OXFORDSHIRE LOCAL NATURE PARTNERSHIP

Enabling nature-based carbon sequestration in Oxfordshire

Final summary report for Innovate UK

Cherwell DISTRICT COUNCIL NORTH OXFORDSHIRE

South Oxfordshire District Council
Listening Learning Leading

Vale of White Horse District Council

WEST OXFORDSHIRE DISTRICT COUNCIL

EXECUTIVE SUMMARY

The Project

The Enabling Nature-Based Carbon Sequestration in Oxfordshire project is a collaboration between four district councils, South Oxfordshire, the Vale of White Horse, West Oxfordshire and Cherwell, together with the Oxfordshire Local Nature Partnership. The purpose of the project is two-fold:

1. to help generate new forms of finance to deliver nature recovery in Oxfordshire
2. to provide local opportunities for carbon offsetting within Oxfordshire.

The project produced three key outputs. Firstly, a review of methodologies for calculating and verifying carbon removals or emission reduction projects, as well as potential routes to market. Secondly, the project developed a set of high integrity principles for nature-based carbon in Oxfordshire. And finally, an analysis of the options for developing a nature-based carbon market in Oxfordshire, and the potential expansion to a wider ecosystem services market in the future.

The Challenges

During the project we identified many challenges with the development of a nature-based carbon market. The most significant among these are:

- **The current price of carbon** – prices are too low to stimulate significant supply of carbon credits, which means that landowners have to be able to sell multiple nature-market products to make projects viable. There is a need for a national registry of nature markets and for clarity of the rules around stacking, bundling and additionality.
- **Carbon accounting methodologies** - verification systems are underdeveloped for most habitats, meaning that for the short term at least, we will need to focus on existing mechanisms such as the Woodland Carbon Code.
- **Uncertainty around level of demand for nature-based carbon** – market potential is very difficult to determine and there is a need for legislative drivers to stimulate demand.

The Solutions

To help overcome some of these challenges, the project has identified a number of actions and next steps that can be taken to help in the development of a nature-based carbon market. Key solutions include:

- A set of county-wide principles for high integrity nature markets. These have been developed by the project to help buyers avoid the 'greenwashing' allegations that concern many existing carbon credit schemes.

- Focus initial market implementation on existing tried-and-tested carbon codes (primarily Woodland Carbon Code) and allow for the addition of new and emerging codes (e,g. hedgerows, soil, Wilder Carbon etc) as they become accredited/more established.
- Explore ways of packaging carbon sequestration with other ecosystem services and Environmental, Social and Governance (ESG) benefits to make investment more attractive to a wider range of buyers.
- Adapt the existing Oxfordshire NatureMark shopfront and accreditation to incorporate nature-based carbon.

It is likely to take some time yet for a market to fully develop, recognising that some of the recommendations put forward here will need to be resolved at a national scale. Nevertheless, what has been achieved by the project is a pragmatic set of steps that can be built on to ensure that Oxfordshire is at the forefront of developments in nature-based carbon markets.

Practical impacts

Investment enabled by this IUK project has already had impacts in the North-East Cotswolds, where IUK funded Natural Flood Management (NFM) mapping work has led to funding applications being submitted for detailed feasibility studies for three NFM schemes in the Cherwell catchment.

Carbon and biodiversity baselining work in Burnehyll Community Woodland, also funded through this IUK project, will enable the landowners to consider using the sale of nature-based carbon credits as a method to help develop the site's biodiversity potential.

The Conclusion

The findings and recommendations of this work have laid firm foundations for a long-term project to develop a fully functioning market for nature-based carbon in Oxfordshire. The actions undertaken by the project have already helped lever further investment by new project partners to help recruit a new green finance development manager to help take forward some of the key elements of this work.

The project has had a big impact locally in raising the profile of nature-based carbon as one of a suite of potential green finance options that will ultimately help us to deliver nature recovery in Oxfordshire.

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PROJECT OVERVIEW

This project was funded by Innovate UK under the Fast Followers programme. The project ran from April 2024 to November 2025 and was a collaboration between four of the Oxfordshire District Councils: South Oxfordshire, the Vale of White Horse, West Oxfordshire and Cherwell District Councils, and the Oxfordshire Local Nature Partnership (LNP).

The purpose of the funding was to build capacity and skills at local authority level, accelerate net zero, and address/ overcome non-technical barriers. The specific focus of this project was to research the potential for setting up a nature-based carbon sequestration market in Oxfordshire, as well as exploring the potential of establishing other ecosystem service markets.

Introduction

All the local authorities in Oxfordshire, and many of the county's businesses, have targets to achieve net zero carbon. To achieve this goal, the primary focus must be the reduction of carbon emissions at source. However, all authorities have recognised that, even when all current decarbonisation projects are completed, there will still be residual carbon emissions which they cannot avoid. This emissions 'gap' will need to be offset to allow these organisations to meet their targets.

Discussions within individual local authorities have highlighted a need to ensure that any potential offsetting purchases must be prioritised within their own geographic areas. Where possible, projects should also deliver additional benefits for nature recovery and the local communities.

All Oxfordshire's local authorities and the LNP are committed to delivering nature's recovery and the Oxfordshire Local Nature Recovery Strategy (LNRS) has been a focus for this work. One of the main challenges we face is funding its delivery, and the development of new nature markets is seen as a key opportunity to introduce new innovative forms of investment.

There is a strong developing market for Biodiversity Net Gain (BNG) in Oxfordshire following the introduction of mandatory BNG in January 2024. Other nature markets are nascent. There are only two nature-based sequestration approaches that are fully developed in the UK; the Woodland Carbon and Peatland Carbon codes. The market for woodland carbon is underdeveloped in the Oxfordshire, and the scale of this market is lagging well behind anticipated local demand for carbon credits. Peatland is rare in Oxfordshire and there is little or no scope for developing a market in peatland carbon credits.

There are, however, a wide range of other habitats that are known to sequester carbon. The key priority for this project is therefore to explore how it might be possible to develop a market for Nature-Based Carbon Sequestration (NBCS) based on monetising the carbon sequestration potential of other important habitats and contribute to the delivery of the LNRS. Ultimately, this would allow local authorities and others to offset their residual carbon emissions and deliver co-benefits for nature recovery.

The challenge we set out to address

- Carbon markets have been subject to significant scrutiny and greenwashing risks were significant concerns for buyers.
- The majority of nature-based carbon units currently available for purchase are international, with more complex audit/due diligence and transparency issues, and benefits being realised outside of county.
- There are several nascent nature markets other than carbon, but there is a lack of a clear strategy for how Oxfordshire could bring buyers and sellers together.
- There is a demand for nature-based carbon from the Oxfordshire local authorities but no ready local market for them to invest in.

The potential solutions we wanted to test

- Could landowners and farmers unlock value from sequestration taking place across other land areas beyond Woodland Carbon Code?
- Could we develop a high-integrity marketplace to overcome greenwashing concerns, and enable offsetters to purchase local units, enhancing economic growth/resilience in the local area?
- Could a marketplace be used to enable trading of additional nature-market services (e.g. natural flood management) whilst maintaining high integrity?
- Could we identify and bring forward a site to investment-readiness?

Our approach

- We undertook a literature review of carbon sequestration across different habitats.
- We reviewed potential monetisation options for these (e.g. was there an existing/ evolving standard/code that was sufficiently developed to be acceptable to buyers?).
- We reviewed existing principles and proposed a set of high integrity market principles that could be used to underpin trading in local nature market services (carbon, NFM, biodiversity, etc.).
- We worked with Oxford City Council's Low Carbon Oxford Project to understand the suitability (and practicality of operating) Area Based Insetting, and considered whether it was suitable for nature-based carbon.
- We explored private sector demand for nature-based carbon and other ecosystem services, and considered options for developing the marketplace and facilitating transactions.

Non-technical barriers identified

During the research for this project a number of non-technical barriers to the development of a market for nature-based carbon were identified:

1. Engaging landowners was a (not-unforeseen) challenge for a variety of reasons. This impacted our understanding of the actual and potential level of supply of carbon credits. Inconsistent government policy and funding for agriculture has reduced the willingness of some farmers and landowners to engage in any long-term decision making about land use.

2. The current cost of carbon units is too low to stimulate supply and there is a lack of evidence to demonstrate that the level of demand for carbon credits currently exists. We also noted elements of 'buyer fatigue' - those on the demand side are reluctant to engage in yet more hypothetical conversations about their future potential funding of ecosystem service provision. There is a dire need for policy mechanisms and levers to stimulate demand. The BNG market has developed as a result of Government legislation and policy which is driving the creation of a mandatory national compliance market to meet statutory requirements. It is difficult to see carbon markets developing with the same speed without a similar policy initiative and driver. The potential inclusion of Woodland Carbon Code projects in the Emissions Trading Scheme is one example.

3. Local Government Reorganisation is impacting the local authorities' ability to make progress on offsetting. Oxfordshire is currently a two-tier area with several competing options for unitary councils. The current local authorities won't exist beyond the next three years. This makes it challenging for them to plan for any long-term investment or even agree an approach to offsetting their residual emissions.

4. There is a time lag in between funding nature-based projects and the realisation of carbon units, which means that it may already be too late to use nature-based approaches locally to offset shorter-term net zero targets (2030/35).

5. There are significant challenges for landowners wanting to enter the market with high upfront cost for baselining, legal costs and the capital costs of habitat creation ahead of the realisation of any investment. Is there a role for centralised funding of certain baselining work? There is clearly a role for central government to provide template legal contracts, business case financial models etc.

6. The potential for landowners to sell multiple nature market products from a single area of land creates a risk of double counting and highlights additionality issues. To overcome this, there is a need for a nature market registry to track what is being offered and ensure that there is no double counting and that additionality tests are being met. Linked to this, there is a need to clarify stacking and bundling rules.

Structure of the project

The project was split three key parts:

1. Understanding carbon sequestration methodologies and routes to market for both buyers and sellers. The findings of this work are presented in "Carbon Sequestration in Oxfordshire: A review of nature-based carbon methodologies & routes to market (OLNP, 2025)"

2. The development of a set of high integrity principles for nature-based carbon in Oxfordshire. The findings of this part of the project can be found in the report - "Developing a High Integrity Nature-based Carbon Market Framework for Oxfordshire" (OLNP, 2025).

3. The final report looks at the options for developing a nature-based carbon market in Oxfordshire and the results are presented in – "Implementation of nature-based markets in Oxfordshire" (OLNP, 2025).

The main outputs of the projects can be found in these three papers. The key finding are summarised below.

To inform the development of the above studies, we also commissioned three pieces of background work from consultants to help us understand:

- Demand from potential buyers locally, but also nationally/ internationally to understand wider market trends.
- Supply i.e. what could Oxfordshire's natural capital deliver now, vs. what it could deliver in the future allied to other emerging policies, in particular the Local Nature Recovery Strategy.

3Keel - were commissioned to help us to understand the nature-based carbon market, considering who the 'customers' are, what those customers would be willing to pay for and the practical arrangements through which those services could be transacted. Read their report.

Forum for the Future - were asked to engage with landowners to provide strategic advice on:

- what makes different landowners more or less likely to engage with marketplaces.
- their needs and challenges in managing land for nature recovery and other environmental and social outcomes
- landowner priorities in managing their land.

Read their report.

Leverhulme Centre for Nature Recovery – were commissioned to quantify and map the carbon sequestration potential of the habitats proposed in the recently published Oxfordshire Local Nature Recovery Strategy.

Read their report.

Stimulating the market for nature-based carbon

In addition, we considered how the project could find ways to help stimulate the nature-based carbon markets in Oxfordshire and to bring forward investment opportunities. Two specific pieces of work were enabled by this project:

1. The IUK project part-funded a **hydrological mapping study** undertaken by AtkinsRealis (NFMStudio) to identify Natural Flood Management (NFM) interventions in the Cherwell catchment. This is part of a wider approach in the area to identify opportunities to deliver new nature markets that support landowners while delivering natural capital solutions, including flood protection, carbon sequestration and nature recovery.

   This opportunity mapping highlighted the areas where NFM interventions (which include creation of leaky dams, scrapes, wetland, and riparian tree planting) could have the most impact. With support of a farm adviser, owners and farmers of several landholdings were approached, many of whom were willing to pursue the opportunity. At the time of writing, funding applications had been submitted for detailed feasibility studies for three NFM schemes in the Cherwell catchment. This suggests a good initial interest in creating a market for NFM in Oxfordshire.

2. In Cherwell District Council area, the project has funded an **ecological baseline assessment** of Burnehyll Community Woodland. Cherwell DC wanted to explore and understand the conditions of Burnehyll Community Woodland and its suitability for implementing a carbon sequestration scheme (Woodland Carbon Code) and the current benefits and potential constrains of the existing tree planting. Consequently, the commissioned study aimed to obtain a forecast of the project's carbon sequestration and a comparation between previously proposed planting combinations with the climate conditions predicted for the future.

   Key findings and recommendations

   - The actual planting does not match the masterplan design. Key issues include high tree failure rates, damage from deer, incorrect tree guard

installation, and signs of drought stress with large cracks in the soil.

- Many of the tree species originally planned are not resilient to the predicted future climate conditions (2050 & 2080). The report provides a new list of climate-resilient native and non-native species that should be used instead.
- Due to the inconsistencies between the design and the actual planting, the existing woodland is not currently eligible for registration with the Woodland Carbon Code.
- The report recommends dropping the carbon credit plan and concentrating on producing and marketing Biodiversity Net Gain (BNG) units.
- The carbon calculations had to be based on several assumptions and judgments because the provided design plans were incomplete or inconsistent (e.g., missing percentages, incorrect data formats).

These findings provide a clear, evidence-based view of reality, enabling Cherwell District Council to change its strategy effectively. Knowing that the current work is better suited to a net biodiversity gain pathway offers a practical and potentially profitable alternative, ensuring that the community woodland can continue to deliver significant environmental value, just through a different and more appropriate mechanism.

Project Outputs

A brief summary of headline findings of each of the three main studies is presented below. Significant amounts of further, important detail can be found within the reports themselves, which can be found on the Oxfordshire Local Nature Partnership website.

REPORT: Carbon Sequestration in Oxfordshire: A review of nature-based carbon methodologies and routes to market

Summary of key findings

1. Oxfordshire has significant potential to increase carbon sequestration and storage through habitat creation and restoration.
2. Each habitat offers different opportunities and challenges for carbon storage and monetisation. A multi habitat management approach offers interconnected alternatives for carbon sequestration and other benefits:
    - **Woodlands**: A proven and high-integrity pathway under the Woodland Carbon Code (WCC), but with high upfront costs and long payback periods.
    - **Hedgerows**: High co-benefits, low conflict with farming, currently lacking a recognised carbon code.
    - **Soil Carbon**: Presents a major opportunity to generate revenue while maintaining food production through regenerative practices. However, challenges remain regarding permanence and the vulnerability of stored carbon to future land management changes. Multiple emerging codes exist creating a complex landscape for farmers. Strong potential in Oxfordshire.
    - **Grasslands & Floodplains**: Strong carbon potential through reversing arable land use back to nature. The main barriers are variability in measurement and the absence of a dedicated carbon code, limiting direct monetisation. Strong co-benefits for biodiversity, water retention, and in some case reduced management costs.
    - **Wetlands**: Provide major biodiversity and flood management benefits but face significant methodological barriers. They can be both carbon sinks and sources (e.g., of methane), making carbon accounting complex and standardisation unlikely in the near term.
    - **Transitional Environments / Rewilding**: Offer a flexible, nature-led approach but have limited empirical data and high variability, making carbon quantification and verification challenging. It is not currently recognised under IPCC guidelines.
3. **The gap between potential and delivery capability:** the findings noted a gap between theoretical sequestration potential and practical deliverability.

    Key barriers include:

    - **Inconsistent carbon accounting & data gaps**: The evidence base for

sequestration rates is often of "low confidence" (as noted by the House of Lords), varying greatly by location, management, and soil type.

- **Immature or absent carbon codes**: Excluding woodlands, there is a lack of fully developed, robust, or widely accepted methodologies for monetising carbon (e.g. hedgerows). Carbon codes for some habitats (e.g. grasslands, wetlands) are non-existent.
- **Economic viability**: For many projects, particularly woodland creation, the income from carbon credits alone is currently not sufficient to cover costs, even with grant funding to cover upfront planting costs. The bundling of other benefits or a higher carbon price is required for it to make financial sense for farmers and landowners.
- **Permanence and governance risks**: Ensuring that carbon remains stored for the long term (decades to centuries) requires secure legal arrangements (e.g. covenants) and robust buffer pools, which are not yet universally in place.
- **Lack of single code/standard**: The lack of standardisation for capturing on-farm (or single-holding) sequestration creates inefficiencies for buyers and sellers.

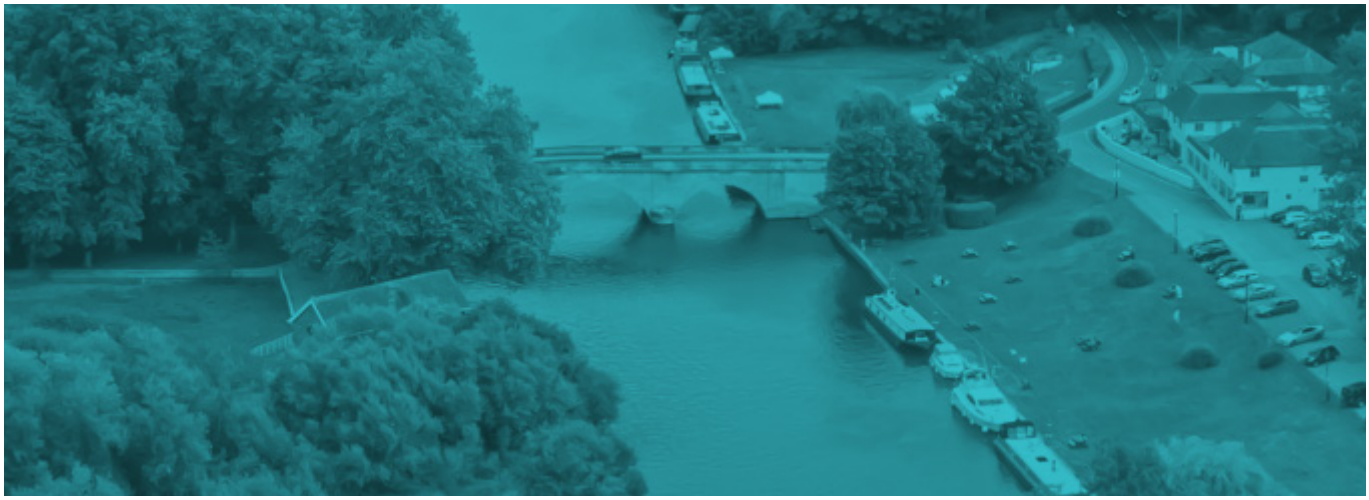
4. **Co-benefits are a critical driver of value and integrity:** the highest-value carbon projects are those that deliver stacked co-benefits, such as: biodiversity enhancement, natural flood mitigation, improved water quality, etc. Schemes like the England Woodland Creation Offer (EWCO) and standards like Wilder Carbon explicitly reward these additional benefits, making projects more financially viable and environmentally robust.
5. **Strategic recommendations for an Oxfordshire approach**: a strategic, high-integrity approach is needed, prioritising:
   - **Key identified interventions**: Woodland creation, Wilder Carbon, soil carbon (with caveats). Hedgerows and floodplain restoration show promise and will be pursued when evidence, codes and accreditation are stronger.
   - **A "Carbon-Plus" model**: Developing frameworks that bundle carbon with other ecosystem benefits (biodiversity, water, public access) to attract investment and increase income for landowners.
   - **Single/whole-farm approach**: to minimise cost of market engagement/ease of access.
   - **High-integrity framework**: Establishing a locally governed carbon investment framework aligned with principles like the Oxford Offsetting Principles and ICVCM's Core Carbon Principles to ensure projects are additional, verifiable, and permanent (see below).

REPORT: Developing a high integrity nature market framework for Oxfordshire

Summary of key findings

The need for a high-integrity market is seen as critical for carbon, but also more generally for developing new nature markets to avoid 'greenwashing' allegations that hamper many of the current international carbon market approaches.

- The report sets out a practical framework for creating a high-integrity, Oxfordshire-based carbon and nature market to mobilise local investment towards Net Zero, while ensuring transparency, fairness and community benefit.
- It reviews leading standards and frameworks (ICVCM, VCMI, Oxford Offsetting Principles, Defra Nature Markets Framework, BSI Flex, IUCN) with extensive stakeholder engagement with landowners, councils, and businesses to identify barriers, priorities and governance options.
- A small set of core integrity pillars, including additionality, permanence, transparent Monitoring Reporting and Verification (MRV), and buyer integrity, underpin market trust. Challenges remain around high transaction costs, unclear stacking rules, and limited access for smaller landholders.
- We recommend the development of a locally governed, place-based market architecture aligned with national standards and tailored to Oxfordshire, using proportionate MRV, recognised registries, transparent governance, blended public-private finance and support for pilot projects.
- Oxfordshire can lead in developing a trusted, investable, high-integrity nature market that delivers verified carbon and biodiversity benefits, strengthens local communities and provides a scalable model for regional and national replication.



REPORT: Implementation of nature-based markets in Oxfordshire

Summary of key findings

- **Demand for credits** - There is uncertainty about how much demand exists for purchasing nature-based carbon credits (and other nature-based services) from organisations within Oxfordshire. Although some businesses and authorities are exploring opportunities for purchasing carbon credits to offset their residual greenhouse gas emissions, few are committing to purchasing any great quantity. There is, however, a clear interest in ensuring that any investment made in offsets should benefit local projects.

- **Potential to supply credits** – Oxfordshire's landscapes are well placed to deliver ecosystem services of carbon storage, flood regulation, interaction with nature and biodiversity net gain. Currently, overall land area used for these purposes is low.

- **Current supply of carbon and ecosystem services markets** – There is limited information on the supply of ecosystem services markets in Oxfordshire. The exception to this is Biodiversity Net Gain, where information is available on the number of units for sale and number of units already traded. There are currently no carbon credits available to purchase in Oxfordshire, and only one project has Woodland Carbon Code Pending Issuance Credits available.

- **Landowner access to nature-based carbon markets** – Currently, landowners must navigate each individual carbon code process separately. The project explored alternative models to ease this process and better support landowners to supply to different nature-based carbon markets. One solution in the short term is for groups of landowners to package the individual carbon habitat components of several farms together. This would enable local projects to collectively deliver a larger volume of credits, an approach that is currently being trialled by the North-East Cotswolds Farmer Cluster. In the future, a whole farm carbon approach where a single carbon code is developed to incorporate different habitats owned by a single landowner is likely to be an effective alternative. As no single code currently exists, this will require significant work to implement. Furthermore, as well as having to navigate each code separately, the financial barriers to entering nature markets remain prohibitive for many landowners.

- **Implementation of a wider ecosystem services market** – An ambition of this project is also to explore the potential to establish an effective market for wider nature-based solutions (for example, natural flood management projects), and not simply carbon credits. The project explored the role of a Land Function Exchange for Oxfordshire, which seeks to match buyers and sellers through a broker service. To support the development of this marketplace framework, this project proposes to bring together a small group of enthusiastic, willing

participants from both the buyer and seller sides to provide a lower cost and lower risk platform from which a Land Function Exchange could emerge.

- **Role of a local organisation as a trusted partner** – A recurring theme throughout the research undertaken for this project was the need for farmers and landowners to engage with a 'trusted' partner, such as a local authority, or the Oxfordshire Local Nature Partnership.

IMPACT

This project has significantly increased our understanding of the challenges and issues that will need to be addressed in setting up a market for nature-based carbon sequestration in Oxfordshire. The project has also evolved our understanding of some of the solutions and mechanisms that will need to be put in place to develop the market.

Some of the key deliverables, outputs and achievements of the project are drawn out further below:

1. The project has increased our practical understanding of challenges faced in delivering NBCS where it is reliant on voluntary market principles. It has highlighted flaws in commonly used principles and how they can perversely reduce supply of new projects.

2. We have a better understanding of how wider policy (eg. LNRS) could help to stimulate or at least guide a market for NBCS and where there may be significant co-benefits.

3. We have estimated and mapped the carbon sequestration potential of the measures proposed within the Oxfordshire Nature Recovery Strategy.

4. The project has significantly increased the understanding and interest in nature-based carbon amongst the partner local authorities and the many organisations supporting the work of the Oxfordshire Local Nature Partnership.

5. The insights gained by the project have helped to inform the development of county-based solutions such as Oxfordshire Nature Recovery Fund (ONReF) that seeks to overcome market entry barriers for landowners. ONReF has already secured over £0.5m of funding to assist the development of revenue-generating projects.

6. The project has developed a set of countywide principles for high integrity nature markets. These are already being applied to BNG projects via the LNP's NatureMark scheme.

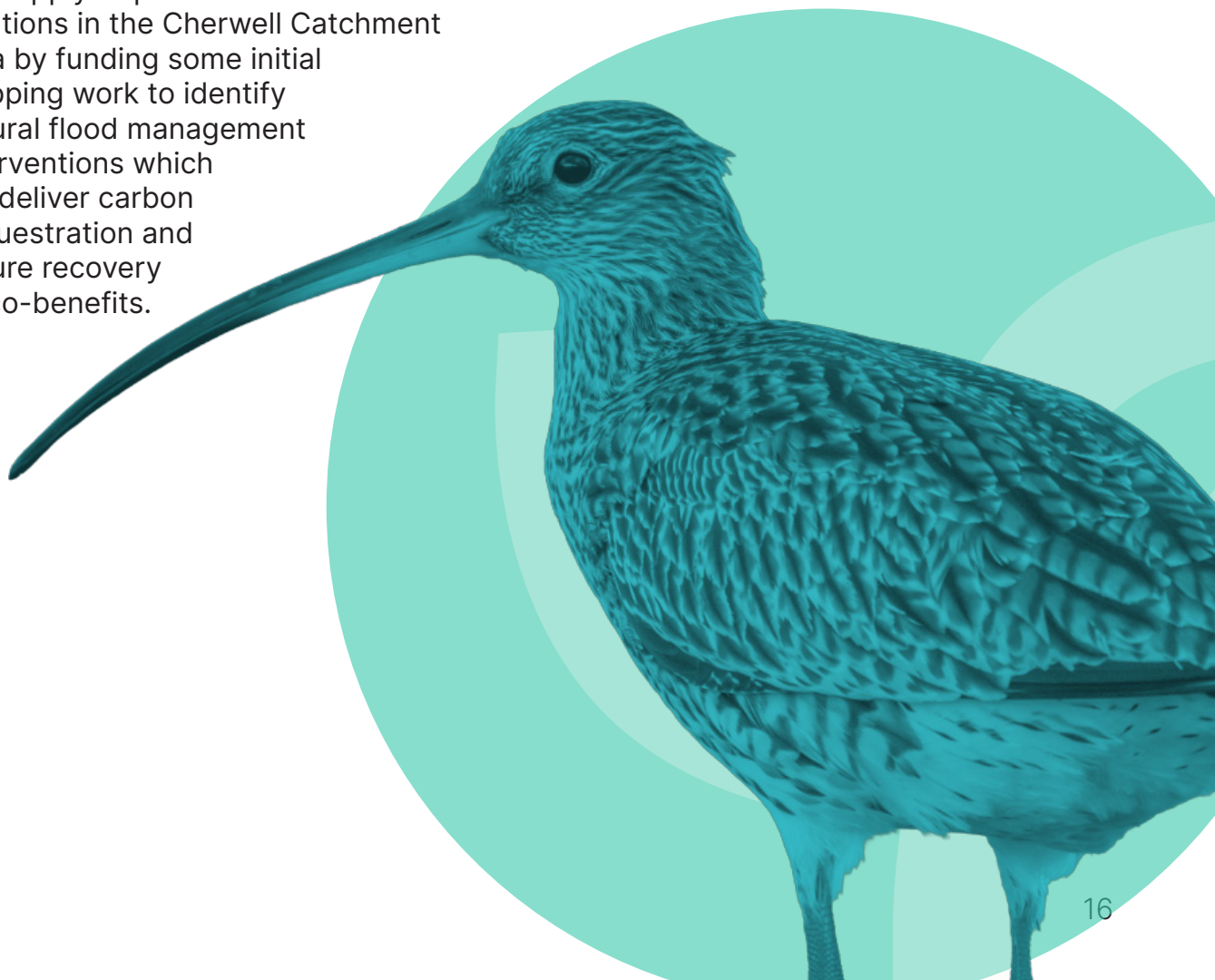
7. The project has developed an outline concept for a single-farm carbon payment and has explored similar approaches (i.e. Soil Association/Woodland Trust approach to whole-farm natural capital). More work is needed to develop a single-farm carbon code, and we need to consider if this is better done at a national scale.

8. Through extensive engagement with both potential buyers and sellers from organisations across the county, the project has raised awareness of the potential benefits of a NBCS market.

9. We have explored and identified alternative market delivery mechanisms to facilitate transactions, for example a land function exchange and the development of a voluntary market with a 'Coalition of the Willing'.

10. The project has helped to identify potential challenges when bringing investment-ready sites forward (e.g. additionality issues and constraints such as buried archaeology). Several potential sites were tested as part of this project. However, not all were suitable.

11. The project has helped to stimulate the supply of potential nature-based solutions in the Cherwell Catchment area by funding some initial mapping work to identify natural flood management interventions which will deliver carbon sequestration and nature recovery as co-benefits.



CHALLENGES FACED BY THE PROJECT

Throughout this project we have identified challenges which are likely to be common to other projects:

1. We found that there were many published sources of evidence on the carbon sequestration potential from around the world. However, there are many variables that impact the sequestration potential of individual habitats, such as climate, soil, location, permeance etc. In practice, this makes it difficult to draw conclusions that can be used to inform the development of a market in Oxfordshire (or other similar geographical areas).

2. Engagement with potential suppliers (farmers and landowners) was far more challenging than we anticipated. Significant government policy announcements during the life of the project affected landowners willingness/desire to explore new markets, with many landowners choosing to 'sit it out'. In addition, there was an added complication of farmers using their own sequestered carbon on-farm, to help them achieve net zero in their supply chains. This demand has been driven by large buyers (such as supermarkets) requiring them to demonstrate net zero.

3. Engagement with potential buyers (particularly businesses) was also harder than expected. The main barriers appeared to be lack of a 'push-factor' (legislation) that requires business to limit or offset its carbon emissions. This was particularly the case for SMEs who also face issues of access to net zero finance and reliable information.

4. In the current voluntary carbon market, there is a lack of clarity around pricing. Even the established Woodland Carbon Code, the "yardstick" for nature-based carbon, has very limited price disclosure.

5. The key to a successful market is to develop an investable proposition. Carbon pricing is currently too low at £50/TCO2e for projects to be viable. Oxfordshire has a c. £800m+ funding gap to deliver nature recovery across the county. Many of the nature recovery interventions will yield sequestration benefits, so ideally a way needs to be found to unlock multiple benefits from individual interventions.

NEXT STEPS

The outcomes of this project have proved that there is more to be done beyond the current support provided by the IUK funding. The Oxfordshire Local Nature Partnership and the local authority partners are committed to further developing this work, seeing NBCS as a key mechanism for future carbon offsetting in the county and as an important new source of green finance to help realise the aspirations of the Local Nature Recovery Strategy and deliver net zero.

Each of the three main project reports contains a detailed list of proposed next steps to develop relevant elements of the project. The key steps that we will be looking to take forward are:

- Test the proposed nature market principles across a wide set of project types and with potential buyers and sellers of NCBS. Refine to ensure there are no unintended consequences.
- Further develop and test potential for a 'Coalition of the Willing' as a key mechanism for facilitating a market in NCBS.
- Additionally, working closely with the Zero Carbon Oxfordshire Partnership, progress a 'Sprint' project which looks to aggregate demand for nature-based carbon credits whilst simultaneously unlocking supply, for instance through forward purchase agreements.
- In partnership with the county council's climate change team, recruit a green finance development manager to develop and investment readiness service for both nature and climate projects. This might utilise ONReF, whilst also ensuring projects are sufficiently financially robust to be attractive to private investors.
- Undertake a targeted landowner engagement exercise through existing contacts and networks using personal introductions to better understand potential supply options. This will be linked with ongoing climate adaptation engagement, and planned LNRS engagement, and done through trusted partners.
- Explore ways of packaging sequestration with other ecosystem services and ESG benefits which may make investment more attractive to a wider range of buyers.
- Look at the potential to adapt the existing Oxfordshire NatureMark shopfront and accreditation to incorporate nature-based carbon.
- Focus the initial market implementation on the existing tested carbon codes (primarily Woodland Carbon Code) and allow for the addition of new codes (e,g. hedgerows, soil, Wilder Carbon etc.) as they are accredited/become established.
- In the medium term, seek willing partners to develop a Land Function Exchange (LFE) for Oxfordshire. A LFE would have a broader focus than just carbon sequestration, looking at all nature-based solutions. The LFE would match buyers and sellers through a broker service. To support the development of

this we would bring together a small group of enthusiastic, willing participants from both the buyer and seller sides and look to develop a lower cost and lower risk platform from which a Land Function Exchange could emerge.

- Support farmer clusters, or groups of landowners to package the individual carbon components of several farms together and replicate a similar approach to that being pioneered by the North-East Cotswolds Farmer Cluster.
- Develop the Cherwell NFM opportunities as part of a wider LNRS strategic project.

KEY LEARNINGS

- The current cost of carbon units is too low to stimulate supply and there is a lack of evidence to demonstrate that the level of demand for carbon credits currently exists. There are, however, anecdotal examples of £100+/tonne trades happening for high integrity schemes that deliver multiple benefits, so focussing on these elements will be key.
- There is a dire need for policy mechanisms and levers to drive demand. The evolving BNG market has developed as a result of Government legislation and policy which is driving the creation of a national market to meet statutory requirements. It is difficult to see carbon markets developing at scale without a similar policy initiative and driver. The expected inclusion of Woodland Carbon Code into the emissions trading scheme may help this.
- There is a need for a national registry to support the development of nature markets. Landowners could potentially sell multiple nature market products from a single area of land, which creates a risk of double counting and highlights additionality issues. To overcome this, there is a need for a nature market registry to track what is being offered and ensure that there is no double counting and that additionality tests are being met.
- Several market mechanisms (“shopfronts”) are in existence, but they are not necessarily getting much traction. Local markets could be developed but are unlikely to achieve scale or deliver impactful nature recovery funding unless there are national legislative drivers to stimulate demand.

WHAT COULD OTHERS USE OR REPLICATE?

- The Nature Market Principles could be relevant to other similar projects across the UK.
- The work conducted by Leverhulme Centre for Nature Recovery (Alison Smith) to quantify the carbon sequestration potential of habitat measures proposed in the Local Nature Recovery Strategy may be useful in other similar local authority areas. For other LNRS areas a similar approach could be adopted to quantify the carbon potential of the measures and to help stimulate local nature markets.
- The Oxfordshire Local Nature Partnership approach to developing the NatureMark "shopfront" for high integrity nature projects is directly replicable to other areas in the UK. We are already in conversation with some but would love the scheme to be picked up and rolled out nationally.
- The three detailed technical reports produced by this project addressing carbon methodologies and routes to market, high-integrity principles, and market implementation, will be helpful to others considering a local approach to nature-based carbon sequestration.
- The ONReF funding concept could be replicated within other local authority areas, as a way of stimulating the supply of nature-based solutions and helping fund the (considerable) up-front costs of entry into the market for landowners.

CONCLUSION

This project started with a high level of ambition; to develop a market for nature-based carbon sequestration in Oxfordshire that would allow the local authorities and others to offset their residual carbon emissions locally and deliver nature recovery.

The experience has given us a clear understanding of the complexity of this task and has advanced the necessary skills within the county's local authorities to identify a clear path moving forward, that will allow the development of a nature-based carbon market over the coming years. It has also secured the ongoing support from a variety of stakeholders that will allow the project to continue and develop.

Perhaps most importantly, the project has significantly raised the profile of nature-based carbon as a potential source of new green finance to help us realise our nature recovery ambitions. We have mapped the carbon potential of the newly published Local Nature Recovery Strategy, which will provide a practical way of targeting potential carbon baselining projects at habitats with the greatest carbon potential.

Throughout the project delivery, we uncovered many challenges; the lack of agreed methods of measuring the carbon sequestration rates for Oxfordshire's key habitats, the lack of supply of nature-based carbon projects, the uncertainty over the level of demand in the absence of legislative drivers, and the lack of established market mechanisms to allow transactions between buyers and sellers.

These barriers are not unique to Oxfordshire, and we hope that in documenting our journey, and laying out a clear set of next steps, other local authorities will be able to accelerate their own potential to stimulate new forms of finance to deliver nature recovery and provide local opportunities for carbon offsetting across the country.

Final Summary report for Innovate UK

Published: 30th November 2025

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