



Scottish
Wildlife
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The potential for nature-based solutions in Scottish agriculture

Summary report

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Introduction

Farming holds a vital place in Scotland's culture, history and economy. It has shaped its landscapes and identity, rural economies, culinary traditions and iconic food and drink – from Scottish beef to single malt whisky.

Despite the importance of Scottish agriculture, farmers, crofters and land managers are amongst the most affected from a range of threats, from climate change and the loss of biodiversity to global political and economic volatility. These intersecting crises have wide ranging impacts for them, from failed crops and stressed livestock to prohibitive fertiliser costs.

The choices and actions of those managing Scotland's land can unlock solutions for the climate and nature crises at the same time as producing high-quality food. But a paradigm shift is needed – a shift away from business-as-usual food production towards embracing nature-based solutions (NbS) within all farming systems.

The Scottish Government has set out a Vision for Agriculture which aims to see Scotland leading the way in regenerative and sustainable food production. We support this vision and see NbS as central to delivering it.

This report highlights the drivers and key challenges hindering the widespread uptake of NbS, and the key policy enablers that could help unlock these. It draws on discussions with a range of people interested in NbS in agriculture – from farmers, land managers and crofters to policymakers and funders. It focuses on solutions – the enabling factors and actions needed to increase the uptake of NbS on Scotland's farmland. For the full research report from which the solutions are drawn, see [*The potential for nature-based solutions in Scottish agriculture – full report*](#).

Whilst the focus is on informing and influencing policy, in particular the emergent Agricultural Reform Programme, we hope the findings and recommendations it contains will be useful for everyone who wants to see a viable future for Scotland's farmers, crofters and land managers, alongside a thriving natural world.

“ We need to take people on a journey and show them how a particular measure in the right location can work. We need to make NbS mainstream, the go-to option, rather than something you do after the intensive intervention or traditional approach...”

Policy maker

Understanding nature-based solutions in agriculture

We adopt the United Nations Environment Assembly definition of NbS as:

'Actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits'.¹

The predominant land use in Scotland, around 80%, is agriculture. There is huge potential for NbS across Scotland's uplands and lowland farming systems, from peatlands and woodlands to grasslands and arable land. NbS can help farmers, crofters and land managers to buffer the impacts of a changing climate by enhancing soil health and water retention, reducing soil erosion and providing protection against wildfires, floods and heatwaves.

They can help reduce the need for expensive and polluting imported artificial feeds, fertilisers and pesticides and enhance food and nutrition security through diversified production systems and sources of income.

NbS in agriculture lend themselves to connectivity, and the principle of Nature Networks², through:

- whole farm approaches that consider what happens within and around fields
- continuing and connecting habitats between farms
- landscape level connectivity of healthy river systems and peatland across whole catchments.

In terms of policy objectives, an estimated 37% of global emissions could be mitigated by NbS³ through actions such as adapting livestock management practices, changing arable practices to help keep carbon in plants and soils and catchment-wide and landscape-scale restoration of habitats. NbS can also help restore biodiversity by increasing the amount, diversity and quality of habitat. In economic terms, Scotland's natural capital is estimated to have an overall asset value of £196 billion, supporting nearly 200,000 jobs.⁴

£196bn

estimated overall asset value of
Scotland's natural capital



Drivers for nature-based solutions on Scotland's farmland

Understanding how the uptake of NbS can be enabled is critical for the success of wider government policy.

Multiple policy drivers exist to better integrate NbS on Scotland's farmland and meet the Scottish Governments policy objectives, for example:



National Outcomes, enshrined in the National Performance Framework



Vision for Agriculture



Biodiversity Strategy, which sets the goal of halting biodiversity loss by 2030 and restoring Scotland's natural environment by 2045



Climate Change Plan, which sets out actions to meet emissions reduction targets to 2032 to meet Scotland's legally binding 2045 Net Zero target and the 75% target by 2030, with a route map for agricultural transformation



Just Transition Plans, which tie tackling inequality into delivering net zero and is an important policy driver for NbS.

The Common Agricultural Policy (CAP) is being replaced with the Agricultural Reform Programme (ARP) - the programme for implementing the Scottish Government's Vision for Agriculture. The ARP includes proposals for future support to be structured around four tiers: (1) baseline; (2) enhanced; (3) elective and (4) complementary.⁵

Current funds for NbS on farmland include the Nature Restoration Fund, Peatland Action Fund and Agri-Environment and Climate Scheme (AECS). Despite these financial incentives and an ambitious policy programme, the delivery of the level of NbS required on Scotland's farmland to meet Scottish Government policy ambitions is not happening.

“In England they are not set up for outcomes payments, its actions – but this is not the best way to do it. The Scottish Government need to give clear messaging on outcomes – if they say they're looking for biodiversity improvement, everyone can work to that. This will also help focus funds from the private market...”

Funder / investor

Challenges hindering the uptake of NbS

Several issues are holding back the widespread uptake of NbS, including a lack of political leadership, robust evidence and data and resistance to change practice.

Political leadership

The development of the Agricultural Reform Programme (ARP) was criticised during our research due to:

- its similarity in design and content to the CAP, a model of agricultural support which has led to increasing emissions and a loss of biodiversity;⁶
- its timetable for roll out, which was felt to be too slow given the urgency of the climate and nature crises;
- the uncertainty of the overall budget and split between the tiers making it difficult for farmers, crofters and land managers to make business decisions about changing practice.

Overall, these issues prompted those questioned in this research to point to a political leadership vacuum on the ARP.

Resistance to NbS from farmers, crofters and land managers

Resistance amongst farmers, crofters and land managers to adopting NbS is a key barrier to the uptake of NbS. Any transition to or incorporation of NbS into agriculture bring costs and risks, and a change in practice. In some more productive agriculture systems, the period of transition can result in a short-term reduction in crop or livestock and an increase in yield variability.⁷ In landscapes in which NbS may be implemented at scale, the trade-offs and financial implications are long-term whilst the benefits may take years to manifest.

There is good reason for this: the biological processes and knowledge required to restore agricultural ecosystems and leverage natural processes to replace synthetic agricultural inputs take time.⁸

Unless farmers, crofters and land managers can see the benefit of NbS to their business, NbS will continue to be considered an add on, rather than being integrated into the farming system.

Research and evidence

Farmers, crofters and land managers need robust data to make business decisions, and investors and policymakers need evidence to inform their decision-making. Yet there is no common, universally agreed metric to measure natural capital and NbS baselines and impact, whilst lack of robust data is a key issue in financing a transition to regenerative agriculture.⁹

“ *Just get on with it – we need clarity and some certainty and even if we don't like some of the things coming at us we can get on with it and deal with it..”*

Farmer/land manager/crofter/advisor

Enabling NbS through policy and investment

Three themes emerged regarding how the Scottish Government could further enable the widespread uptake of NbS.

Agricultural Reform Programme design principles and content

Five design principles should run throughout the ARP to enable NbS.

1 Start with outcomes Scottish Government policymaking has a clear source in the National Outcomes and National Performance Framework and, along with the Vision for Agriculture, set the long-term expectation for a shift towards regenerative and sustainable farming. The ARP should flow from these sources and be built on the broader outcomes we need from land heading into the mid-21st Century. This means delivering meaningful social and economic benefits, derived from the land, to communities, as well as reducing emissions and helping nature recover.

2 Pay for public benefits Public benefits from NbS should be incentivised through Tiers 1-3 of the ARP whilst business benefits should be incentivised through other transitional, time-limited mechanisms such as capital investment, skills development or business support (e.g., via Tier 4). Setting rates that genuinely incentivise by learning from experience elsewhere, for example around the low uptake of the Sustainable Farm Incentive in England¹⁰, will be key.

3 Incentivise NbS in all farming systems Around 18,000 Scottish farmers and land managers currently claim through the Single Farm Payment. If all these were required to integrate some NbS into their farming systems it would make a significant contribution. Strengthening the baseline over time and giving higher weightings to incentivise actions for regenerative farming, such as for planting more leguminous crops, would help with this. Ensuring there are options for *all* farming systems is important – currently, not all are well represented in AECS, nor in the proposed list of measures for the ARP.

4 Work at the right scale in the right place

Spatial targeting and prioritisation, implemented through Regional Land Use Partnerships, will ensure that the right actions are happening in the right place and limited public funds are used for maximum effect flows. This follows directly from planning the ARP in line with national outcomes.

It is currently envisaged that AECS will move into Tier 2 and be the main way to deliver climate and nature targets. Given the low numbers of farmers, crofters and land managers within AECS and the low budget it currently receives, this must be reconsidered as a matter of urgency.

Better enabling collaboration across different landowners so NbS have greater effect is also important, as is the length of contracts and commitments which need to reflect the nature of land use change happening through NbS. To better enable NbS at scale, the funding should be weighted from Tier 1 towards Tiers 2 and 3.

5 Advice and facilitation, peer-to-peer learning

There is a big role for advisory services, knowledge exchange and peer-to-peer learning and for educational courses and training to enable a greater uptake of NbS across the ARP and in general. Farmers, crofters and land managers need to be prepared and supported well in advance of changes to future farm support by increasing public investment in advisory services. Peer-to-peer learning will be key, as will the Farm Advisory Service. To work across landholdings and at scale requires support and facilitation.

Enabling NbS through policy and investment (continued)

Finance and investment for NbS

It is very difficult to calculate the finance gap for nature in Scotland for the next decade, but it has been estimated by the Green Finance Institute to be in the order of £15-£27 billion¹¹, in addition to public funding. This is one estimate – the extent of the funding gap is still being debated. Financing Nature Recovery UK found that the main barrier to private sector investment in nature at scale is not a lack of available capital.¹² Several initiatives exist in Scotland to address the barriers to finance and investment for NbS.

1 Governing standards and integrity for responsible investment

Investors need a clear governance framework to have the confidence to invest in NbS, with clarity about how action on the ground relates to net zero and nature's recovery. The Scottish Government has committed to ensuring private markets for NbS are values-led and high-integrity and created *Interim Principles for Responsible Investment in Natural Capital* to support this. A mandatory system of certification for carbon credits needs to be considered to provide credible scrutiny of sellers and buyers.¹³ The Scottish Government could draw on three global initiatives to help guarantee standards and integrity:

- On the demand side, the Voluntary Carbon Markets Integrity Initiative¹⁴ is looking at how a business or company can use carbon credits in reporting.
- On the supply-side, the Integrity Council for the Voluntary Carbon Market¹⁵ is looking at how to make sure the credit is additional, permanent, and measured.
- The Taskforce on Nature-related Financial Disclosures (TNFD)¹⁶ is a reporting framework for companies to list their impacts and dependencies on nature.

2 Quality assurance

Quality assurance standards can provide assurance and clarity for buyers regarding the quantity and quality of benefits created through NbS. Two codes exist for quality assuring carbon sequestration, the Woodland Carbon Code and the Peatland Code, both of which are supported by the Scottish Government. Attracting revenue and investment in other ecosystems services besides carbon is an important next step for increasing investment in NbS. One way to do this would be to develop mechanisms for newer markets, such as biodiversity net gain, in order to pump the private sector demand side.

3 Funding NbS project development

NbS projects, especially those which span multiple farmers, crofters and land managers require considerable development work to get off the ground. This work includes, for example: baseline data and monitoring; support designing NbS interventions and working out who will buy the ecosystem service. It is important to also consider the role of the Peatland or Woodland Carbon Code or private markets and how payments are blended and stacked. There is a strong case for funders and governments to work with investors with a longer-term time horizon and provide some upfront investment; and for clarity on additionality and how different payment structures and sources will work together.

The Scottish Government and NatureScot with the National Lottery Heritage Fund created the Facility for Investment Ready Nature in Scotland (FIRNS)¹⁷ to build the supply and pipeline of NbS projects and developing structures that work at scale.¹⁸ NatureScot, Esmée Fairbairn Foundation and the National Lottery Heritage Fund subsequently launched Investment Ready Nature in Scotland (IRNS), a grant scheme to help organisations and partnerships develop projects that use private investment and market-based mechanisms to help finance the restoration of the natural environment in Scotland.¹⁹ More of this kind of funding will be required in future.

Enabling NbS through policy and investment (continued)

Creating a holistic policy framework

Ambitions for net zero, nature's recovery, a just transition, green economy and a progressive vision for regenerative agriculture are hard-wired into Scottish Government policy yet there remains a need to translate the policy into action through delivery mechanisms. One potential vehicle for strengthening the implementation of policy ambitions is Regional Land Use Partnerships (RLUPs). Integrating Nature Networks into the RLUPs Regional Land Use Frameworks would provide an important mechanism for planning and delivering the imminent legally binding nature targets as well as net zero.

“ If every farmer in Scotland is required to do something more on their farm to qualify for their direct payment, this would lift the bar at a wider Scottish landscape level...”

Academic



Recommendations

We make a series of recommendations to policy makers and politicians to overcome the barriers to NbS and better support their uptake. They follow four themes:

- **Leadership, coherence & commitment**
- **Learning & demonstration**
- **Winning hearts & minds**
- **Financial governance & integrity**

Leadership, coherence & commitment

1 **Make a commitment on the face of the Agriculture Bill to the Vision for Agriculture:** that the Bill is to enable the transformation of support for farming and food production in Scotland so that it can become a global leader in sustainable and regenerative agriculture.

2 **Create outcomes and metrics for the ARP aligned with Scotland's National Outcomes and Performance Framework.** This will require quantifying the contribution of the ARP towards net zero and nature recovery targets and allocating the necessary budget for the ARP. Tiered budgets should then be weighted and apportioned according to their contribution towards the delivery of national outcomes and targets.

3 **Incentivise public benefits from NbS through Tiers 1-3 of the ARP whilst incentivising business benefits through other transitional, time-limited mechanisms such as capital investment, skills development or business support, including via Tier 4.** Baseline requirements should be increased and weightings within Tier 1 should be prioritised to deliver environmental outcomes. NbS must be incentivised across all farming scales, systems and within all Tiers.

4 **Set long-term timeframes and budgets for the ARP and contracts within the proposed Tiers so that the sector can safely pivot towards delivering NbS.** The risk in changing farming business models to increasing the uptake of NbS cannot be borne solely, or even primarily, by the sector.

5 **Commit to resolving inconsistencies in policy and to enhancing existing mechanisms.** This includes: elevating the status and power of the Land Use Strategy; following the recommendations of the Scottish Land Commission by enhancing the power and geographic coverage of Regional Land Use Partnerships and by integrating Nature Networks within them; strong enforcement of existing regulation, e.g. on deer management; and strengthening and implementing forthcoming Muirburn legislation.

Recommendations (continued)

Learning & demonstration

6 **Improve the quality of and access to habitat data, location data and farm-level environmental baselining data.** The initiatives currently underway, such as Tier 1 baselining metric tools and NatureScot’s landscape scale data modelling, should be given more impetus, e.g. through the ARP’s National Test Programme.

7 **Prioritise and integrate NbS into research institutes and government programmes** such as the Monitor Farm Scotland Programme and the Strategic Research Programme 2022-2027 to provide stronger evidence on how NbS can improve agricultural practices to develop a resilient, productive sector that is abreast of transformative opportunities.

8 **Learn from elsewhere.** Defra in England, for example, have carried out considerable research on their post-CAP scheme, Environmental Land Management, including on incentivising uptake, blending and stacking public and private finance and paying for outcomes.

9 **Prioritise knowledge sharing and peer-to-peer learning with the ARP’s National Test Programme (e.g. through Monitor Farms) and as an integral part of the ARP roll out.** Farmers, crofters and land managers need to know how NbS can support their business; not just how NbS can deliver government targets on climate and nature.

10 **Increase the number of skilled advisors by clear signalling to the advisory sector about the direction of travel in agriculture policy regarding a pivot towards NbS.** This includes the Farm Advisory Service (FAS) through the content of Scottish Government advisory contracts, and to institutions offering agricultural and land-based training (e.g. SRUC) that climate and nature must be integrated within ‘standard’ agriculture courses with NbS as a golden thread.

Winning hearts & minds

11 **Communicate what is expected from the sector and by when within the ARP.** It is currently unclear and creating inertia and entrenchment.

12 **Gear Scottish Government communication to the sector about NbS towards the business benefits they bring, such as providing resilience to economic and climatic volatility, supporting food production and increasing profit.** Rhetoric in sector media of NbS being an add-on rather than core to the farm business needs to be challenged with compelling stories of those using NbS in their farm business being made available to media outlets such as Scottish Farmer and Landward.

13 **Include more people with farming, crofting and land management experience** in the ARP policy design and testing process.

Recommendations (continued)

Financial governance & integrity

14 Follow the recommendations of the Scottish Land Commission to quickly put in place stronger regulation of emerging carbon markets. Whilst the Scottish Government's Interim Principles on Responsible Investment in Natural Capital are a good start, they need backing up with regulation.

15 Explore the creation of certification of carbon credits, drawing on existing recommendations of global initiatives such as the Voluntary Carbon Markets Integrity Initiative (VCMI), Integrity Council for the Voluntary Carbon Market (ICVCM) and Taskforce on Nature-related Financial Disclosures (TNFD).

16 Help to leverage investment in NbS by supporting collaboration across multiple landholdings. This means being clear about who benefits and how, the mechanisms for aiding collaboration across land parcels, and how to blend and stack public and private finance. The Riverwoods initiative should be looked to for learning on this.

17 Continue and increase support for the development of new markets for ecosystems services besides carbon such as Biodiversity Net Gain. The Facility for Investment Ready Nature in Scotland (FIRNS) and Investment Ready Nature in Scotland (IRNS) are a good start with this.

“Farming advice service are trusted on the whole but if nature-based solutions are mentioned in the Farmers Guardian or Farmers Weekly, it's weaponised as conservation language that wants to get rid of farming or dial it back...”

Farmer/crofter/land manager/advisor

Organisations involved in the project

This report was commissioned by the Scottish Wildlife Trust.

For nearly 60 years, the Scottish Wildlife Trust has worked with its members, partners and supporters in pursuit of its vision of healthy, resilient ecosystems across Scotland's land and seas.

The Trust successfully champions the cause of wildlife through policy and campaigning work, demonstrates best practice through practical conservation and innovative partnerships, and inspires people to take positive action through its education and engagement activities. The Trust manages over 100 wildlife reserves across Scotland and is a member of the UK-wide Wildlife Trusts movement.

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The report was researched and written by Ellie Brodie Consultancy. We want to see a thriving and connected world with the health of all people and nature at its heart. We work with people who want to make changes to policy and practice, with a particular focus on the environment, communities, health and wellbeing and in wider civil society. See www.brodieconsultancy.co.uk

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