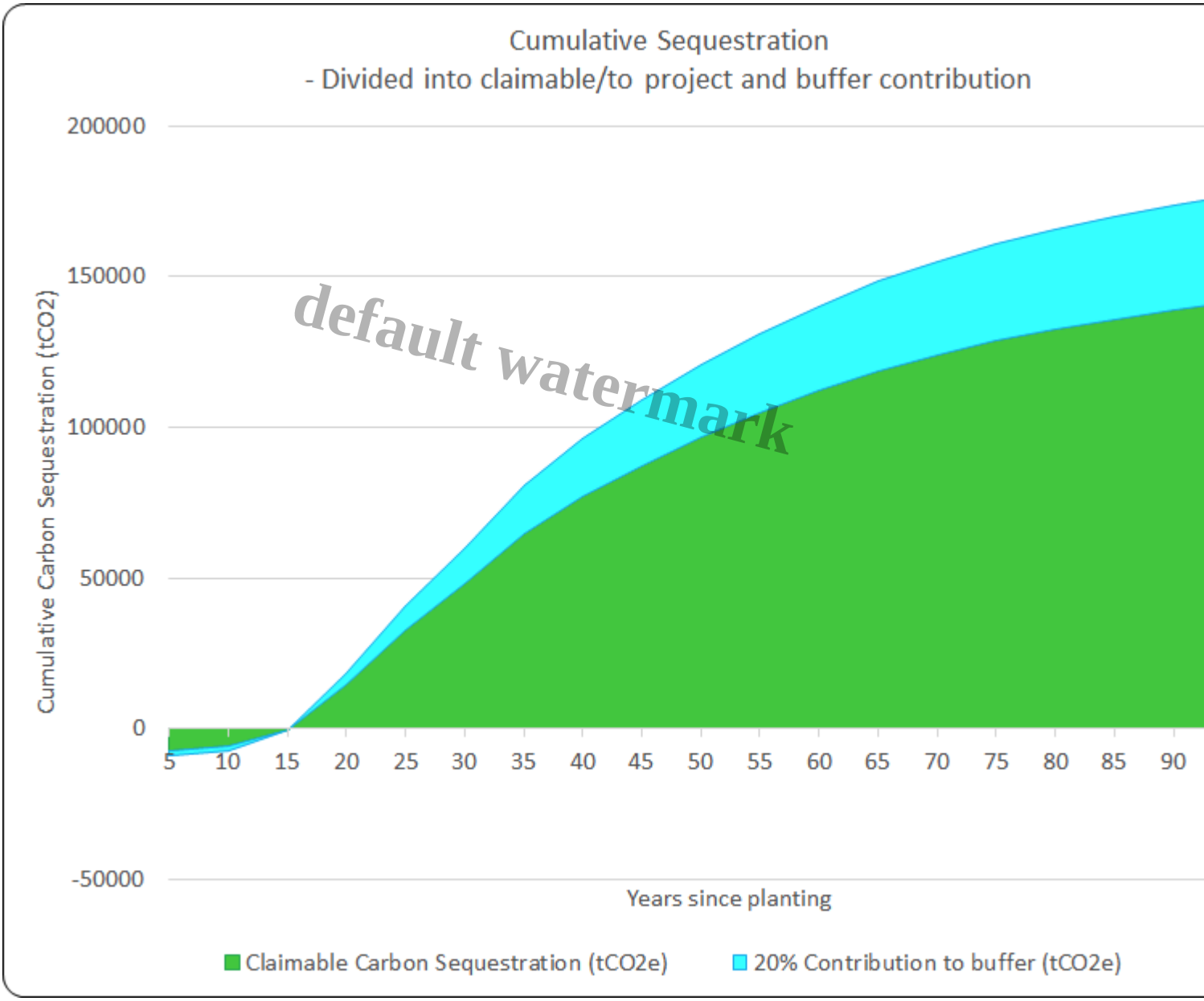
Brewdogâ??s Lost Forest at Kinrara â?? a long way from net zero

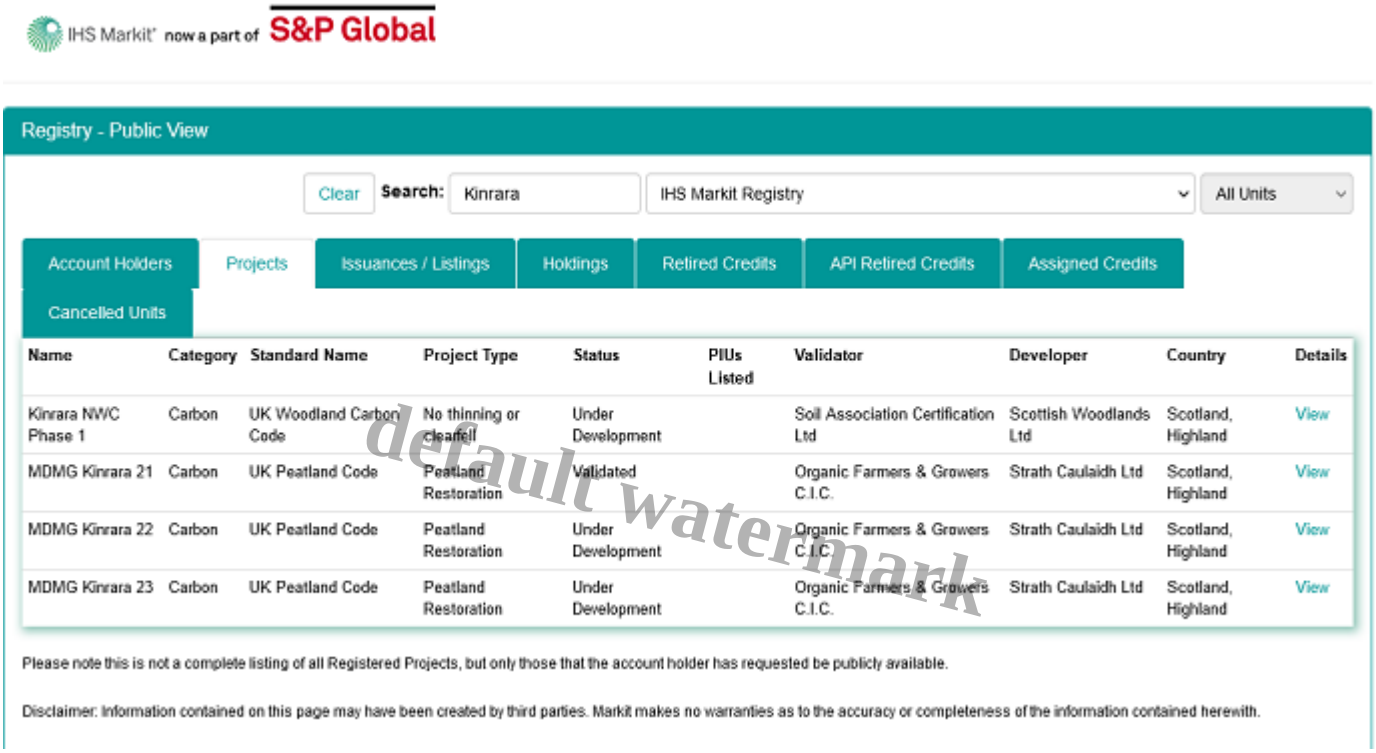
Description



I had said I would follow my post looking at the impact of BrewDogâ??s tree planting at Kinrara (see here) with one that looked at the impact of the new deer fences. However, having looked at further further information about BrewDogâ??s carbon emissions at Kinrara, it seems more important to cover that first.

The carbon emissions caused by the construction of the Lost Forest

In my last post I argued that just by looking at the disturbance to the peaty soils, the size of the new trees and the number that had died at Kinrara, it was not difficult to envisage it might be years before the new â??forestâ?• replaced the carbon emitted by the planting. I have subsequently checked these observations with the information for Kinrara recorded on the UK Land Carbon Registry (see here).



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Registry - Public View

Clear Search: Kinrara IHS Markit Registry All Units

Account Holders | Projects | Issuances / Listings | Holdings | Retired Credits | API Retired Credits | Assigned Credits | Cancelled Units

Name	Category	Standard Name	Project Type	Status	PIUs Listed	Validator	Developer	Country	Details
Kinrara NWC Phase 1	Carbon	UK Woodland Carbon Code	No thinning or clearfell	Under Development		Soil Association Certification Ltd	Scottish Woodlands Ltd	Scotland, Highland	View
MDMG Kinrara 21	Carbon	UK Peatland Code	Peatland Restoration	Validated		Organic Farmers & Growers C.I.C.	Strath Caulaidh Ltd	Scotland, Highland	View
MDMG Kinrara 22	Carbon	UK Peatland Code	Peatland Restoration	Under Development		Organic Farmers & Growers C.I.C.	Strath Caulaidh Ltd	Scotland, Highland	View
MDMG Kinrara 23	Carbon	UK Peatland Code	Peatland Restoration	Under Development		Organic Farmers & Growers C.I.C.	Strath Caulaidh Ltd	Scotland, Highland	View

Please note this is not a complete listing of all Registered Projects, but only those that the account holder has requested be publicly available.

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This shows that four carbon offsetting schemes have been registered on behalf of BrewDog. Among the information in the Carbon Calculator spreadsheet for the Lost Forest Phase 1 is the graph at the top. By their own calculations it will be at least 15 years before the Lost Forest recoups the carbon emitted during its planting and the Lost Forest will start offsetting carbon. This scenario depends, however, on some basic assumptions used in the calculations being met.

As I showed in my last post, a large numbers of trees BrewDog planted died this summer. While the number needs to be verified by Scottish Forestry, whose grant to BrewDog was dependant on how many trees survive, from what I saw the dead trees were well over 20% â??bufferâ?• provided for in the calculations (as marked in blue on the graph above). This means either not as much carbon will be absorbed by the woodland as predicted or more trees will have to be planted, incurring further carbon emissions. Either way the timescale for this project to become net zero is likely to increase from 15 years.

There appears, however, to be some more fundamental problems with the calculation:

Summary Carbon Sequestration over time

Cumulative to Year	A:	B = 80% of A	C: Negative	D:	E= B+C+D:	F:	G:	H=E+F-G
	Cumulative Carbon Sequestrn from lookup tables (tCO_2e)	Cumulative Carbon Sequestrn Less 20% model precision (tCO_2e)	Removal of vegtn and/or Establishment Emissions (tCO_2e)	Cumulative Soil Carbon (loss in year 1 and cumulative accumuln if relevant) (tCO_2e)	Total Project Carbon Sequestration (tCO_2e)	Baseline (tCO_2e) - Normally Zero - No change over time	Leakage (tCO_2e) [Emissions are negative] - Normally Zero - No change over tine	Net Proj Carbo Sequestra adjusted Baseline Leakag (tCO_2e
5	737	589	-1195	-8582	-9188	0	0	-9
10	3290	2632	-1195	-8582	-7145	0	0	-7
15	11858	9487	-1195	-8582	-290	0	0	
20	35352	28282	-1195	-8582	18504	0	0	18
25	63314	50651	-1195	-8582	40874	0	0	40

A = carbon sequestered by new trees B = buffer/adjustment to allow for the trees not growing as pre through vegetation removal D = soil carbon lost.

The spreadsheet includes two sources of carbon emissions caused by the project: â??Establishment emissionsâ?•, including vegetation removal; and cumulative loss of soil carbon. What column D shows is that NO allowance has been made for CUMULATIVE loss of soil carbon despite the fact that peat exposed by mounding oxidises at a rate of c2cm a year (hence why the restoration of bare areas of peat is so important). It appears, therefore, to be a significant underestimate.

Bank above the deer fence at Kinara, September 2023 â?? oddly missed out of restoration work to date â?? illustrating the gradual process of peatland erosion over many years. The peat has been entirely eroded away from the stony ground on the right but some still survives to the left of that.

â??Establishmentâ?• costs are clearly normally associated with the start of a project, although the Woodland Carbon Code rightly requires them to be revised where further inputs are needed (e.g. to replace trees that have died). The way this has been calculated to date, however, again underestimates the amount of carbon emitted:

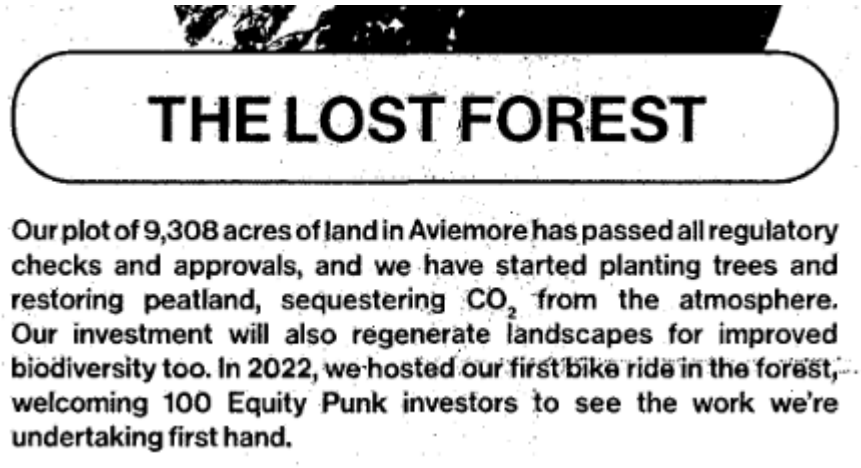
	Emissions from establishment	spacing (m)	area (ha)	tCO_2e/ha	tCO_2e
12	Seedlings	3.0	292.56	-0.17	-49.7
13	Ground Preparation (Fuel)		292.56	-0.06	-17.6
14	Tree Shelters		0.00	-0.82	0.0
15	Fencing		687.70	-1.64	-1127.8
16	Herbicide		292.56	-0.001	-0.3
17	**Road Building**		**km**	**tCO_2e/km**	**tCO_2e**
18	Roads		0.00	-43.13	0.0
19	**Emissions from removal of trees or other vegetation at the start of the project**				
20	*To be calculated separately if any trees or other vegetation is removed prior to planting. Show working on a separate sheet. (See Guidance 3.3 Project Carbon Sequestration)*				0.0
21	**Total Emissions from establishment**				**-1195.4**

Fuel for machinery is included but NOT the fossil fuels required to manufacture that machinery or import it. Most of those carbon costs are often wrongly shunted onto other countries carbon balance sheets (particularly China) but to BrewDogâ??s credit when it comes to the brewing of beer it includes them in its Scope 3 emissions (carbon for which it is not directly responsible). It should do the same for the Lost Forest.

The entry in Row 20 records that there were zero emissions from vegetation removal. Even without knowing the site, you can tell that is not true from row 16. This shows that the application of herbicide used to kill off vegetation around the mounds emitted 292.56 tons of CO2. Recent research suggests that the carbon contained in the vegetation and peaty soils on (unburned) heather moorland is often equivalent to birch woodland which is now being planted over much of Kinrara.

In summary, the calculation of the amount of CO2 emitted by the planting of the Lost Forest is not fit for purpose and the public would be far better trusting the research by Friggens et al which has been accepted by the Woodland Trust â?? but not apparently by Forestry Scotland â?? which shows that native woodland planted on peaty soils is likely to be a net emitter of carbon for over 40 year (see here). That threatens the Cairngorms National Park Authorityâ??s aspirations (see here for example) for the National Park to become net zero well before the Scottish Governmentâ??s aims to do so in 2045.

In its accounts for 2021, published last year, BrewDog claimed that the Lost Forest was sequestering CO2 from the atmosphere:



THE LOST FOREST

Our plot of 9,308 acres of land in Aviemore has passed all regulatory checks and approvals, and we have started planting trees and restoring peatland, sequestering CO_2 from the atmosphere. Our investment will also regenerate landscapes for improved biodiversity too. In 2022, we hosted our first bike ride in the forest, welcoming 100 Equity Punk investors to see the work we're undertaking first hand.

That wonâ??t be true for its tree planting for at least 15 years, and maybe 40 or more.

However, BrewDog is also using Scottish Government money to restore degraded peatland elsewhere on Kinrara. This is a far more sensible option than planting on it. So far just one of the three restoration schemes has been validated and, while there is no pretty graph, there is a spreadsheet showing the â??officialâ?• calculation of the impact on carbon emissions:

Table 3

Period (Year)	Assessment Unit Cumulative Emission Reduction (tCO2e/ha) - from lookup tables							
	AU1	AU2	AU3	AU4	AU5	AU6	AU7	AU8
0-5	96.50	96.50	10.00	10.00	0.00	0.00	0.00	0.00
5-10	193.00	193.00	20.00	20.00	0.00	0.00	0.00	0.00
10-15	289.50	289.50	30.00	30.00	0.00	0.00	0.00	0.00
15-20	386.00	386.00	40.00	40.00	0.00	0.00	0.00	0.00
20-25	482.50	482.50	50.00	50.00	0.00	0.00	0.00	0.00

There are four different areas that have been restored in this scheme, hence AU1 â?? 4

This shows that the total amount of carbon absorbed by this one scheme by year 5 is 213 tonnes of CO2 (tCO2). That is tiny compared to the 9188 tCO2 emitted by the planting. In other words, the official figures used by BrewDogâ??s consultants shows that the claims they made in their last annual report are wrong. BrewDogâ??s Lost Forest has been emitting CO2 out into the atmosphere, grant aided by Scottish Forestry (see here).

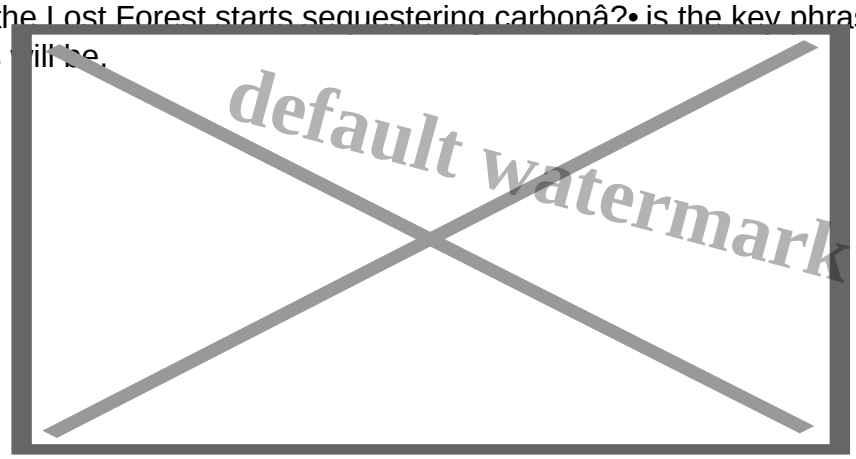
The Peatland Code calculator is even simpler than the Woodland Code Calculator and does not account for ANY emissions during the restoration process. While covering up peat and replanting vegetation, rather than destroying it, will emit far less carbon than mounding soil to plant trees, there will still be some emissions resulting from peat damaged by the use of heavy machinery and from those

vehicles. That will extend the time it will take this peatland restoration to help compensate for the emissions caused planting. In other words, even though peatland restoration is generally a good thing on the Kinrara estate it will take a long time to compensate even for the damaged caused by the planting

BrewDogâ??s accounts and its â??Mega Reportâ?• on its carbon emissions for 2022 (see here) have just been published. While there is no explicit statement of the carbon emissions that have been caused by the Lost Forest, there is now an easy to miss acknowledgement of what is actually happening

- *Working with a legitimate carbon removal partner until the Lost Forest starts sequestering carbon, Natural Conservancy of Canada which sustains and restores one of the largest forests in the world.*

â??Until the Lost Forest starts sequestering carbonâ?• is the key phrase. There is no indication of when this will be.



It is of course true that once a tree is either planted or naturally regenerated it will start to sequester carbon from the atmosphere but I could find no mention in either of these documents the carbon that had been emitted in the course of starting to plant those trees. One wonders if the 100 Equity Punk Investors were told?

BrewDogâ??s carbon accounting challenge and its implications

The 2022 accounts for BrewDogâ??s Lost Forest subsidiary, were due at the end of September but should be published next week. Perhaps they will say something about the emissions caused by the planting? Maybe not, with the main planting having taken place this year, but if that is the case there will be no excuse for BrewDog not to show this information in a yearâ??s time in its 2023 accounts and â??Mega Reportâ?•.

BrewDog has committed to going beyond net zero and claims to be doing so at present by buying carbon credits from the Nature Conservancy in Canada. Logically, it should now be buying more carbon credits to compensate for its work at Kinrara until that achieves net zero. BrewDogâ??s intention appears to have been to use carbon credits from Kinrara to replace those it had purchased in Canada: that now seems a long way off.

This raises the question, what if some of those credits purchased in Canada were linked to new tree planting on peaty soils which itself was emitting carbon?

The evidence from Kinrara suggests that the whole idea that planting trees on peaty soils can do anything meaningful to offset carbon emissions is extremely dubious. Responsibility for this is not entirely BrewDogâ??s fault but a consequence of Scottish Government policy and the Forest Grants system, which still allows planting on peaty soils. Its time that the Cairngorms National Park Authority and NatureScot spoke out but unfortunately they appear too in thrall to a flawed idea, and the vested interests that have promoted this, to do so.

Category

1. Cairngorms

Tags

1. carbon emissions
2. carbon offsetting
3. forestry
4. peatland restoration

Date Created
November 11, 2023
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