Bannau Brycheiniog

The Upper Usk South Project Executive Summary

Financing nature recovery: a pre-feasibility study into the limits and possibilities of financing nature recovery in the upper Usk south

National Parks

Context

i) What is the upper Usk South, and why was it chosen for this study?

- The Upper Usk South (UUS) is a priority area within the Bannau Brycheiniog National Park (BBNPA). It is part of the larger Usk Catchment Partnership (UCP) area, situated to the south of the Upper Usk. The project area is around 8,845 ha (around 6% of the park) in the northern part of BBNP, in the southern part of the Usk Catchment
- The study takes an integrated catchment approach, at scale with connection to wider UCP. This means integrating multiple objectives within project design (nutrients, flood mitigation, carbon, biodiversity, socio-cultural).
- Availability of rich data sets to enable research, as this area is of high strategic significance based on land ownership, abundance of active commons associations, and its placement in the Usk catchment.
- The study area is across a complexity of different land-owner types and designations (SSSI, SAC, access land, registered common land alongside private and tenanted), which will increase potential learnings for achieving landscape scale change

ii) What is the overall approach to the study?

- The BBNPA is exploring the limits and possibilities of nature finance - a broad term used here to define a spectrum of capital from public to private finance – that can support nature recovery
- The study aims to understand pathways and scenarios for nature recovery, funding and organising and governing these opportunities at an integrated catchment management (ICM) level.
- The study was resourced through NPP technical and strategic expertise (pro-bono) and BBNPA co-project leads between nature finance and ecology.
- The study is undertaken in four distinct phases:

1. Develop a landscape baseline and portfolio of nature-based solutions
2. Quantify and model ecosystem service uplift from nature-based solutions
3. Analyse financial opportunities from ecosystem service markets (i.e., a market appraisal)
4. Assess the potential financing mechanisms, governance structures, and NPA roles

Context

iii) What are the overall objectives and desired outcomes from the study?

- The overall objectives of the study are to assess the feasibility of funding nature recovery using private, and/or blended finance, and assess/quantify the ecosystem service (ES) uplift from a portfolio of nature based solutions (NbS), within the framework of integrated catchment management.

- The outcome of the study will (i) Further develop nature recovery pathways for the UUS area and feed into the work of the wider UCP, (ii) shape the understanding and technical capacity of BBNPA for developing nature finance opportunities and understanding the challenges in this field and (iii) support BBNPA to develop its organisational readiness to mobilise resources for nature recovery at scale.

- The outputs of the study include (i) baseline and land use change mapping and scenarios (ii) quantification of ES uplift (iii) financial modelling of estimated income from established nature finance codes and (iv) a pre-feasibility report which investigates different funding models .

iv) What is involved in a pre-feasibility study, and how does this differ from full feasibility?

- This study is purely desk-based and works with data that is either publicly available or provided by BBNPA. A full feasibility study is now in progress and will include landholder and community engagement and data collection on supply and demand side opportunities.

- In this study we assess ES and income opportunities but do not assess costs of implementation, which would be part of the next stages of work.

v) What is private and blended finance for nature?

- We define private finance for nature as any sort of structured financing from the private sector that is used to fund nature restoration or enhancements. We think of it as coming in three forms: i) philanthropy and grants, ii) payments from the private sector for high integrity ES outcomes iii) ES credit sales, and iv) investment, which can be repaid as either debt or equity.

- Blended finance considers how these sources of private finance can be blended with public or grant funds that reduce risk or scale up support from the private sector.

The Upper Usk South (UUS) Project is a collaboration between National Parks Partnerships and Bannau Brycheiniog NPA

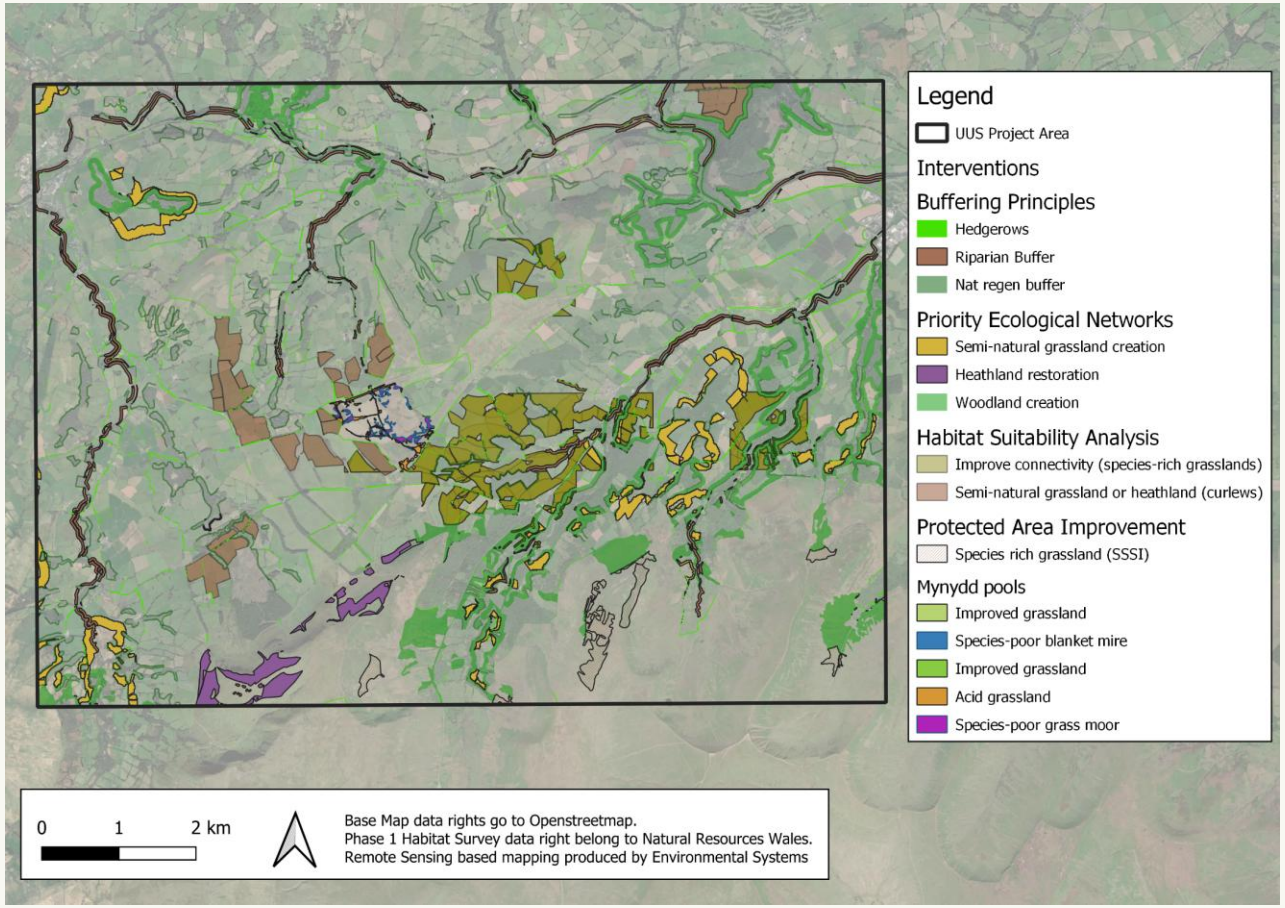
The study lasted 9 months and used a mixed methods approach to assess opportunities for private finance

					2025								
Activities	**Tasks**	**Deliverable / milestones**	**Lead**	**Key Support**	**A**	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**
1. Project ideation and approval	• Project scoping • Board approval		BBNPA	NPP									
2. Project preparation	• Establishment of working group • Methodological statement preparation		BBNPA	NPP									
3. Baseline land use and land use change scenarios	• Consultation with BBNPA ecology team • **July**: internal workshop with BBNPA (knowledge share) reporting on initial findings	• **D1:** Baseline mapping and portfolio of nature-based solutions • **D1.1:** Methodological statement	NPP	BBNPA				**D1**					
4. Nature recovery opportunity mapping	• GIS Mapping / spatial modelling	• **D1:** Technical report and mapping	NPP	BBNPA				**D1**					
5. Analyse financial opportunities	• ES modelling • Financial modelling	• **D2:** Quantification of ES and unit generation	NPP	BBNPA							**D2**		
6. Analyse potential legal, governance and financing models to structure the project	• **October**: internal workshop with BBNPA to establish potential roles of NPA in private finance	• **D2:** Financial opportunities, market appraisal, and funding models	NPP	BBNPA							**D3**		
7. Project outputs, reporting and close	• **October:** internal/external meetings with Ecology team and Usk Catchment Partnership reporting on findings	• **D4:** Final summary deck	BBNPA	NPP								**D4**	

	Completed	**D**	Deliverable

Executive summary I

1. **Considering local context and the importance of ecological suitability**
   I. A key project design principle was not be led by existing nature markets but rather work from **landscape scale of bigger, better and more joined up** (Lawton principle), **within a farmed and living landscape.**
   II. Modelling of opportunities were instead designed through careful consultation with BBNPA and consideration of all available data sources
2. **A portfolio of potential NbS was designed based on aggregated data, the NP management plan objectives, and consultation with ecology experts (pp7):**
   I. ***Buffering principles***: hedgerows, riparian strips, and natural colonisation **(700 ha)**
   II. ***Priority ecological networks***: semi-natural grasslands, heathlands and woodlands **(750 ha)**
   III. ***Habitat suitability analysis***: improved connection between species rich grasslands, and restoring habitats for curlews **(1000 ha)**
   IV. ***Protected area improvement***: improving the condition of low quality areas in SSSIs **(70 ha)**
3. **The portfolio enables scenario analysis and decision-making on finance options (pp9)**
   I. This portfolio is a suite of options for integrating carbon, biodiversity, nutrient mitigation, and flood alleviation into the Usk



Executive Summary II

4. **Modelled NBS opportunities at landscape scale would result in multiple benefits:**
   I. Sequester **228,303 tcO2e over 40 years**
   II. **Reduce nitrogen and phosphorus leaching by 7,851 kg and 162 kg per year** respectively
   III. **Reduce run-off by 39,358 m3** during any 1-in-100 year flood event

However, in the next phase this will be grounded in engagement with landholders and communities, and improved data - these figures represent the 'opportunity ceiling' of NBS in this area

5. **Market appraisal (pp. 10-16)**
   I. Based on the NBS portfolio, woodland carbon continues to provide the highest level of financial opportunity in the UUS. The total project value of a woodland carbon project exceeds **£10 million over a 40-year project lifetime, based on conservative carbon pricing assumptions. However, this does not include costs to structure the funding and current woodland carbon deals require aggregation of large scale landholdings to be economically viable.**
   II. Co-benefits for water quality and NFM are significant, and should be integrated with any carbon trading, seeking a premium price.
   III. There are no established markets for nutrients, biodiversity or NFM in Wales. Interventions beyond the carbon credits (likely WCC) would provide a multitude of benefits, and alternate income sources should be sought from non-repayable finance.
   IV. **Both non-repayable finance and bundling ES into carbon credits should be explored** in a 'layered financing' approach that allows for multiple NBS to be funded over time.

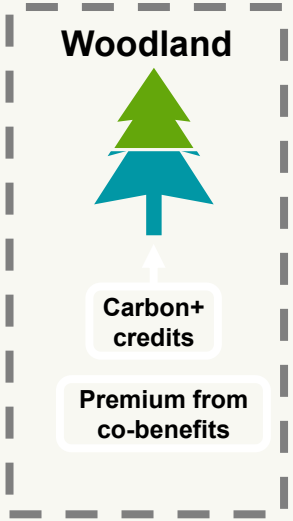
Non-repayable finance

Definition: funding that does not need to be paid back, such as a grant, donation, or sponsorship

Funding priority habitats through partnerships, sponsorships and grants

Bundling in Carbon Credit sales

Definition: A single credit is sold representing several different environmental benefits



Selling carbon credits with other benefits included, such as water quality and biodiversity

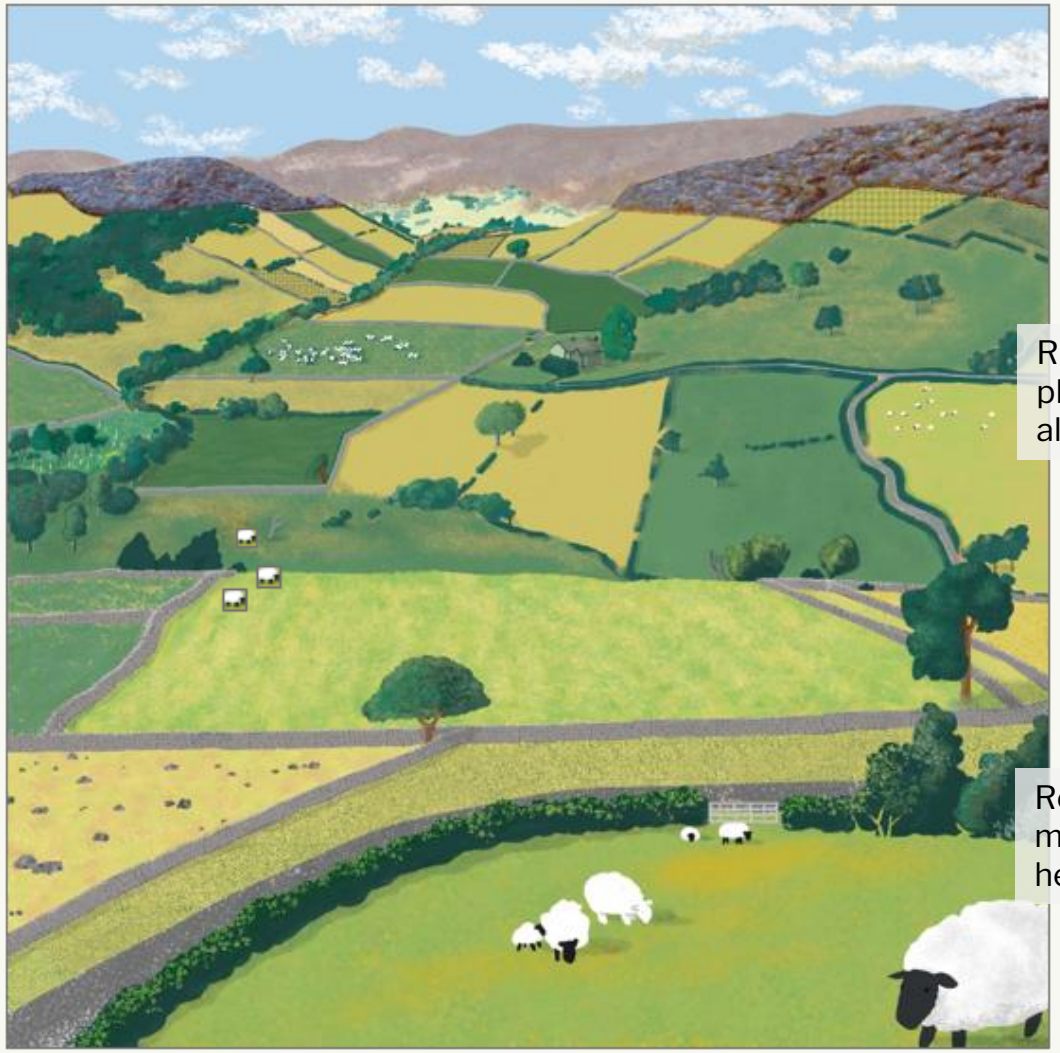
Overview of NBS potential

Group	Nature-based solutions	Area* (ha)	Description
Buffering principles	Hedgerows	428 / 2k km	This grouping includes *connective* buffers around farm boundaries, *protective* buffers around watercourses, and *expansion* buffers around existing broadleaf woodlands. The overall aim of this group – which is comprised of tree planting interventions – is to protect sensitive areas, improve water quality, reduce erosion, and provide wildlife habitats.
	Riparian buffer strips	133	
	natural colonisation buffer	231	
Priority ecological networks	Semi-natural grassland	159	Priority Ecological Networks (PENs) provide a framework to inform the location of action to build functional resilient ecological networks based on our most important places for biodiversity. These include both land-use changes, as well as restoration. Land use change would involve habitat transitions (i.e., grassland - woodland), whereas restoration involves improving the condition of existing habitat (I.e., heathland or grassland – enhanced heathland or grassland).
	Heathland restoration	58	
	Woodland creation	540	
Habitat suitability	Semi-natural grassland (curlew habitat)	186	Habitat suitability analysis (HSA) is a method to determine appropriate sites for habitat improvement based on suitability for particular species. Here we use species richness and abundance data provided by BBNPA, although this principle could be applied to other sources of data. Both *semi-natural* and *species-rich* grassland sites are identified for improvements based on different variables.
	Species-rich grassland (connectivity)	993	
Protected area improvement	Species-rich grassland	61	SSSIs are the most important sites for Wales' natural heritage. They are highly protected to safeguard the range, quality and variety of habitats, species and geological features in all parts of Wales. This grouping is based on identifying low-condition sites, and prioritising action for their improvement.
	Grass moor	7	
	Blanket mire	0.3	
	Acid grassland	9	
Further development needed	Mosaic creation	149	We have identified land where further stakeholder engagement and data collection will be required to determine the optimal mosaic of habitats.
Total potential area for restoration or enhancement:		**2,954**	

**note that all area figures are in addition to current baseline habitat*

What could this look like in practice?

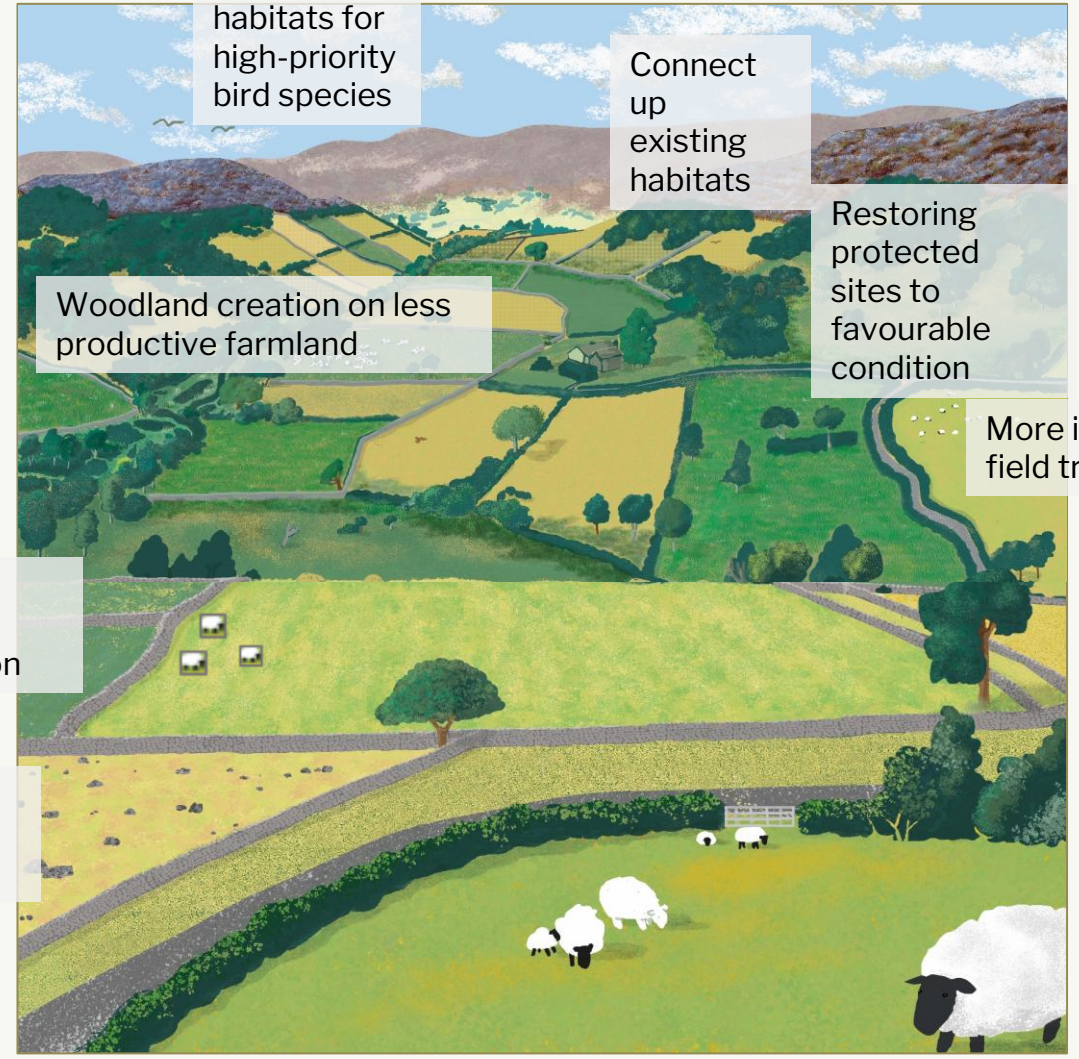
Upland farmed landscape



Riparian planting along rivers

Reinstate and manage hedgerows

Promoting natural regeneration



Establishing habitats for high-priority bird species

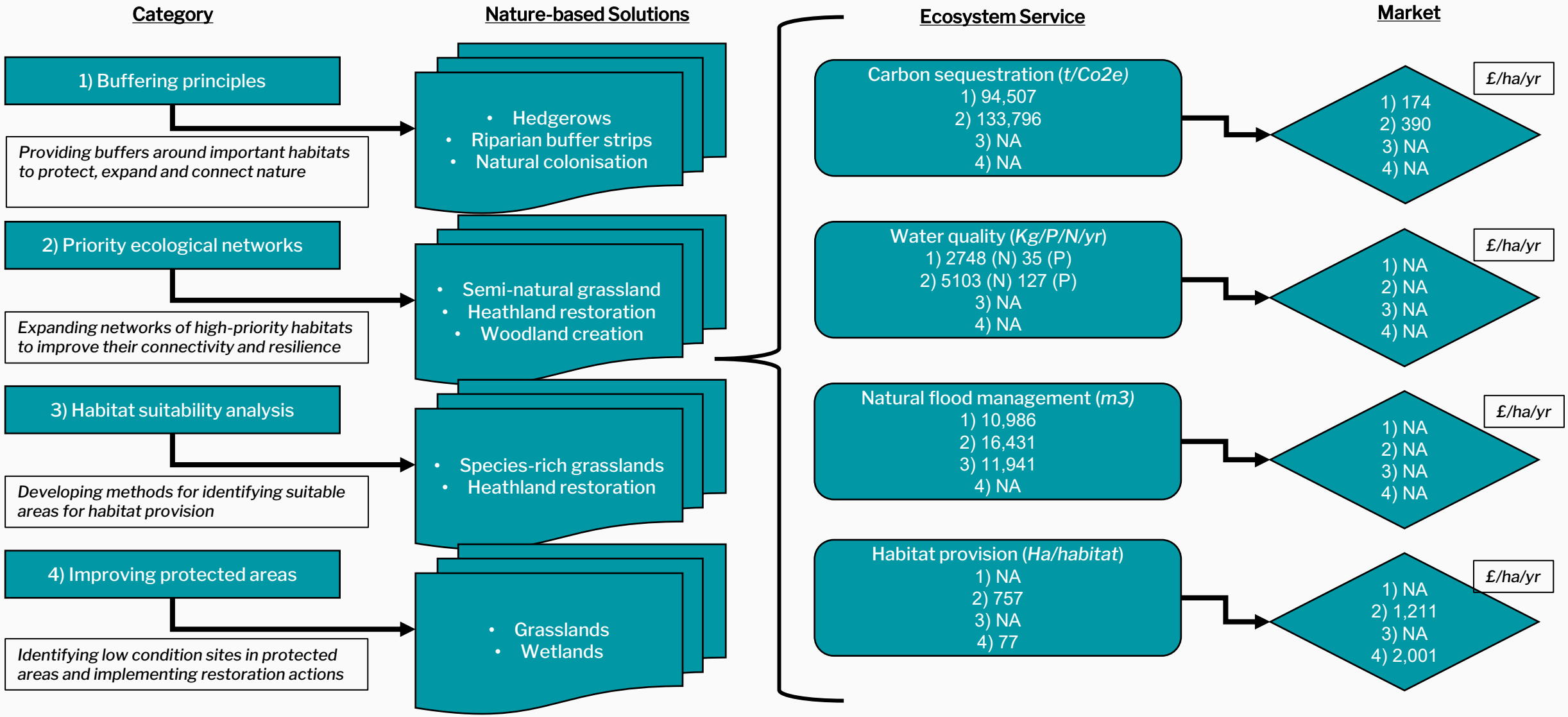
Connect up existing habitats

Restoring protected sites to favourable condition

Woodland creation on less productive farmland

More in field trees

Modelling framework



Nature Finance markets overview

Woodland carbon

The Woodland Carbon Code (WCC) provides an established standard for the verification of woodland carbon units (WCUs). The NbS identified in this project that can generate finance through the WCC are:

- Woodland creation
- Natural regeneration
- Riparian buffer strips

The development of high-integrity credits generated from these NbS should therefore be seen as a priority.

Water quality and natural flood management (NFM)

There is currently no established market in Wales for nutrients or NFM markets. One of the UCP partners, the Wye and Usk Foundation (WUF) are working on developing a NFM and Low flow market and BBNP is working closely with WUF to avoid duplication. In the UUS there are quantifiable benefits for Nutrients and NFM that will be derived from identified NBS:

- Woodland creation
- Natural regeneration
- Riparian buffer strips
- Heathland restoration
- Semi-natural grassland creation

In the absence of an active market for water-based interventions, philanthropic funding must be sought to fund these NbS or co-benefits are bundled in carbon credits sales.

Nature-based Solution	Size (ha)	Quantified benefits (tcO2e)	Quantified benefits (P/N Mitigation)	Quantified benefits (m3 run-off reduction)	Carbon Finance (£/ha/yr)
Woodland creation	540	133,796	127 (P) 5,103 (N)	12,170	390
Natural regeneration	231	27,799	NA	8,591	190
Riparian buffer strips	133	35,765	35 (P) 2,748 (N)	2,395	425
Heathland restoration	58	NA	NA	4,361	NA
Semi-natural grassland creation	159	NA			NA

Nature finance markets overview - continued

Biodiversity

There is currently no established market for biodiversity (regulatory or voluntary) in Wales. Some utility providers and regulatory bodies will be required to use the Biodiversity Metric as part of regulated initiatives. However, currently companies are setting their own mechanisms for channelling this finance into projects, with no unifying framework. Achieving this will require robust quantification of project biodiversity uplift, as well as the development of partnerships with the relevant organisations. This is a potential role that BBNP may explore by building partnerships with the relevant organisations, and channelling funding into nature projects.

We have therefore quantified the biodiversity uplift from various NbS on a case study basis, using the Biodiversity Metric 4.0 from BNG in England. This allowed us to assess the economic value of different interventions. The NBS most suitable for BNG unit sales are:

- Semi-natural grassland creation
- Heathland restoration
- Species-rich grassland enhancement
- Wetland enhancement

In the absence of a viable market for biodiversity credits, philanthropic funding must be sought to fund the enhancement and creation of high quality, biodiverse habitat for a plethora of species.

Nature-based Solution	Size (ha)	Quantified benefits (biodiversity unit)	Units / ha	Mean Biodiversity Finance (£/ha/yr)
SSSI Improvement – wetlands and grasslands	16.3	51.12	3.13	1,076
Heathland restoration (PEN)	58	105.35	5.45	1,211
Semi-natural grasslands / species-rich grassland	220	490	8.22	908*

**Note that although units / ha is larger, the mean biodiversity finance available is reduced because there are unviable habitat creation scenarios in the metric*

Bundling benefits for Carbon

There is potential for a bundled / multi-benefit carbon credit generated by the NbS in the UUS. For example, one hectare of woodland would, approximately:

- **Sequester 212 tcO2e** over 40 years
- **Reduce run-off by 22.5 m3** during extreme floods (1 in 100 year)
- **Reduce nitrogen losses by 9.45 kg** / yr
- **Reduce phosphorus losses by 0.23 kg** / yr

This would help to mitigate climate change, prevent damage from flooding, and improve water quality, all whilst creating jobs and building environmental resilience into the landscape. **The total project income from carbon credit sales would exceed £10 million before costs, based on conservative price estimates.** There are also opportunities to register natural colonisation and riparian buffer strips, providing they meet the definition of woodland in the UK.*

Without an active market for water-based NbS, but demonstrable co-benefits from woodland, a high priority action is to develop projects where a premium carbon price can be charged to support the development of woodland which builds in:

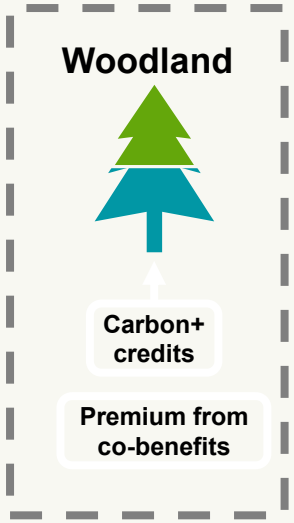
- Multiple benefits for ecosystems (carbon, biodiversity, water quality, NFM)
- Social and community benefits
- Sale of high-integrity credits to buyers who align with Bannau missions

Within the next steps on carbon credit trading, BBNPA will also explore price and volume guarantees to de-risk investments for the landowner, community benefit programmes to support
community wealth building and options for trading platforms that can aggregate supply across small scale farms

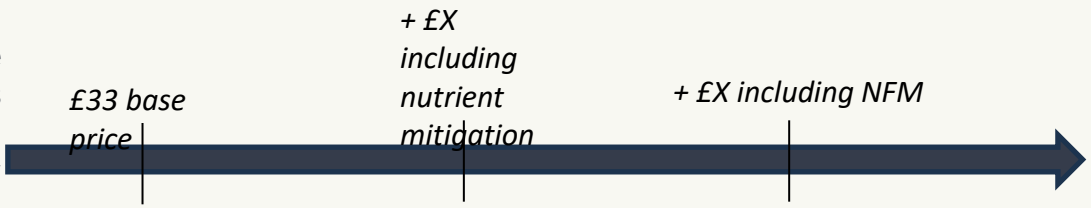
Woodland Carbon CO_2de®

Bundling

Definition: A single credit is sold representing several different environmental benefits



Selling carbon credits with other benefits included, such as water quality and biodiversity



Nutrient mitigation and natural flood management

Nutrient and NFM market development

Nutrient market development in Wales is in its early stages, driven by a need to address phosphorus pollution in Special Areas of Conservation (SAC) river catchments.

The development of Natural Flood Management (NFM) markets in Wales is growing, driven by government investment in nature-based flood solutions and a commitment to climate adaptation.

Key challenges to both include: a) lack of established demand from buyers, b) uncertainty about costs, benefits and additionality, and c) landowner engagement and incentives.

In the future, funding may come from:

- Water companies and other regulatory bodies as part of their commitments to improve water quality and other co-benefits from NbS. This would come in the form of grants.
- Housing developers who have a requirement to achieve nutrient neutrality as part of their approvals process. This would come under The Conservation of Habitats and Species Regulations 2017. Measures require a good level of certainty on effectiveness, and should ideally be within the development site. Guidance is provided by Natural Resources Wales.
- Philanthropy or other forms of non-repayable finance may also fill the gap, but are less likely to achieve the scale requires to make an impact.

However, there is currently a lack of structured mechanisms by which this funding from these origins can be channelled into projects. A combination of fundraising, partnerships, and credit sales may support the channelling of finance into projects. We explore this in subsequent pages.

Biodiversity

Regulatory biodiversity markets

The current status of the Welsh equivalent of BNG: Net Benefits for Biodiversity (NBB) requires Wales' developments to leave biodiversity and ecosystems in a better state than before, focusing on qualitative, site-specific enhancements rather than a mandatory metric like England's.

The focus is on ensuring that net-biodiversity benefits (which are locationally and locally appropriate) are delivered on site. Exceptionally, these can be delivered off site.

Benefits are to show an improvement in conditions supporting biodiversity (i.e., the number of different species rather than abundance/ mass) against a baseline scenario (rather than an alternative scenario if the site were managed optimally for nature).

As such, it is currently unlikely that a regulatory market solution to funding NbS through payments for biodiversity will be viable.

Voluntary biodiversity markets

In this case, voluntary biodiversity markets, which are in themselves a form of philanthropy, may serve a purpose. In general these markets formalise donations to nature projects by using new or established metrics to quantify biodiversity uplift. As such there can be issues around the claims being made, ensuring equivalence, and the additionality of different approaches.

The credits with the most regulation are likely to come from utility providers and regulatory bodies who will be required to use the Biodiversity Metric as part of voluntary initiatives. For example, the outcome delivery incentives of water companies, or the commitments of energy companies to adhere to BNG in developments.

However, there is currently each company are setting their own mechanisms for channelling this finance into projects, with no unifying framework. Achieving this will require robust quantification of project biodiversity uplift, as well as the development of partnerships with the relevant organisations.

Exploring established carbon markets

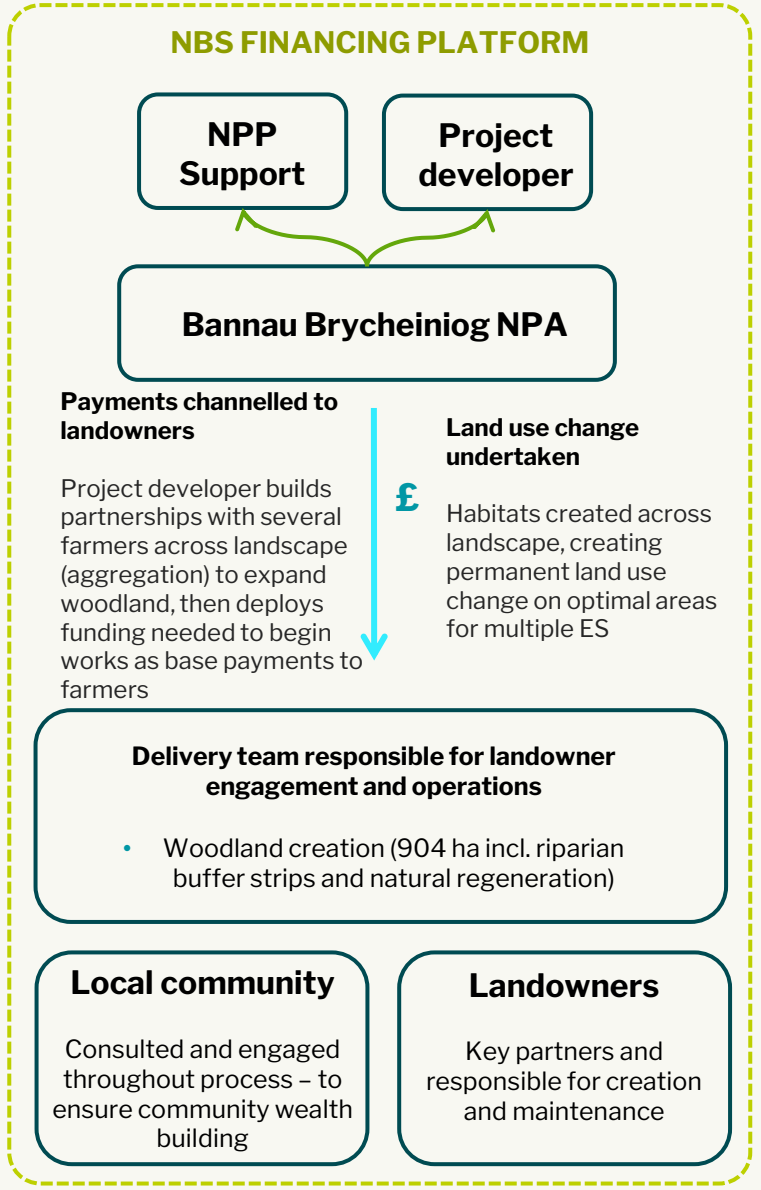
A key opportunity identified in this pre-feasibility study is for BBNPA to explore a carbon trading platform through established codes and standards.

With over 1000 farms across the national park, with multiple land rights and uses., aggregation of opportunities for carbon trading is required not just for cost effectiveness, but to deliver landscape scale nature recovery opportunities.

In this aggregation model, partnerships and further feasibility would be needed to explore:

- Role of upfront investors as equity or debt holders to fund upfront payments to landowners for expansion of woodland
- Offtake investors willing to commit to the purchase of carbon credits
- Role of intermediaries to aggregate supply and demand using tech enabled platforms for MRV
- Structures for shared community benefits and ownership
- Third party verification and auditing of outcomes and sales of carbon units
- Role of public bodies and philanthropy to offer price and volume guarantees in the absence of sufficient offtake agreements
- Role of insurance to underwrite the risks of project delivery e.g. invasive species, disease, climate related risks etc.
- The role of other codes and standards that can verify carbon + outcomes e.g. Wilder Carbon
- Ethical and due diligence considerations on the buy side.

The National Parks Partnership will continue to work with BBNPA in a pro-bono capacity to explore this opportunity further in 2026.



Alternate finance for nascent markets

For less developed (i.e., nascent) markets, there are currently no routes for generating income from the sale of ES. In such cases, **government grants, philanthropy, or other forms of non-repayable finance will all play a role in driving forward nature recovery**. For example, this could include large scale grants from foundations, trusts and corporates that have an identified interest in supporting large scale nature recovery, or a dependency on outcomes where they don't require credits e.g. operational resilience reasons.

For the remainder of interventions assessed in the project, alternative approaches would be required based on multiple sources of funding. For example, this could come together in a **new financing vehicle** with the UCP e.g. a rivers fund or national park wide, that includes the Usk Catchment.

<u>Multi-funding source aggregation</u>

- This would be based on a financing vehicle geographically focused on the national park or the Usk, where BBNPA acts as a convenor of private finance to support nature recovery
- Organisational development is central to this model, to build capacity to develop partnerships with companies, trusts and foundations.
- In this model, private finance will come from multiple sources and is likely underpinned by being blended with public finance or grants.
- Return on investment is harder to quantify as it is not based on tradeable units, but a strong nature recovery programme delivery function based on quality of MEL would be needed.
- This will depend on business development capacity at the NPA level to engage with the private sector and secure high-quality partnerships for nature recovery.