

This is one of a suite of case studies of NEIRF funded projects, to highlight efforts to protect and enhance the natural environment, while generating revenue from ecosystem services.



Hedgerow on farmland by the river Ure, North Yorkshire

HEDGEROW CARBON CODE

HIGH LEVEL SUMMARY OF PROJECT

GOVERNANCE

Once created by Allerton Research and Educational Trust the code will be managed by Natural Capital Advisory with Organic Farmers and Growers providing independent verification of projects.

CREATING A HEDGEROW CARBON CODE

Following a similar model to the Woodland Carbon Code, to financially incentivise creating and restoring hedgerows across the UK. Landowners/farmers can either sell carbon units or 'inset' carbon into supply chains.

SELLERS

Farmers, land managers/owners

BUYERS

Individuals, corporate organisations, or institutional investors

Habitats and geographical location



Hedgerows



UK wide



PROJECT OVERVIEW

The UK has lost 50% of its hedgerows since the Second World War and around 60% of its hedgerows are in poor condition.¹ As arable farming in the UK has increased over time and keeping livestock in fields using hedgerows has become less crucial, many farmers have dug up hedgerows to use more land for farming.

However, increasingly, scientific and natural conservation communities and the UK government have recognised the importance of protecting hedgerows for the benefits they offer to biodiversity, their cultural importance in the aesthetic of the British countryside, as well as the carbon they can sequester – with British hedgerows able to sequester at twice the rate of trees.

As such there are currently regulations in place to protect hedgerows, but no stipulations for the condition of hedgerows and many have fallen into disrepair providing little to no value to the aforementioned areas.

The Allerton Research and Educational Trust, a research organisation that focuses on the effects of different farming methods on wildlife and the environment, received NEIRF funding to research and develop a Hedgerow Carbon Code with the aim of enabling farmers and landowners to inset their supply chains or to sell carbon units generated from hedgerow restoration or creation. Codes are typically rigorous voluntary certification standards to help nature projects to sell climate benefits and to ensure that the ecosystem services projects generate are real and verified. Insetting refers to carbon reductions made within a supply chain to balance emissions from another point in the supply chain.

The NEIRF funding was used to:

- **Research existing codes** and how they are applicable. British hedgerows are completely unique, so other hedgerow data and codes were not applicable. However, the Woodland and Peatland Carbon Codes could be used as a basis for the code.

- **Calculate carbon units** by harvesting sections of hedgerows with different dimensions, weighing the fresh material and calculating the carbon content by percentage.
- **Create robust monitoring standards and verification process.** The project planned to use LandApp to measure the lengths of hedgerows, combining this with in-field width and depth measurements. They investigated the use of drones as a measurement tool; however, this wasn't feasible. They instead worked with Organic Farmers and Growers, who already certify the Woodland and Peatland Carbon Codes, to create a verification process to give both buyers and sellers confidence in the units.
- **Create an accessible carbon calculator.** The project team had a dedicated data scientist that built an easy-to-use tool to calculate the carbon units in a hedgerow project.
- **Pilot the code.** The code has been piloted at the Allerton project's research farm, as well as with their commercial partners and other farming clusters, meaning the code has been tested on a wide variety of hedge characteristics and purposes.
- **Determine demand**, firstly by modelling the Committee for Climate Change's suggestion that landowners need to increase the extent of UK hedgerows by 40% by 2050 which would generate close to £7 million. After the code's launch, the project's commercial partners among others will be able to use the code to inset their supply chains.
- **Commercialise the code.** Natural Capital Advisory (NCA) is taking the code forward to commercialise it and will oversee trading. The code will use the Kana platform where they expect most of the trading to take place. Kana is a trading platform, bringing together buyers and sellers of UK carbon units.

¹ Hedgelink: <https://hedgelink.org.uk/campaign/national-hedgerow-week/about-hedges/>

HEDGEROW CARBON CODE

PROJECT OVERVIEW CONTINUED

How will the code work for sellers?

The code will be able to be used by any farmers or landowners who want to account for carbon sequestered on their farms. This could be by selling certified carbon units through the Kana platform or, more likely, by insetting carbon into their supply chain.

Projects must register with Organic Farmers and Growers (as with the Woodland and Peatland Carbon Codes) and apply for an eligible activity:

- Planting a new hedge.
- Gapping up an existing one.
- Allowing a hedge to expand vertically, horizontally, or both.

Coppicing and claiming for an existing hedge will not be eligible. The standards for the code align with the Farming and Wildlife Advisory Group best practice for hedgerow guidance.

Next steps

The Hedgerow Carbon Code has now been developed and is set to launch in early 2024. At this point in time, NCA has assessed that selling only the carbon units associated with hedgerow restoration and creation would not be financially viable for farmers/landowners given the investment required to create/restore a hedgerow. In addition to carbon benefits, the project plans to bundle other ecosystem services such as the biodiversity benefits of hedgerows to create a more financially viable offer.

GOVERNMENT ENVIRONMENTAL GOALS

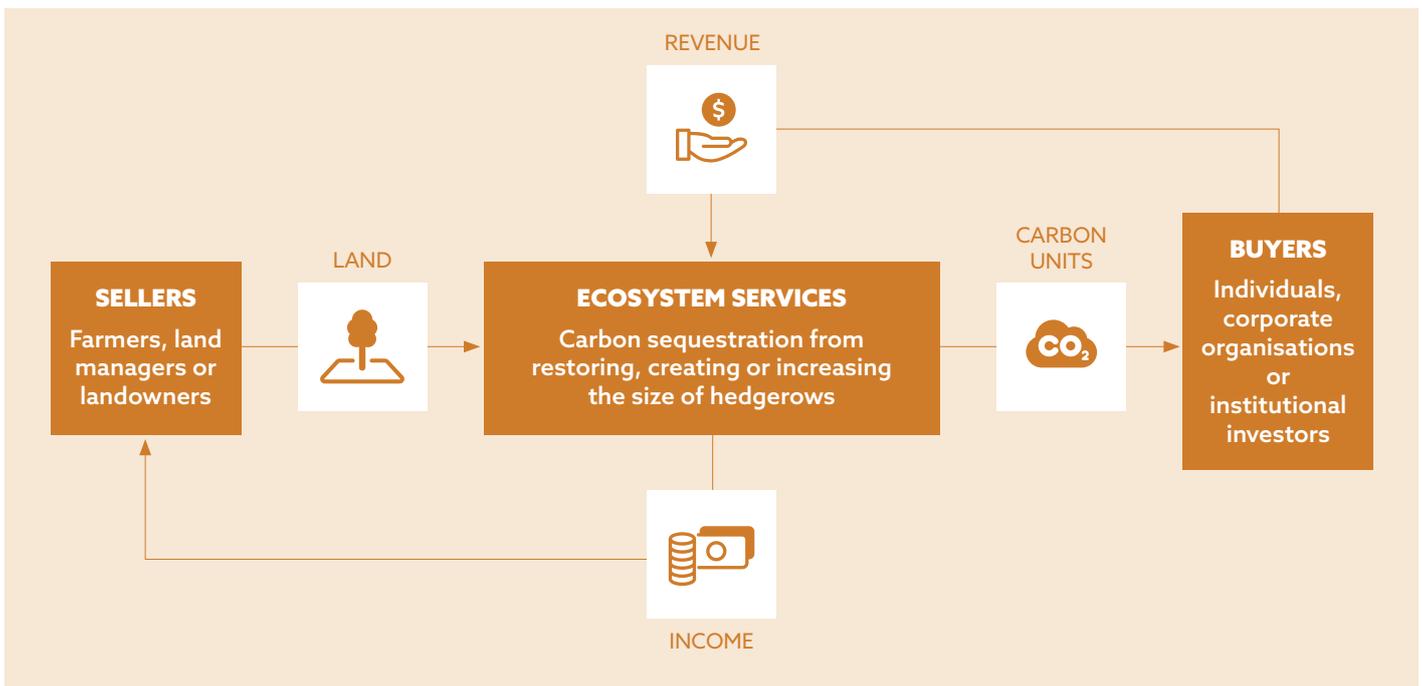
 Clean air	Hedgerows help to capture air pollution such as particulates, and also sequester carbon in their biomass and soil.
 Clean and plentiful water	Hedgerows regulate water for crops, provide flood mitigation and improve water quality through infiltration.
 Thriving plants and wildlife	Hedgerows are important habitats for an estimated 3,000 species including birds, insects, and small mammals and several European protected species. They provide shelter and a food source and create wildlife corridors between areas.
 Reducing the risks of harm from environmental hazards	They also provide buffers from extreme weather for crops , livestock and wildlife through shade, water infiltration and a wind block.
 Enhancing beauty, heritage, and engagement with the natural environment	Two thirds of England has been hedged for the past 600 years, giving hedgerows significant cultural and historic value . They also provide aesthetic value and are often described as 'defining' the British countryside.
 Mitigating and adapting to climate change	Hedgerows sequester carbon at twice the rate of woodland . Wildlife corridors allow species to move and adapt to the effects of climate change more easily.

HEDGEROW CARBON CODE

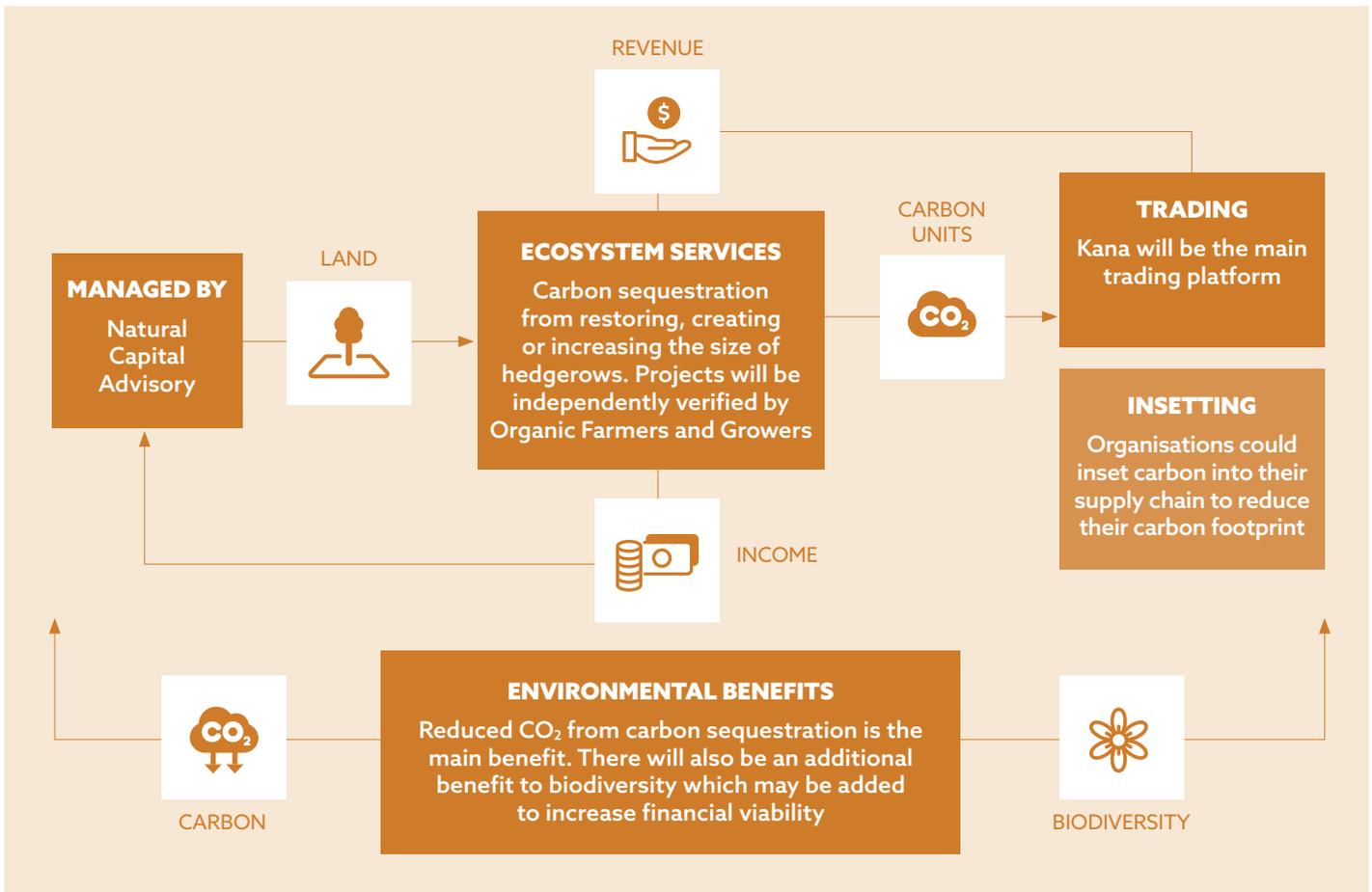
REVENUE MODEL

The revenue model involves buying and selling carbon units generated from the increased carbon sequestration of creating or increasing the size of a hedge. The code will be overseen by NCA, who will also record all trades. The project estimates that doubling the height and width of existing hedges alone would double the 9 million tonnes of carbon already stored in hedgerows; worth around £63 million at base carbon prices at the time of estimation.

It is anticipated that most trading will occur on the Kana platform. The scale of uptake is yet to be determined however a number of projects have signed up for when the code launches. If hedgerows increase their extent by 40% by 2050, the code at current pricing of just carbon units (£8/tonne carbon) would generate close to £7 million.



OPERATING MODEL



The project also has the potential for organisations to inset carbon. This would not involve any third-parties outside of the organisation wanting to inset, but carbon units would still be verified through the code.

INNOVATION

The project seeks to create a code to allow farmers and landowners to monetise the carbon sequestered from the creation or restoration of hedgerows. This is particularly innovative as unlike some nature interventions, hedgerows will not require any land to be repurposed or removed from agricultural use. Instead, hedgerows can be linked with farmers' production and units can be sold or inset alongside farm produce. Hedgerows are also very flexible for farmers and landowners of different types of land, as many different management techniques, such as growing a hedge taller or letting a hedge get wider, can generate carbon units.

The code has the same criteria as the Woodland Carbon Code, but had to develop requirements and specifications for hedgerows.

SCALABILITY AND REPLICABILITY

This code will be applicable and for use across the UK. However due to the unique character and management style of British hedgerows, it is not replicable in other countries. Using the NEIRF funding, the code was tested in several location types:

- Hedges that are managed for biodiversity outcomes.
- Arable farms where hedgerows are low.
- Mixed farms where hedgerows are tight to be stock-proof.
- Grass farmland hedge creation to replace wire fences.

These cover most key hedge types, and the code is designed to be used in almost all settings. However, some distinct hedge types, such as the Cornish hedge banks and Devon hornbeams would be out of scope for this code, as they contain stones or earth banks within the body of the hedge.



LEARNING POINTS

- **Gather and learn from existing knowledge.** The project reviewed existing codes to use elements of these as a base where possible for the Hedgerow Carbon Code.
- **Background research on codes used in other countries is helpful, but the standards used in other countries will not necessarily apply to the UK.** UK-specific data needs to be collected.
- **Be realistic about what the project can achieve within timescale and budget. Codes can take years to develop.** The project did not include laid or coppiced hedges as data around the carbon sequestered was not robust enough. They also chose to scale back their planned literature review once they had researched key evidence.
- **Create a team of people with the appropriate skills to deliver the project.** The code was researched and developed by a team of just four people. This resulted in some delays as some of the team members could not start this work immediately, but it was decided to wait to ensure staff with the right skills would deliver the project.
- **Focus on achieving the milestones that are essential to final delivery.** Allow for flexibility in delivery activities, to ensure the project's objectives are achieved.
- **Be prepared to change approach.** The project investigated the use of drones to measure hedgerows, but could not find an organisation who could deliver what they needed, and established that the additional costs of drones would diminish the value of carbon sequestered.



BSI NATURE INVESTMENT STANDARDS PROGRAMME

The British Standards Institution's (BSI) UK Nature Investment Standards Programme, sponsored by Defra, launched in March 2023. This programme aims to support UK markets for ecosystem services by creating a consensus-based standards framework for nature markets, and developing a suite of new investment standards, including an overarching principles standard with how-to methodologies for demonstrating high integrity. This draws on the Government's policy framework for Nature Markets.

The programme covers the full range of nature solutions and will drive the application of principles to guard against greenwashing and apply consistent approaches to quantifying ecosystem services, providing a benchmark by which methodologies can be recognised as sufficiently robust and credible.

The BSI are working with a wide spectrum of public body, land management, environmental and financial stakeholders, including NEIRF projects which are exploring the case for, or creating, new credit or unit issuing schemes. More information can be found here: [The Nature Investment Standards Programme | BSI \(bsigroup.com\)](#)

WOULD YOU LIKE TO KNOW MORE?

If you would like to learn more about the Hedgerow Carbon Code project, please get in touch via www.allertontrust.org.uk/projects/hedgerow-carbon-code. For questions regarding NEIRF, please contact NEIRF@environment-agency.gov.uk.

This case study was produced by Ecorys.