An Action Plan for Peatland Restoration and Management in the South of Scotland: A Scoping Review

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The Crichton Carbon Centre
Tweed Forum

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Executive Summary

The Scottish Government has an ambitious target to restore 250,000 hectares of degraded peatland by 2030. In the South of Scotland there is approximately 156,827ha of peatland which can be described as “deep” peat, 50cm or greater in depth, and potentially a further 248,796ha which could be described as “shallow” peat, less that 50cm in depth. The majority of the region’s peatland, as is the case throughout the UK, is thought to be in poor condition compromising carbon storage, biodiversity, water regulation and water quality. Due to this the restoration and management of peatland is being considered by the Regional Land Use Partnership (RLUP) pilot and identified as a key action in the Regional Land Use Framework (RLUF) to help reduce carbon emissions from land use, enhance biodiversity and reducing the risk of fires and flooding. In addition, peatlands will play a major role in meeting the objectives of Scottish Biodiversity Strategy and the targets agreed under the Natural Environment (Scotland) Bill and have been identified as requiring action in the region’s Local Biodiversity Action Plans.

This Scoping Review was commissioned to establish what needs to be considered when developing a Peatland and Management Action Plan for the South of Scotland. The Crichton Carbon Centre and the Tweed Forum have drawn on their own extensive experience of peatland restoration and land management in the region, as well as that of their wider networks, to set out:

1. The relevant policies, strategies and standards the Plan should align with.
2. How Peatland Action, the Peatland Code and agri-environment support schemes needs to work with a regional Plan.
3. The existing datasets which could be used to inform and report on peatland restoration and management in the region and the data and evidence gaps.
4. How existing regional strategies have been developed and could influence the development of a Plan for the south.
5. Who would need to be consulted to establish peatland principles and priorities for the region.

The Review highlights that there is already significant interest and uptake in peatland restoration in the region with most projects funded by the Scottish Government’s Peatland Action Programme. These projects are increasingly developed in areas with specific priorities for the environment, for example to reduce rates of erosion and carbon loss, improve downstream water quality, or to improve habitat for upland waders. Currently this process of prioritisation is happening mostly at the individual land holding and/or sub-catchment level so an Action Plan could provide further opportunity mapping to support landscape scale projects to enhance habitat networks and hydrological connectivity. However, the Action Plan will have to ensure that it builds on the existing approaches being developed and implemented in the region, so it can seek to provide additional evidence and support to those seeking to develop and deliver peatland projects.

The Review also describes how current funding and support mechanisms have supported restoration in the region to date but that they are complex, with strict eligibility criteria, particularly with the Peatland Code, and that is limiting restoration opportunities and the ability to draw in private investment to projects that could deliver priorities for the region, for example forest to bog projects.

The Review also recommends that it will be necessary to consider peatland restoration beyond carbon and that a better evidence base for the impact of peatland restoration and management on the region's biodiversity and water quality and regulation is required to develop an Action Plan which can prioritise projects which offer greatest ecosystem service enhancement.

It is also important to understand the current strategic and policy context and the Review recommends that the Action Plan needs to align with existing strategies, particularly forestry and woodland strategies. The Plan will also have to consider the developing nature of policy, funding mechanisms, best practice, and most notably changes to agri-environment support schemes and the publication of the Peatland Standard later this year. This, coupled with the very complex nature of peatland restoration, the skills and expertise required to deliver projects, and the multiple stakeholders that need engaged suggests partnership working, facilitated through the RLUP, will be key to not only developing the plan but in its implementation.

The strength of the South of Scotland region is that it already has organisations at the forefront of delivering peatland restoration both here and across the UK. Together with the initiatives being developed by SOSE, particularly regarding the development of private finance options, for example Carbon Contracts, and support for data and evidence gathering as part of the Borderlands Natural Capital Innovation Zone, the South of Scotland is well placed to develop the required regional approaches and support mechanisms to deliver peatland restoration and management at the scale required to meet the Scottish Governments Net Zero and Biodiversity targets.

1. Introduction

1.1. Background

Peatlands are the largest terrestrial carbon store in the UK and as a result Governments are committed to delivering programmes to improve their condition to reduce carbon loss to the atmosphere. The Scottish Government has an ambitious target to restore 250,000 hectares of degraded peatland by 2030.

In the South of Scotland there are approximately 156,827ha of dystrophic blanket and basin peat, which is most likely to be "deep" peat; peat which is greater than 50cm in depth (Table 1). However, it is important to highlight that there are other peatland soil types, often simply referred to as "shallow peat", which are more likely to be less than 50cm in depth but could be deep in parts. This deep peat/shallow peat 50cm threshold is significant and often underpins funding for peatland restoration and land use guidance and best practice such as "Deciding future management options for afforested deep peatland"[1], assessing carbon-rich soils and priority peatland habitats in development management[2], and cross compliance requirements under Good Agricultural and Environmental Condition[3]. Although current emphasis is on the restoration of deep peat, primarily driven by requirements to reduce emissions from land use, shallow peat soils are increasingly considered important in their own right because of their extent and capacity to store carbon and maintain hydrology and associated habitats[4].

Table 1. Summary of "peatland" areas in the South of Scotland (Dumfries and Galloway and Scottish Borders)[5].

Peatland Type	Summary	Soils Classes	Area (ha)
Deep	Most likely to be >50cm deep	Dystrophic blanket peat Undifferentiated basin peats Dystopic basin peat Peaty gleyed podzols	**156,827**
Shallow	Most likely to be <50cm deep but could be deep in parts	Peaty gleys Peaty podzols Peaty rankers	**248,796**

A significant proportion of the peatland in the region, and across the UK, is in a degraded state. This is usually taken to mean peatlands are not functioning as they should with a lack of the right "peat forming" and supporting vegetation due to modified ecological state or hydrological, usually a lower than natural water table.

[1] Forestry Commission Scotland (2015). Deciding future management options for afforested deep peatland. Forestry Commission Scotland Practice Guide. Forestry Commission, Edinburgh. i–iv + 1–20 pp.

[2] NatureScot (2024). Advising on peatland, carbon-rich soils and priority peatland habitats in development management. HHG017.

[3] https://www.ruralpayments.org/topics/agricultural-reform-programme/cross-compliance-quick-guide/

[4] https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2023-06/Use%20of%20Peat%20Depth%20Criteria%20-%20Accounting%20for%20the%20Lost%20Peatlands_1.pdf

[5] Soil Survey of Scotland Staff (1981). Soil maps of Scotland at a scale of 1:250 000. Macaulay Institute for Soil Research, Aberdeen. DOI: 10.5281/zenodo.4646891.

Peatland condition mapping in the South of Scotland is currently limited to areas where there are active programme of restoration and sites being scoped for Peatland Action and Peatland Code funding opportunities. However, as a high-level summary of the condition of peatlands in the South of Scotland the Carbon and Peatland 2016 v2 map can be used[6]. This map is derived from both soils and land cover data and is intended to give an indication of the extent of carbon rich soils and priority habitats across Scotland.

This map suggests that most peatland soils in the South are not in favourable condition (Table 2) with only 40,575ha predicted to be areas of high conservation value (Class 1) while 145,690ha (Class 2 and 5) described as deep peat with restoration potential or deep peat without the correct peatland habitat. Class 5 can describe areas of afforested deep peat of which there is a significant area in the southwest.

Table 2. Summary of peatland condition in the South of Scotland based on Carbon and Peatland 2016 V2[6] classifications.

Class	Area (ha)	Classification Description
-2	11,327	Non-soil (i.e. loch, built up area, rock and scree)
0	744,879	Unknown soil type - information to be updated when new data are released
1	40,573	Nationally important carbon-rich soils, deep peat and priority peatland habitat - Areas likely to be of high conservation value
2	5,177	Nationally important carbon-rich soils, deep peat and priority peatland habitat - Areas of potentially high conservation value and restoration potential
3	81,452	Dominant vegetation cover is not priority peatland habitat but is associated with wet and acidic type. Occasional peatland habitats can be found. Most soils are carbon-rich soils, with some areas of deep peat
4	94,318	Area unlikely to be associated with peatland habitats or wet and acidic type - Area unlikely to include carbon-rich soils
5	140,513	Soil information takes precedence over vegetation data - No peatland habitat recorded. May also show bare soil. All soils are carbon-rich soil and deep peat

[6] https://www.spatialdata.gov.scot/geonetwork/srv/eng/catalog.search#/metadata/51b36efb-3521-4243-9bb0-93f8a7a60a71

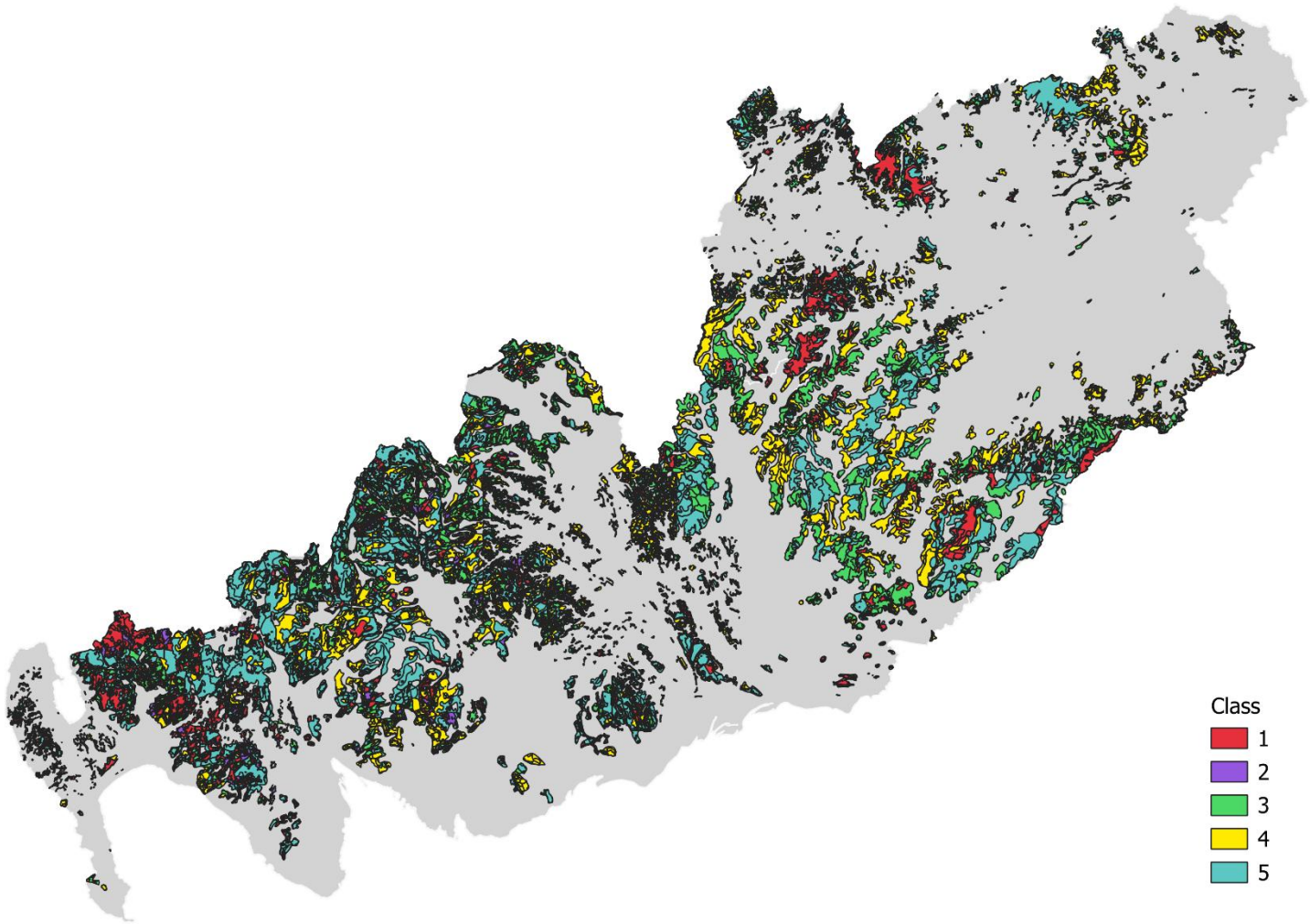

Figure 1. Carbon and Peatland Class extent and location in the South of Scotland (Carbon and Peatland Map 2016 V2[6]).

With peat soils such a significant part of the South of Scotland's environment, land use systems and natural capital the restoration and management of "peatlands" is being considered by the Regional Land Use Partnership (RLUP) pilot. Specifically, peatland restoration has been identified as a key action in the Regional Land Use Framework (RLUF) to help reduce carbon emissions from land use, enhance biodiversity and reducing the risk of fires and flooding. This echoes the target set out in the Regional Economic Strategy (RES) to "Develop proposals to increase opportunities and benefits arising from the region's natural capital assets including support for sustainable agriculture, woodlands and forests, restoring peatlands, water management and increasing biodiversity". An Action Plan would also align with the actions set out in local Biodiversity Action Plans, specifically in relation to evaluating opportunities for restoration and managing at the scale of hydrological and catchment units. With the Scottish Governments intention to introduce targets to improve biodiversity under the new Natural Environment (Scotland) Bill, peatland restoration and management will also play a significant role in meeting the Scottish Biodiversity Strategy targets particularly in relation to Nature Networks, soil health and requirement to restore and manage the majority of peatlands to good condition. Peatlands are also a priority habitat for the Galloway and Ayrshire Biosphere and over environmental NGOs in the region such as the Crichton Carbon Centre, the Tweed Forum and others including Galloway Fisheries Trust and the RSPB as well as NatureScot, Forestry and Land Scotland and Scottish Water.

With this growing urgency to tackle our twin climate and biodiversity crisis the RLUF has identified the need for a regional Action Plan to guide peatland restoration across the region and build on the work led by local organisations such as the Crichton Carbon Centre and the Tweed Forum.

1.2. Aim of this Scoping Review

The Crichton Carbon Centre (CCC)[7] and the Tweed Forum (TF)[8] have been commissioned to scope how a regional Action Plan for peatland restoration should be developed to accelerate and expand peatland restoration in the region. Both organisations are based in the South of Scotland and have extensive experience in designing and delivering peatland restoration across the region, working with landowners and NatureScot to deliver the Peatland Action programme, as well as with other nature conservation programmes and initiatives, Government, environmental NGO's and research institutes.

The key objectives for this scoping work were to:

1. Identify relevant policies/strategies/standards the Plan should align with.
2. Scope how Peatland Action, the Peatland Code and agri-environment support schemes should work with a regional Plan.
3. Establish which existing datasets could be used to inform and report on peatland restoration and management in the region, identifying significant data and evidence gaps.
4. Identify how existing regional strategies have been developed and could influence the development of a Plan for the south.
5. Identify who would need to be consulted to establish peatland principles and priorities for the region.

[7] https://www.carboncentre.org/

[8] https://tweedforum.org/

1.3. Methodology

This report sets out the current peatland restoration and management interests in the region as well as the current legislation, approaches to restoration design and development and funding opportunities for restoration and management. This information is important for the development of an Action Plan and the CCC and TF have drawn on their own direct experience, as well as that of our partners and wider networks, to highlight specific points needing to be considered in the development of an Action Plan for peatlands in the South of Scotland. Due to the time constraints a more formal consultation has not taken place, however, the information presented here reflects the common views of those the CCC and TF work with. A much broader consultation process would need to be undertaken in the development phase of the Action Plan.

The Action Plan to be developed is assumed to need to include the following:

1. Objective/Goal
2. Tasks/Actions
3. Deadlines/Timescales
4. Resources Required
5. Delivery Agents/Partners
6. Potential Barriers or Challenges
7. Measurements of Performance/Reporting

2. Peatland Restoration Support and Regulation

The rate of peatland restoration across Scotland has increased exponentially in the last decade. Primarily driven through the national Peatland Action programme, the growth in uptake and interest in peatland restoration has led to peatlands being considered across sectors with peatland restoration and management adopted into numerous plans, strategies and regulations.

The following sections summarise the current mechanisms and initiatives which support and regulate peatland restoration in Scotland. The CCC and TF have considerable experience of working within these parameters and have highlighted specific aspects of the current support and regulatory mechanisms which need to be considered in the development of the Action Plan.

2.1. Peatland Action

In 2012 the Scottish Government established the Peatland Action programme to support peatland restoration across the country. In 2013 the Scottish Government further demonstrated its commitment to peatland restoration by announcing a multi-year funding package of £250 million to 2030. Currently, Peatland Action has set over 51,000ha of degraded peatland on the road to recovery[9]. Although there is a considerable way to go to meet the Scottish Government target of 250,000ha peatland restored by 2030, the programme is always evolving to help accelerate delivery. Notably this has meant rather than all Scottish Government funding for Peatland Action being administered

[9] https://www.nature.scot/climate-change/nature-based-solutions/peatland-action/peatland-action-what-we-have-achieved [Accessed 2/03/2025]

through a grant system by NatureScot, the "EnFor" (Environment and Forestry) Partnership which comprises NatureScot, Forestry and Land Scotland, Scottish Water and the National Parks, now receive funding directly for peatland restoration so they have more autonomy and can deliver to their own processes and priorities. This delivery partnership is further enhanced by NatureScot working with external organisations, such as the CCC and TF, to deliver peatland restoration by funding Peatland Action Project Officer posts across the country.

To date Peatland Action has been the most significant funder of peatland restoration in the south of Scotland. Projects can be particularly varied in scale and approach in this region and have included ditch blocking on upland hill ground, restoration of lowland raised bogs, "forest to bog" projects which restore previously afforested sites and restoration of complex bare peat and erosion (Figures 2-7).

Some notable examples include:

- Forest to Bog: Moss of Cree[10]
- Lowland Raised Bog: Kirkconnell Flow[11]
- Upland Blanket Bog: Bellybought Hill[12]
- Upland Erosion: Wemyss and March[13]

Peatland Action has to date funded landowners directly 100% of capital works through a grant scheme, with works typically delivered within one financial year. Most projects are delivered with the full support of the local Peatland Action Project Officers based at the CCC or TF. The Project Officers provide the necessary expertise and support to landowners and managers for all stages of a project from initial discussions on project location, restoration needs, project design through to delivery and reporting.

Peatland Action and the way it funds and operates is currently being reviewed in recognition of the need to vastly accelerate restoration across the country with a finite budget[14]. This presents an opportunity for the Action Plan to be developed in tangent with Peatland Action to ensure regional needs are recognised and met. Through the consultation process conducted to date the overarching issues and actions identified by Peatland Action are:

- The need to be clearer **on the science and rationale for protection**, restoration and management of our peatland.

[10] https://www.nature.scot/sites/default/files/2023-05/NatureScot%20Peatland%20ACTION%20Case%20Study%20-%20Moss%20of%20Cree.pdf

[11] https://www.nature.scot/major-peatland-restoration-project-near-dumfries-completed

[12] https://www.youtube.com/watch?v=0QmWAYj_zRE&list=PLSTn6yg6zH_8H16ypap9Oc5S_pkw3_PAP&index=9

[13] https://www.youtube.com/watch?v=3CiC4k_JCRI&list=PLSTn6yg6zH_8H16ypap9Oc5S_pkw3_PAP&index=23

[14] https://www.nature.scot/doc/peatland-action-update-and-conversation-change-support-expansion-peatland-restoration-scotland#:~:text=This%20document%20introduces%20three%20important%20matters%20on%20NatureScot%E2%80%99s,on%20variations%20to%20offers%20to%20maintain%20financial%20probity.

- The **importance of a design process** and associated support that helps to develop a longer-term pipeline of investable projects. This support should be more widely available and help to bring in funding beyond Peatland Action.
- The need to **confirm the criteria for prioritising funding** that maximises benefits and ensures a 'just transition'. The latter includes the importance of flexibility for regional/local considerations.
- The **scope to provide greater and earlier certainty** on funding for restoration. This is required to bring stability and confidence to the sector – both in terms of the likelihood of support for individual projects and the long-term direction/ambition for the sector as a whole.
- The **need to review and streamline processes** – making sure they are consistent and reflect changes in working practices/standards, and they are joined up with wider protection, restoration and management incentives and regulations.

The Action Plan Needs to Consider:

- If Peatland Action were to reduce the restoration funding intervention rate (currently 100%) how would landowners and managers engage with restoration and unfunded costs be met?
- If NatureScot was to stop funding Project Officers in the region how would peatland restoration project design and development be supported?
- Alignment, and co-development, of the regional priorities for Peatland Action funding.
- Peatland restoration funding and support post 2030.
- How to support the streamlining of processes of restoration development and delivery in the region.

Figure 2. Restoring actively eroding peatland; an eroding hag before restoration.

Figure 3. Restoring acively eroding peatland; reprofiled peat hag post restoration.

Figure 4. Peat Hags - Before restoration (February 2024)

Figure 5. Peat Hags after restoration (October 2024)

Figure 6. A raised bog site planted with conifers and then clear felled for peatland restoration.

Figure 7. Three years after conifer plantation felled and ground smoothing work completed. Peatland showing significant signs or recovery, increasing its Nature Conservation value significantly.

2.2. Private Finance and The Peatland Code

The Peatland Code is the voluntary standard for peatland restoration projects in the UK with the wish to market the climate benefit, ie. the carbon savings, of peatland restoration. The Peatland Code is currently the only mechanism that can be used to quantify the carbon impact of projects where intensive, site specific, carbon exchange monitoring and measuring is not taking place. To date there has been strong interest in the Peatland Code in the South of Scotland but only very few projects have gone on to sell either Pending Issuance Units, or Peatland Carbon Units. Currently there are twenty-four Peatland Code projects in the region registered on Markit[15], the UK Land Carbon Registry for Peatland Code projects, three of which have had their Restoration Validated, five have been Validated as projects with the remaining "Under Development".

Projects are attracted to the Peatland Code as it offers a way in which additional revenue can be generated, by selling the carbon credits achieved by a project, to help fund longer term restoration maintenance and management costs with the potential to provide a net profit. However, the Peatland Code is not yet a viable funding mechanism without additional public support, most commonly from Peatland Action to cover the costs of restoration (the bulk of a project cost), as the price of carbon is too low and perceived risks too high. This parallels the experiences of the Woodland Carbon Code requiring Forestry Grant Scheme support. There is also nervousness around the implications of selling carbon due to risks of restoration failing, the risk of a catastrophic events damaging a restoration project (eg. flood, wildfire), the potential future need to account and report on one's own carbon (eg. if discussions progress on a carbon land tax) and if the science underpinning the Code develops and changes the estimated long term carbon benefits of a project (which could lead to a reduction in carbon savings and forecasted income). There are also difficulties in developing projects that need to meet the scale to make them financially attractive to both buyer and seller. Some of these issues have led to the Scottish Government proposing piloting "Individual Carbon Contracts" whereby the Government would award Carbon Contracts to projects through a system of competitive bids and agree to provide an option to sell a portion of any resulting carbon credits at an agreed price, often above the current market rate.

The Peatland Code has been developed based on the most up to date understanding of the carbon dynamics of peatlands in different condition states. This means there are some types of peatlands underrepresented and without sufficient greenhouse gas emissions data to be included in the Code, most notably afforested peatlands and shallow peats. Until carbon emissions from these different types of peatlands are incorporated into the Code, and thus private finance, the projects which will continue to be supported will be larger scale, relatively low risk, single owner/occupied sites which may not necessarily deliver against the regional or potentially national priorities identified by an Action Plan. This is currently being widely discussed as there are increasing calls for public and private finance to support projects which provide more than carbon benefits which, at the moment, is constrained by the lack of quantitative data and metrics to describe other potential environmental benefits of peatland restoration such as to water quality, water regulation and biodiversity.

[15] https://mer.markit.com/br-reg/public/index.jsp?entity=project&sort=project_name&dir=ASC&start=0&acronym=PCC&limit=15&additionalCertificationId=&categoryId=100000000000001&name=&standardId=100000000000157

The Action Plan Needs to Consider:

- How private finance can be attracted to support peatland restoration to deliver regional priorities beyond carbon validated through the Peatland Code protocols.
    - How private finance opportunities can be developed for projects currently not eligible for the Peatland Code? Eg. forest to bog projects, and peatland areas which do not meet peat depth criteria for eligibility.
    - How can private finance support mechanisms be developed to recognise improvements to biodiversity and the hydrological connectivity of peatland areas?
- To need to reflect principles of good ecological restoration, Standards and Codes of Practice.
- The need to balance the urgency for action on peatlands with the need to carefully plan and develop restoration projects so both buyers and sellers have confidence in the longevity of a project.
- The need for project developers, and crucially landowners and managers, to be supported with appropriate advice and expertise in developing meaningful projects with permanence.
- How wider ecosystem services improved through peatland restoration can be recognised, quantified and prioritised in the region.
- How different funding programmes align and how they may or may not be able to be combined for multi-benefit restoration projects with complementary actions for nature. To date anything fundable through Peatland Action is not eligible for the Nature Restoration Fund, and anything fundable from the Agri-Environment and Climate Scheme (AECS) is not eligible for Peatland Action funding.
- How a potential Carbon Land Tax may impact the market and desire to “sell carbon”.
- How can the South of Scotland become a “test bed” for Private Finance.

2.3. Agri-Environment and Climate Scheme (AECS)

Peatland restoration activities have been supported by the Agri-Environment and Climate Scheme (AECS) with capital items included under management options for moorlands and lowland raised bogs. AECS also provides management payments which Peatland Action does not. However, the only restoration activities supported are ditch blocking with peat or plastic dams, both of which are no longer considered best practice.

This highlights the major limitations of the existing agri-environment scheme, as options for restoration are very basic, generalised so they can be applied across Scotland, and very difficult to evolve to keep pace with the fast-moving development and agreement of best practice.

As far as the CCC and TF are aware ditch blocking activities undertaken in the region through the AECS scheme have been limited, and where undertaken, have not been carried out at a scale that would have significant hydrological impacts. Up to now, applicants to AECS schemes have sometimes included small areas of peatland restoration works, as a token gesture in their schemes, as a way of increasing points, to facilitate other habitat conservation works within an AECS agreement.

The Action Plan Needs to Consider:

- How it aligns with the emerging objectives and approaches of future rural support packages.
- The encouragement of bespoke peatland restoration plans within an AECS agreement, which (in addition) allows the applicant to access all options currently available within a Peatland Action application.
- How smaller areas of peatland in need of restoration, may be managed under AECS or Peatland Action. Currently these small areas may not meet minimum scale criteria for funding or "points".
- How to best realise the multiple benefits generated from a smaller peatland programme as part of a larger and wider estate or farm habitat management programme.
- How to raise the profile of the biodiversity benefits of peatland restoration (in addition to the carbon benefits).

2.4. Forestry and Woodlands

The UK Forest Standard[16] recognises that deep peat is vulnerable to disturbance and "the process of woodland creation will generally result in net loss of stored carbon" and thus is covered by soil protection requirements to:

1. At planning and operational stages, the quality of forest soil in terms of its physical, chemical and biological properties should be protected so that it is maintained and, where appropriate, enhanced.
2. Forest operations should be planned and managed to minimise compaction and damage to soil structure and function by using appropriate measures. Should damage occur, reinstatement should be undertaken and adverse effects mitigated.
3. The environment adjacent to forests should not be subject to adverse effects due to soil disturbance associated with woodland creation or forest management practices.
4. New forests should not be established on soils with peat exceeding 50 cm in depth – or a depth specified in country guidance – or on sites that would compromise the hydrology of adjacent bog or wetland habitats.

In addition, it is highlighted that the "hydrological continuity of peat soils, not just peat depth should be adequately accommodated in planting proposals". In practice this would mean planting schemes would be designed to ensure the hydrology of contiguous areas of peatland, and not even just deep peat areas, be compromised by planting and ground preparations. There are many examples in the region where previous planting schemes, before these standards were introduced, have had a significant impact on surrounding areas of deep peat left unplanted due to extensive drainage and ground preparations.

[16] https://assets.publishing.service.gov.uk/media/651670336a423b0014f4c5c0/Revised_UK_Forestry_Standard_-_effective_October_2024.pdf

Today, the UK Forest Standard should ensure that areas of deep peat are not planted with forestry or woodland. However, in a commercial forestry context there is still a strong desire and the ability to *replant* areas of deep peat that meet a certain threshold for growth in the first crop rotation.

The Deciding Future Management Options for Afforested Deep Peatland Practice Guide [17] sets out a clear decision process to establish if a further rotation will produce sufficient growth, is suitable for conventional restocking under the UK Forest Standard with minimal cultivation and fertilisation and there is not a presumption to restore for biodiversity or other reasons. This most commonly results in, in this region in particular, a strong push to replant areas of deep peat due to the regions importance to the forestry sector, timber industry and woodland cover targets. There is an interest in "forest to bog restoration" in the region both by Forestry and Land Scotland (FLS) who manage the National Forest Estate and private landowners recognising the importance of peatlands for carbon and biodiversity, and the concern that future rotations on deep peat may produce poorer financial returns. In Dumfries and Galloway FLS are planning major restoration of priority sites such as Tannylaggie in the Bladnoch catchment and across of the Lochar Mosses near Dumfries.

It should be noted that there is growing concern surrounding the growth and carbon models used to decide if planting or replanting peatlands will have a net carbon benefit as there is a balance needing to be struck between sequestering carbon, in the form of tree growth, and the carbon lost from peat soils due to drying because of cultivation and tree growth. In England more recent guidance now states that no new planting is expected on peatland soils more than 30cm deep. Likewise, the yield class that has be achieved in the first rotation for sitka spruce is higher in England[18], Yield Class 10, compared to Scotland which is Yield Class 8. As more data becomes available it will be necessary that carbon emissions from afforested peatlands will be better understood and used to inform decisions on woodland creation and replanting peatlands.

A further, and growing issue, is the extent of self-seeded nonnative conifers now appearing across the regions open peatlands. The extent of forestry cover in the region, particularly Dumfries and Galloway, is putting significant areas of open peatland at risk of further condition decline[19]. This is already making landowners reconsider undertaking restoration projects as they will have to take on the responsibility to manage the problem, potentially for many decades at considerable cost, and often without any control on the seed source.

The Action Plan Needs to Consider:

- How peatland strategies and priorities align with forest policy, the two regional Forestry and Woodland Strategies, targets and emerging evidence on carbon budgets of afforested peatlands.
- If shallow peatland restoration and management becomes a priority how could this impact the regions forestry industry and targets?

[17] https://www.forestry.gov.scot/publications/1-deciding-future-management-options-for-afforested-deep-peatland/viewdocument/1

[18] https://assets.publishing.service.gov.uk/media/66bb1a6aab418ab05559366a/July_2023_Decision_support_framework_for_peatland_protection_V4.pdf

[19] https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2024-09/IUCN%20conifer%20seeding%202024%20A0.pdf

- How can the region react to the growing issue of self-seeded conifers impacting peatland condition and restoration success in the region? How will this reduce the extent and rate of peatland restoration in the region?

2.5. Biodiversity Net Gain

NatureScot is undertaking work to develop a biodiversity metric for Scotland's planning system[20], to support delivery of National Planning Framework 4 policy 3(b) which includes a requirement for all national, major and EIA development to include "significant biodiversity enhancements" that leave nature in a "demonstrably better state than without intervention".

At a regional level there is already interest in supporting peatland restoration projects to meet planning requirements and this is likely to continue due to the propensity to see developments, eg. energy infrastructure projects and windfarms, on peatland soils in the region. At the moment, the mechanisms for identifying areas for Biodiversity Net Gain (BNG) projects, in terms of their location, size, type and impacts, are still being established, and the publication of Scotland's Biodiversity Metric, although likely to developed on a similar basis to the well-developed Defra metric[21], will help shape opportunities for BNG requirements to deliver peatland restoration.

The Action Plan Needs to Consider:

- How BNG can support peatland restoration in the region to meet regional priorities and objectives.
- Supporting landowners in identifying opportunities for BNG projects which is currently largely undertaken by Peatland Action Project Officers.
- How an Action Plan promotes and accelerates restoration delivery for BNG recognising the limited time frame in which projects must be completed, and financial support drawn down.

2.6. Cross Compliance

From 1 January 2025, new cross-compliance requirements under Good Agricultural and Environmental Condition (GAEC 6 – Maintenance of Soil Organic Matter) came into effect. These requirements have a greater focus on peatlands and wetlands than before but build on existing rules for rough grazing and semi-natural areas.

These new enhanced requirements prohibit the following activities on peatlands and wetlands:

- Reseeding.
- New drainage or maintaining existing systems that dry out peatlands or wetlands.
- Applying pesticides, fertilisers (including manures), lime, or soil conditioners.
- Creating new roads or tracks, including vehicle rutting that exposes soil (normal ATV use for livestock checks is allowed, however, inspectors will assess the extent of any damage based on the vehicle, land type and damage. Existing tracks can continue to be used even if the soil is already exposed).

[20] https://www.nature.scot/doc/biodiversity-metric-scotlands-planning-system-key-issues-consultation#1.+Introduction-01

[21] Need ref

- Planting trees on peatlands or wetlands, or in areas affecting the hydrology of adjacent peatlands or wetlands.
- Damaging vegetation cover, e.g., through excessive poaching or trampling by livestock.
- Disrupting connections between wetlands and watercourses, causing them to dry out.

Although these requirements in themselves do not necessarily lead to more peatland restoration they will ensure peatlands are not further damaged through agricultural activities. Importantly, these requirements also apply to adjacent land if activities cause equivalent damage to peatland or wetland, such as cutting a ditch adjacent to the area that would drain water away to the same extent had the ditch been cut on the peatlands or wetlands. However, certain activities may be permitted under specific conditions, for example, if they are linked to:

- Peatland restoration projects, wind turbine installations, or permitted developments with prior written consent from Scottish Ministers.
- Domestic peat cutting.
- Spot pesticide applications for controlling injurious or invasive weeds, subject to prior consent and SEPA guidance near water.
- Maintaining active, partially revegetated drains (fully vegetated and obstructed drains cannot be cleared).

The Action Plan Needs to Consider:

- Alignment with cross-compliance requirements.

2.7. Permitted Development Rights

Peatland restoration falls under permitted development rights ("PDR") as it is a form of development granted planning permission through legislation, meaning it can be carried out without a planning application having to be submitted to (and approved by) the local authority. However, Prior Notification and Approval is required for peatland restoration projects and a developer must notify the planning authority, provide details of its proposed development and pay the relevant fee[22].

In practice this requirement means sufficient information about a project must be submitted for Prior Approval to the relevant local authority usually ahead of receiving any public funding, as is the case with the Peatland Action programme. This can therefore have implications for the timeline from development to delivery. The standard information required as part of a submission includes information which has been discussed and consented by the relevant stakeholder or regulatory body. Information required to be submitted as part of an application for prior approval, from experience, includes information and evidence on:

- Site Overview
- Location (peatland type)
- Restoration activities and areas (maps)
- Peatland condition
- Restoration requirements

[22] https://www.gov.scot/publications/circular-2-2024-non-domestic-permitted-development-rights/pages/3/

- Designations and the relative discussions and consents from regulatory bodies (eg. NatureScot, SEPA)
- Historic Environment (ALGAO Guidance[23])
- Soils
- Flood risk
- Contamination
- Biosecurity
- Photos of the site
- Peat slide risk assessment

The Action Plan Needs to Consider:

- The basic need for all projects to meet the requirements for Prior Notification and Consent.
- That projects can take some considerable time to develop and the need to streamline processes and establish the resource to accelerate project development time and decision making.

2.8. Peatland Standard

2025 will see the development and publication of Scotland's first "Peatland Standard". This Standard draws on the approach taken by the UK Forest Standard and is intended to clearly set out the requirements for restoration and management of peatlands in Scotland.

The Standard is still only in draft form with various rounds of consultation planned throughout 2025. It is anticipated the Standard will be published in late 2025 and will relate not only to restoration projects but to developments on peat and other land management practices. The Peatland Standard will refer to Peatland Action's Technical Compendium, which is published and available online[24], which is seen as Scotland's best practice guide to peatland restoration.

The Action Plan Needs to Consider:

- Aligning with the Peatland Standard as it evolves throughout 2025 and any future updates.

3. Peatland Restoration Project Development

The process of developing peatland restoration projects has undoubtedly become more complicated over the last 10 years. Figure 1 gives an illustration of the process undertaken by the CCC to develop a restoration project for Peatland Action and a Peatland Action funded project, increasingly developed in tangent for the same project site. The timeline illustrated in Figure 1 is of course subject to change but has, to date, been dictated by the application deadline to Peatland Action and constraints around working within the bird breeding season. Figure 1 paints the most optimistic view; works carried out from the beginning of September when the weather is better, grant approval being given in time to allow for this and the preferred contractor available to start works on the original date planned for.

[23] https://www.algao.org.uk/publications/2022/guidance-peatland-restoration-and-historic-environment-scotland

[24] https://www.nature.scot/doc/peatland-action-technical-compendium

As other funding approaches develop different requirements and criteria will need to be met, and it should be recognised that the Scottish Government and NatureScot are looking at ways of streamlining the process of development, improving the alignment with the Peatland Code and extending the restoration season where appropriate[25].

The Action Plan Needs to Consider:

- How the process for project development could be streamlined in the region to reduce development time.
- The resources required to ensure projects are well designed and can gain the necessary consent from statutory bodies and stakeholders in a timely manner.
- The resource and expertise required within Local Authorities to meet the volume of applications for Prior Approval.

[25] https://www.nature.scot/doc/peatland-restoration-and-breeding-birds

Figure 2. An illustration of the timeline and process required to develop Peatland Action and Peatland Code funded projects.

Month	Peatland Action Project Process	Peatland Code Project Process
April May June	**Surveys Underway** Developing project with landowners and managers Stakeholder Engagement and Peat Depth survey commissioned (required for Peat Slide Risk Assessment)	
July August		Registration: PC Emission Calculator Registration: Maps **Register on Markit**
September October		**Project Documentation:** Additionality Calculator, Management and Monitoring Plan, Pre Restoration Photos, Risk Assessment, Project Design Document
November	**PDR Application Submission**	
December	**Final Design Agreed**	
January	**Completed Statement of Requirements**	
February March	**Contractor Procurement** (Public Contracts Scotland)	**Application Submitted to Validation body + fees paid**
April	**Application Submission**	
May June July	Application Assessment	Application with Validation Officer for Technical Review
August		
September	**Pre-Commencement Meeting - Start of Delivery**	Validation Certificate Issued **PC Project Registered and Validated COMPLETED**
October November December	Delivery - Interim Reporting and Claim	**Restoration Phase Underway** ("Date of Implementation")
January	Completion - Final Report, spatial data and claim submitted	
February	**Project Completion**	
March		**Restoration Completion** ("Start Date")
April May June July August September October November December		Inspection of restoration within 1 year of Start Date
January February March		
April		**Project Validation Certificate Issued**

4. Targets, Priorities and Reporting

How peatland restoration is targeted and prioritised has evolved over the past decade as interest has grown and funding has become more competitive. 2024/2025 was the first year Peatland Action had to "score" project applications to ensure they met the Scottish Government restoration area target and funding criteria for the year. However, there are also emerging regional priorities which are a key local driver for restoration and of interest to landowners and managers, but not yet necessarily considered in national funding. This makes this a very active area of discussion, and the development of a regional Action Plan offers an opportunity to help establish the south of Scotland's needs and funding priorities to inform national funding and support schemes.

There are a number of regional strategies in Scotland for peatlands. The Peatlands of Caithness and Sutherland Management Strategy is now in its third edition[26] and sets out the vision and strategic objectives for peatlands in the area from 2021-2030. The Strategy was developed by the Flow Country Partnership comprising public bodies, environmental NGO's, Local Authorities the Environmental Research Institute (University of the Highlands and Islands), Highlands and Islands Enterprise, the Flow Country Rivers Trust, the Northern Deer Management Group and the Highland Third Sector Interface and sets out a series of clear actions relating to sustainable land management, community and economic development, "spreading the message" and improving the scientific understanding of peatland and restoration. The National Parks in Scotland also have their own strategies with the Cairngorms having precise actions to be delivered by 2027 such as restoring a minimum area (6500ha), increasing contractor capacity, developing guidance on the integration of peatland restoration and woodland expansion in the Park and exploring protection options for peatland restoration from herbivores. These strategies all highlight the approaches being taken to meet the specific needs, and management contexts, of peatlands in different regions. Although there is no formal strategy specific to the South of Scotland the sections below set out the different ways projects all already being prioritised by landowners and project developers in the region.

4.1. National Targets and Priorities

4.1.1. 50cm "Deep Peat"

The 50cm threshold for deep peat underpins the majority of the mechanisms which support and prioritise peatland restoration and management. It is therefore crucial to see an Action Plan specify and define the peatlands it applies to. Currently Peatland Action, the Peatland Code, Cross Compliance, forestry guidelines and development guidance for NPF4 all use this definition for deep peat and restoration and management. In addition, most of the techniques described in the Technical Compendium have been developed for, or in the context of deep peat, restoration. Understanding that "peatland" and "peatland restoration" have become synonymous with "deep peat" is important as there is a growing awareness that there are significant areas of shallow peat that may need to be considered for restoration and management in the future[27]. This is likely to become more important as biodiversity becomes a priority, particularly for BNG projects, as habitat

[26] https://theflowcountry.org.uk/wp-content/uploads/2025/02/THE-PEATLANDS-OF-CAITHNESS-AND-SUTHERLAND-MANAGEMENT-STRATEGY-2021-2030.pdf

[27] https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2023-07/Use%20of%20Peat%20Depth%20Criteria%20-%20Accounting%20for%20the%20Lost%20Peatlands%20v1.1.pdf

extent and connectivity will become the primary concern “blurring” the lines between deep and shallow peat and the conventional system of developing a restoration/project footprint. This could have a considerable bearing on other land use systems such as forestry as the areas prioritised for peatland (habitat) restoration or woodland creation is not so easily defined by 50cm peat depth.

4.1.2. Peatland Action

The overarching target for Peatland Action and the wider EnFor partnership is delivering the Scottish Government's target of restoring 250,000ha by 2050. There are significant challenges in meeting this target including workforce capacity, funding shortfalls and time required to develop and design restoration projects, but the rate of delivery is increasing. Peatland Action reached their annual target in 2023/2024 and delivered 10,300ha of restoration nationally and Forestry and Land Scotland tripled their restoration area from 579ha in 2021/2021 to 1500ha in 2023/2024.

The hectarage target requires relatively simple reporting of hectares of restoration delivered and the Peatland Action programme has developed the methodology for mapping “restoration area” adopted by a number of the EnFor partners. However, it is being highlighted that the restoration area may not necessarily fully represent “environmental impact area”, for instance the area in which a biodiversity uplift may be achieved or the hydrological function improved. To complicate matters further the Peatland Code uses a different mapping methodology to calculate area and emissions savings. This inconsistency in mapping and reporting methodologies adds complexity to gaining a national or regional understanding of both area restored and the wider environmental impacts of a project.

How Peatland Action funding has been targeted in the past year, when for the first time there were more project applications than could be funded, has had major implications for the type and geographic location most suited to the fund. To meet the hectarage target large scale 100ha plus projects with low restoration costs were favoured. Those projects which could reduce costs further by bringing in an element of private finance, ie. projects that could be validated through the Peatland Code, meant large scale projects which were financially more attractive were favoured. This meant projects that could not draw in private finance, such as those not eligible, where the landowner did not want to enter into the Code, or on sites where private finance is difficult to distribute, such as tenanted or common grazing land, were less favoured. To address this Peatland Action are looking to widen the scope of their funding and consider different themes to allocate funds such as:

- Carbon - prioritise large scale, landscape projects with high hectarage
- Biodiversity- Protected areas and species etc.
- Hydrology – Flood mitigation
- Community and connectivity and innovation – projects with community, education, training, research or cultural benefit
- Mixed Benefit. Currently there are major data and evidence gaps to quantify and thus robustly “score” projects on these new criteria which is a concern to those developing projects.

4.1.3. Private Finance

Private finance is increasingly seen as essential to realising the rate and scale of peatland restoration Scotland, and this region, to meet Government targets and Net Zero ambitions. NatureScot has outlined their ambitions to see more private finance supporting the Peatland Action projects and are developing different ways of supporting more private investment in the sector. Likewise, SOSE are working to understand and support private finance opportunities which may support future peatland projects, and the Borderlands Natural Capital Innovation Zone has a core ambition to attract responsible investment in natural capital in the region.

To date private finance for peatlands has sat within the parameters of the Peatland Code, so focussed entirely on carbon. However, it is useful to understand the wider ambition for private finance to support more multi-objective projects as set out in the Scottish Governments Natural Capital Market Framework with the principles:

Principle 1: investment that delivers integrated land use;

Principle 2: investment that demonstrates engagement and collaboration;

Principle 3: investment that delivers public, private and community benefit;

Principle 4: investment that is ethical and values led;

Principle 5: investment that is of high environmental integrity;

Principle 6: investment that supports diverse and productive land ownership

Aligning with these principles, and more fully with the Natural Capital Market Framework, offers an opportunity for the Action Plan to bring consistency to approaches being developed for assessing biodiversity and community benefits and enable a more robust system of targeting funding for peatlands for maximum benefits. However, it is still important to consider the specific regional, and often very local, priorities for peatland restoration and management, many of which have become quite established over the past ten years in the south of Scotland.

The Action Plan Needs to Consider:

- How regional actions align with national priorities and targets for peatland restoration.
- The potential for new conflicts to arise between peatland restoration and other land uses, most notably forestry, if biodiversity becomes more significant driver of restoration. How will an Action Plan integrate with other Natural Capital plans for the region?
- How the South of Scotland becomes a test bed for private finance to support peatland restoration.
- How does an Action Plan seek to monitor delivery and the need to recognise different ways of reporting areas restored and potential environmental benefits.

4.2. Emerging Regional Priorities and Considerations

The CCC and TF are working with landowners and managers across the region and several priorities are emerging which have been important to the successful collaboration, development and delivery of projects. To date most of the peatland restoration in the region has been funded by Peatland Action which, until 2023/2024, had been almost non-competitive. However, as described previously Peatland Action is now needing to prioritise funding and are actively developing a new approach for this. Conversations are already underway between the CCC, TF, SOSE and NatureScot to ensure the South of Scotland is recognised for its unique opportunities and pressures. The following sections briefly highlight the key priorities, beyond that of carbon and meeting funding criteria, that have informed and driven peatland restoration in the region to date.

4.2.1. Water Quality

Water quality management is an important consideration across the region but potentially for different reasons. Water quality issues in the Tweed catchment include diffuse pollution from agricultural and forestry practices while catchments in Galloway may be suffering from very low pH events negatively impacting wild fish stocks over decades[28]. In both the Bladnoch and the Fleet catchments this has been linked to the extensive drained and afforested peatlands and work undertaken by the CCC and the Galloway Fisheries Trust has evidenced this to identify priority area for forest to bog restoration[29]. It is widely recognised that improvements to water quality could be made by continuing to restore peatlands and that a reduction of peat particle run-off and dissolved organic carbon through re-vegetating areas of actively eroding peat and re-profiling and blocking drains is likely to help improve water quality down-stream[30]. This has been an important objective for some landowners and managers, particularly those keen to improve stocks of trout and salmon.

Improving and maintaining drinking water supplies are also a key consideration; Scottish Water currently has 13 supply reservoirs in the Tweed Catchment alone. Several of the peatland habitats in the Scottish Borders are at the headwaters of these drinking water supplies (Megget Reservoir, Talla Reservoir, Baddinsgill) and improving the condition of these areas of peatland is hoped to contribute to improving water quality in these catchments, reducing the cost of treatment. Scottish Water is a key delivery partner to NatureScot delivering peatland restoration in Scotland.

4.2.2. Water Regulation

Border towns such as Selkirk, Hawick and Peebles are all vulnerable to flooding and have been the focus of flood management schemes. Tweed Forum has been delivering projects with a focus on natural flood management over the last 19 years. Several projects have been undertaken to deliver natural flood management measures in the Tweed Catchment area in conjunction with peatland restoration such as tree planting and the installation of leaky barriers. Peatland restoration is increasingly considered a key aspect of flood management and has focussed attention on peatland areas in other catchments with flooding issues such as the Nith.

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[28] Rees, Bob & Ribbens, J.. (1995). Relationships between afforestation, water chemistry and fish stocks in an upland catchment in south west Scotland. Water Air and Soil Pollution. 85. 303-308. 10.1007/BF00476846.

[29] https://gallowayfisheriestrust.org/luce-peatland-restoration.php

[30] https://www.iucn-uk-peatlandprogramme.org/about-peatlands/peatland-benefits/water-quality

Restoring peatland habitat contributes to the regulation of water flow from the upper catchments by restoring the natural capacity for a peatland to store and release water. The presence of gully systems and artificial drainage reduces a peatlands natural capacity to store water and accelerates discharge. Where flow becomes focussed, for instance through an artificial drainage of gully system, this can also accelerate peatland erosion, something observed throughout the South of Scotland. It is well understood that peatlands in good condition can help to reduce the incidents of flash flooding events in the lower catchment[31]. During periods of low rainfall water stored in the uplands can also keep rivers from drying up. This helps to increase resilience of fish populations and other wildlife. Water retention is crucial for ecosystem function. Retaining water in peatlands, wetlands, woodlands and across farmland is fundamental as it underpins a biodiverse landscape and reduces the impacts of drought which can lead to wildfires. Changing weather patterns has seen increased fire risk across Southern Scotland in recent years.

Water abstraction takes place within the Tweed Catchment to support several agricultural and industrial practices. Future movement towards more sustainable farming practices, including development of on-farm hydrogen generation, will also require abstraction of water. Maintaining a consistent water supply within rivers will therefore be important for supporting these sectors.

For landowners water regulation may be more of a localised objective. Anecdotally, but actively discussed, is the desire to reduce water runoff from upland peatlands to better manage inbye farmland by reducing water inundation and flooding. There is also interest in peatland restoration from those who manage hydro schemes as flow rates can become more constant through the year; ultimately generating more energy.

4.2.3. Water Temperatures

Increases in water temperature relating to climate change is a concern in the Tweed Catchment and catchments throughout Dumfries and Galloway due to the impact on fish populations and other wildlife. Tree planting along riparian zones is being carried out at target areas across the catchment to help provide shade where water temperatures are most affected by warming. Very high temperatures have been found in rivers in Galloway in recent years[32]; and is thought that waters with high dissolved and/or particulate organic carbon content from surrounding peatlands are at most risk due to their dark colour. Peatland restoration could help reduce the amount of peat washed into rivers and watercourses.

4.2.4. Habitat Enhancement & Connectivity

Restoring peatlands will help improve habitats for a variety of species. Restoring areas and raising the water table supports, and can recreate, more diverse pool systems helping to increase habitat for insects. Black grouse and curlew are two examples of species that are showing severe declines in south Scotland, both are often present in peatland habitats. Working to restore peatlands will help increase available and connected habitat for these species as well as other peatland specialist plants and animals. Undertaking restoration for biodiversity benefits is increasingly influencing how sites are prioritised. Even before Biodiversity Net Gain considerations, and the tools and metrics used to

[31] https://www.manchester.ac.uk/about/news/restoring-eroded-peatlands-reduces-flood-risk-for-communities-downstream/

[32] https://gallowayfisheriestrust.org/monitoring-water-temperatures.php

establish biodiversity benefits of peatland restoration, areas which were deemed “too dry” were restored by landowners to help improve water availability through spring and summer droughts and provide more habitat for insects such as cranefly, an important food source for upland waders and red grouse.

In the Scottish Borders much of the peat soils are on larger estates where work can be undertaken at scale on multi-phase projects. The same is also true in Dumfries and Galloway although, beyond the large estates traditionally managed for farming and sport, afforestation has led to the fragmentation of peatlands. Working with large landowners, who may be implementing other conservation measures, such as native tree planting and river restoration, peatland restoration has the potential to be carried out at scale to increase habitat connectivity. This can be a useful when prioritising large areas of peatland for phases of work where the objective is establishing a practical programme of works over a large area.

Despite the need and desire for large scale restoration, it is important to consider the benefits of small-scale restoration which can have very high biodiversity impacts. This is exemplified by forest to bog restoration where key forestry blocks may have a disproportionate influence on water chemistry in a catchment, as observed in the Fleet catchment for example, or have a significant biodiversity benefit, such as the Moss of Cree which is an important site for over wintering hen harrier.

4.2.5. Sustainable land management

Peatland restoration can further support and promote sustainable grazing practices. High stocking densities on hill farms can be a barrier to peatland restoration as funding may not be available if stocking densities are considered too high with the potential to have a detrimental impact on peatland habitats; NatureScot recommends grazing levels on open bog habitat to be 0.02 lu/ha. As the importance of peatland is more widely understood, and the potential for peatlands to generate an income through carbon and biodiversity schemes, in some areas land managers are carefully considering farming activities, and wild herbivore numbers (deer and goats), to ensure peatland restoration is a viable option. As Peatland Action only offers grants to cover the capital cost of restoration the Peatland Code is relied upon to bring in additional revenue to help offset costs from any reduction of livestock. This makes changes to farming practices for restoration most manageable for landowners where a peatland project is eligible for the Code, which now is centred on deep peat. This may change as more opportunities for biodiversity net gain schemes with sufficient funding which are less restricted to deep peat.

Some landowners are also still using burning as a heather and fuel load management tool to improve habitat structure and diversity and reduce wildfire risk. Peatland Action and Peatland Code agreements require no burning to take place where restoration has been carried out so this can be a major consideration. In practice peatland restoration focuses on deeper wetter peat areas or in areas of erosion where burning is not necessary or prohibited by the Muirburn Code which states that burning should not take place on peatland, except as part of a habitat restoration plan, approved by NatureScot, and not at all in areas with peat hags, bare peat or erosion.

4.2.6. Aesthetics & Access

Tweed Trail is currently being developed to increase access in the Scottish Borders. Improvements to habitat quality will improve landscape aesthetics for tourists to the region. There is also interest in

how peatland restoration can “open up the view” from walking routes which go through heavily afforested areas such as the Southern Upland Way. More locally landowners and managers themselves often wish to see the landscape restored by stabilising and revegetating areas of erosion.

4.2.7. Designated Sites

Peatland Action and the Peatland Code do not currently prioritise designated sites. However, improving failing/declining designated interests and sites has helped justify and support decisions to undertake restoration in key areas. For example, the Tannylaggie project to be undertaken by FLS has been prioritised as it will help improve the Bladnoch Catchment SAC where fish populations, including Atlantic salmon, are still heavily impacted by low pH and “acidic flush” events thought to be driven by the large extent of degraded drained and afforested deep peats in the upper reaches of the catchment.

The Action Plan Needs to Consider:

- Who needs to be consulted to establish the priorities for peatland restoration.
- How can the region develop a sufficient evidence base to target and prioritise peatland restoration in the region?
- How will research and monitoring be supported in the region to monitor progress again these priorities?
- How will an Action Plan recognise the potential conflict in priorities such as woodland cover and afforestation and peatland restoration for water quality improvements?

5. Data and Evidence

5.1. Data and Evidence Used to Plan and Design Peatland Restoration

There is a wealth of national, and publicly available, datasets that are routinely used to help inform, and in some cases target, peatland restoration and management (Table 3). It is very important to recognise that usually the national, or even regional scale datasets available only guide decision making and much more precise detail on peatland condition is needed to develop and design a restoration project.

To design a project to the level required to meet funding requirements, and to sufficiently and confidently provide a detailed “Statement of Requirements” for a project to procure contractors to undertake the work (increasingly advertised using the Public Contracts Scotland portal) a significant amount of precise mapping is required to inform and predict the restoration approaches and materials required.

Aerial imagery has always been important for peatland restoration development and design, most commonly in the form of publicly available satellite imagery eg. Google Earth. Although increasingly informative as imagery improves in quality, and an image history spanning around two decades builds up, these satellite images can often be some years out of date at the point of restoration designing. UAV surveys (drones) are increasingly used to capture images of sites as they provide the much higher levels of accuracy and insight into a specific peatland’s condition at a precise moment

in time (Figures 8 - 13). UAV surveys are often commissioned by those developing a project, although not often a cost that is easily fundable through Peatland Action or undertaken by peatland restoration specialists such as the CCC ad TF. There is more than one method that can be used for identifying and mapping features, and some project designers are now developing automated techniques to map bare peat and other erosion features. Despite being increasingly seen as a vital to improving the accuracy of restoration planning and design UAV surveys are typically limited by scale as flying UAVs and processing the associated data is a time intensive and costly task.

Table 3. National datasets used in peatland restoration and management in the South of Scotland. Data may be subject to providers terms and conditions.

Information	Data/Provider	Location
Soils and geology	National Soils Map Scotland	Scotland Environment Web
	Soil Map Scotland	Scotland Environment Web
	Geology (Superficial and Bedrock)	BGS
	Carbon and Peatland V2	Scotland Environment Web
Topography	Lidar	Scottish Government Scottish Remote Sensing Portal
Local Planning	Dumfries and Galloway Council	Permitted Development Rights
	Scottish Borders Council	Find it - Map advanced
	ePlanning.scot	Planning Portal
Peat Depths/Extent	Forestry Developers and FLS	Provided by land manager or FLS Land Management Plans
	Peatland Action Peat Depths	Scotland Environment Web or land manager/owner
AECS Peatland Area Map	Scottish Government/RPID	Rural Payment Agri-Environment Climate Scheme
Water Environment	SEPA - various maps available for flooding	SEPA Flood Map map viewer
	SEPA - various environmental datasets	SEPA Data publications
Land Use	Scottish Forestry - various datasets and maps	Scottish Forestry Map Viewer Application
	Forest Research	Ecological Site Classification
Historic Environment	Historic Environment Scotland	Canmore - National Record of the Historic Environment
	Archaeological, historic environment records and 1946 aerial imagery	Local Authority
Designations	NatureScot	SiteLink
Historic maps and images	National Library of Scotland	National Library of Scotland Side by Side Viewer
Restoration Best Practice	Peatland Action	Technical Compendium

UAV aerial survey imagery is also currently being used to help evidence the relative success of peatland restoration projects for the peatland carbon code. The minimum specifications for imagery that can be used as evidence for pre- and post-restoration condition is 1 metre resolution orthorectified map according to the Peatland Code. This specification is the same for both project validation and restoration verification. These surveys can also be done by taking a large number of indicative geo-referenced photographs from ground level, the detail of which are laid out in the Peatland Code Field Protocol.

As technology and visualisation tools are advancing rapidly the Action Plan will have to adapt and utilise these evolving technologies to help facilitators, land owners and contractors locate, identify and prioritise key sites for peatland restoration.

Figure 8. Using evolving technologies to target peatland restoration at a landscape scale.

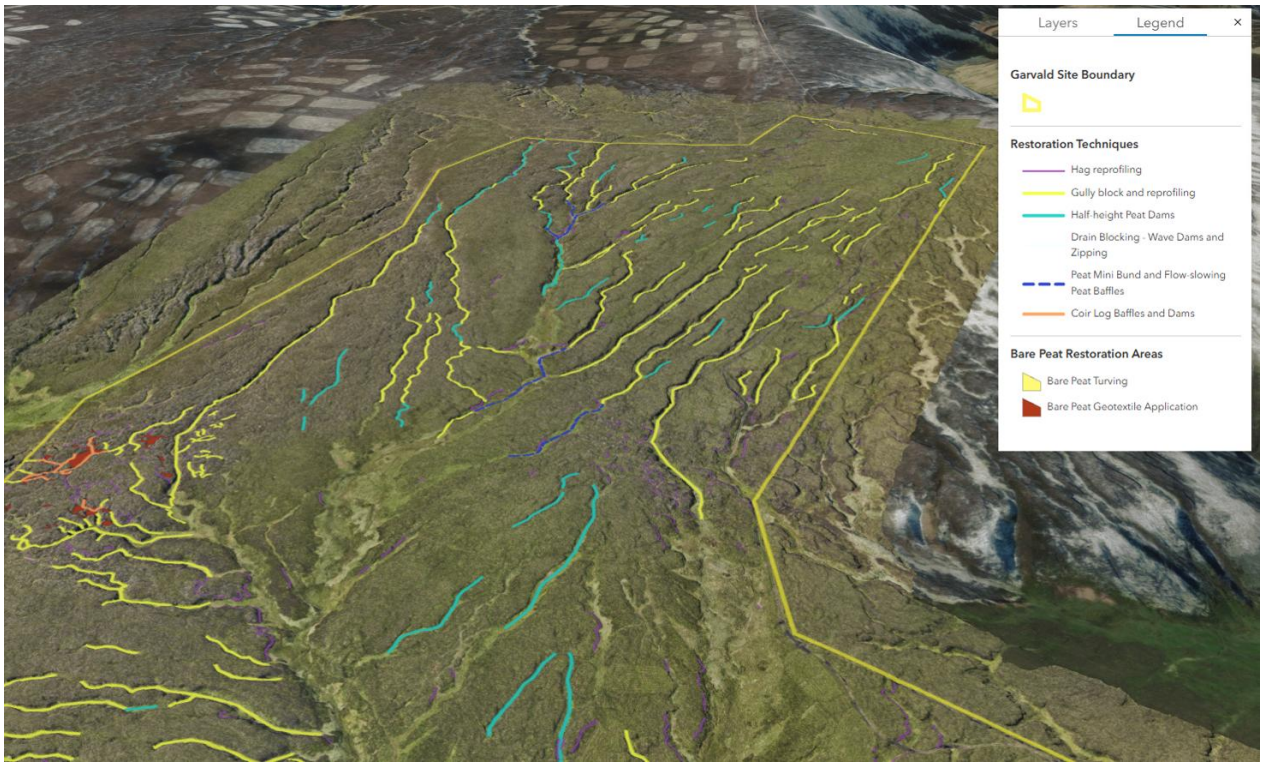

Figure 9. Identifying restoration opportunities

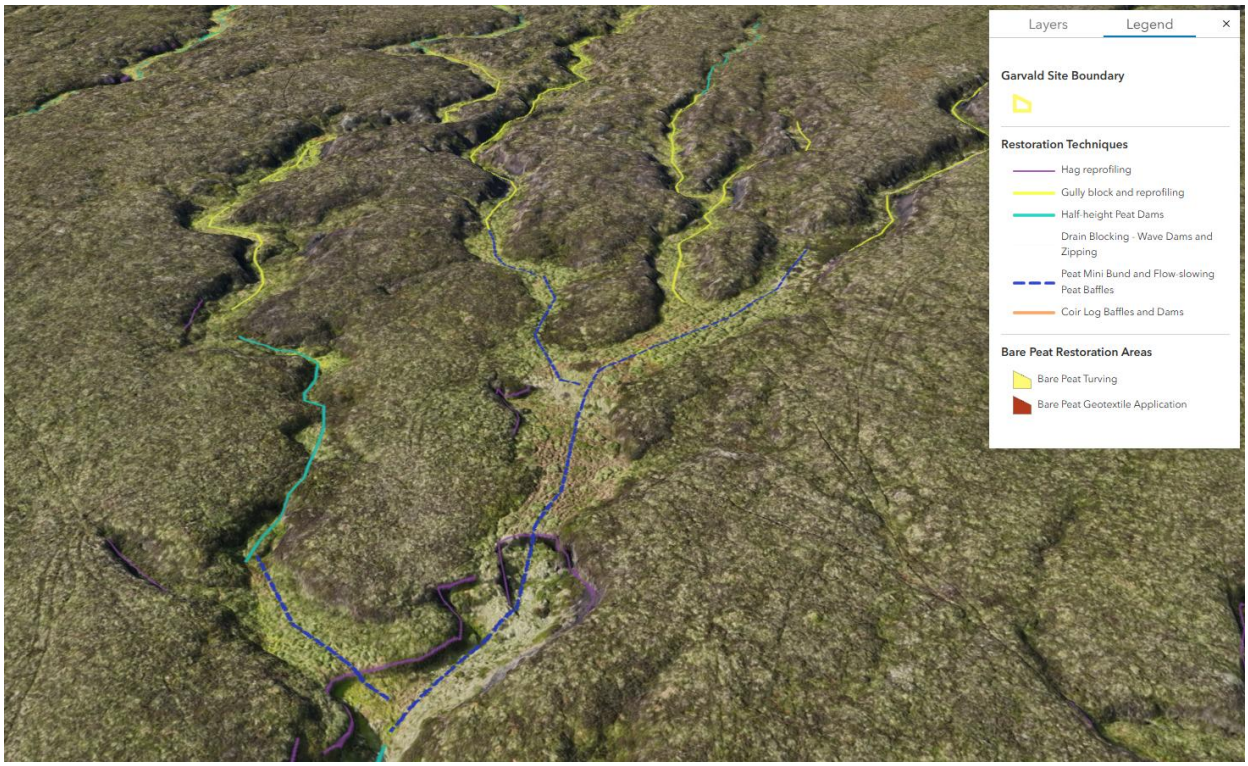

Figure 10. Prioritising restoration opportunities.

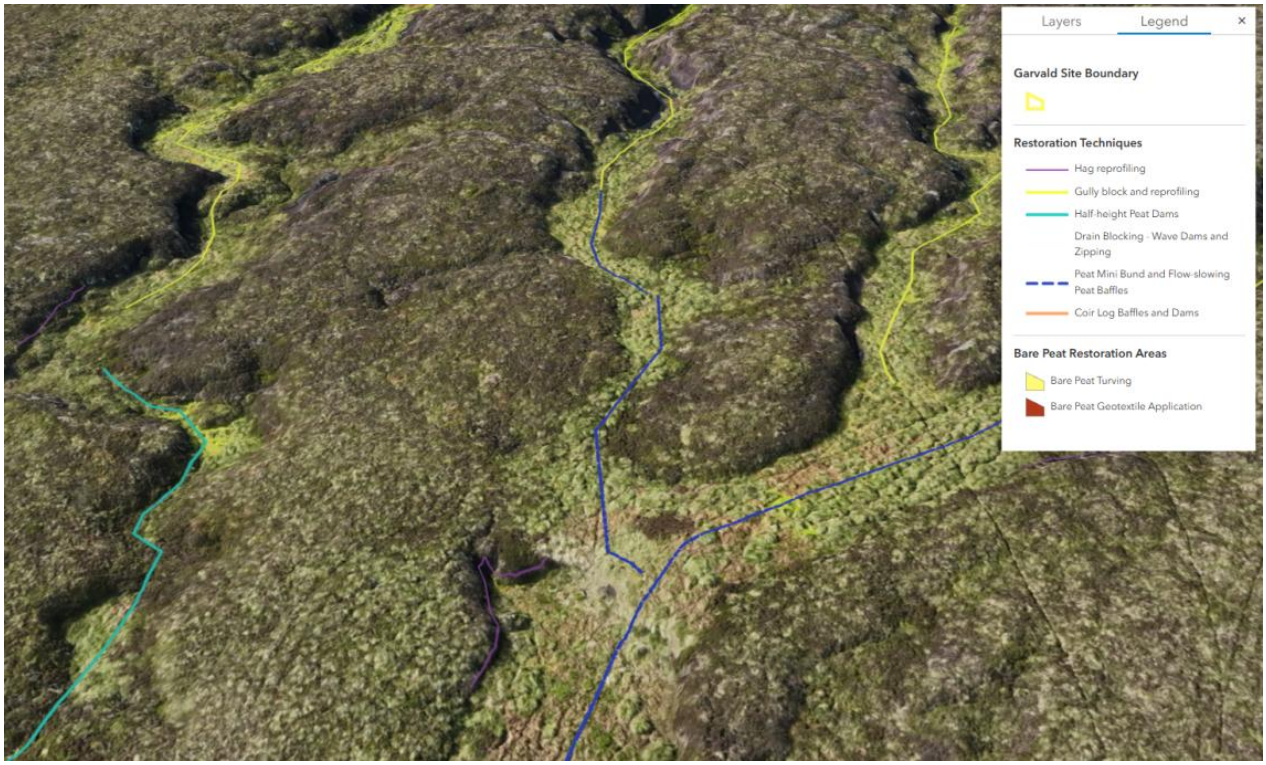

Figure 11. 3D Model identifying opportunities for Peatland Restoration (ArcGIS Online)

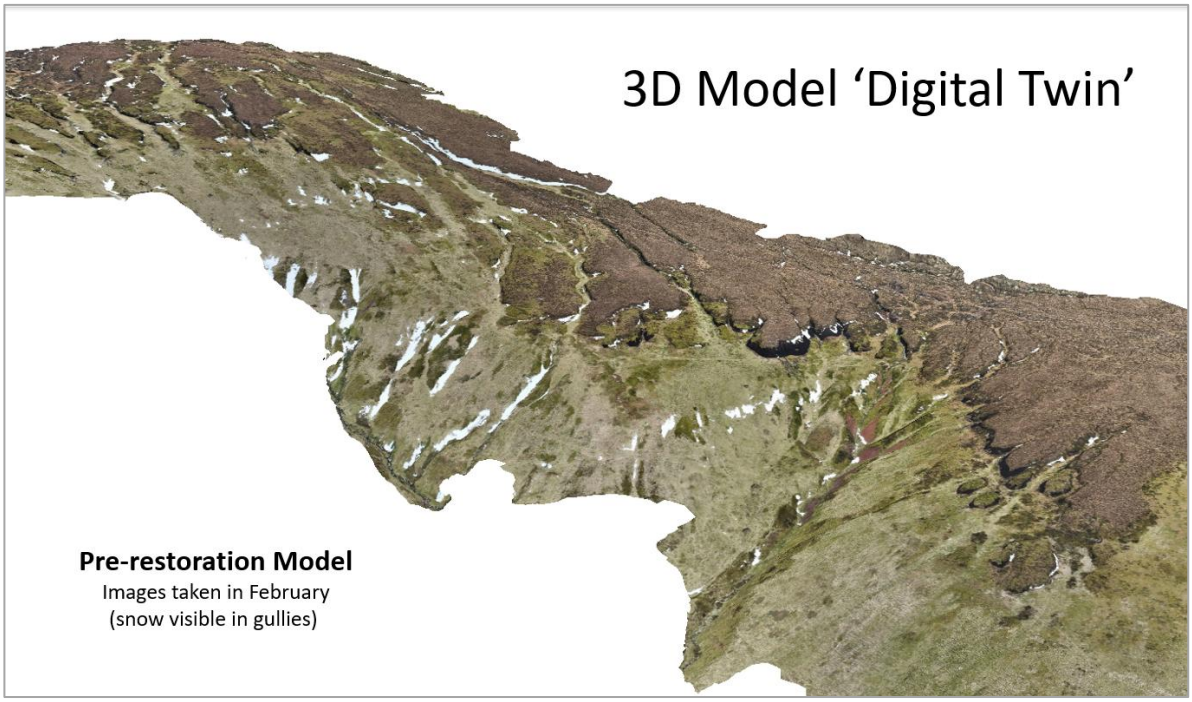

Figure 12. Peatland restoration at a landscape scale can yield multiple benefits for People and Nature (February 2024- Before Restoration).

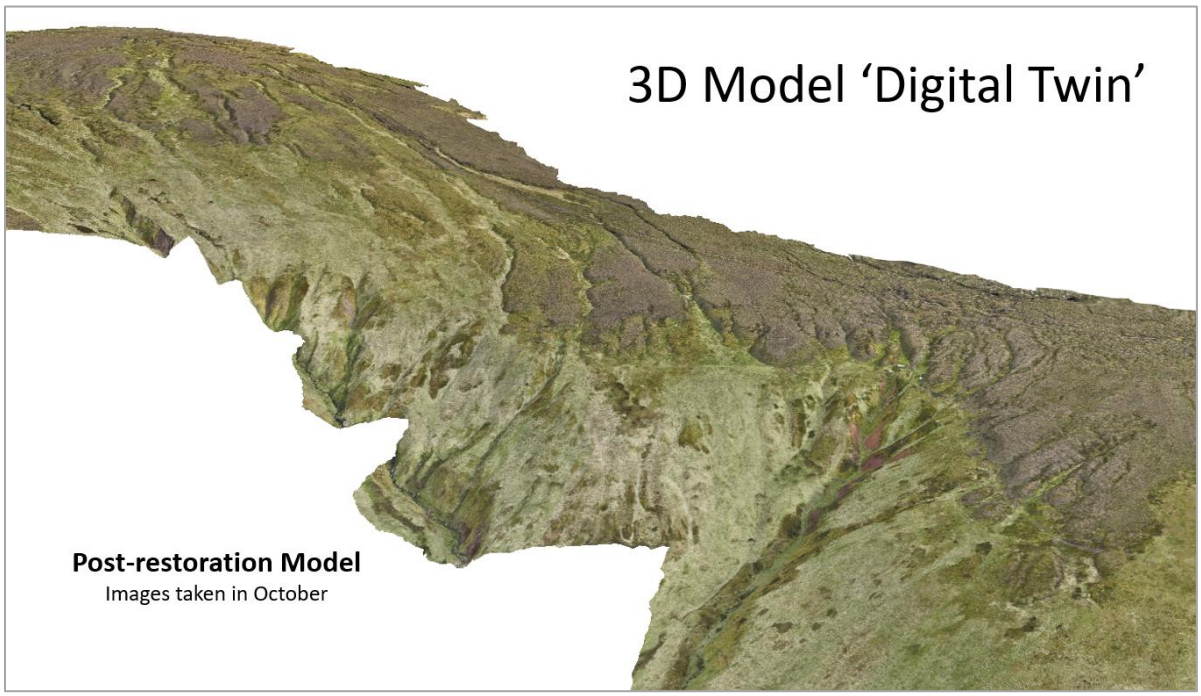

Figure 13. October 2024 - After Restoration.

Another important source of information, which can help determine when and where restoration should take place, will be records held by the landowners themselves. Many farms and estates will have some information on their peatland, ranging from old aerial imagery and maps to more recent biological and habitat surveys undertaken for agri-environment schemes. It is important that as

much information as the landowner can provide on their peatland is collated to inform project development. Every project is bespoke and should consider the history of the peatland, current management regimes and future land management objectives and intentions. Effective restoration measures are those sensitive to the heritage of the peatland and its surroundings.

It is quite likely there will be other tools and data sources made available in the coming years. For example, NatureScot's Natural Capital Tool (once in the public domain) could provide useful information to landowners, managers and project developer to help prioritise peatland restoration. The Action Plan will need to ensure it aligns well with this Tool, sharing data and information where necessary to ensure consistency.

5.2. Data and Evidence Gaps

Despite the increasingly accessible public datasets described in Table 3 offering a useful overview of sites, further site-specific detail is required and much of the evidence required to prioritise restoration for reasons beyond carbon are extremely limited.

5.2.1. Designing Projects

Good restoration design is essential to ensure restoration is sufficient to see the necessary functional and ecological improvements in peatlands. Restoration plans also need to be extremely thorough so landowners and managers have certainty in projects, contractors can price competitively because they have all the information they need, and funders and investors have more confidence in the long-term environmental benefits of their investment in a project. As summarised in Figure 2, the design process takes time, and it is important to recognise that projects cannot be effectively developed "overnight" to meet tight funding deadlines and targets. There are, however, opportunities to consider data and information provision, currently missing or very poor in the South region, to streamline and accelerate the design and decision-making process.

LiDAR (Light Detection and Ranging) data can be extremely useful to accurately map peatland condition, such as drainage and erosion features, water flow pathways, and hydrological connectivity[33]. However, is currently only partially available in the region, and usually restricted to lowland areas in flood prone catchments. The CCC and TF have been advised that a Scotland wide survey is being commissioned by the Scottish Government in the coming years; no exact date has been given. LiDAR data, or other remote sensing applications, would also allow for better monitoring of sites; particularly for scrub encroachment and self-seeded conifer spread and erosion of which there is no standardised, and crucially practical, monitoring protocol. This type of data would help target restoration and management activities where they are most needed in the region and could provide a standard way of assessing hydrological impacts from forestry on surrounding peatland areas as required in the UK Forest Standard.

Peat depth data is only really attained by conducting ground surveys using peat probes. There is no comprehensive map of peat depth anywhere in the region, with peat depth information being mostly limited to areas funded as Peatland Action projects or in areas of developments on peat.

[33] https://www.iucn-uk-peatlandprogramme.org/sites/default/files/2024-12/Remote%20sensing%20of%20peatlands%20-%20a%20technical%20review.pdf

There is some additional peat depth information available from forestry and woodland creation schemes, however, usually peat depth has only been measured superficially, not to its full depth, to determine if it is “shallow” or “deep” and over the 50cm threshold. Peat depth data, to the full depth, is critical for prescribing restoration techniques (some techniques are not appropriate on shallower peats) and provides critical information on the extent of deep versus shallow peat which, as discussed, underpins land use decision making (eg. woodland creation) or funding (eg. Peatland Action or Peatland Code). In relation to the Peatland Code the proportion of deep peat in a project dictates the duration of a project (30 years to 100 years) and thus the carbon savings and total costs of a project. Peat depth is therefore critical to ascertain in the early stages of project development to have any certainty on carbon and costs for landowners and potential investors. Most importantly peat depth information is used to risk assess for peat slides[34] a requirement of the PDR process for Prior Approval from Local Authorities. Without this information projects risk not gaining consent for the restoration works. Currently peat depth is measured, usually every 50m and/or 100m across a site, when a restoration footprint is determined by landowners and project developers as they are highly resource intensive. This, however, does mean that higher level strategic discussions on peatland opportunities, particularly in relation to carbon, are not appropriate or accurate enough until this information has been gathered.

Peatland condition and restoration features are also mapped and ground-truthed once potential restoration areas are identified and as described previously, is greatly assisted by good UAV images or LiDAR data. As this information is gathered on a project-by-project basis there is no consistent region wide detailed map of condition which makes a more strategic regional level approach to planning and costing up projects difficult. In some places this is already recognised by landowners who are investing their own resources into project development work and condition mapping, so they have a more thorough understanding of peatland condition and restoration requirements. Mapping at the “local level” may be helped in the future by machine learning and AI interpretation of satellite imagery and remote sensing with some exciting approaches being developed for monitoring restoration successes in particular[35]. However, in the meantime considerable field work is required to meet the necessary spatial data standards for restoration planning[36].

A major limitation on the rate and scale that peatland restoration can be undertaken is the restricted season in which restoration activities can take place. The breeding bird season, typically the end of March to the end of July, has meant no work could take place during these months, pushing works to Autumn through the winter in the worst of the weather and most challenging ground conditions. However, work has been undertaken by NatureScot[37] to establish where work could be carried out through more of the summer months. However, this relies heavily on robust multi-year breeding bird information, which is lacking in most areas of the region, particularly outwith areas of conservation concern. Where records do exist, they can be hard to access, collate and share with landowners and project developers to inform a restoration plan. It is notable that

[34] https://www.nature.scot/doc/naturescot-research-report-1259-risk-based-approach-peatland-restoration-and-peat-instability

[35] https://www.nature.scot/doc/naturescot-research-report-1362-developing-toolkit-monitoring-success-peatland-restoration-projects

[36] https://www.nature.scot/doc/peatland-action-spatial-data-guidance-support-your-project

[37] https://www.nature.scot/doc/peatland-restoration-and-breeding-birds#:~:text=The%20majority%20of%20wild%20birds%20will%20start%20breeding,May%20for%20many%20bird%20species%20found%20on%20peatlands.

where there are more records, for example in the National Parks, work is beginning during the summer allowing for more work to be carried out in a year and on more challenging sites which may be inaccessible during the winter.

5.2.2. Prioritising Projects

There is a significant lack of data and evidence to support regional targeting of peatland restoration. However, data is being collected to help identify local priorities for restoration, for example undertaking water quality spot sampling in sub catchments thought to be impacted by afforestation of deep peat to identify forestry blocks for forest to bog restoration. This local data gathering has been very important for not only prioritising restoration but justifying both the need to restore and funding required. However, there is a lack of funding and resource to undertake this data gathering at larger scales, for example at the catchment or over long enough timeframes to fully establish hydrological and carbon dynamics of an area. Table 4 summarises the current data and evidence gaps identified by the CCC, TF and partners which limit the ability to prioritise peatland restoration and management, particularly in relation to the emerging regional priorities.

Table 4. Current data and evidence gaps and limitations for prioritising peatland restoration and management in the South of Scotland.

Data and Evidence Gap	Potential Sources	Current Limitations
Water quality	Fisheries Trust, Tweed Forum, SEPA, Crichton Carbon Centre, University of Glasgow, Scottish Water	Very small scale, site and project specific, often short term, no regional strategy for data collection and management. Very limited by funding and resource, often requiring NGO's to secure funding from multiple sources each year. Longer term datasets (eg. SEPA) often for lower catchments and not specific to peatlands.
Water regulation		Very site or project specific and often from lower in a catchment so not directly associated with peatland areas. Lack of data to model with confidence potential flood mitigation of peatland restoration.
Water temperature (rivers)	Marine Scotland, Fisheries Trusts	Temperature loggers not necessarily in upper catchments and peatland areas. Additional loggers have been installed in some areas that match the Marine Scotland[38] monitoring specification
Species data	Landowners, NatureScot, Raptor Study Group, RSPB, local record centres, developers (eg. windfarms)	Species data is necessary to identify sensitive areas and species, areas important to enhance and restore and areas where work could start in summer months. Records can be hard to source and share with those developing projects, may have a cost associated with them, may be quite out of date.
Habitat data	Scottish Borders Phase 1 Habitat Maps[39]	Habitat data is necessary to help prioritise areas suitable for restoration and management to improve biodiversity. Limited to the Scottish Borders only, could be out of date and potentially inaccurate at local level.
Forestry and carbon	UKCEH, Forest Research, James Hutton Institute, University of Highlands and Islands, CCC	There is very limited data on the carbon budget of afforested peatlands and limits the ability to assess priority areas for forest removal for carbon benefits. It also means there is no emissions factor for afforested peatlands in the Peatland Code making forest to bog restoration ineligible. A "flux tower" has now been installed on a second rotation conifer crop on deep peat in the south of Scotland (Racks Moss) and is managed by CCC[40]. Ongoing funding to run the monitoring equipment is very challenging and year to year.
Peatland condition	Scottish Government	Carbon and Peatland map is known to be locally inaccurate in the region and LiDAR cover is very patchy and mostly misses peatland areas. This makes it more difficult monitor and prioritise areas where erosion or encroachment by conifers is accelerating. LiDAR or other remote sensing techniques could also help improve understanding of hydrological connectivity and potential impacts of new planting schemes or developments in peat areas.
Designated sites	NatureScot	Information on condition of features can be out of date so hard to use to prioritise immediate action.
Shallow peat	Research Institutes	Very limited data. There are no agreed emission factors for shallow peats so currently there is no way to prioritise shallow peat restoration and management for carbon benefits or the other ecosystem services described above.

[38] https://iwaponline.com/hr/article/47/3/569/1326/A-novel-approach-for-designing-large-scale-river

[39] https://www.scotborders.gov.uk/downloads/file/1385/aerial_land_cover_classification_and_habitat_mapping.pdf

[40] https://www.carboncentre.org/flux-tower

6. Action Plan Development

The previous sections give the background to the status of peatland restoration and management in the region and the resources used or required. In the development of an Action Plan, it is important to understand the current situation, particularly in relation to opportunities and barriers, to ensure an Action Plan *enhances* the interest and uptake of peatland restoration in the region and builds on the work of those actively designing and delivering restoration and management in the area.

The CCC and TF have identified the key points that need to be considered in the development of an Action Plan and presented these throughout the report. The following sections summarise these points in relation to an Action Plan structure. All points will need further input from wider stakeholders during the development of the Action Plan (see Section 7).

6.1. Objective/Goal

The RLUF states the need to develop a Peatland Action Plan to guide the peatland restoration in the region and build upon the Peatland Action Programme and Nature Recovery Fund (NRF) initiatives in the region including work led by the CCC and TF and other partners.

This report highlights the need to refine the objective(s) or goal(s) of the Action Plan further, particularly to define "peatland", ie. will it consider shallow peats as well as deep peat, potentially necessary as wider benefits of peatland restoration are identified such as biodiversity. Further still does the Action Plan relate to management as well as restoration. The CCC and TF recommends that it does and suggest it be called "**A Peatland Restoration and Management Action Plan for the South of Scotland**".

Another common theme highlighted in this report is the need to ensure an Action Plan promotes and supports restoration and management of peatland for maximum environmental benefits and that there is a need to prioritise restoration to meet regional needs and opportunities. Although there is a well-established interest in restoring peatland to improve water quality for, particularly, fish populations, there is a need to raise the profile of the biodiversity benefits of peatland restoration more broadly, in addition to the carbon benefits, to diversify and amplify the impact of peatland restoration in the region. Furthermore, there is potential for peatland restoration to play a role in alleviating downstream flooding[41] which should be explored in flood prone catchments. To understand these opportunities, however, further research and monitoring is required to understand the hydrological dynamics of our catchments. The potential benefit of peatland restoration to improve and maintain drinking water quality and supplies (both public and private) will require further investigation. Both Scottish Water and SEPA should be considered key consultees when exploring these opportunities and needs in the region.

The report also highlights how quickly peatland restoration approaches, regulatory frameworks, guidance and funding have evolved, and that they will continue to do so. It is quite clear that any

[41] https://www.iucn-uk-peatlandprogramme.org/news/peat-restoration-and-natural-flood-management#:~:text=The%20primary%20aims%20of%20peatland%20restoration%20works%20are,also%20have%20a%20positive%20impact%20on%20flood%20risk.

Action Plan must be able to keep pace with these changes and remain relevant. For example, adopting principles of the Peatland Standard when launched.

Critical to defining the objectives and goals of the Plan will be much wider stakeholder engagement and an appreciation of the work that has been carried out to date. Many landowners in the region are already working to deliver large scale programmes of restoration. A Plan must not hinder their work but rather support it.

6.2. Tasks/Actions

This report highlights several considerations when defining the tasks and actions give in the Plan. These include:

- Establishing how regional actions align with national priorities and targets for peatland restoration, ensuring alignment, and co-development, of the regional priorities for Peatland Action funding.
- How the South of Scotland becomes a test bed for private finance to support peatland restoration.
- How the region develops a sufficient evidence base to target and prioritise peatland restoration in the region.
- How the Action Plan could support streamlining the processes of restoration development and delivery in the region.
- How the Action Plan could help better align funding mechanisms such as Peatland Action with agri-environment schemes, currently AECS, agreements and plans.
- How to best realise the multiple benefits generated from both smaller peatland programmes and as part of a larger and wider estate or farm habitat management programme.
- How BNG can support peatland restoration in the region to meet regional priorities and objectives.

These highlight that the Action Plan must look beyond just establishing and reporting on targets for increased rates of peatland restoration and management and set out actions that could help prioritise restoration, justify and support funding for projects, streamline and support better restoration development and design and help support landowners navigate and align different funding and support mechanisms.

There is also scope for the Plan to set out actions to establish workable and desirable private finance options which could support and enhance peatland restoration in the region.

6.3. Deadlines/Timescales

Deadlines and timescale for delivery of the Plan will be ascertained as it develops. However, there are clear milestones which should be recognised such as:

- The launch of a Peatland Standard (estimated end 2025).
- The Scottish Government target to restore 250,000ha of peatland nationally by 2030.

- The Scottish Government to be Nature Positive by 2030, and to have restored and regenerated biodiversity across the country by 2045.
- The refinement of Peatland Action funding criteria and priorities, which could align with regional priorities, for funding year 2026-2027.

6.4. Resources Required

It is important to emphasise that the role of the CCC and TF, partly funded by the Peatland Action programme, has been crucial to the development and delivery of peatland restoration across the region. This suggests that this is a critical role that needs long term support and expansion, potentially into other non-commercial environmental NGOs, so landowners and project developers can get the advice and gain confidence to undertake peatland restoration. It is also important to recognise the CCC and TF are at the forefront of restoration and have pioneered and developed many of the techniques and approaches now used routinely across Scotland. For example, TF's development of UAV surveying and modelling to inform restoration design, and the CCC's work developing the Peatland Code, developing the Technical Compendium and their wider advisory and training work with stakeholders and practitioners across the UK. These regional skills and experience provide a good foundation to deliver the Action Plan.

There are, however, some key consideration for the Action Plan when it comes to resourcing Actions:

- If Peatland Action were to reduce the restoration funding intervention rate (currently 100%) how would landowners and managers engage with restoration and unfunded costs be met?
- If NatureScot was to stop funding Project Officers in the region how would peatland restoration project design and development be supported?
- What will peatland restoration funding and support post 2030 look like?
- How the Action Plan and funding schemes such as Peatland Action aligns with emerging objectives and approaches of future rural support packages.
- How will the price of carbon dictate restoration funding now and in the future?
- How can private finance be used effectively to deliver more restoration?
- How should developing initiatives led by SOSE and Scottish Government, such as Carbon Contracts, be piloted in the region to further understand and refine approaches to resourcing peatland restoration at scale in the region.
- Do we have enough capacity in the workforce, eg. contractors, designers, advisors, to deliver the Action Plan?
- Supporting landowners in identifying opportunities for BNG projects which is currently largely undertaken by Peatland Action Project Officers.
- The resources required to ensure projects are well designed and can gain the necessary consent from statutory bodies and stakeholders in a timely manner.

- The resource and expertise required within Local Authorities to meet the volume of applications for Prior Approval.

There are multiple delivery agents and potential partners discussed in this report, most importantly from the land owning and managing community who are critical to the delivery of peatland restoration and management in the region.

An Action Plan will need to appreciate the range of delivery agents and partners required including:

- Landowners and managers
- Specialists in peatland restoration design and project delivery
- Contractors
- Local Authority – processing of PDR
- Local Authority – historic environment records
- Government agencies – decision making on projects (designed sites, water environments etc.)
- Data managers – if datasets are developed for the purposes of the Action Plan

6.5. Potential Barriers or Challenges

There are barriers and challenges because of the data and evidence gaps presented in Section 5 of this report. The report highlights that it is difficult to further evolve and act upon regional priorities without further research and evidence, which is currently difficult to fund. The lack of baseline data may also mean it could be difficult to develop a monitoring strategy to report on restoration and management delivery and impacts in the region. However, this is something recognised as an issue nationally and Peatland Action are considering ways to better recognise the wider benefits of peatland restoration projects so approaches and metrics that may work for the Action Plan could follow.

The report also highlights that projects can take some considerable time to develop and that the process for project development may need to be streamlined in the region to reduce development time and accelerate delivery.

In addition, there could be challenges in relation to competing/conflicting land uses, such as:

- If shallow peatland restoration and management becomes a national priority how will this impact the regions forestry industry and targets?
- How can the region react to the growing issue of self-seeded conifers impacting peatland condition and restoration success in the region? How will this reduce the extent and rate of peatland restoration in the region?
- The potential for new conflicts to arise between peatland restoration and other land uses, most notably forestry, if biodiversity becomes a more significant driver of restoration. How will an Action Plan align with other Natural Capital plans for the region, for example the two Local Authority led Woodland Strategies?

- How will an Action Plan recognise the potential conflict in priorities such as woodland cover and afforestation and peatland restoration for water quality improvements?
- The resources required to inform and support changes in farming practices if required (eg. reducing stocking densities) and increased wild herbivore management (again if required).

The main challenge will be how best to develop an Action Plan that is useful for both those looking to undertake restoration and management and those already undertaking schemes and projects. It is vital that existing initiatives are supported and enhanced further, without additional constraints. For example, opportunity mapping peatland restoration priority areas will need wide stakeholder engagement and discussion with landowners, managers and project developers, particularly those already undertaking peatland restoration. It must be recognised that there already programmes of restoration planned and underway across the region, many of which informed by an understanding of carbon, biodiversity and water regulation/quality opportunities and the land holding level. To scale priority mapping to catchment of regional scale will require further data and evidence gathering as priority areas need to be mapped with some level of accuracy, particularly if a suite of environmental benefits is to be considered in the opportunity mapping.

6.6. Measurements of Performance/Reporting

Measuring performance and developing a reporting system, potentially based on both environmental objectives met and restoration/management areas delivered, will require careful consideration and alignment with national monitoring strategies and tools. During the development of the Action Plan sufficient consultation with all those developing and delivering peatland restoration projects in the region must be undertaken to consider:

- Developing a monitoring strategy to assess Action Plan delivery which may be more than an area measurement of peatland restoration or management if there are specific priorities for peatland restoration in the region eg. water quality improvements.
- How data will be shared and managed for reporting against the Action Plan. Data may be generated by a wide variety of delivery agents and partners, including landowners. Does the Action Plan expect to collate regional data from multiple different sources?
- How will reporting be resourced? Is national reporting (eg. hectares of restoration delivered through Peatland Action) sufficient?
- How will the Action Plan and it's reporting recognise the data that may not be made publicly available? For example, data generated from surveys being undertaken by landowners and developers and data that may be commercially sensitive.

7. Stakeholder Engagement

Due to the time constraints only limited stakeholder engagement has been conducted by the CCC and TF for this report but it is expected that this will be a major part of the development process of the Action Plan. There are many different landowners and organisations undertaking peatland restoration already in this region which both the CCC and TF are working with. It is essential that their views are heard in developing an Action Plan and that the Plan ultimately supports further

restoration and does not become a hinderance by slowing down decision making and delivery, conflicting with other national priorities and funding mechanisms or even just by being quickly obsolete due to changes in peatland policy, funding or restoration best practice.

Through conversations both the CCC and TF have had with landowners it is increasingly a concern that consultation fatigue, and sometime frustration, has set in. Those who we should be consulting with most are at risk of losing interest if it is thought another high-level plan for the region, without the necessary detail or resource to practically deliver, is being produced which may be superfluous to their needs. Particularly for those already some way into planning and delivering peatland restoration in the region. This report has highlighted that it is very difficult to produce a "top down" strategy for peatland project development due to the high degree of detailed information required at the local level. What this report does show however, is the Action Plan offers a good opportunity to strengthen the case for peatland restoration in the region, particularly if it can be delivered in priority areas and could bring more funding and investment into the region.

Stakeholders that need to be consulted in the development of the Action Plan are:

- Private landowners and managers currently undertaking peatland restoration
- Private landowner and managers of all scales who are not currently undertaking restoration yet own or manage areas of peatland
- Those managing public land in the region (NatureScot, Forestry and Land Scotland)
- Consultants and agents developing peatland restoration projects and Peatland Code projects
- Peatland Action
- NatureScot Area Teams
- SEPA
- SOSE
- Local Authority
- Contractors undertaking restoration
- Contractors interested in peatland restoration
- NGO's
- Community landowners and communities
- Forest and Woodland Managers
- Fisheries Trusts
- Scottish Forestry

This stakeholder list should evolve through the development of an Action Plan through further education and awareness raising across the region.

8. Conclusion

There are significant areas of peatland in the South of Scotland, the majority of which can be described as in compromised functional condition which has implication for carbon, biodiversity water regulation and water quality. With a growing knowledge and understanding of the importance of peatlands and restoration approaches, there is significant opportunity to enhance and support environmentally beneficial peatland restoration and management in the region. There is already meaningful interest and engagement in peatland restoration throughout the region, with significant programmes of restoration already supported by Government funding facilitated by the Crichton Carbon Centre and the Tweed Forum. However, there is scope to increase the scale and pace of restoration by developing a regionally specific approach to prioritising, supporting and funding peatland restoration which meets the needs and opportunities of the region. The development of a Peatland Restoration and Management Action Plan for the South of Scotland provides an opportunity to establish the actions required to identify these needs and priorities, the data and evidence needed to establish priorities, and the resources and funding mechanisms required to support landowners and managers to undertake effective peatland restoration and management.

This scoping report highlights the need to understand the current funding and delivery mechanisms, the wider strategic and policy context and the practical requirements of peatland restoration design and delivery when developing the Action Plan. Key to the Plans development will be meaningful engagement with a wide range of stakeholders, particularly the regions landowners and managers and those already undertaking restoration, to ensure the Action Plan developed supports and enhances restoration already underway or considered in the region. Furthermore, a regional Plan should identify actions to better establish the wider benefits of peatland restoration in meeting the regions environmental priorities for biodiversity, carbon, water quality and regulation and could provide a framework to ensure investment, both public and private, is targeted to maximise environmental, social and economic benefits to the region. Having a greater understanding and emphasis on biodiversity and hydrology, and the data and evidence to quantify these benefits, could greatly increase the funding and investment opportunities and scope for peatland restoration in the region.

Figure 14. Adders; a protected species but commonly found on the regions peatlands. *Image by Illuvis via Pixabay.*

Figure 15. The carnivorous Sundew unique to peatlands. *Image by Hans via Pixabay.*

Figure 15. The Short-Eared Owl. *Image by Adrian Kirby via Pixabay.*

End of Report

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