

Natural Capital



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Natural capital: protecting and enhancing rural assets

New income streams and emerging markets are developing as the demand for ecosystem services increases

Natural capital is gaining increasing traction as a theory and a practice influencing how land is managed in the UK. For farmers and land managers, the important element is not so much natural capital itself, but the value of the ecosystem services that the land can provide. This Spotlight focuses on some key areas where natural capital thinking is creating new income streams, as well as looking ahead to emerging markets for ecosystem services.

Natural capital can be understood as the world’s stock of natural resources – earth, air, water and all the components that are linked with them, such as trees, minerals and peat bogs to name but a few. The asset value of UK natural capital is estimated to be nearing £1 trillion (ONS 2019).

These natural assets have not typically been recorded on balance sheets at either national or business level, which has led to them being undervalued in financial decision making. Increasing political urgency around the effects of climate change and biodiversity loss has led to growing concern over environmental stewardship. Future government policy will be assessed against natural capital principles and so it is important that, as landowners and managers, we understand the concept and the opportunities it brings.

Natural capital can be used to deliver ecosystem services to benefit society. Ecosystem services include the sequestration of carbon by trees and soil, the filtering of water, the health benefits of public access to green space, the wildlife conservation of habitats with high levels of biodiversity and the flood prevention provided by flood plains and peatland.

Payments for ecosystem services are made to the ‘manager’ of the natural capital to provide the ecosystem

service. Many services are currently provided without charge, but we expect that as public money for public goods and the polluter pays principles become more established so will the demand for ecosystem services and the development of an associated market.

Opportunities to deliver these services to third parties take various forms:

1 Environmental Land Management Scheme (ELMS) was proposed in the 25 Year Environment Plan and mandated in England in the 2019 Agriculture Bill. This scheme is intended to replace the Basic Payment Scheme of the Common Agricultural Policy. ELMS is founded on the principle of public money for public goods – a natural capital valuation approach. The payments are likely to include money for improved air, water, rich habitat biodiversity and soil quality, carbon sequestration, public access to the countryside and measures to reduce flooding.

2 Private environmental agreements have been pioneered by water companies and planning authorities who have worked out that it is more cost-effective to pay land managers to alter management techniques in order to avoid pollution that is difficult or expensive to remove later. We are expecting flood alleviation and prevention schemes to become more prevalent and offsetting agreements to increase as the polluter pays principle gains political traction. These agreements are highly location specific, so landowners will need to understand who locally may benefit from the services they can supply.



HOW SOCIETY CAN BENEFIT

Natural capital assets:

- Air
- Communities
- Ecosystems
- Landscapes
- Soils
- Species
- Water



Services provided by these assets:

- Biomass
- Carbon drawdown
- Erosion protection
- Pollination
- Water purification



Societal benefits:

- Clean air
- Clean water
- Climate change mitigation
- Energy
- Food
- Hazard protection
- Physical and mental health
- Recreation
- Wildlife conservation



The asset value of UK natural capital is estimated to be nearing **£1 trillion**

10,000

proposed houses are currently on hold across the Solent catchment district

82

The number of England's Special Protection Areas that could be at risk

Case study: nutrient neutrality in the Solent

Offsetting the impact of nutrient levels in marine environments through private environmental agreements

The marine environment within the Solent region is internationally recognised and protected for its important wildlife. Excessive levels of nitrogen and phosphorus, found in wastewater from housing and agricultural run-off leaching into the Solent, have led to eutrophication and large scale algal blooms. This has serious consequences for native bird species and marine life.

In 2018, a European Court of Justice judgement was issued that led to Natural England advising planning authorities in the Solent catchment area that planning permission should not be granted unless the development could be proven to be 'nitrate neutral'. This means as much existing nitrogen must be removed from a catchment as the new development would create, before development can go ahead. It has been estimated that 10,000 proposed homes are currently on hold across the Solent catchment district. The need for nitrate neutrality will have significant impact on future housing delivery and meeting local housing needs.

Areas at risk:

This issue may affect any of England's 82 EU designated Special Protection Areas, but following areas are deemed to be at high risk:

- River Mease Special Area of Conservation (SAC) in the Midlands
- River Clun SAC in Shropshire
- Fenlands SAC in Cambridgeshire
- Areas along the River Avon
- Poole Harbour

Mitigating circumstances

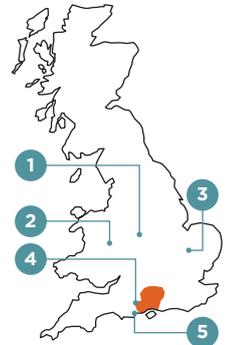
Land managers could be critical in finding a solution. Developers need to look for agricultural land practices that can offset the development's impact on nutrient

levels. This mitigation may then enable planning applications to be approved.

Natural England has suggested that the three key principles for the viability of offset land are: certainty in the land's mitigation potential, perpetuity (of over 80 years) in the offset and enforceability of the mitigation measures. The long duration of these agreements means that private owners are well placed to guarantee compliance with the new practice, such as converting a steep, unproductive area of land adjacent to a water course into woodland, which would reduce nutrient run-off from the land.

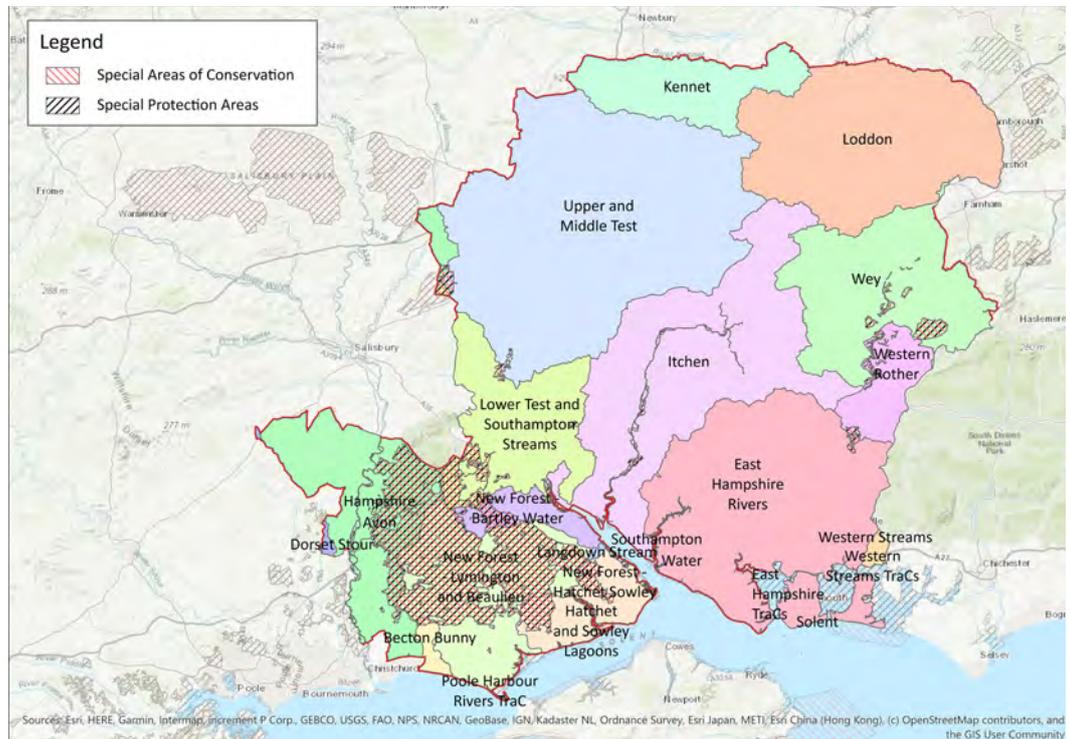
This mitigation would be enforceable via felling licences. Other examples include the creation of wetlands and rewilding of streams for nitrate credits. These solutions would enable remaining land to continue to be farmed productively.

Finding a solution is complex and will require a united approach from stakeholders. Currently there is a lack of formal policy around nutrient offsetting procedures and compliance, which may result in private agreements leading the marketplace, offering substantial new income streams from landowners' natural capital assets.



- 1 River Mease SAC
 - 2 River Clun SAC
 - 3 Fenlands SAC
 - 4 Areas along the River Avon
 - 5 Poole Harbour
- Catchment areas in map below

Catchment areas currently affected by nutrient neutrality



Quantifying natural capital: whole estate reporting

In order that landowners and managers make the most out of the opportunities of emerging natural capital markets, it is crucial that they have quantifiable information on their natural capital stocks. From this year Savills will offer bespoke whole estate reporting that delivers triple bottom line data – environmental, social and economic – on rural assets.

£1.4bn

The value of benefits Defra expects BNG to deliver

10%

uplift in biodiversity needed for planning approval

23%

of planning authorities have already adopted BNG

Biodiversity Net Gain

Enhancing biodiversity is a new condition of planning policy, providing potential income streams for land managers

Biodiversity is a critical natural capital asset and substantial government house-building targets will mean many thousand hectares of rural land will be developed for housing. The rapid degradation of habitat and species biodiversity has led to policy makers seeking solutions to restore biodiversity stocks. Biodiversity Net Gain (BNG) is a concept proposed in the 25 Year Environment Plan and mandated as a condition of planning permission in the 2019 Environment Bill. BNG requires a 10% increase in biodiversity after development, compared to the level of biodiversity prior to the development taking place.

Twenty-three per cent of planning authorities have already voluntarily adopted the measure and now that the National Planning Policy Framework includes compulsory BNG, it offers significant new income streams for landowners and managers.

The UK's environmental industry organisations published good practice principles in 2016 that defined BNG as: *Development that leaves biodiversity in a better state than before, and an approach whereby developers work with stakeholders to support their priorities for nature conservation.*

POLICY PROPOSALS

Local nature recovery strategies These will be produced by authorities to identify which local land is best placed for biodiversity recovery and enhancement.

Biodiversity gain plan In order to be granted planning permission, developers must submit a biodiversity gain plan detailing exactly how a 10% uplift in biodiversity will be achieved.

Biodiversity gains site register A national register where land in offset agreements will be recorded.



HOW BIODIVERSITY NET GAIN WORKS:

Developers use Defra's biodiversity metric (based upon a habitat survey of the proposed planning site) to calculate the pre-development biodiversity units and a projected post-development value, allowing the difference in biodiversity to be measured.



If the development results in a biodiversity loss (taking into account the mandatory 10% uplift in biodiversity value), developers will have to source the missing biodiversity units.



These additional biodiversity units can come from habitat enhancement onsite or offsite, or through purchase of statutory biodiversity credits. Offsite offsetting would involve an agreement between landowners and planners.

Biodiversity units required = pre-development biodiversity units + 10% – post-development biodiversity units



KEY DECISIONS FOR A LAND MANAGER

Do you have an area available for offsetting?



Is it currently economically productive?



Are you happy to take it out of intensive production for 30 years or more?



Does it fit into your local nature recovery strategy?



What other biodiversity rich habitats could the land be converted to?



What management will that require and what will the cost be?



Will the land use change result in loss of inheritance tax reliefs?



ACTION: contact agent/ local planning authority/ local nature partnership/ developer to agree a plan and terms of offset

“Interestingly, one piece of land can be used for multiple planning applications, meaning the potential income could be cumulative”



Land use changes

Estimated costs of delivering BNG in the Oxford Cambridge arc

Savills modelled the process of achieving BNG across the proposed Oxford Cambridge arc development of one million new homes. The model estimated the costs and land requirements of delivering BNG.

If BNG was not mandatory, 35,000 hectares of agricultural land could be required for the proposed one million home development. This is around 3% of the existing rural area in the arc.

To implement a 10% biodiversity gain across the Ox-Cam housing development arc, at least 280,000 biodiversity units would be required. To work this out we used the Defra estimation of 7.47 biodiversity units lost per hectare of residential development on greenfield sites, although some academics consider this factor too high. We then accounted for a 10% uplift in the pre-development baseline biodiversity score. We assumed that for the entire new development all existing biodiversity units would be lost and replaced via BNG measures.

If all 280,000 units were created offsite, we estimate, drawing on Defra data and guidance, that around 68,000 hectares would be needed for offsetting. Combining land needed for development with land needed for offsite creation, this increases land use from 3% of the arc to 10% of the existing rural area in the arc.

SITE DESIGN IMPLICATIONS

When considering onsite versus offsite offsetting, onsite BNG delivery can be pursued to the point that the trade-off costs associated with higher density housing do not significantly compromise site design. However, in many situations, delivering BNG within the original development will have too great an effect on build density and associated economic viability, meaning there will be demand for offsetting land that holds value in biodiversity units.

Habitat creation

What does creating a biodiversity uplift really entail?

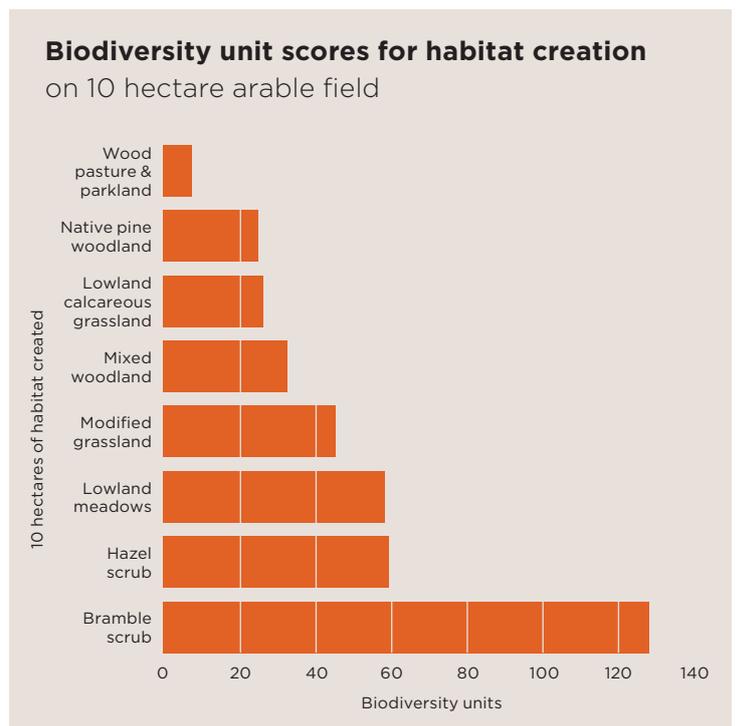
Converting a 10 hectare arable field (of moderate condition and connection within a local nature strategy plan) into a habitat with higher biodiversity value (of good condition) generates a range of biodiversity scores, depending on the habitat type created, as the graph below demonstrates. Each habitat type takes varying amounts of time to reach target condition. The offsetting habitat chosen should fit within the local nature recovery strategy, and be the best replacement for the habitat lost through development.

There are some uncertainties. It is currently unclear where biodiversity land management advice will come from and it is also not known how offset income will be paid (for example, as a lump sum or annual payment).

The draft legislation sets a 30 year term for a BNG management plan, however environmental impact legislation may make it difficult to return land back to primary agriculture after this point. In the case of a BNG plan that requires a conservation covenant, land will be bound in agreement for a period of indefinite duration.

It is also important to remain aware of the tax implications of land use change for environmental gain. Interestingly, one piece of land can be used for multiple planning applications, meaning the potential income could be cumulative.

Defra expects biodiversity gain to result in the creation and the avoidance of loss of several thousands of hectares of habitat for wildlife each year, which represents annual natural capital benefits of around £1.4 billion. This emerging market has significant potential, however financial returns will vary according to supply and demand in any given area.



Source Savills Research

“ The net zero debate has repositioned tree planting for carbon sequestration at the top of the environmental agenda and there are a range of potential markets for landowners ”



Trends in tree planting

Climate change policy is set to have an impact on the forestry sector with the Government keen to develop the private market for carbon sequestration

The UK’s commitment to net zero carbon emissions by 2050 could dramatically impact land management. There is a growing debate over the role of the UK’s natural capital in meeting climate objectives. Public grants for tree planting and other forms of carbon sequestration are yet to feature in draft

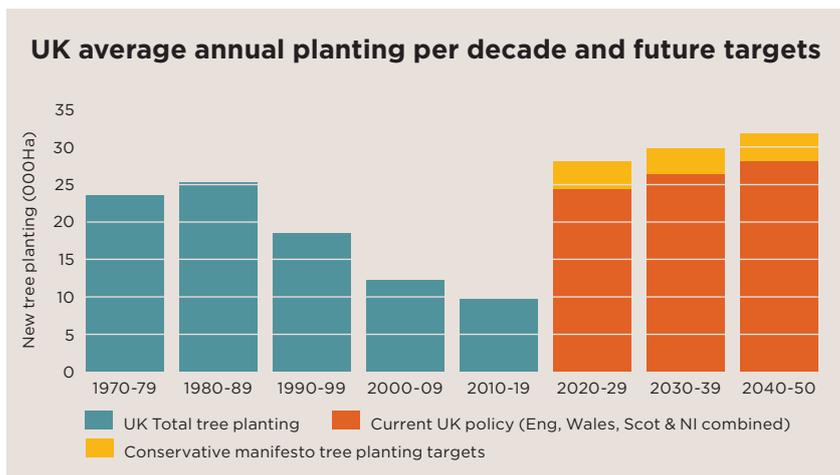
agricultural policy, but this is likely to change over the coming year; the rapidly emerging market for private carbon investment will have to integrate into this public policy framework.

Tree planting rates in the UK have been in decline since the 1980s. EU subsidies

focused on singular land use and onerous UK regulations have disincentivised afforestation. Currently, 13% of the UK land area is wooded, far below the European average of 38%. Scotland plays the dominant role in tree planting and timber production, but the sector has capacity to expand nationwide. Around 9,000-10,000 hectares are planted throughout the UK each year. The Government’s proposals for reaching net zero by 2050 included planting 30,000 new hectares each year by 2025, an area equivalent to 75,000 football pitches and at least three times the current planting rate. This requires an increase in woodland cover from 13% to 17% by 2050.

The net zero debate has repositioned tree planting for carbon sequestration at the top of the environmental agenda and there are a range of potential markets for landowners.

There is a distinction between mandatory carbon trade and the voluntary market for carbon offsets. Regulated carbon market audit costs make this scheme unattractive to forestry investors in the UK with current carbon values. The EU Emissions Trading System (ETS) currently values carbon at c£25/t.



Source Forestry England, Forestry and Land Scotland, Natural Resources Wales, Forest Service

9-10k

Hectares of woodland are planted in the UK each year

30k

New hectares of planting needed each year by 2025

£36/ha/yr

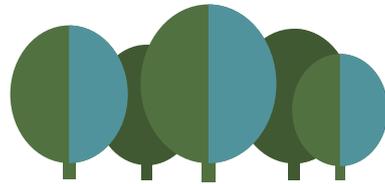
Recent woodland sales of carbon have realised around £36/ha/year

Voluntary carbon is currently certified under the UK Woodland Carbon Code. The code exists to enable companies to offset their emissions by buying carbon in woodland, providing a guarantee that forest is being managed correctly for offsetters. The downside is that the code does not encourage small scale planting, as the cost of validation is high at around £1,000 per project, with continual costs for verification every five years. This market is anticipated to continue to grow significantly especially as ways of measuring carbon stocks remotely improves.

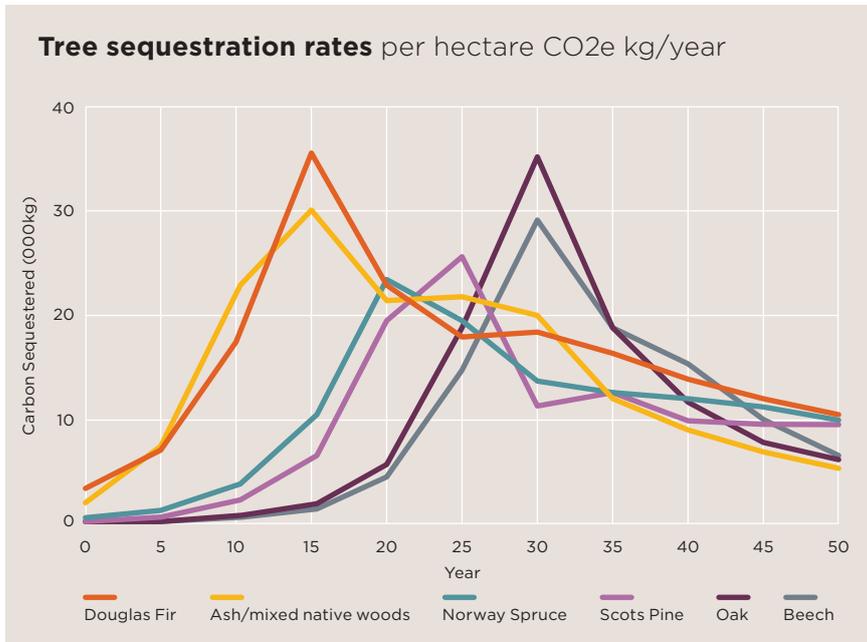
The Woodland Carbon Guarantee is a newly established £50 million Government fund that aims to develop the domestic market for woodland carbon in England. It enables owners to auction captured carbon dioxide in the form of Woodland Carbon Units (verified under the Woodland Carbon Code), to the Government for a guaranteed price every five or 10 years up to 2055-2056. The credits can be sold privately on the open market if the price is higher. According to the Woodland Carbon Code, one hectare of newly planted native broadleaves sequesters around 300t of CO₂ over a 50 year period. Recent UK woodland

sales have realised between £3 and £10/tCO₂e (notably less than the regulated ETS), totalling £1,800 per hectare over the 50 year period (£36 per hectare per year).

Currently around 70% of carbon rights are sold in advance, enabling land managers to quickly recoup their outlay, the remainder are sold later as the woodland matures. The rate of sequestration varies by tree type and by age. The Government is keen to develop the private market for carbon sequestration and with growing corporate social responsibility and financial disclosure requirements, higher prices are in theory achievable.



One hectare of newly planted native broadleaves sequesters around 300t of CO₂ over a 50 year period



Source The Carbon Calculator Toolkit 2019



AGROFORESTRY

Agroforestry is the inclusion and use of trees as part of a wider agricultural system, for example alley cropping or grazing animals under orchards. Agroforestry provides fruit, nuts, timber and biomass in the same space as other crops, while also increasing the biodiversity and resilience of the land. It is possible that agroforestry schemes may be encouraged in future agricultural policy, alongside other planting incentives.

Barriers to planting

Despite the attractive income streams of commercial timber and the carbon market, and the substantial tax benefits of both, there remain significant barriers to tree planting. Obtaining planning permission or environmental impact assessments for a change in land use from agricultural production to forestry can be time consuming and the process varies from region to region. Woodland is deemed to be a permanent land use change, meaning that at the end of their production cycle, woods need to be replanted rather than reverted to farmland. This often deters farmers, as reducing productive farmland is counterproductive to achieving agricultural economies of scale. Choosing resilient planting stock is not easy, particularly when supply is not abundant. The risk associated with a 25-50 year production cycle should not be underestimated.

The concern is that environmental policy becomes too target-focused, using carbon sequestration as its only indicator of success. The varied nature of the UK's landscape means tree planting must be location specific and in adherence with the UK Forestry Standard, or else we risk repeating the mass tree planting schemes of the 1980s that led to the destruction of unique blanket bogs in north west Scotland.

13%

Currently, 13% of the UK land area is wooded, far below the European average of 38%

Growing potential

Forestry can be a win-win for landowners, with rapidly growing potential income streams. However it is important to retain a long-term viewpoint when thinking about investment and consider your options carefully.



Rewilding can be understood as large scale restoration of ecosystems and reinstatement of natural processes

Back to nature

With conventional agriculture on marginal land looking increasingly vulnerable due to the removal of Basic Payment Scheme support, some land occupiers are considering whether rewilding is an option

Rewilding is at one end of a land use intensity spectrum, where the large scale restoration of landscapes through natural processes and species take centre stage and agricultural practices take a back seat. Before considering rewilding as a land management strategy, here are some key points to think about:

1 Purpose
Personal motivations and financial objectives are the crucial first step, because there is no standard definition of 'rewilding'. Agreeing how success will be evaluated and determining the management approach must be carefully planned.

2 Profit
Understanding the profitability of current land use is crucial. For let land, this is straightforward; for in-hand farming profitability may be more volatile. The key metric in evaluating the long term success of rewilding will always be profit per acre, not yield.

3 Livestock
The unwritten principle of rewilding is the role livestock play in grazing and restoring plant diversity. The extremely low stocking densities (<0.3LU per hectare) and free roaming of the animals allow landscapes

to recover naturally. The lack of natural predators means human control of grazing herbivores remains the key route through which rewilding is achieved.

4 Fence
If there is no pre-existing livestock enterprise, investment in fencing will be crucial to manage highly extensive grazing. A ring-fenced estate is not the only option though. Landscape scale benefits are possible if several landowners collaborate to adopt extensive management for the benefit of a broader area.

5 Transition
The transition from intensive to highly extensive management of land produces the ecological bonus that is rewarded through an agri-environmental programme or tourism enterprise. A settled form of highly extensive management will be needed long term, and it may be difficult to revert the land back to conventional production.

6 Star Species
Rewilding enterprises tend to rely on consumer engagement and often that is in the form of safaris or wildlife experiences. It

may however take several years for habitats to form to support the 'star species' that attract visitors, such as rare butterflies or migratory birds. Native species such as beavers may be an option instead.

7 People
People, profit and environment can be uneasy bedfellows. Given that there is no standard process for rewilding, it is up to each scheme manager to determine the right balance between welcoming visitors, engaging neighbours and communities and providing habitat for rare and vulnerable species.

8 Inheritance tax and land values
Land ownership is constrained by the rules of IHT. Proof of active farming is important for both Basic Payment Scheme and Agricultural Property Relief, so take advice to ensure that asset values are not negatively impacted by the pursuit of conservation objectives.

9 Finances
To be financially viable, there may need to be an investment phase or the phased adoption of rewilding. Rewilding is a diversification option that can support enterprises such as safaris, glamping and weddings, as well as meat boxes.



“ Lord Somerleyton’s advice for those thinking about embarking on rewilding projects is to ‘rip up the rules’ and dare to be experimental ”



Somerleyton Estate: a venture into the wild

An innovative rewilding project in Suffolk

Lord Somerleyton is leading an ambitious rewilding project across his 5,000 acre estate in Suffolk, requiring a ‘complete mind-set shift’ from a conventional arable set-up to a new type of landscape management that values conservation and regenerative farming.

Currently, three areas of the estate are being rewilded, through arable reversion and tree felling, with the vision of creating what Lord Somerleyton calls ‘wildland’ – over 1,000 acres of open grazing.

The estate has introduced Welsh Black cattle (who roam with two years of followers, on a natural weaning system), Large Black sows, Norfolk Horn sheep, Exmoor ponies and red and fallow deer to graze across the reserves.

After securing a bid for a Natural England fencing scheme, the main reserve will have a six and a half mile ring-fence, keeping stock in but enabling deer to come and go. Eventually, the aim is to introduce European bison or water buffalo.

Elsewhere, the estate is recreating a mosaic of marshy land with a variety of swards, to

encourage species such as lapwing and redshank.

In how to define what a ‘natural’ rewilded landscape constitutes, Lord Somerleyton explained he ‘went backwards to go forwards’, taking inspiration from historical photographs and estate maps in order to devise a naturalistic management plan.

It is clear that this is not simply about letting nature dominate: Lord Somerleyton believes rewilding is about vision-led management, which includes humans – ‘educating, inspiring, shaming and committing’ people into restoring wildlife. In his eyes, cooperation is key to success.

Lord Somerleyton is the first to stress that his passion for nature has been crucial in driving the rewilding project across his estate. However, that doesn’t mean the enterprise isn’t profitable – income streams include the estate’s tourism enterprise, their beef sales and timber.

His advice for those thinking about embarking on rewilding projects is to ‘rip up the rules’ and dare to be experimental.

NATURAL CAPITAL SOLUTIONS: PEAT

Globally, peatlands store more carbon than the world’s rainforests. Peatland sequesters 370 million tonnes of carbon dioxide a year, which is enough to offset the emissions of nearly 80 million passenger vehicles and is equivalent to 176 million hectares of forest.

Peatland landscapes include fens, bogs and swamps, all of which remain waterlogged throughout the year. This slows plant decomposition, enabling dead plant material to accumulate, which is why peatland can store such vast quantities of carbon. Unlike woodland, which becomes saturated once it matures, peatland continues drawing down carbon over millennia as layers of peat accumulate.

Not only do peatlands store carbon, they also provide essential ecosystem services.

Healthy peatlands improve water quality (the UK and Republic of Ireland account for 85% of global consumption of peat-sourced water), reduce flooding impacts, conserve biodiversity and provide a space for recreation.

In total, peat bogs cover around 10% of Britain’s land area, with half of that being in Scotland. These peatlands represent the single most important terrestrial carbon store in the UK and yet 80% have been damaged by drainage, extraction, burning and overgrazing.

This degradation releases CO₂. It is estimated that damaged UK peatlands are releasing 3.7 million tonnes of CO₂ each year, equal to the emissions of 660,000 UK households.

Fortunately, peatland can recover through rewetting and catchment reconnection, recreating a carbon sink. According to the International Union for Conservation of Nature,

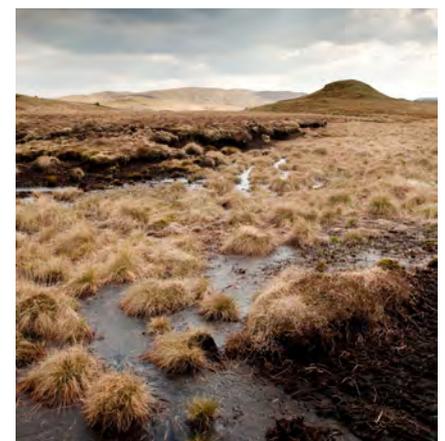
there are currently 92 projects of peatland restoration in the UK.

This does not have to mean an end to productivity if the land was formerly agricultural. Paludiculture is the cultivation of wet peatlands for agricultural production while maintaining the ecosystem services that they provide.

Despite peatland restoration being a cross-party policy aim, current public funding is limited. As with tree planting, an alternative source of funding is through voluntary carbon market buyers.

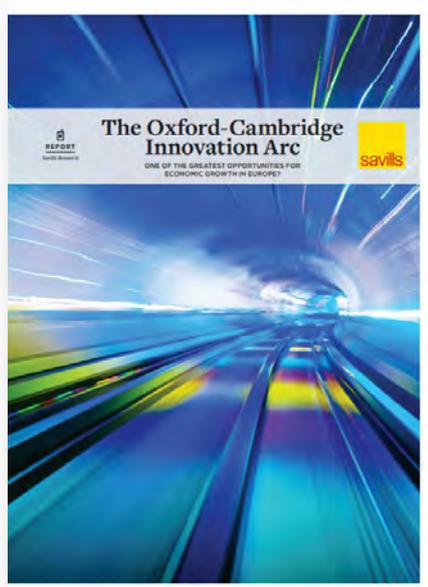
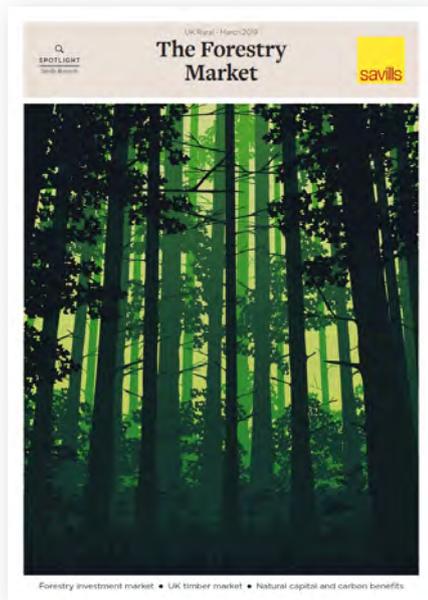
The Peatland Code provides assurance to buyers that the climate benefits of peatland being sold are real, quantifiable and permanent. It is likely that peatland restoration will be included as a public good in future agricultural policy schemes.

Rewilding Britain proposes paying £584-£876 per hectare per year for rewilding peat bogs, however private markets may increase potential income.



KEITH MORRIS / ALAMY

370m
Globally peatland sequesters 370 million tonnes of carbon dioxide a year, enough to offset the emissions of nearly 80 million passenger vehicles



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