

Valuing the natural capital of peatlands

Peatland restoration in the Garron Plateau and Montiaghs Moss offers a viable opportunity to respond to climate change, rejuvenate unique ecosystems and support rural communities

NI Water

ABOUT THIS BRIEF

This is a summary of a natural capital assessment and economic and investment appraisal of proposed restoration works at two peatland sites in Northern Ireland: the Garron Plateau and Montiaghs Moss. The appraisal identified and assessed the sites' existing natural capital assets, the flow of services they provide, and the monetary value of the resulting benefits against costs, now and in the future.

This appraisal was commissioned by RSPB Northern Ireland and funded by DAERA. The full report can be downloaded [here](#).

PEATLANDS – AN ASSET TO BE RESTORED

Peatlands are terrestrial wetlands of global importance. They store nearly a third of the world's soil carbon, and regulate flooding and water quality while providing wild places for people to enjoy. In Northern Ireland, peatlands cover 12% (242,000 ha) of the land area, but 86% of these sites – most of which are Special Areas of Conservation – are degraded as a result of overgrazing, drainage and peat extraction. The Department for Agriculture, Environment and Rural Affairs (DAERA) is in the process of developing a Northern Ireland Peatland Strategy 2021-2040. Peatland restoration is likely to play a key part in meeting domestic and national climate mitigation targets.

SUMMARY FINDINGS

Natural capital assessments of two sites undergoing restoration in Northern Ireland offer policy makers and potential investors an excellent opportunity to consider the potential impact of the Northern Ireland Peatlands Strategy. The assessments reveal the value of restoring peatlands, highlighting the scale of opportunity that exists as Northern Ireland embarks on developing a peatlands strategy and reforming agricultural support.

- The intact blanket bog of the **Garron Plateau** provides important carbon, water and biodiversity services. Over 50

years, restoration benefits (£50.1 million) greatly outweigh costs (£12.8 million), with carbon sequestration making up 92% of the monetary benefits. Water-related benefits are also significant, with an estimated improvement in flood mitigation of 27%.

- The relic raised bog of **Montiaghs Moss** supports many rare species, the marsh fritillary butterfly and Irish damselfly being of particular importance. Planned restoration is focused on biodiversity, with monetary benefits estimated at £1.37 million against costs of £1.54 million over 50 years.

Key recommendations

- Improved data on the Garron Plateau would allow the site to be used as a model for natural capital assessments to support the 'business case' for peatland restoration.
- An ambitious Peatland Strategy must be matched with commensurate levels of government funding, and agri-environment options that support restoration, aligned with the concept of paying 'public money for public goods'.
- Private carbon and other ecosystem services markets should be encouraged and supported.
- New funding mechanisms will need to be established that enable concurrent public and private investment and payments for multiple services from the same site.



density (continuing the trend from preceding years), drain blocking and the installation of over 2,000 dams in the NI Water catchment had already achieved impressive results by 2016, with over half of the site classified as 'favourable' or 'unfavourable recovering'.

These early results provide a taste of what peatland restoration might offer Northern Ireland. By far the most significant benefit is derived through carbon sequestration (valued by the UK Government non-traded carbon price). Over 50 years, this makes up 92% of the estimated £50.1 million in value generated through restoration, against projected costs of £12.8 million. The site thus has a Net Present Value of £37.3 million, a Benefit Cost Ratio of 3.91, and an Internal Rate of Return of about 95%. Eventually, the Garron Plateau will be transformed from a major carbon source to a net carbon sink – a significant result for a peatland.

Though water-related benefits were minimal in 2010, and not all of these can be valued, the natural capital assessment forecasts important benefits, including a reduction in flooding by 27%, reduction in soil erosion, and mitigation of phosphate and nitrate pollution. NI Water is already reporting improvements in raw water quality.

Finally, participation in agri-environment schemes, most recently under the Environmental Farming Scheme, is now approaching half of the eligible area, generating significant income. New approaches to reward sustainable land management and improve farm business resilience can help offset the losses to income associated with a fall in primary production. Restoration activities are also expected to create 7 full-time jobs per year at the site and 16 full-time jobs in the wider economy.

GARRON PLATEAU

Upland blanket bog with major carbon sequestration potential

The Garron Plateau, located in County Antrim, contains the largest area of intact blanket bog (5,395 ha) in Northern Ireland. A Ramsar wetland of international importance, this peatland complex supports rare and notable species, including breeding populations of hen harrier, merlin and curlew and rare plant species such as the marsh saxifrage and bog orchid. The Dungonnell Reservoir supplies drinking water to 14,000 households.

Ongoing restoration: a sign of things to come

Restoration of the site began in 2010, at which point 94.5% of it was in unfavourable condition. Reducing livestock



MONTIAGHS MOSS

Key lowland habitat for the marsh fritillary butterfly

Montiaghs Moss is a lowland peatland in County Antrim. Located near Lough Neagh, this 151-ha relic raised bog is a mosaic of peat ramparts, trenches, pools and drains interspersed with grassland, trees and hedgerows. The peat cutting that shaped (and degraded) the site ended in the 1980s. However, Montiaghs Moss remains a stronghold for the marsh fritillary butterfly (*Euphydryas aurinia*) and other rare species, including a vital assemblage of invertebrates.

Restoration targeting biodiversity

Recognition of the unique biodiversity of Montiaghs Moss drives plans for its restoration, which is currently assessed as 'unfavourable'. Restoration is limited to improving conditions for the marsh fritillary and supporting the invertebrate biota. As this requires maintaining the open wet grassland favoured by the marsh fritillary by removing scrub and young woodland rather than restoring the degraded raised bog for carbon sequestration, the site will continue to emit carbon in the future, though at a level 40% less than presently. The monetary benefits of restoration at Montiaghs Moss are thus less than the costs of restoration (£1.37 million v. £1.54 million over 50 years), which include high costs for fencing and creation of a boardwalk, and for staffing. These improvements should facilitate an increase in visitors from 250 to 1,500 a year over the next five years, expanding beyond wildlife monitoring to recreational visits.

As the site covers a relatively small water catchment and supports only low-intensity grazing and forestry, minor changes are expected as a result of restoration, and agri-environment payments should offset any losses for landowners. Ultimately, the focus is on the conservation of the marsh fritillary butterfly and associated biodiversity at Montiaghs Moss, the value of which has not – and cannot – be truly valued by a natural capital assessment based primarily on carbon sequestration. Therefore, the total value to the site is likely to be an underestimate.

Habitats across Montiaghs Moss in 2010 (pre-restoration scenario). The map shows the dominant habitat in each of 418 polygons.



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|--------------------------------|----------------------|
| ■ Coniferous woodland | ■ Swamp |
| ■ Broadleaved woodland | ■ Improved grassland |
| ■ Dry scrub | ■ Neutral grassland |
| ■ Active raised bog | ■ Standing water |
| ■ Degraded raised bog | ■ Tall ruderal |
| ■ Acid flush / transition mire | ■ Buildings |
| ■ Wet scrub | ■ Infrastructure |
| ■ Wet grassland | |



WIDER IMPLICATIONS OF PEATLAND RESTORATION

The natural capital appraisal of these contrasting peatland sites is relevant to other peatland sites across Northern Ireland, as well as Great Britain and Ireland. It is likely that in all cases reducing carbon emissions through restoration will provide substantial benefits that can be valued in monetary terms. Enhancing biodiversity is also likely to be a major driver, though this is less amenable to monetary valuation. A broad range of other benefits is also achievable, especially focused on improving water quality and reducing flood risk, and delivering recreation, health and wellbeing benefits. In sum, the multiple advantages of peatland restoration should have a value greater than the capital and maintenance costs involved. These values are most often public benefits, although rapid progress is being made in developing private markets for carbon and other ecosystem service benefits. There is a growing opportunity to restore peatlands across Northern Ireland to achieve climate, biodiversity and other public policy aims, drawing in both public and private investment. What losses the farming sector might incur through reduced livestock production can be offset by involving landowners in agri-environment schemes and providing local employment related to restoration activities.

Benefits of peatland restoration

Enhancing biodiversity

Improving water quality

Reducing flood risk

Mitigating climate change

Providing local employment

Delivering recreation, health and wellbeing benefits

RECOMMENDATIONS

- The Garron Plateau has the potential to be a showcase of peatland restoration in Northern Ireland, so better data on the site's peat depth and expanded monitoring of changes in habitat, carbon flux, water flow and water quality in response to restoration will be invaluable.
- Site promotion, along with the enhancement of visitor facilities, could encourage an increase in visitor numbers for the recreation, health and wellbeing benefits the sites offer.
- The natural capital approach could be developed for a wide range of peatland sites to support the design and implementation of the new Peatland Strategy for Northern Ireland. This would support the 'business case' for peatland restoration and help prioritise interventions.
- As in Great Britain, a Peatland Strategy with ambitious targets for restoration must be matched with commensurate levels of government funding, and agri-environment options that support restoration, aligned with the concept of paying 'public money for public goods'.
- There is a huge opportunity for private carbon and other ecosystem services markets, but promotion via land advisors, publicity and policy may be needed to help these mechanisms take off.
- Agri-environment schemes need to be considered further and developed, particularly in relation to stacking, bundling and the issue of additionality – specifically to reconcile the need to provide payment for more than a single public benefit (which may not be financially viable for the landowner) and the complexity involved in payments for multiple benefits for the same parcel of land.
- Policy changes to enable carbon offsetting for all businesses could unlock a vast market for investment and help Northern Ireland achieve its net zero ambitions. Similarly, making biodiversity offsetting compulsory for all new developments could help unlock funds for peatland restoration focused on biodiversity benefits.
- A new policy framework to encourage the wider use of natural capital approaches in Strategic Planning, Local Development Plans, Environmental Impact Assessments (EIAs) and other appraisals for both public and private sectors could lead to more joined up and sustainable decision-making.