3keel

Selling nature based services in Oxfordshire

Proposing a Land Function Exchange in Oxfordshire

Contents

1 Introduction

2 Market opportunity analysis

2.1 Sector Interests

2.2 Landscape capabilities

2.3 Opportunities

3 Market engagement

4 Commercial arrangements

5 Recommendations and Conclusions

A1-4 Appendices

3keel

Disclaimer and Confidentiality

Disclaimer

3Keel Group Ltd (3Keel) has exercised due and customary care in preparing the report but has not, unless explicitly stated, verified the information provided by the companies included in this report. No other warranty, express or implied, is made in relation to the contents of this report. The use of this report, or reliance on its content, by retailers or third parties in decision making processes shall be at their own risk, and 3Keel accepts no responsibility for the outcomes of those decisions. Any recommendations, opinions, or findings stated in this report are based on the facts and information provided to 3Keel or is otherwise available in the public domain as they existed at the time the report was prepared. Any changes in such facts and information may adversely affect the recommendations, opinions, or findings.

3Keel does not provide legal or regulatory advice, including with regards to reporting requirements. Any services provided by 3Keel shall not be deemed or treated to constitute any advice of this sort, in any form whatsoever, or as a substitute for such advice. The client is solely liable for the conclusions it draws from the use and receipt of services provided by 3Keel.

Confidentiality

Information contained within this report was given by businesses, farmers and landowners for the purpose of the Innovate UK “Enabling nature-based carbon offsetting in Oxfordshire” project commissioned through South Oxfordshire District Council and the Oxfordshire Local Nature Partnership (OLNP). It should only be used for this project and not distributed further.

1 Introduction

Project introduction

The Oxfordshire Local Nature Partnership, through the Innovate UK "Enabling nature-based carbon offsetting in Oxfordshire" project, is interested in funding ecosystem improvements across Oxfordshire through the sale of nature-based services. Opportunities on the supply side in terms of potential land-management interventions and willing groups of farmers and other land owners/managers have been identified.

The project aims to provide greater clarity on:

- the customers who would be willing to pay for nature-based services
- what those services would be to those customers
- the practical arrangements through which those services could be transacted

Exploring options to turn opportunities into transactions, and action on the ground

3keel

Project focus

This project is designed to help activate a local marketplace, by scoping customer and product opportunities and by proposing appropriate mechanisms and an action plan to turn these opportunities into transactions, and action on the ground.

3keel

Biodiversity Net Gain and carbon credits are relatively established methods of leveraging private finance for nature recovery, but both largely replace food production with environmental benefit delivery. There has been comparatively less on how to sort through the range of opportunities that might be commercialised from a **mixed landscape**, including the urban environment.

And while there has been much focus on attracting finance to new ecosystem service business models, there has been comparatively less focus on how to attract the range of **paying customers** on which those business model must ultimately rely.

This project explored the potential of environmental benefit trading on land where food production can continue, as well as beginning to assess opportunities for greening the urban environment.

Overall approach

Market opportunity analysis: research

Understanding the nature-based services that could be sold, i.e. the work and projects on farms that farmers and landowners could undertake, and who might buy them, i.e. the businesses and organisations that could provide funding

Market opportunity analysis: engagement

Direct engagement and discussion with a number of potential demand-side leads, to understand their needs in more detail, and to explore their involvement in the developing market

Commercial arrangements

Analysis and advice on local capacity and infrastructure required to turn opportunities into transactions

Reporting

Final report summarising findings, emerging questions and next steps, including opportunities and actions for implementation

3keel

2

Market opportunity analysis

3keel

Our approach

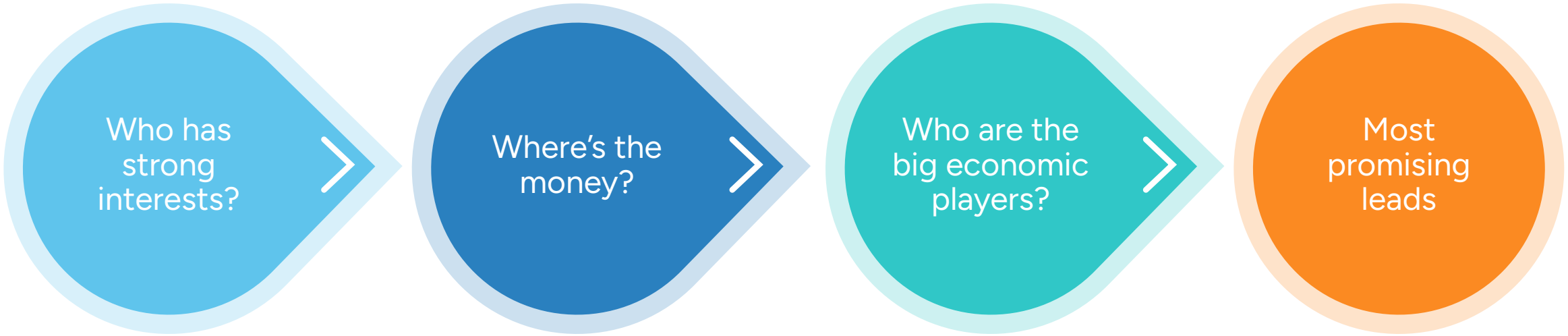
To identify potential new opportunities beyond existing Biodiversity Net Gain, voluntary carbon, and nutrient offsetting markets, we carried out a 'heat mapping' exercise combining information on:

- Sector interests - a high level assessment of the likely interest of businesses in different sectors in different ecosystem services
- Economic importance - the relative economic size of the sector in Oxfordshire
- Landscape capabilities - what services the land in Oxfordshire is best able to deliver

Which services are most likely to lead to real, valuable transactions in Oxfordshire?

3keel

Market segmentation and analysis



Looking wider to identify **new opportunities**

3keel

2.1

Sector interests

Market opportunity analysis

3keel

Identifying new economic interests in nature

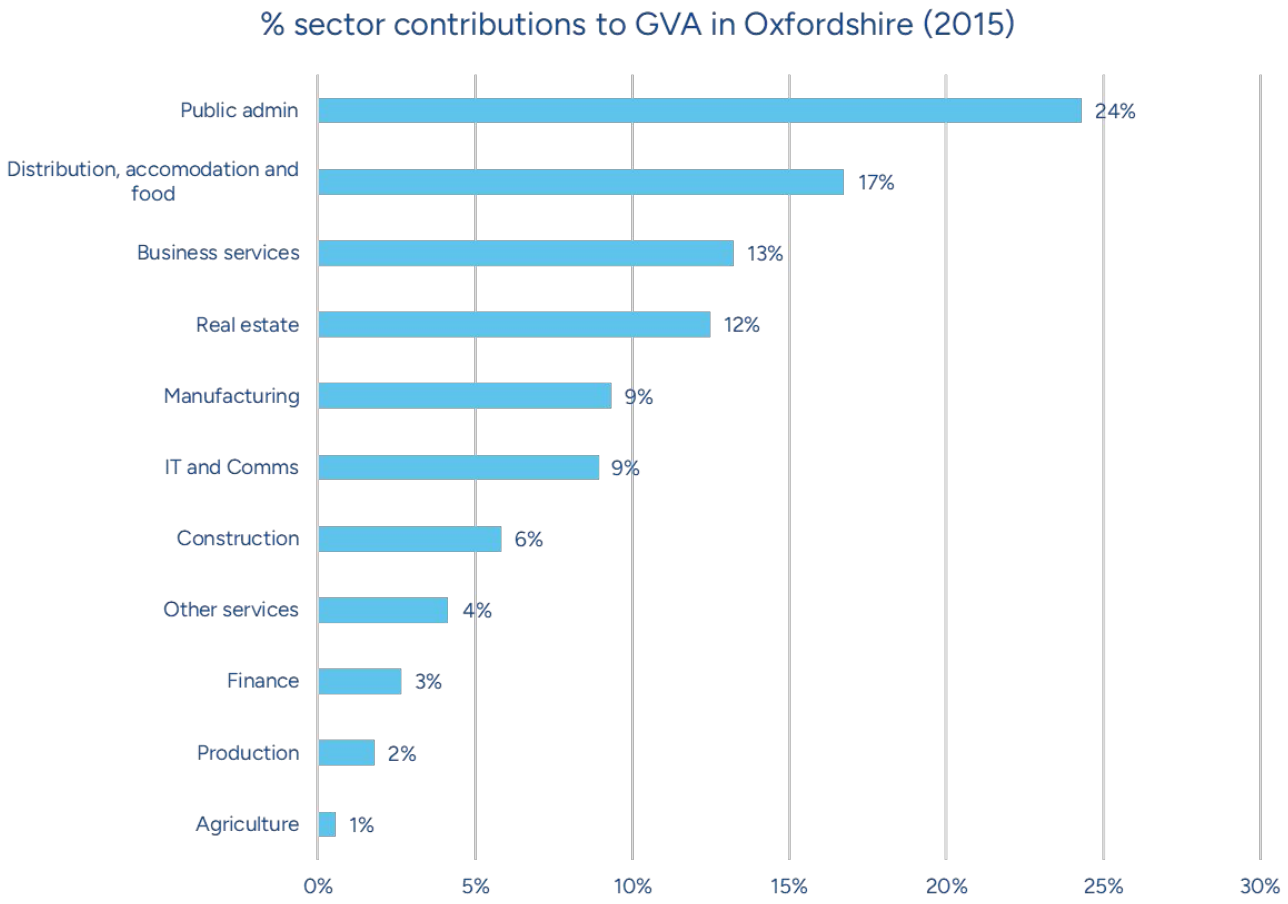
Some sectors, such as utilities and infrastructure operators, and the food and drinks industry have been involved in payments for ecosystem services schemes for many years. This project was interested in the potential to attract more private funding for nature from other sectors.

New economic sectors to explore and engage were selected based on their economic and cultural importance to Oxfordshire, as well as their potential interests in the land capabilities most suited to Oxfordshire.

How much potential is there to attract private funding for nature in Oxfordshire beyond the ‘usual suspects’?

3keel

Economic interests in Oxfordshire



Publicly available Gross Value Added data gives an idea of the most significant sectors in Oxfordshire's economy. While this data is a bit crude, it provides useful context for selecting potential businesses and organisations to investigate, as it is indicative of the scale of economic interests in the county.

Public Admin is the largest sector, which includes education at all levels, health (hospitals, residential and social care, GPs and dental), defence, public order, social security, and general public administration. Education and healthcare likely the largest contributors within this.[1] While education generally is not an obvious candidate for resources to invest in nature, the significance of the Universities and colleges in Oxford are potentially interesting.

Distribution, accommodation and food is second largest, with shopping and wholesale trading likely the most significant contributors. There are therefore potentially close links across to the fourth biggest sector, **real estate**.

Business services is the third biggest sector, with professional services and 'knowledge economy' businesses in the scientific and technical arena likely the biggest contributors, with links across to other significant sectors **manufacturing** and **IT and comms**.

[1] According to sub-sector GVA (2017) for a wider region.

Drivers of private funding

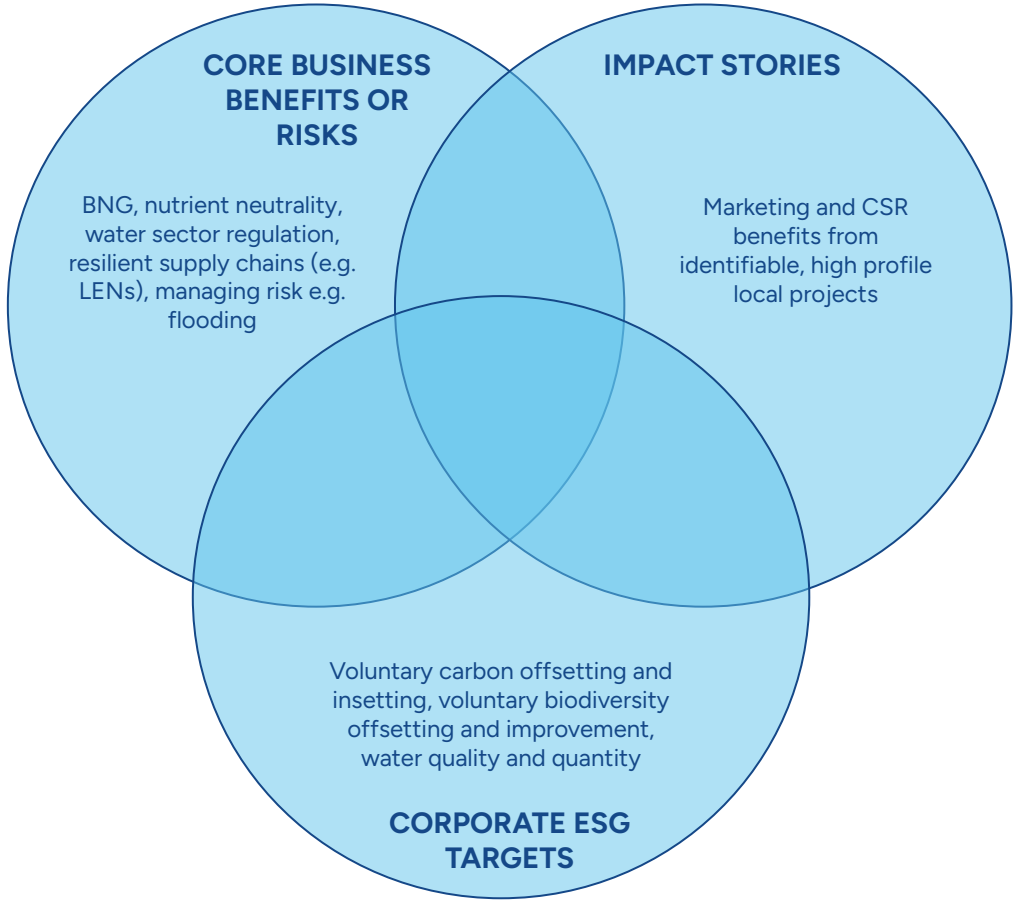
Based on our learnings from several market feasibility projects and establishment of Landscape Enterprise Networks (LENs) we have identified three main drivers for businesses to fund nature-based solutions.

The majority of payments for services so far have been driven through regulated markets, and where big businesses have direct reliance on the landscape or ESG targets they are committed to achieving (e.g. LENs which traded ~£10.5 million in 2024).

3keel

Core business

These are businesses for which landscape functions are business critical, for example to meet a regulatory obligation or manage a critical risk e.g. securing a core supply chain. Most of the functioning 'markets' for ecosystem services fit under this category, likely accounting for the majority of current and potential private funding of nature.



Impact stories

These are businesses looking for local good news stories relating to both people and nature, often where they deliver their CSR targets - effectively this is corporate philanthropy. While sums can seem significant (e.g. Lloyds Bank's £250,000 donation to kickstart Defra's 'Projects for Nature' platform), this is always going to be a limited pool of funding significantly smaller than the other two.

Corporate ESG targets

Often closely related to Core business, these are businesses which have made environmental commitments as part of their operations which they are trying to achieve. This is a slightly weaker driver than Core business, but nevertheless has driven growth of some markets like voluntary carbon offsetting and insetting.

Sector interest mapping

Less interested in the ecosystem service — *More interested in the ecosystem service*

Function Interest: Sector interest	Public admin	Distribution, accomodation and food	Business services	Real estate	Manufacturing	Information and Comms	Construction	Other services	Finance	Utilities and mining	Agriculture	TOTAL
Aesthetic value												
Air quality regulation												
Carbon storage												
Cooling and shading												
Education and knowledge												
Erosion protection												
Flood regulation												
Interaction with nature												
Noise reduction												
Pest control												
Biodiversity improvements (including BNG)												
Recreation												
Sense of place												
Water quality regulation												
Water supply regulation												
Wood production												
Food production												
Certainty?	High Certainty	Low Certainty	Low Certainty	Low Certainty	Low Certainty	Low Certainty	Low Certainty	Relatively unknown sector	Relatively unknown sector	Medium Certainty	Medium Certainty	
TOTAL												

This matrix has been created to help refine the focus for ecosystem services in Oxfordshire - there are lots of potential ecosystem service, and lots of sectors. By profiling their interests in this matrix, we can begin to prioritise focus areas and break down the potential market opportunities.

This matrix highlights the expected levels of interest for each different sector, in nature based solutions. Several trends are visible, including:

- The ecosystem services that most are likely interested in include carbon storage, biodiversity improvements, flood regulation and interaction with nature.
- For expanding the scope of nature markets, we are interested to also explore the potential of green infrastructure for heating and cooling, and a cluster of 'place-making' services in addition to interaction with nature, like recreation, sense of place and aesthetic value.

Overall, interests are diverse and complex, and interest in most ecosystem services is expected to be relatively small compared to carbon.

Sector interest & economic importance of each sector

Less interested & l in the ecosystem service & lower sector economic importance — *More interested in the ecosystem service & higher sector economic importance*

	Sector interest & Economic importance of each sector	Sector: Public admin	Distribution, accomodation and food	Business services	Real estate	Manufacturing	Information and Comms	Construction	Other services	Finance	Utilities and mining	Agriculture	TOTAL
Function Interest	Aesthetic value												
	Air quality regulation												
	Carbon storage												
	Cooling and shading												
	Education and knowledge												
	Erosion protection												
	Flood regulation												
	Interaction with nature												
	Noise reduction												
	Pest control												
	Biodiversity improvements (including BNG)												
	Recreation												
	Sense of place												
	Water quality regulation												
	Water supply regulation												
	Wood production												
	Food production												
	Certainty?	High Certainty	Low Certainty	Low Certainty	Low Certainty	Low Certainty	Low Certainty	Low Certainty	Relatively unknown sector	Relatively unknown sector	Medium Certainty	Medium Certainty	
	TOTAL												

This matrix highlights the different levels of interest for each different sector, in nature based solutions, multiplied by the economic importance of each sector in Oxfordshire (as calculated by GVA). The top ranked priorities include:

- The sector with the highest interest in ecosystem services and overlapping high economic contribution is public admin. It should be noted that this economic contribution and interest is not likely to equal funding potential due to constraints on the public sector - other ways to capture this interest from education and healthcare sectors could be explored.
- Other important sectors include business services & distribution accommodation and food.

2.2

Landscape capabilities

Market opportunity analysis

3keel

Understanding what the land can deliver

There are multiple sources of information relating to the potential for provision of ecosystem services. Oxfordshire's draft Local Nature Recovery Strategy is one source that provides an excellent source of information on the priority habitats and species for nature recovery in Oxfordshire. Ultimately, this provides some guiding priorities for action for nature recovery, but it doesn't cover all potential options, e.g. flood protection.

But directly funding particular habitat or conservation projects for their own sake is only really suited to corporate philanthropy. This will always be a limited pool of funding. Greater opportunities are likely to come through considering the ecosystem services provided by habitats, and how they might benefit different businesses.

3keel

Good data is available estimating the extent of provision of a full range of ecosystem services in Oxfordshire through the local natural capital plan. The data shows what is being provided by land use now, as opposed to what the potential of the land is. Nevertheless, a significant proportion of land in Oxfordshire currently scores low on all ecosystem services, suggesting there are plenty of opportunities to enhance natural capital and increase service provision.[1]

This is likely to particularly be the case where provision of a particular service is low, and demand is high. Conversely, where provision is high, this may indicate opportunities to expand provision of things that the Oxfordshire landscape is proven good at providing, if demand can be found.

The Climate Adaptation Route Plan[2] identifies land vulnerability to climate change, which will be helpful for framing business engagement to climate change.

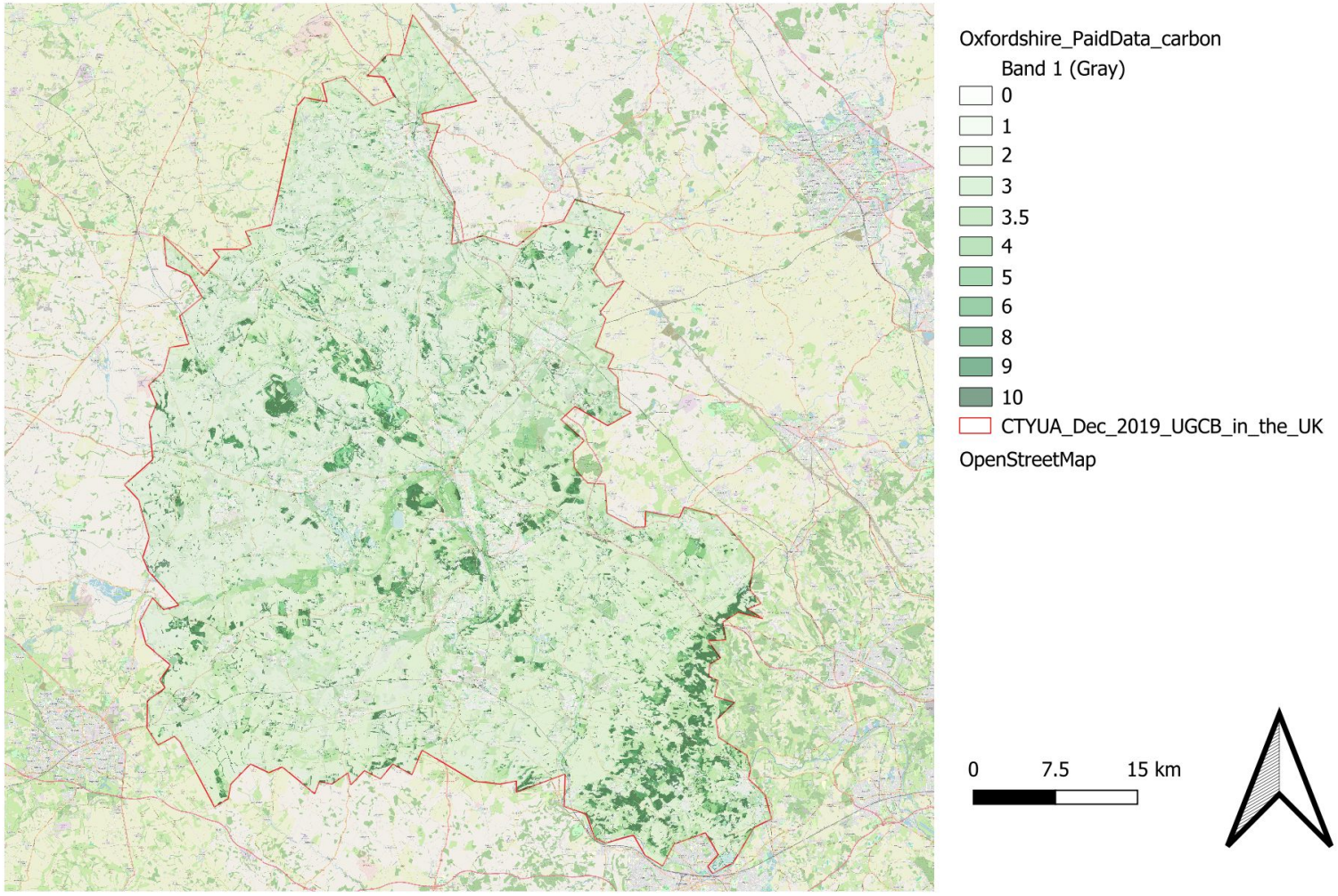
1 A Smith, 2021, *Natural capital in Oxfordshire: Short report*
2 A Carr / Sustainability West Midlands, 2025, *Climate Change Adaptation Route Map for Oxfordshire 2025-2030*

Land capabilities assessment method

An evaluation of what ecosystem services the land in Oxfordshire delivers was conducted using research and GIS files produced for "Natural capital in Oxfordshire - Short report" and the 'Local Natural Capital Plan'.

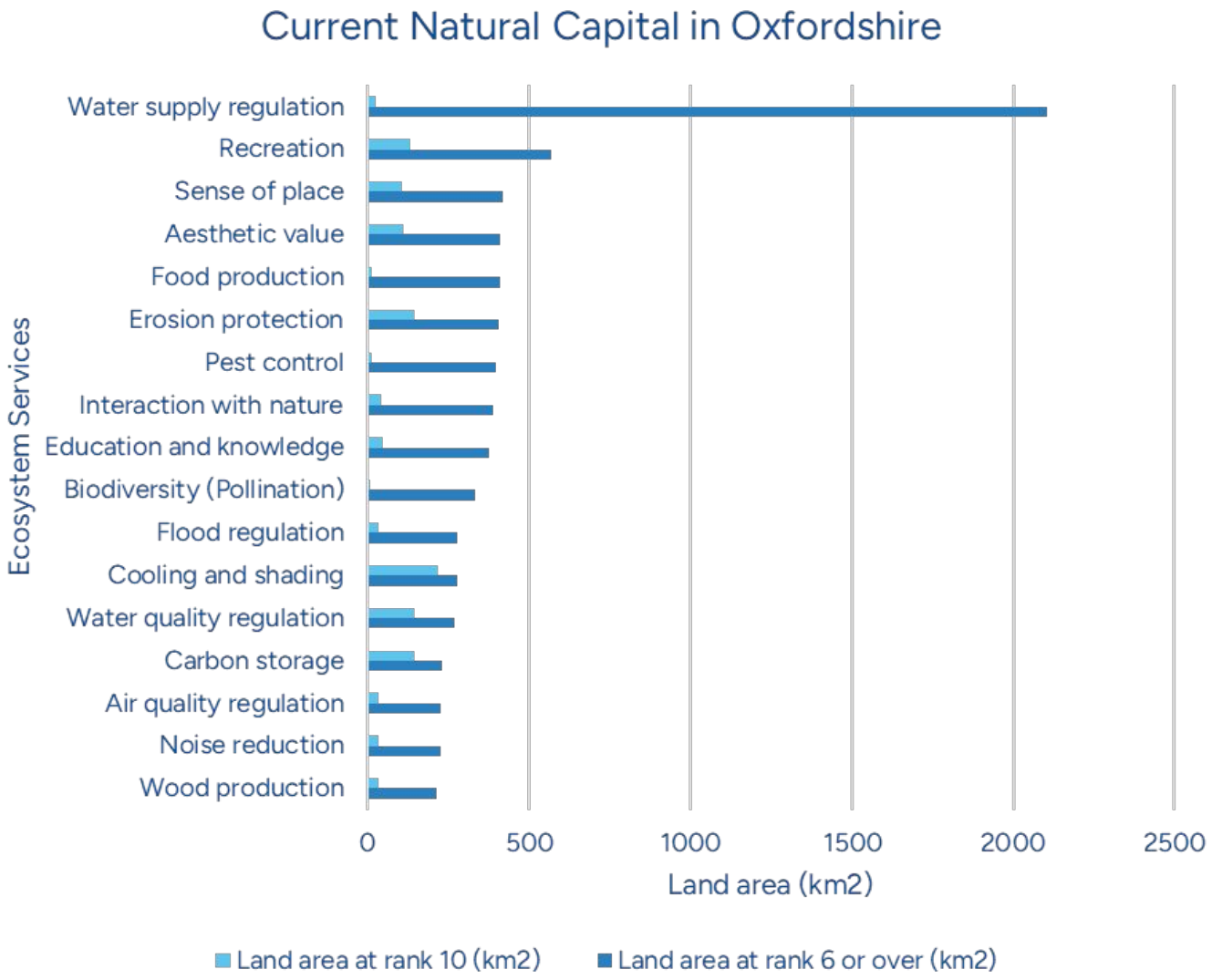
The data gives a score from 0 to 10 for how well each land use type delivers each ecosystem service (see map opposite showing provision of carbon storage across the county). To get a sense of what the landscape delivers well, and potential services that could be increased, we evaluated services based on:

1. The total area that is ranked at 10 to deliver that service across Oxfordshire
2. The total area that is ranked 'above average', (above score 5) to deliver each ecosystem function across Oxfordshire



Data source: Shapefiles as part of the 'Local Natural Capital Plan', constructed using Natural England EBN tool.

What the land delivers



The land in Oxfordshire is currently best at delivering carbon storage and cooling and sheltering, based on data collected as part of the Oxfordshire Local Natural Capital Plan. Other functions the land will likely be able to deliver well over a large area include soil erosion protection, water quality regulation and recreation. See appendix 4 for an explanation of the ecosystem services, according to the 'Environmental Benefits of Nature' tool.

Functions the land is 'better than average' at delivering (ranks above 5) are also shown. The highest ranking functions mirror the best ranking functions (water supply regulation and recreation), also highlighting sense of place, aesthetic value and food production.

It should be noted that key functions of interest for OLNP and businesses e.g. flood regulation are not ranked highly here. This suggests that there is potential for land that does not currently deliver flood regulation to adjust, especially lower grade agricultural land.

2.3

Opportunities

Market opportunity analysis

3keel

Opportunities to investigate further

Flood and water quality: demand not matched by supply

The land capabilities analysis highlighted that flood mitigation and water quality services are currently not well provided in Oxfordshire. These are also services for which there is likely to be demand from utilities, manufacturing, real estate and public admin. There are already regulatory drivers for paying for water quality services, for example water company obligations and nutrient neutrality (although these could change with the forthcoming Planning and Infrastructure Bill). It should be noted that despite increasing awareness of the benefits of Natural Flood Management (NFM), monetising it has been extremely challenging.

Summary of land capability and sector interest

Current delivery in Oxfordshire landscape: both these services are bottom half of the list of ecosystem services in terms of land delivering better than average, and flood near bottom for area of land best at delivering it.

Possible demand interests: utilities, manufacturing, real estate and public admin

Place-making: good supply but rarely monetised

Several services related to creating good, healthy, beautiful places to live and work are well provided by Oxfordshire's natural capital (sense of place, recreation, aesthetic value). However, these are rarely monetised, and may not necessarily be well connected and accessible to people ('education and knowledge', and 'interaction with nature' are less well served, for example). It may be possible to monetise and boost these services through 'Impact stories' funding or even 'Core business' funding if, for example, attracting and retaining talent is a core need of a business.

Summary of land capability and sector interest

Current delivery in Oxfordshire landscape: recreation, sense of place and aesthetic value are the 2nd, 3rd and 4rth highest services in terms of land delivering better than average. Interaction with nature is also top half. They are slightly lower on land scoring 10, so opportunities for enhancement.

Possible demand interests: real estate, public admin, businesses services (all speculative)

Opportunities to investigate further

Resilient urban environment: unclear supply and demand

'Air quality regulation' and 'Cooling and shading' through vegetation are both poorly provided for across Oxfordshire overall, but as both provide very localised effects, provision close to businesses and urban centres is what's most important. These services, particularly cooling, are likely to increase in value as the climate warms. There could be interest from real estate and larger businesses which own their own premises, but this is highly uncertain.

Summary of land capability and sector interest

Current delivery in Oxfordshire landscape: cooling and shading, and air quality regulation, are both bottom half in terms of land delivering better than average. However, cooling and shading is top in terms of area of land scoring 10.

Possible demand interests: any business owning or using premises susceptible to heat effects may have interests.

Cooling and shading is likely to become increasingly valuable as the climate warms

Other services

Carbon and biodiversity: demand and supply opportunities

Probably the most high profile services and with existing markets in operation, these were not a central focus of this research. But the analysis of interests and land capabilities suggests they are likely to be central to a functioning nature market in Oxfordshire. There are clear opportunities to enhance these services in the landscape and they are the most in demand services.
There is also evidence from the recent EKN business breakfast that SMEs are keen to do more but struggle to know how to engage, especially if they don't have specific regulated targets.

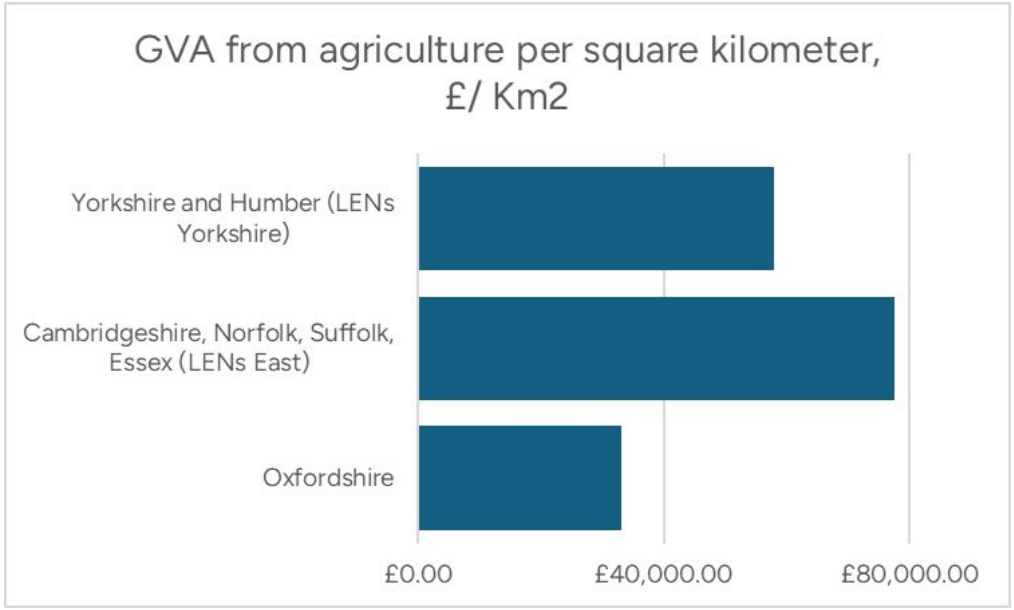
Summary of land capability and sector interest

Current delivery in Oxfordshire landscape: Using pollination as a proxy for biodiversity, provision above average is around the middle of list. However, land scoring 10 is bottom of the list, so there is a clear need and opportunity to create and enhance habitats for biodiversity.

Possible demand interests: real estate (developers), public admin, businesses with environmental commitments, particularly SMEs.

Supply chain resilience: unclear if Oxfordshire has critical mass

LENs has had great success building local markets around the supply chain resilience and ghg emission benefits of regenerative agriculture interventions (~ £10.5 million traded in 2024 in UK and Europe, expected to grow significantly in 2025). However, agriculture is a less significant sector economically in Oxfordshire than in the existing UK LENs regions (see below) due to a variety of factors (poorer soils, lower value produce produced, lack of key infrastructure /processing facilities). There may still be opportunities in resilient supply chains in Oxfordshire, but they are likely to be smaller and less obvious to identify.



3

Market Engagement

3keel

Market engagement introduction

The project aimed to test some of the areas identified as opportunities for funding nature restoration in Oxfordshire with interviews with potential buyers. This is particularly important as one of the aims of the project is exploring potential new or less mainstream avenues for attracting private funding to nature restoration.

Businesses in the sectors identified in the desk research were targeted to test their appetite against the 'opportunities to investigate further' identified above.

The project is exploring potential new or less mainstream avenues for attracting private funding to nature restoration

3keel

Market Engagement method (1/3): Longlist and shortlist development

Method

We evaluated a long list of potential buyers to collate a list of ~30 to engage. Various factors were considered when doing this, including the matrices from WP1.1 and 1.2, businesses connection to the landscape in Oxfordshire, commitments, knowledge from the project team and desk-based research. The aim of the shortlisting exercise was to narrow down the list of potential companies in such a way that gave an interesting spread of company types and potential interest areas.

Early learnings

One way businesses were identified is through exploring tenants at Business Parks across Oxfordshire. Business Parks themselves often have environmental commitments, but also can help build relationships, identify and help connect to their tenants who want to make environmental improvements. The list of tenants on business parks is extensive, and this project didn't have the resources to explore every business, however we thought a strong approach would be to engage with business parks estate managers as a starting point for businesses there may be a colder relationship with.

Additionally, early research indicated that bigger businesses such as Value Retail Group (who manage Bicester Village), BMW Mini, Greene King and Thames Water, would be interesting companies to engage with in the project.

Market Engagement methodology (2/3): Shortlisting Methodology criteria

Does the business/organisation have a significant geographical link to Oxfordshire?

- This could be a significant supply chain link to the area, or other dependency not linked to a supply chain, e.g. employment catchment area.
- This could also include whether the business/organisation is based in or close to Oxfordshire.

Is the business interested in the opportunity areas, identified through our matrices work?

- There are potential clusters of interest around food provision and supply chains, climate regulation, and biodiversity improvement. Placemaking and water-based functions (quantity and quality) are also likely significant.
- Some sectors (for example Real Estate, Business Services) we have less experience in, and there are potential opportunities around recreation and placemaking for those sectors.
- The land in Oxfordshire will likely be best at delivering carbon storage and cooling and sheltering. Other functions the land will likely be able to deliver well include soil erosion protection, water quality regulation and pollination.

Does the project team have prior links to this business?

- Have conversations already been held with the business/organisation by members of the project team?
- Has there been any prior engagement or events in Oxfordshire that the business has attended?

Market Engagement methodology (3/3): Shortlisting Methodology criteria continued

Does the business have relevant corporate commitments that funding ecosystem services could help them meet?

- For example, climate change or nature recovery commitments, employee wellbeing or community engagement.

What is this business/sector history in engaging with nature markets? Does this category have a track record of engaging with nature markets?

- Our experience with nature markets suggest this often includes crop buyers, water and insurance companies, and local government bodies but as this is a research project, we also wanted to engage with companies beyond this, to consider whether there are other potentially viable routes to funding.

How large is the company?

- Small and medium-sizes enterprises (SMEs) weren't be excluded but experience suggests large corporates respond more actively so would prioritise them for the initial engagement stage.

Are there any concerns about engaging with the company? Are they accountable to their commitments?

- Ethical considerations of being associated with certain companies. The project team reviewed the shortlist to confirm they are comfortable with those we intend to speak to. It is also worth considering businesses' seriousness of intent here.

3keel

Market engagement summary

The project developed a longlist of around 30 business that might have interests in nature-based services from the land in Oxfordshire. They were categorised into the target sectors (see opposite) and shortlisted to select organisations to approach for interview.

Engaging businesses has been challenging. A summary of the interviews carried and planned so far is in the table.

	Sector	**Opportunities to explore**	**Interviews**
Usual suspects	Utilities and infrastructure	Resilience (water quality & quantity), carbon, (biodiversity)	**Thames Water**
	Food and drink supply chain	Food supply resilience, (carbon, biodiversity)	Nestle (confirmed but delayed) **Agricultural Industries Confederation (AIC)**
	Local Authority	Flood resilience, Place-making & recreation	**Oxfordshire County Council**
Testing new ground	Manufacturing	Carbon (flood resilience, water, biodiversity)	No engagement so far
	Real estate (business parks)	Place-making & recreation, adaptation (flood and temperature regulation), (carbon, biodiversity)	**Harwell Campus**
	Tech/ biotech and professional/ business services	Place-making & recreation, carbon, (biodiversity)	**STFC (Science and Technology Facilities Council)**
	Public admin, health, education	Place-making & recreation, carbon, flood (biodiversity)	**Oxford Brookes** **Lady Margaret Hall**
	Other		**Nicholsons** **Thames21 / Cherwell Catchment Partnership**

3keel

Summary of outcomes of market engagement

- **Thames Water could 'anchor' the growing market:** There is scope to build and present investment-ready project pipelines - particularly in the Cherwell and other priority areas - that offer practical, cost-effective NbS such as treatment wetlands, riparian interventions, or land management approaches that reduce pollution at source. OLNP's convening role, landscape intelligence, and access to existing clusters and LR projects could prove especially valuable in ensuring that future partnerships are well targeted and deliver the outcomes Thames Water is seeking.
- **There's a focus on BNG:** while BNG was not a focus for this project, it did come up in buyer engagement as an area where businesses are looking for solutions in Oxfordshire.
- **Less interest in nature-based carbon than expected:** from this and other projects we have carried out, there appears to be a trend towards focussing on reducing emissions within businesses, then looking to inset, with offsetting seen as a last resort or not being considered at all at this stage. Nevertheless, we do know there are businesses out there that are keen to fund tree planting.
- **Flood risk remains challenging:** flooding is of interest to Thames Water with regards to stormwater overflows. Of the other business interviewed none had a flood mitigation need, but this was a small sample and with flood risk being so place specific, this is not necessarily conclusive.
- **Some interest in cooling but not in place-making more generally:** while there was some interest in the role green infrastructure could play in cooling buildings and solving drainage issues, specific proposals were lacking. Broader 'place-making' was not seen as a priority.

Buyer 1 - STFC (Science and Technology Facilities Council)

Profile:

- Publicly funded research body (part of UKRI)
- HQ at Harwell Campus, Oxfordshire (80 buildings)
- 2,500 staff nationally across England & Scotland
- Core focus: high-energy science, data centres, labs, accelerators
- Ambitious net zero & development pipeline (old buildings replaced, new builds - compliant)
- Already engaged in BNG, sustainability, and climate risk assessments

Areas to test:

- Place-making & recreation
- Carbon
- Biodiversity

Learnings:

- Strong internal progress on net zero and baseline environmental data
- BNG critical for their new builds – offsite support so far limited (trying to in-set initially).
- Harwell has limited flood risk, but development is pushing drainage limits
- Some interest in NbS for stormwater management, carbon & biodiversity
- Budget constraints and no policy for voluntary landscape investment (yet)
- Proximity matters: closer = better for planning and engagement
- Keen to work with trusted partners, not resource-heavy co-design
- Interested in tools or platforms that map local options and simplify decisions

Buyer 2 - Harwell Campus

Profile:

- 700-acre science & innovation campus
- Joint Venture: UK government land + Brookfield (private investment), 200+ companies onsite, 7,000 people (growing to 15,000)
- Site includes major public sector tenants (e.g. STFC, Nuclear Decommissioning Authority)
- Sustainability ambition: "a catalyst for sustainable growth"

Areas to test:

- Adaptation (e.g. green infrastructure for cooling)
- Carbon
- Biodiversity
- Flood mitigation

Learnings:

- BNG is the main driver of nature investment at Harwell, it's embedded in the future pipeline
- £1.8 million already committed to offsite units via partners like BBOWT and TOE
- Demand is variable but significant (25 units last year; 100s expected over next 10–20 years)
- Onsite delivery is limited due to land constraints, but they're exploring habitat banking onsite
- Preference for BNG and NbS sites within 2–5 miles of the campus (10–20 miles too far)
- Strong preference to work with trusted partners (e.g. charities, NGOs, social enterprises)
- Interest in nature-based cooling (e.g. tree cover, green infrastructure)
- Open to improving water quality, but unclear how to act

Buyer 3 - Oxford Brookes, Business School

Profile:

- Oxford Brookes is in the process of bringing all their teaching to the Headington Hill and Marston Campus.
- The Business School is the largest School at Oxford Brookes University, with a large cohort (1200-1500) of students both in person and online
- They produce research focussed on broader sustainability topics, for example food labelling and green skills.

Areas to test:

- Place-making & recreation
- Carbon
- Biodiversity
- Flood mitigation

Learnings:

- The business school has not yet considered all the risks to their business from climate change - though they anticipate wider landscape influences and risks being fairly minimal
- Students within the school are active on sustainability, and want to do good
- They haven't considered partnering with others on delivering environmental improvement, and are focussing on landscaping at their sites in the short term
- They don't have a clear understanding of where their MBA students go on to work
- They're interested in supporting an initiative such as the land function exchange, through teaching or research into the exchange, or supporting the development of innovative practices

Buyer 4 - Thames Water

Profile:

- Utilities company serving 16 million people across the Thames Valley and 27 river catchments
- Thames Water appears to be actively engaged in several initiatives within Oxfordshire aimed at implementing nature-based solutions (NbS) to address environmental challenges and enhance ecosystem services.
- NbS funding available in 5 year cycles

Areas to test:

- Water quality & quantity
- Flood
- Carbon
- Biodiversity

Learnings:

- Thames Water's currently have a risk-led, statutory-driven approach to NbS investment with priorities shaped by meeting their obligations around storm overflows, asset health, and their new Wastewater Network Plans (DWMP) in a cost effective way
- Nature-based interventions considered viable alternatives to grey infrastructure in certain locations. Approach is increasingly catchment-specific to avoid spreading resources too thinly
- Appeared to be interested in trialling the use of treatment wetlands in this area (post AMP7)
- Thames Water is looking to expand its Smarter Water Catchments Programme, learning lessons from the Evenlode
- Have a desire to co-fund interventions where there is a clear business case — particularly where catchment-based projects align with statutory targets (such as WINEP or DWMP requirements) and offer long-term, measurable outcomes.

Buyer 5 - Lady Margaret Hall, Oxford

Profile:

- Oxford College with 12 acres of land, and gardens that border the river
- 200 employees, 50 students, 1000-2000 meals catered per day
- Domestic bursar at LMH also director of Good Food Oxfordshire
- One of the more collaborative and active Oxford colleges

Areas to test:

- Flooding and drought mitigation
- Supply Chain Resilience
- Place-making & recreation
- Carbon
- Biodiversity

Learnings:

- Carbon is very important (refurbishing buildings is an immediate priority) and likely to be the case for other colleges
- Biodiversity, nature and land use are less understood areas from a wider strategy perspective
- From a risk perspective, LMH gardens are often flooded after high rainfall events, though this is something they can currently manage. They've not experienced other risks.
- The best opportunities for engaging colleges like LMH and others might be through carbon mitigation and creating healthy and beautiful places to live and work. These are currently priorities for LMH, and potentially others too.
- It's likely that only small groupings of colleges might engage/collaborate at once, and only when they have a land holding interest - for instance six/seven 'riparian rights' colleges (colleges bordering the rivers) might want to protect their investments further out of the city.
- They see that in the future, there might be more opportunities and ambition for action on these topics in Oxfordshire and among the colleges.
- Good Food Oxfordshire works to connect a network of growers with colleges - recently, this network funded polytunnels on farms, and they see that there could be further potential in this network for nature based solutions funding, with the right people involved at the right time.

Stakeholder 6 - Agricultural Industries Confederation (AIC)

Profile:

- Trade association representing over 250 crop protection, fertiliser, seed and grain merchants
- Aim is to represent and support a sustainable, safe, and competitive agri-supply chain
- Work closely with Openfield, Camgrain, and others in the grain supply chain
- Currently promoting oilseed rape cultivation amid pest-related decline

Areas to test:

- Supply chain resilience (grain, oilseed)
- Flood mitigation and water quality (via catchment relevance)
- Potential habitat or biodiversity co-benefits in arable systems

Learnings:

- Local grain sourcing (e.g. by Weetabix and Warburtons) is significant but flexible i.e. flood risk unlikely to trigger supply chain investment locally (easily shift sourcing)
- AIC highlighted existing engagement (e.g. Nicholson's in Cherwell Catchment Group) and potential business leads
- No obvious high-investment players prioritising NFM or biodiversity at this stage
- Useful contact with deep regional knowledge; will follow up with further leads

Stakeholder 7 - Thames21 / Cherwell Catchment Partnership

Profile:

- Cherwell Catchment Partnership is facilitated by Thames21
- Works closely with BBOWT, local authorities and landowners on river health, land use etc.
- Deep knowledge of Cherwell catchment dynamics, particularly the river–canal interaction
- Highlighted both agricultural and urban-industrial dynamics influencing the local water systems

Areas to test:

- Water quality & nutrient balancing
- Water storage
- Diffuse pollution
- Biodiversity Net Gain (BNG)

Learnings:

- Water abstraction is a major stressor on the River Cherwell. The Canal & River Trust and Thames Water can both exert considerable pressure on flows, especially in drought periods
- Farm-scale water storage (e.g. temporary flood water storage) could have resilience benefits, a potentially fundable concept
- NFM on its own is a "tough sell"; broader framing around pollution, erosion, and water quality may gain more traction
- Expressed slight skepticism about large volumes of BNG units materialising locally, but noted AI/data centre near Abingdon and solar farms near Didcot as possible sources of demand
- Network Rail is engaged in landscape recovery work due to embankment erosion, showing cross-sector potential
- Flagged industrial estates near Banbury (e.g. Banbury Gateway) and Avara/Faccenda feed mill as possible supply chain or land-linked players
- Reiterated the critical role of water quality improvements to meet regulatory targets and reduce Thames Water's capex burden at treatment works

Stakeholder 8 - Oxfordshire County Council (OCC)

Profile:

- OCC's Flood Risk Management team
- Currently running a funding call (up to £25k grants) for businesses and parish councils
- Coordinates with the Environment Agency, local councils, and communities
- Insight into urban risk areas (Banbury), challenges of mobilising businesses for flood resilience

Areas to test:

- Flood mitigation (especially surface water)
- Urban resilience (e.g. Banbury businesses)
- Community-focused or parish-led nature-based interventions
- Highway-related nature services

Learnings:

- OCC is actively looking to fund flood resilience projects, with expressions of interest sought from local businesses and parish councils
- There is limited awareness or motivation among most businesses around flood risk unless they've been directly affected
- Banbury remains a notable hotspot despite the main flood scheme, properties like The Mill Arts Centre, Lidl, Spiceball Leisure Centre, and a local social club still face issues due to their canal/river location
- Banbury FC reportedly experiences groundwater flooding, illustrating the complexity of local flood types
- Environment Agency has found it difficult to secure business co-funding in the Cherwell due to lack of direct damage history
- Suggestions for engagement include:
  - Enterprise Oxford (LEP) for broader business reach
  - Independent schools (e.g. Bloxham)
  - Parish councils in flood-prone villages: Tackley, Nethercott, Adderbury, Hook Norton, and King Sutton (Northants)
- OCC Highways could be a partner around surface water and siltation reduction – OCC to provide further contacts

Stakeholder 9 - Nicholsons

Profile:

- Family run integrated garden and woodland design business, management and contracting services, and environmental and ecological consultancy services
- 200+ qualified staff
- Natural capital and sustainability at the centre of all they do, with sustainability built into business practices and meeting the demand of customers with aligned values.

Areas to test:

- Coordinating funded delivery of nature based solutions
- Innovative new solutions
- Placemaking, doing the right thing for Oxfordshire, especially around nature, woodland and forestry

Learnings:

- They are interested in exploring the idea of a "Coalition of the Willing", to bring together other businesses they have contact with who have shown interest to them in funding deliverable nature based outcomes locally
- Need other willing contributors for it to be a true collaboration, not just another "talking shop"
- Get a small group together to enable initial pioneer transactions, or have done other small transactions and can come together to expand into a Land Function Exchange
- Use a business network to bring other businesses together rather than an existing eNGO

Barriers to funding nature-based solutions

There is an ever-growing awareness of environmental risks and the role of nature in building resilience. However, our engagement with businesses and stakeholders in Oxfordshire (and elsewhere in a number of similar projects recently) have identified some systemic barriers and trends which are holding back businesses investing in local nature-based solutions.

Lack of clear business case

Many businesses do not yet see a direct & discernible link between their day-to-day operations and the importance of local ecosystem services. While carbon or compliance with biodiversity net gain (BNG) regulations are becoming more familiar, the co-benefits of nature (flood risk reduction or local air quality improvement) often still feel intangible or hard to attribute to current and future business operations.

Lack of sustainability capacity

One of the most consistent challenges is that sustainability is still not a mainstream function in many businesses, particularly SMEs. Very few have dedicated sustainability professionals, and even fewer have individuals with the time or knowledge to engage with emerging nature markets. Nature-based solutions can sometimes fall between departments i.e. not clearly owned by operations, facilities/estates, or CSR/marketing.

Barriers to funding nature-based solutions

Lack of pressure to act

Unless a nature-based intervention is required to unlock development (e.g. BNG), many businesses don't appear to feel any pressing need to act. Voluntary participation, or initiatives based on 'goodwill' or general sustainability interest, rarely make it into priority planning. Instead, any such investment is being funnelled into more immediate needs within the business e.g. upgrading buildings, improving energy efficiency, switching away from gas and transitioning to electric fleets etc.

Fear and uncertainty

Among those businesses who are willing to engage, genuine practical concerns and reputational fears persist. Businesses are very wary of being associated with 'greenwashing' and are hesitant to support initiatives they don't fully understand or can't easily monitor. This often results in companies focusing inward first (e.g. insetting), reviewing their own land, estates and assets before considering external partnerships.

Proximity and association

There appears to be limited appetite for bespoke or co-designed initiatives, businesses prefer 'shovel-ready' projects with clear branding, impact metrics, and unambiguous delivery plans. They want to feel confident that a project will be delivered without needing to invest lots of time understanding the technical details or managing relationships. Even then, they prefer projects that are nearby i.e. ideally within a few miles of their site or area of operation.

3keel

Barriers to funding nature-based solutions

Timing and payback

Nature-based interventions often work on multi-year timescales, which can often misalign with much shorter-term business planning cycles. A river restoration project or woodland creation might take 5–15 years to begin maturing (and delivering), while many small businesses operate on 12–24-month ROI horizons. Even big businesses operate on maximum 5-year funding cycles meaning the longer-term horizons are a long-term commitment they struggle to lock in.

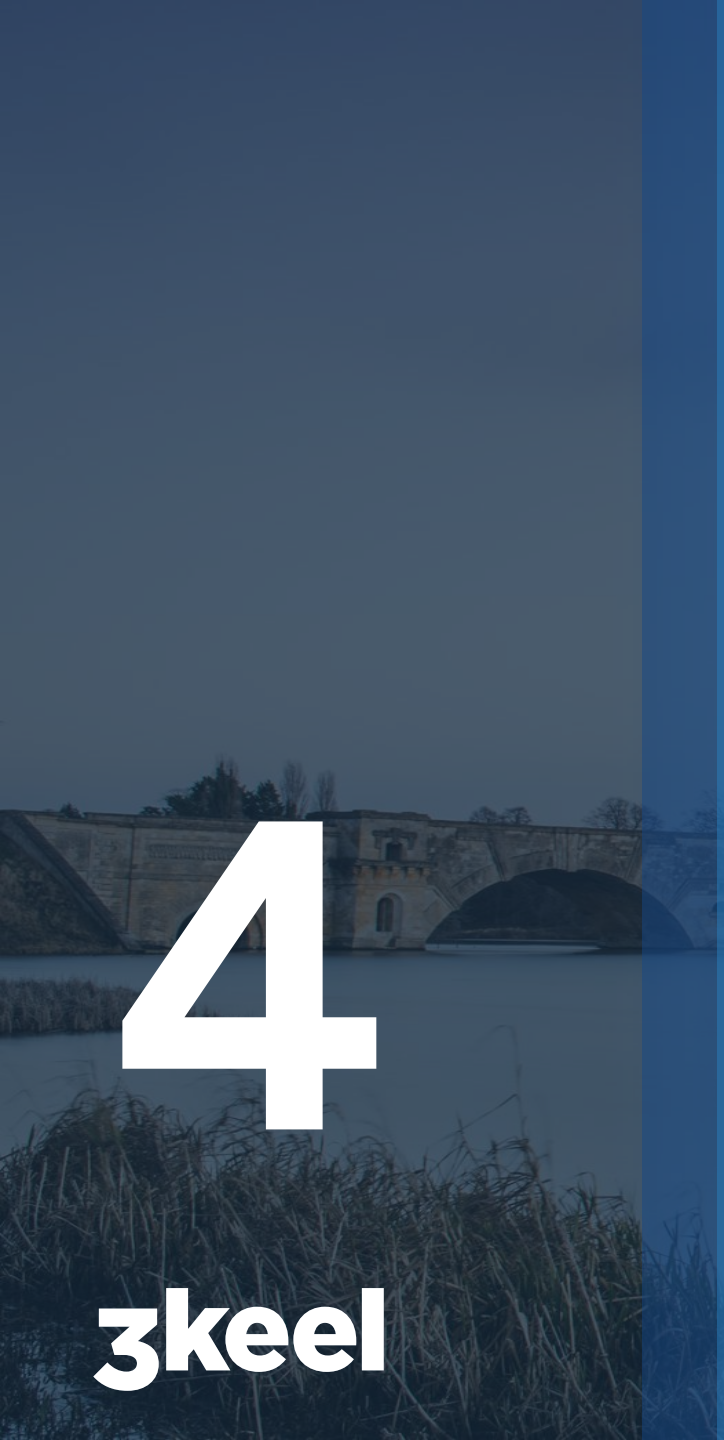
Regulatory & policy ambiguity

While BNG and carbon markets are emerging, many businesses report that the policy landscape still appears fragmented, often seems unclear, or is changing rapidly, especially when it comes to funding voluntary NBS outside of mandatory compliance. This can include new policies (e.g. the newly announced Nature Restoration Fund) or tax liabilities/incentives. Without clear leadership from central government there is a pervading belief that it pays to wait and see.

In relation to these challenges, the significant advantage of existing/emerging projects, e.g. the Cherwell NEIRF project, is that it should be well placed to provide 'shovel-ready' projects with clear branding, impact metrics, and unambiguous delivery plans.

The challenge remains identifying businesses in the local area that have the capacity and desire to engage and a strategic need central to their business.

3keel



4

Commercial arrangements

3keel

Commercial arrangements that unlock opportunities

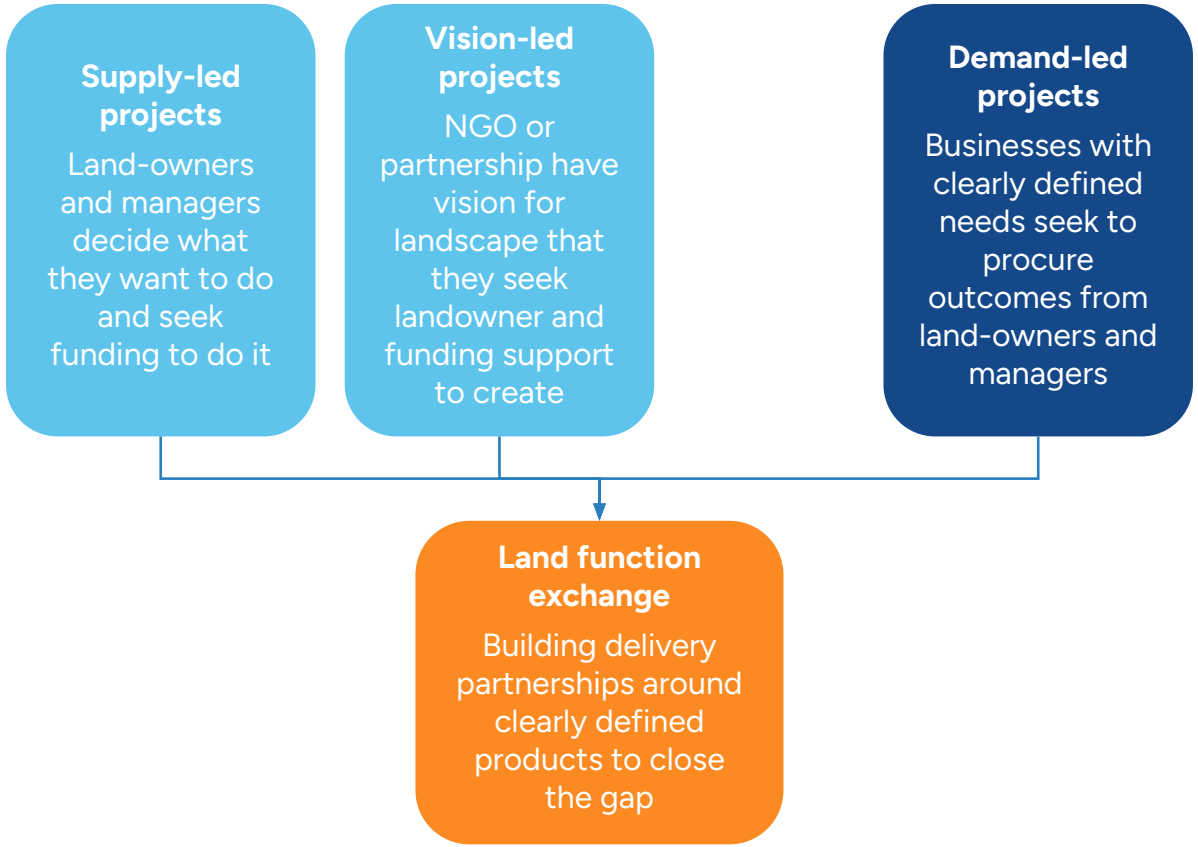
There are a number of existing nature-based markets active in Oxfordshire, including biodiversity net gain, nutrient neutrality, and voluntary carbon. However, there are a number of challenges and limitations holding back the growth of nature markets.

A mechanism is needed to efficiently match supply and demand, to grow demand beyond the existing markets, and provide greater clarity and coordination between different markets.

A new mechanism is needed to reduce confusion and increase coordination and efficiency in nature markets

3keel

Closing the expectation gap between supply and demand



Consideration of three different ways projects are initiated highlights a gap in expectations between supply and demand which arises when private funding is viewed as a direct drop-in, top-up, or replacement for, government or philanthropic grant funding for pre-defined environmental projects.

On the one hand many projects on the ground are initiated by land owners and managers looking for funding to carry out a set of actions they are interested in, or NGOs and partnerships with a spatial vision for what the landscape should look like. These projects are well targeted at delivering for the environment, but can be difficult to match up to genuine demand. Demand led projects, such as LENs, can mobilise significant private funding by tapping into core businesses needs, but can be difficult to target at particular locations or environmental problems of local importance.

Providing clear routes to market

There are lots of different potential routes to market for nature based solutions depending on the services being sold, the types of buyers and the features of the landscape.

The overall picture is complex and potentially confusing for both those seeking funding and those looking to buy nature-based services.

Transaction type / business model	Relevant drivers	Description	Opportunity / where it works	Challenges
Donations, sponsorship	Impact stories	Could be direct sourced, but often delivered through a platform that collates and advertises a suite of different projects, aiming to attract crowdfunding or philanthropy. There are several online platforms that already do this.	Where there is a pipeline of projects with strong community links and 'good news' stories Low risk projects e.g. biodiversity improvement rather than flood	Limited pool of funding Competing with other causes Unclear for donors where to put funding
Grants	Impact stories Corporate ESG targets	Usually funding contingent on a particular activity being carried out. More usual for public sector funding, but also some philanthropic funding.	Where the focus is more on a particular activity or type of activity rather than particular services or outcomes	Limited pool of funding Limited incentives for innovation Clarity on not double funding where public grants and private funding are used
Purchase of Credits	Corporate ESG targets Core business	Voluntary Carbon Market active and well established. Nutrient neutrality rules have also created a nutrient offset market, and Biodiversity Net Gain (BNG) is operating (although there may be impacts on both of these from new legislation).	For carbon credits, opportunity to attract funding from businesses with no clear links to the landscape Where there is significant development happening	Lack of coordination makes local targeting of carbon credits difficult Involves tying land into new use for long periods of time
Service contracts and agreements ecosystem services	Corporate ESG targets Core business	Usually used where there are business driven needs and opportunities, often through distinct catchments or supply chains. Where they exist there is now a proven model to channel private funding, through schemes such as STEPS and LENs.	Where there are strong supply chain interests in the land Where there are opportunities for joint procurement Can mobilise significant funding	May rely on critical mass of businesses with direct supply chain interests Demand led, so difficult to target at a chosen landscape or environmental issue Transaction costs can be high to reach agreement and implement

Providing clear routes to market

Transaction type / business model	Relevant drivers	Description	Opportunity / where it works	Challenges
Land acquisition	Corporate ESG targets Core business Impact stories	Buying land to deliver corporate targets directly e.g. through tree planting or rewilding.	Business which have access to significant upfront capital Where land is relatively poor at delivering other services like food production, is cheap to buy or is strategically located Can be cheaper and offer greater options than entering agreements with existing land owners and managers	Can be very contentious in some contexts
Levy	Core business	A levy approach like Business Improvement Districts (BIDs) are a proven model where there is clear benefit to the businesses being levied. Levies are also used to some extent in flood funding.	Where there are large numbers of relatively small beneficiaries Urban greening Where there are market failures such as free riding and tragedy of the commons	Can be unpopular with businesses Would likely need to be voluntary Challenging to set up
Sale of products or services that directly improve the environment	NA	A non-ecosystem services route to funding nature restoration is to develop markets for products that result from sustainably managed land e.g. rushes from wetlands, coppice products, pest venison etc.	Where routes to payments for ecosystem service funding are not obvious Where additional income is needed to make a scheme viable Can be a more sustainable model for securing long term nature benefit	Usually there's a reason why markets for these products do not already exist - stimulating them can face significant barriers and require significant investment itself

3keel

Learning from LENs*:

Focussed on customer need …

Beyond small philanthropic donations, businesses will not pay for nature-based projects unless they deliver against a core need in a cost-effective way. Environmental projects are often designed around solving an environmental need rather than a business need, and communicated this way. This causes a mismatch between supply and demand which makes deal making challenging.

… but place-based

In order to have relevance and impact, being place-based is important. Place-based projects are more attractive to demand players, who often prefer or require solutions in close proximity to assets or within particular supply chains. It also creates the link to local social, environmental and economic priorities.

Efficient process for deal making

Businesses have limited time and resources to spend on securing nature-based services. Yet these can be complex and often new and bespoke solutions are required. Established and efficient processes for making deals and establishing agreements is essential to convert interest into transactions.

3keel

*More information on LENs is available in the appendix 1

Learning from LENs*:

Green commerce not finance

There is a lot of focus on 'private finance', meaning investment finance. But without paying customers for ecosystem services, there is nothing to invest in. While upfront finance might be needed for some solutions, the first task is to reach an agreement between a buyer and a seller ('green commerce').

Build a business community

Valuable opportunities to collaborate, grow trades, increase efficiency, and build confidence in nature-based solutions are realised through building a business community around addressing needs through the landscape.

Start simple, build complexity

Enabling businesses to collaboratively fund actions across a landscape that deliver their different needs can ultimately unlock significant funding and impact. But it's usually necessary to start small with simpler, bilateral agreements around which other funders and beneficiaries can be brought in over time to reduce costs and increase impact.

3keel

*More information on LENs is available in the appendix 1

Learning from LENs*:

Could LENs work in Oxfordshire?

LENs is demand led, it works from clearly defined business needs. Currently the amazing nature restoration work and projects happening across Oxfordshire are vision led or supply led, see earlier slide for explanation. This approach makes it difficult to apply a LENs model as there is often insufficient demand side clarity of who the customers could be and what they'd be willing to pay for.
Additionally, our research with existing LENs supply chain buyers has shown they have limited sourcing from the county, as explained in the supply chain resilience section 2.3 earlier.

For these reasons an alternative approach to build on the vision and supply led work being undertaken across the county is recommended.....

3keel

*More information on LENs is available in the appendix 1

5

Recommendations and Conclusions

3keel

A Land Function Exchange for Oxfordshire

To overcome some of the challenges around coordination, clarity on how and where to invest in Oxfordshire, and building demand for nature-based services beyond BNG and carbon offsetting, we propose the creation of a Land Function Exchange (LFE).

The LFE would be a vehicle for matching supply and demand and efficiently making deals. Ideally it would be initiated with a small group of significant demand side players who see it as a route to solve problems they face.

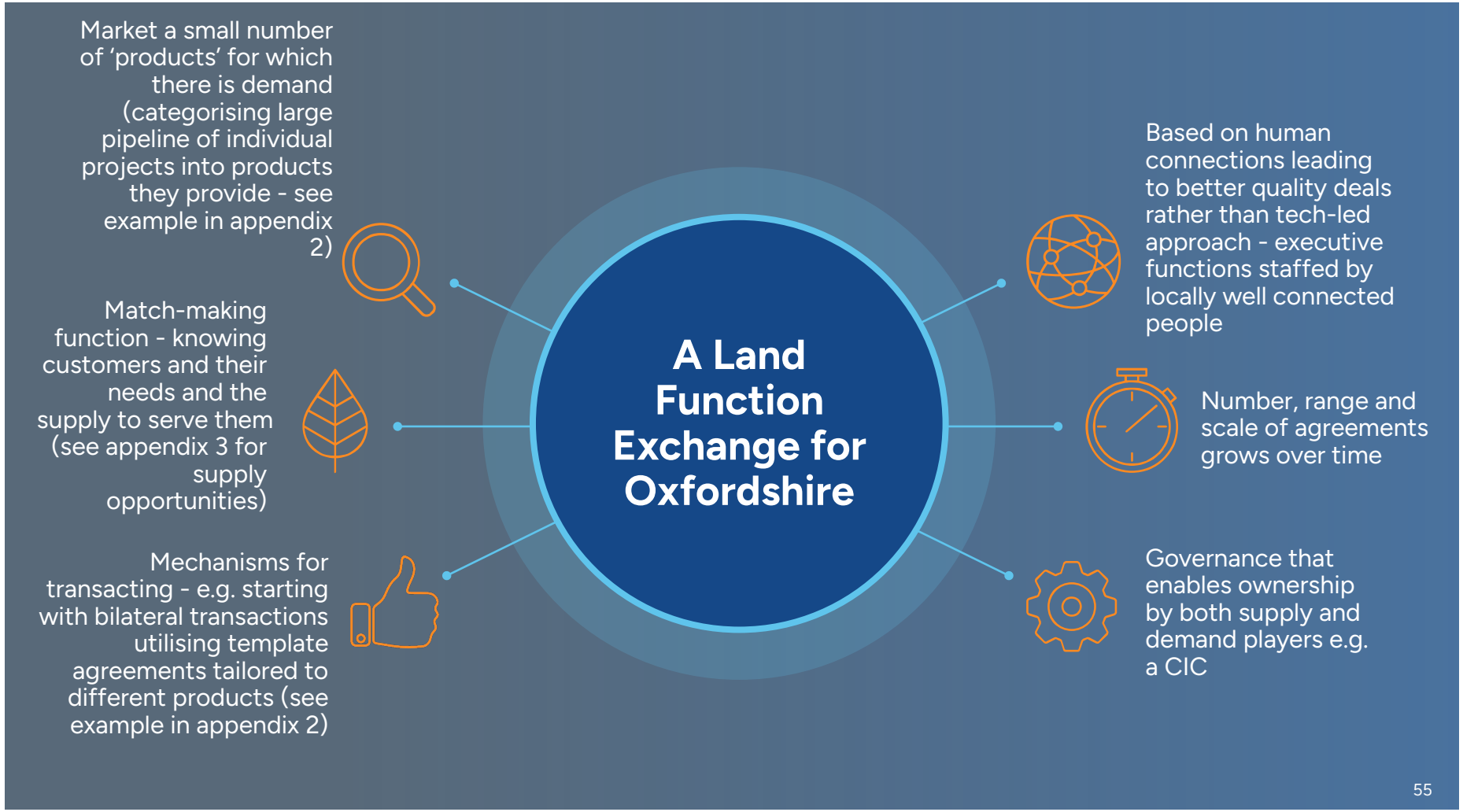
The Land Function Exchange would be a vehicle for matching supply and demand and efficiently making deals

3keel

Structure of the Land Function Exchange

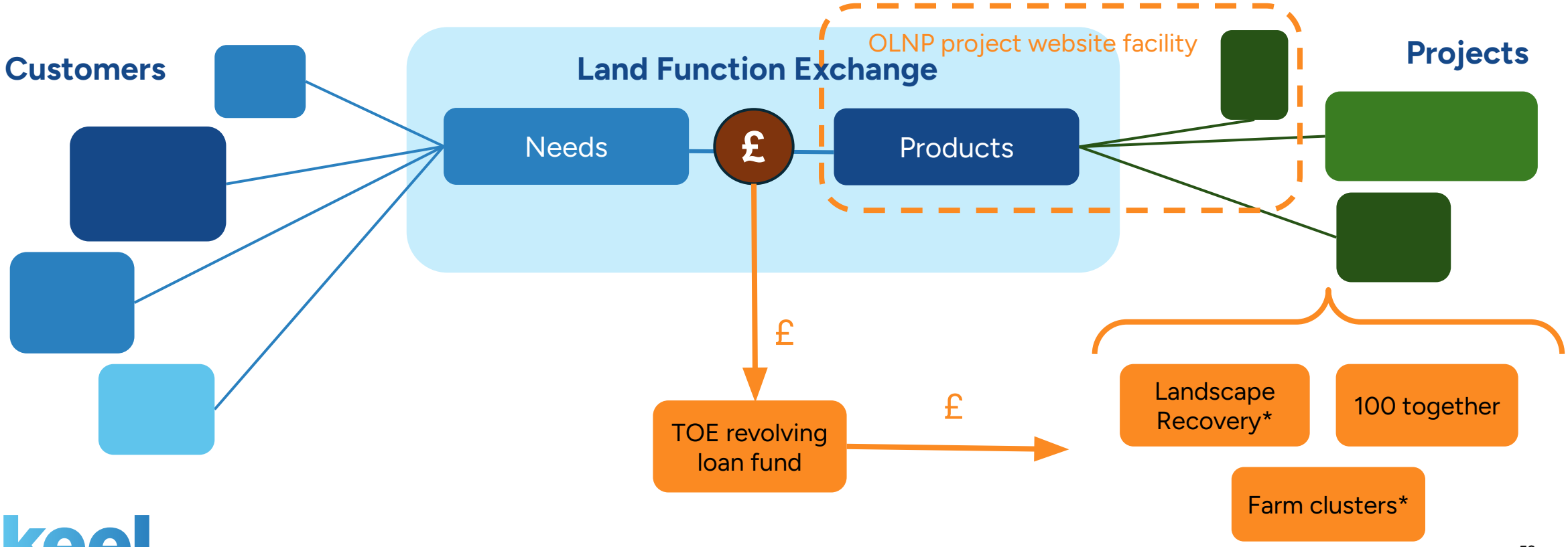
Core features of the Land Function Exchange

The Land Function Exchange for Oxfordshire would provide brokering that identifies and efficiently matches demand for land based services with the supply (ecosystem service 'products' and the projects that can deliver them) - a one stop shop serving both demand and supply side players



How the Land Function Exchange could interact with other initiatives

An initial example of how a Land Function Exchange for Oxfordshire could interact with existing initiatives to provide greater coordination and clarity for buyers across the County. This is only an example, elements of this would require further exploration (especially use of the OLNP website for hosting projects) and development (how the TOE revolving loan fund could be established).



*See appendix 3 on supply

Operationalising a Land Function Exchange

Setting up an LFE could take various routes. Our extensive learnings from establishing LENs leads us to recommend starting small and building from there by working with an engaged willing group of businesses. The key steps could be:

- Soft market testing to determine key individuals within businesses, committed to take the initiative forward and contribute either funding or other resources to potential trading.
- Launching at a invitation only event with a group of engaged stakeholders, a “coalition of the willing”, who are willing to work together. From this establish a written commitment from willing funders to the LFE.
- Determine the needs of the funder group, what are their requirements and especially identify areas of overlap, for example: what overlaps exist in the types of outputs funders are interested in, are there opportunities for funders to co-fund the same actions on the ground and purchase different outputs, to enable cost sharing and efficiency?

- Concurrently, work with committed supply partners (farmers/landowners) to define what they a) can supply and b) are seeking funding for to establish what the LFE can provide. This should include key quantifiable outputs that can meet the scoped requirements of potential funders. Ideally this would be across Oxfordshire, bringing together the various farmer groups and projects to create a “super cluster collaboration”, providing scale and efficiency.

- The result should be a LFE that has a group of products, backed up by a supply side, and an engaged group of willing funders, ready for the LFE to facilitate a trade between the demand and supply partners.
- The most appropriate governance can be formalised at this stage, don’t try to do that too early, proof of concept is most important to establish - form can follow function.

Conclusions 1/3

Overall approach: the project targeted particular sectors and interests, partly to explore the possibility of expanding those involved in nature markets in Oxfordshire. This proved challenging even to start engagement. Expanding markets to new services and 'non-usual suspects' is still seen as worthwhile, but will likely require a significant communication exercise to increase knowledge and awareness. For getting nature markets growing in Oxfordshire, a simpler approach may be to target the biggest economic players and focus on their needs.

Flood risk management: there are clear opportunities to deliver more of this in the Oxfordshire landscape, and it is needed in general. However, identifying specific opportunities is more challenging. Thames Water are interested from a storm water overflows perspective, and the County Council and Network Rail are also active in this area in the county. But monetising NFM is extremely challenging. One option is to seek funding for interventions that reduce flood risk but on the basis of the other services they provided. This is being explored in the Cherwell Catchment.

Place-making: while this was identified as a possible opportunity in the desk research phase, the engagement has not identified particular interest, although there may be some in businesses and sectors we did not engage. In general these sorts of services are unlikely to be seen as business critical by most businesses. To the extent that they may be considered a 'nice to have' they may attract philanthropic or sponsorship funding.

Urban greening: green infrastructure for cooling and managing water around buildings does have some interest. It suits the trend of businesses increasingly looking within their own estates and supply chains for solutions. However, it is limited in scope and scale in terms of nature benefits, and will be too future looking for many businesses.

Conclusions 2/3

BNG: While this was not a focus of the project, it did come up in the business engagement. Notwithstanding potential changes to the markets with new legislation, BNG is likely to remain a significant contributor to nature investment in Oxfordshire.

Carbon: Like BNG, carbon was not an original focus of the project, but unsurprisingly came out strongly in the desk research. There are clear opportunities to expand carbon sequestration in Oxfordshire. However, demand for carbon sequestration did not come through strongly in our business engagement. There was a focus on reducing emissions within businesses rather than looking for offsets from outside. While this won't apply to all businesses (for example SSEN is investing in significant tree planting and peat restoration efforts, including in Oxfordshire), it suggests demand for carbon sequestration may not be as strong as the desk research assumed.

Land function exchange for Oxfordshire: Based on testing the principle of a Land Function Exchange (LFE), we propose developing an LFE to help stimulate an efficient and coordinated market for nature-based services in Oxfordshire. The LFE would particularly help with activating and galvanising demand, and matching supply and demand in a more efficient and coordinated way than currently happens.

Conclusions 3/3

Creation of a "super cluster collaboration": To further aid the efficiency and coordinated approach we suggest considering the creation of a "super cluster collaboration" to bring together the numerous existing clusters and partnerships operating across Oxfordshire as a "market consolidator" (see appendix 3). This would allow greater efficiency and a more coordinated and consolidated approach, particularly when approaching businesses, avoiding numerous projects/clusters/partnerships competing for limited funding and adding to the feeling of buyer fatigue. We feel the OLNP could be well placed to take this role as a neutral party with a clear vision and mandate to work in that space, but recognise others could also occupy that space so this does need to be developed collaboratively.

To catalyse and build from a "Coalition of the Willing": One way to take this work forward would be to develop a "Coalition of the Willing", taking an active group of businesses who are already funding to work to join up and take a coordinated, consolidated approach. By starting with a few smaller transactions, especially from businesses already funding nature based solutions work, this could be developed and grown and may be another way to develop the Land Function Exchange. Using business to business peer learning and development could be more powerful and compelling way of bringing other businesses in and co-create a coordinated vision to build from. This will need willing contributors for it to be a true collaboration, not just another "talking shop" but we have identified at least one business interested in developing which OLNP could work with to grow.

A1

Appendix 1

Landscape Enterprise Networks

3keel

LENs is currently active in 5 regions, transacting ~£10.5M in 2024, working with 40+ organisations, across 45,000 ha

LENs LANDSCAPE ENTERPRISE NETWORKS





Scotland
Leven

England
East of England and Yorkshire

Poland
Western Voivodeships

Ireland
Leinster

Wales
Pembrokeshire

Hungary
West Transdanubia

Italy
Veneto and Friuli Venezia Giulia

- Live
- Launching 2025
- Proposed 2026

FOUNDER

3keel

FOUNDING PARTNER

PURINA

STRATEGIC PARTNERS

DIAGEO Nestlé PEPSICO

PARTNERS

Affinity Water · Agricarbon · Anglian Water · British Sugar · Camgrain · carbonchange · Cargill · Charles Jackson · Chilton Grain Ltd. · CIEH · cpw · CSQA · Eden Rivers Trust · Essex & Suffolk Water · Forum for the Future · hhglobal · National Trust · Nene Rivers Trust · Openfield · Preferred by Nature · Prosecco DOC · The Rivers Trust · RSA · Soil Association Exchange · SRUC · TALA · REFORM · trinity · United Utilities · West Northamptonshire Council · Yorkshire Water · World Biodiversity Association

A2

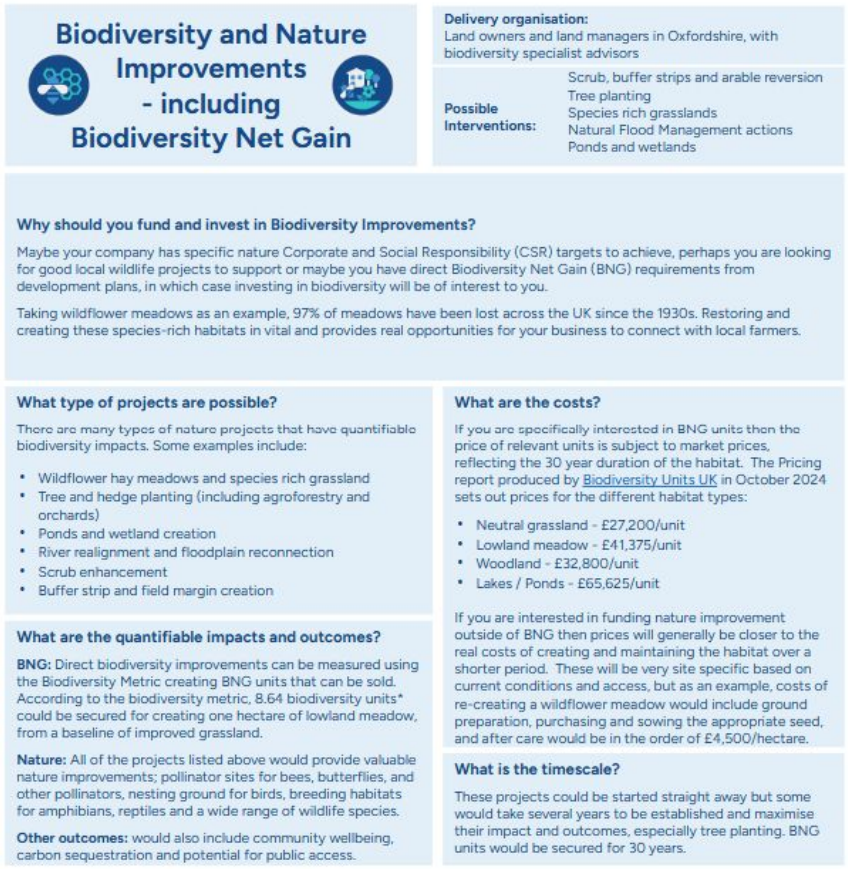
Appendix 2

Land Function Exchange example documents

3keel

Example Land Function Exchange documents

Product one pagers



Biodiversity and Nature Improvements - including Biodiversity Net Gain

Delivery organisation:
Land owners and land managers in Oxfordshire, with biodiversity specialist advisors

Possible Interventions:
Scrub, buffer strips and arable reversion
Tree planting
Species rich grasslands
Natural Flood Management actions
Ponds and wetlands

Why should you fund and invest in Biodiversity Improvements?

Maybe your company has specific nature Corporate and Social Responsibility (CSR) targets to achieve, perhaps you are looking for good local wildlife projects to support or maybe you have direct Biodiversity Net Gain (BNG) requirements from development plans, in which case investing in biodiversity will be of interest to you.

Taking wildflower meadows as an example, 97% of meadows have been lost across the UK since the 1930s. Restoring and creating these species-rich habitats in vital and provides real opportunities for your business to connect with local farmers.

What type of projects are possible?

There are many types of nature projects that have quantifiable biodiversity impacts. Some examples include:

- Wildflower hay meadows and species rich grassland
- Tree and hedge planting (including agroforestry and orchards)
- Ponds and wetland creation
- River realignment and floodplain reconnection
- Scrub enhancement
- Buffer strip and field margin creation

What are the quantifiable impacts and outcomes?

BNG: Direct biodiversity improvements can be measured using the Biodiversity Metric creating BNG units that can be sold. According to the biodiversity metric, 8.64 biodiversity units* could be secured for creating one hectare of lowland meadow, from a baseline of improved grassland.

Nature: All of the projects listed above would provide valuable nature improvements; pollinator sites for bees, butterflies, and other pollinators, nesting ground for birds, breeding habitats for amphibians, reptiles and a wide range of wildlife species.

Other outcomes: would also include community wellbeing, carbon sequestration and potential for public access.

What are the costs?

If you are specifically interested in BNG units then the price of relevant units is subject to market prices, reflecting the 30 year duration of the habitat. The Pricing report produced by Biodiversity Units UK in October 2024 sets out prices for the different habitat types:

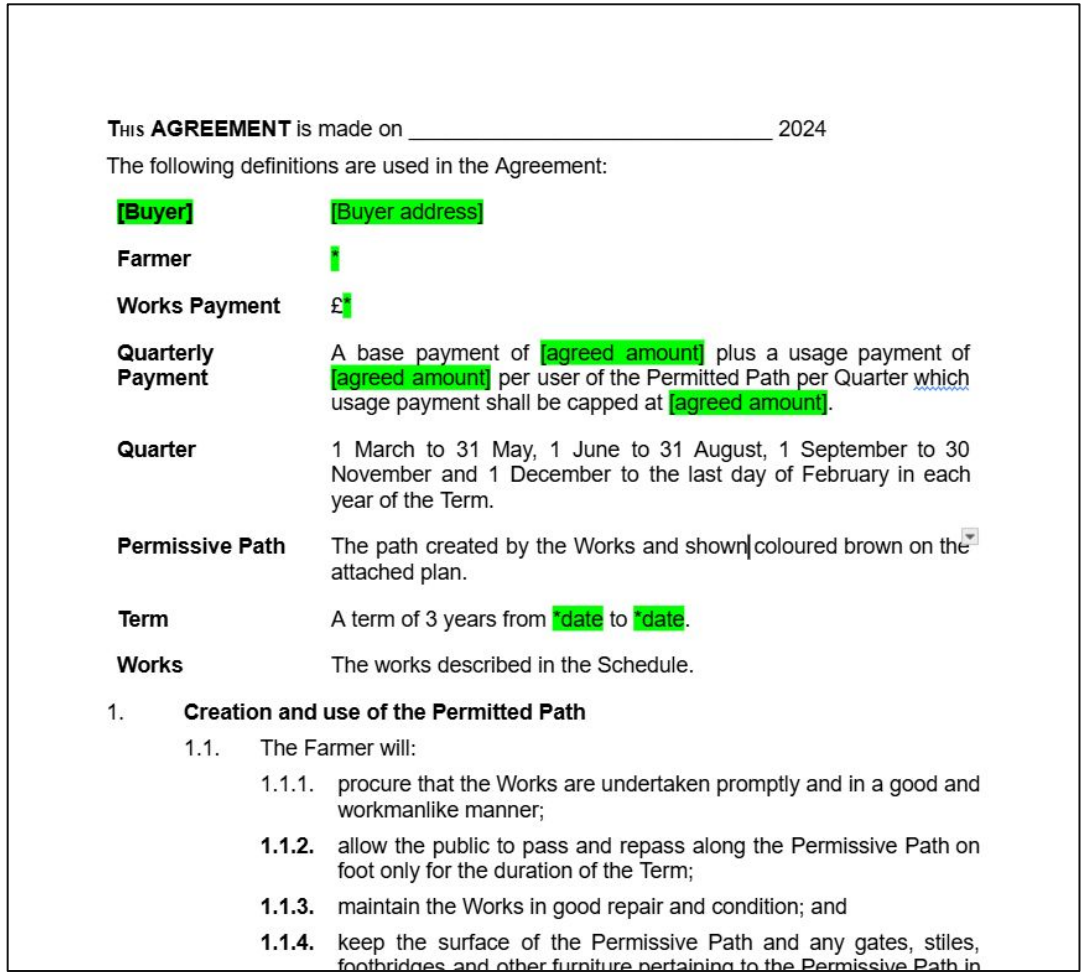
- Neutral grassland - £27,200/unit
- Lowland meadow - £41,375/unit
- Woodland - £32,800/unit
- Lakes / Ponds - £65,625/unit

If you are interested in funding nature improvement outside of BNG then prices will generally be closer to the real costs of creating and maintaining the habitat over a shorter period. These will be very site specific based on current conditions and access, but as an example, costs of re-creating a wildflower meadow would include ground preparation, purchasing and sowing the appropriate seed, and after care would be in the order of £4,500/hectare.

What is the timescale?

These projects could be started straight away but some would take several years to be established and maximise their impact and outcomes, especially tree planting. BNG units would be secured for 30 years.

Example template contract



THIS AGREEMENT is made on _____ 2024

The following definitions are used in the Agreement:

[Buyer]	[Buyer address]
Farmer	*
Works Payment	£*
Quarterly Payment	A base payment of [agreed amount] plus a usage payment of [agreed amount] per user of the Permitted Path per Quarter which usage payment shall be capped at [agreed amount].
Quarter	1 March to 31 May, 1 June to 31 August, 1 September to 30 November and 1 December to the last day of February in each year of the Term.
Permissive Path	The path created by the Works and shown coloured brown on the attached plan.
Term	A term of 3 years from *date to *date.
Works	The works described in the Schedule.

1. **Creation and use of the Permitted Path**

1.1. The Farmer will:

1.1.1. procure that the Works are undertaken promptly and in a good and workmanlike manner;

1.1.2. allow the public to pass and repass along the Permissive Path on foot only for the duration of the Term;

1.1.3. maintain the Works in good repair and condition; and

1.1.4. keep the surface of the Permissive Path and any gates, stiles, footbridges and other furniture pertaining to the Permissive Path in

A3

Appendix 3

Proving supply for the Land Function Exchange

3keel

The LFE can draw on significant supply

Across Oxfordshire and surrounding counties, a growing network of farmers, landowners, conservation organisations, and community groups is actively delivering nature-based solutions at scale. These initiatives span thousands of hectares and offer a diverse pipeline of projects focused on biodiversity recovery, water quality, flood mitigation, soil health, and carbon sequestration. The examples below highlight the depth and breadth of supply-side activity already underway. Some of these initiatives overlap, so should not be aggregated.

Title:	**Thame Catchment Farm Cluster (TCFC)**
Size:	48 farms, 6,500 ha,
Details:	Backwater creation, 46 ha of floodplain mosaics, Black Poplar planting, barn owl boxes
ES Provision:	Biodiversity enhancement, flood mitigation, water quality, carbon sequestration

Title:	**Evenlode Catchment Partnership (ECP)**
Size:	>6,000 ha,
Details:	6 ha of wetland creation, >1,000 water samples tested, 75,000m³ water stored through NFM
ES Provision:	Flood control, biodiversity, education (3,000+ youth engaged), water quality

Title:	**North East Cotswold Farmer Cluster (NECFC)**
Size:	161 farms, 47,600 ha
Details:	Landscape Recovery, 15,227 ha of soil carbon baselining, wetland and orchard restoration
ES Provision:	Soil health, biodiversity, carbon storage, water quality, local food resilience

Title:	**FarmED (Demonstration Farm)**
Size:	43.3 ha
Details:	Regenerative demo farm in Shipton-under-Wychwood. Mob grazing, NFM, Stewardship Scheme, educational programming
ES Provision:	Soil health, biodiversity, flood mitigation, carbon sequestration

The LFE can draw on significant supply cont.

Across Oxfordshire and surrounding counties, a growing network of farmers, landowners, conservation organisations, and community groups is actively delivering nature-based solutions at scale. These initiatives span thousands of hectares and offer a diverse pipeline of projects focused on biodiversity recovery, water quality, flood mitigation, soil health, and carbon sequestration. The examples below highlight the depth and breadth of supply-side activity already underway. Some of these initiatives overlap, so should not be aggregated.

Title:	**Earth Trust**
Size:	500 ha
Details:	Mixed farmland and SSSI woodlands (e.g. Little Wittenham Wood, Paradise Wood)
ES Provision:	Biodiversity conservation, carbon capture, sustainable farming, flood mitigation

Title:	**BBOWT - Wildlife Trust**
Size:	2,500 ha across 80+ reserves
Details:	**Chimney Meadows** (300 ha): Flagship SSSI floodplain restoration site. **Duxford Old River:** Habitat bank generating BNG units
ES Provision:	Habitat connectivity, water purification, species recovery, climate regulation

Title:	**Ock & Thame Farmers – Landscape Recovery**
Size:	90+ landowners, 8,500 ha
Details:	Doubling freshwater habitats, NFM (bunds, woodland, ponds), peatland rewetting
ES Provision:	Flood protection (e.g. Abingdon), water quality, pollination, carbon storage

Title:	**Additional Sites of Interest**
1.	Towersey Farm Habitat Bank (16.5 ha): First BNG site in South Oxfordshire
2.	Oxfordshire Fens Project (19.6 ha): Fen restoration for water quality & carbon
3.	Wychwood Project (1,583 ha): Landscape character & woodland restoration

A4

Appendix 4

Defining ecosystem services

Table defining ecosystem services

Ecosystem service	Description
Food production	Arable crops, horticulture, livestock, orchards, allotments, urban food, wild food (e.g. gathering berries or mushrooms).
Wood production	Timber, wood production for paper, woody biofuel crops, coppice wood or wood waste used for biofuel.
Water supply regulation	Impact of soil and vegetation on rainwater runoff and infiltration, and thus on groundwater recharge or surface water flow.
Flood regulation	Reduction of surface runoff, peak flow, flood extent and flood depth through canopy interception, evapotranspiration, soil infiltration and physical slowing of water flow.
Erosion protection	The ability of vegetation to stabilise soil against erosion and mass wastage by protecting the soil from the erosive power of rainfall and overland flow, trapping sediment, and binding soil particles together with roots.
Water quality regulation	Direct uptake of pollutants by terrestrial or aquatic vegetation; interception of overland flow and trapping / filtration of pollutants and sediment by vegetation before it reaches watercourses; breakdown of pollutants into harmless forms e.g. by denitrifying bacteria that convert nitrates into nitrogen gas. Also, infiltration into the ground, allowing pollutants to be filtered out by the soil and preventing pollution of watercourses – though pollutants could enter groundwater supplies.
Carbon storage	Carbon stored in vegetation and soil. For a typical development (with complete loss of habitats and often major soil disturbance), this is more relevant than carbon sequestered annually. However, peatland restoration is an exception (see Box 1). The 'time to reach target condition' reflects the time taken for a new habitat to reach a typical carbon sequestration rate for a mature habitat.
Air quality regulation	Air pollution impacts on health, climate and biodiversity. Vegetation can affect pollutant concentrations through dispersion and remove pollutants by deposition. Fine particles (PM2.5) are particularly damaging for human health. The right vegetation in the right place can remove particulates, sulphur dioxide, ozone and nitrogen oxides.

Table defining ecosystem services

Ecosystem service	Description
Cooling and Shading	Shade, shelter and cooling effect of vegetation and water, especially urban trees close to buildings, green roofs and green walls, which can reduce heating and cooling costs, or trees in urban parks which can provide shade on hot days.
Noise reduction	Attenuation of noise by vegetation.
Biodiversity (Pollination)	Pollination of crops (and wild plants, supporting other ES) by wild insects (mainly bees and hoverflies). Excludes pollination by managed honeybees. Pest control Predation of crop or tree pests by invertebrates (e.g. beetles, spiders, wasps), birds and bats.
Recreation	Provision of green and blue spaces that can be used for any recreational activity, e.g. walking, cycling, running, picnicking, camping, boating, playing or just relaxing.
Aesthetic value	Provision of attractive views, beautiful surroundings, and pleasing, calming, or inspiring sights, sounds and smells of nature.
Education and knowledge	Opportunities for formal education (e.g. school trips), scientific research, local knowledge and informal learning (e.g. from information boards or experiences).
Interaction with nature	Provision of opportunities for formal or informal nature-related activities, e.g. bird watching, botany, random encounters with wildlife, or feeling 'connected with nature'. There is some overlap with biodiversity, but access by people can have negative impacts on some wildlife habitats. Excludes recreational fishing; hunting / shooting (not covered); the intrinsic value of nature (covered by the statutory biodiversity metric tool); existence value (from just knowing that nature exists)
Sense of place	Refers to the way in which people relate to and perceive the distinctive character, history and spirit of an area. The tool covers aspects of a place that make it special and distinctive – this could include locally characteristic species, habitats, landscapes, or features; places related to historic and cultural events, or places important to people for spiritual or emotional reasons.