

# PES and the Gwent Levels: Local opportunities for paying for Ecosystem Services



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For RSPB Cymru



yn rhoi      giving  
cartref i      nature  
fyd natur      a home

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In partnership with Living Levels.



Cover photo: Richard M. Clarke

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## Introduction

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Faced with climate and biodiversity emergencies, along with changes in agricultural support systems, new ways of encouraging – and paying for – the sustainable management of natural resources are being sought. One of these methods is Payment for Ecosystem Services (PES). This report briefly introduces PES and explores some of the opportunities that may be available in the Gwent Levels.

It forms part of the Sustaining the Gwent Levels project<sup>1</sup>. This was a collaborative project, led by RSPB Cymru, that worked closely with farmers and other partners to develop the understanding, knowledge, skills and experience needed to deliver the sustainable management of natural resources within the Gwent Levels. As well as undertaking a variety of practical actions, the project explored the economic aspects of such work.

The suggestions and discussions presented here were gathered from three workshops<sup>2</sup> held in the Gwent Levels and a series of interviews<sup>3</sup> with people who have a knowledge of either the Levels, relevant potential issues or PES. These included local farmers and residents, academics, and representatives from a number of governmental and non-governmental organisations involved in a variety of aspects of land and water management, planning, access, conservation, health and education. Broadly, the workshops and interviews asked people what they valued about the Levels, what they thought people may be willing to pay for in a local PES scheme, and how such a scheme might work.

### About the Gwent Levels

The Gwent Levels is a low-lying area between Cardiff and Chepstow (see Figure 1). It is a Landscape of Outstanding Historic Interest, being recognised as an example of a landscape ‘hand-crafted’ by people as shown by the patterns of settlement, enclosure and, crucially, drainage systems. These drainage systems support significant concentrations of rare and protected wetland species, with the result that the vast majority of ditches and “reens” on the Levels have been designated as Sites of Special Scientific Interest<sup>4</sup>. As such, it is unique in Wales: whereas there is encouragement for upland areas to be re-wetted by blocking ditches to protect peatland habitats, reduce flooding risk, and protect and increase carbon storage, it is vital for the landscape and local wildlife in the Levels that ditches are regularly cleared. The responsibility for this depends on the type of ditch: rivers and main ditches (reens) are under the care of Natural Resources Wales, while farmers are responsible for maintaining field drains, which form the vast majority of the drainage system.

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<sup>1</sup> A Sustainable Management Scheme (SMS) funded by the Welsh Government Rural Communities – Rural Development Programme 2014-2020 through the European Agricultural Fund for Rural Development. The project took place between 2018 and 2021 and the partners were RSPB Cymru, Living Levels Landscape Partnership, Natural Resources Wales, Gwent Wildlife Trust, Centre for Ecology and Hydrology, National Farmers’ Union Cymru and Farming Connect.

<sup>2</sup> Workshops were run by Resources for Change Ltd in the Newport Wetlands Nature Reserve (2 workshops) and the Nash Campus of Gwent College (1) in November 2019.

<sup>3</sup> Interviews were undertaken by Resources for Change (1), Sustaining the Gwent Levels project officer, Lewis Stallard (2) and Jane Ricketts Hein (14).

<sup>4</sup> Chris Blandford Associates (2017) [Gwent Levels Landscape Character Assessment](#).

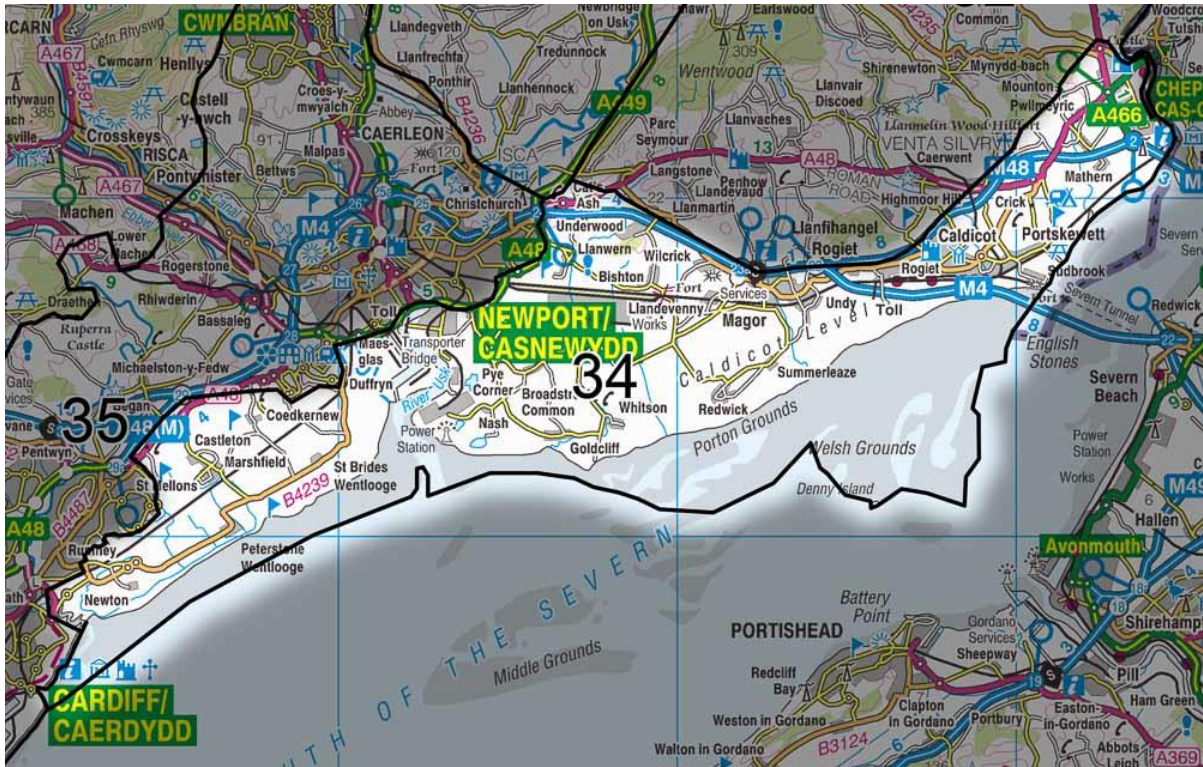


Figure 1: Sustaining the Gwent Levels project area

Agriculture is the main land use on the Levels, but, as it lies between two major urban areas, is flat and has good transport links, being crossed by a major railway and the M4 motorway, it has been subject to a great deal of development pressure, particularly for industry and power generation. Of note in recent years has been the controversy over a proposed relief road for the M4 which would have been built to the south of Newport, and therefore over part of the Levels. This proposal was rejected by the First Minister, Mark Drakeford, in June 2019<sup>5</sup>.

### What is PES?

In defining Payment for Ecosystem Services, it is perhaps easiest to start with “**Ecosystem Services**” (ES). These are the multitude of benefits that nature provides to society, often making human life possible, and including the provision of clean water, climate regulation and support for pollinators. These benefits are often categorised<sup>6</sup> as:

- **Provisioning**: the material benefits people get from ecosystems, e.g., food, water, fibres, wood and fuels.
- **Regulating**: the benefits obtained from the regulation of ecosystem processes e.g., air quality, carbon sequestration, soil fertility, control of floods or pollination.
- **Supporting**: services that are necessary for the production of all other Ecosystem Services, e.g., by providing plants and animals with living spaces, allowing for diversity of species, and maintaining genetic diversity.

<sup>5</sup> <https://www.bbc.co.uk/news/uk-wales-48512697>

<sup>6</sup> Following the Food and Agriculture Organization of the United Nations - <https://www.fao.org/ecosystem-services-biodiversity/en/>.

- Cultural: non-material benefits people gain from ecosystems, e.g., aesthetic and engineering inspiration, cultural identity and spiritual well-being.

While consumers do (usually) pay for those items in the first category – food, fibre, fuel, etc. – by buying them ‘in the marketplace’, it is often felt that the full cost of producing them is not met; hence the need for agricultural support payments which aim to either encourage production in an environmentally friendly way or attempt to remedy any associated environmental damage. Services in the other three categories – from air quality to natural habitats and gaining inspiration from nature – are either undervalued or have no financial value. Threats to ecosystems, and therefore the services they provide, from climate change and human interference are severe and increasing, and new ways of getting people to value and therefore protect them are being sought. One method is a suite of mechanisms that enable these services to be **valued and paid for, i.e., Payment for Ecosystem Services**. However, this is more than an exchange of money for an environmental service being either delivered or maintained: **the payment must ensure that the benefit occurs where it would not have otherwise happened**<sup>7</sup>.

Three main types of **payment mechanisms** have been identified<sup>8</sup>:

- Public payment schemes, where governments establish focused, country-specific schemes for private landowners, e.g., agri-environmental schemes;
- Formal markets with open trading between buyers and sellers with varying degrees of regulation, e.g., carbon trading schemes;
- Self-organised private deals where individual beneficiaries of Ecosystem Services contract directly with providers of those services, e.g., a water company may pay landowners in the water catchment to undertake practices that ensure the quality and purity of the water reaching the treatment works.

## Ecosystem Services on the Gwent Levels

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### Provisioning

The benefits produced by this type of Ecosystem Service tend to be available through mainstream marketplaces, but in recent decades have not usually reached prices that make their production financially sustainable.

A variety of **farm products** for the food system are produced on the Levels – lamb was mentioned most often, but also beef, dairy, eggs and a small area of arable crops –, and while interviewees identified a large number of other potential ESs, they recognised that many of these depended on the continuing presence of those farmers and land managers who are keen to work in harmony with their natural environment. It was widely recognised

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<sup>7</sup>Forest Trends, The Katoomba Group and UNEP -

[https://wedocs.unep.org/bitstream/handle/20.500.11822/9150/payment\\_ecosystem.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/9150/payment_ecosystem.pdf?sequence=1&isAllowed=y) p.3.

<sup>8</sup>Forest Trends, The Katoomba Group and UNEP -

[https://wedocs.unep.org/bitstream/handle/20.500.11822/9150/payment\\_ecosystem.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/9150/payment_ecosystem.pdf?sequence=1&isAllowed=y) p.4.

that farmers rarely have the finances or time to spend on restoring and maintaining ecosystems, but that achieving premium prices for their products could help.

**Orchard products** were often specifically mentioned because of the efforts of the Living Levels and Sustaining the Gwent Levels projects to restore and develop orchards. Many participating farmers hoped to sell apples and related drinks eventually, and interviewees also valued these as worthwhile local products. As with other farm products, orchards provide more than provisioning services: they have a long cultural history in the area – when agricultural workers were partly paid in cider –, they contribute to diversity as they often contain local varieties of trees that are particularly suited to the location, and provide vital habitats for many rare species.

*“There were originally 600 orchards, now there are 80.... Of the 80, 31 are candidates to become local wildlife sites because of the wildlife they sustain.”*

A similar type of product is **willow coppice**, where the branches are cut back to the tree’s trunk, conventionally above the level where cattle and deer can browse. The re-growth is straight and dense. While coppiced willows provide potential nesting sites for Tree Sparrows and have a long history in the Levels, being very well suited to the wet environment, workshop participants identified several uses for the cut branches or ‘withies’. These uses include as biomass fuel and for a variety of practical crafts including making hurdles and baskets. The development of a Willows and Wetlands Centre, similar to one at Stoke St Gregory in Somerset was also thought to be a way of promoting and valuing the trees and their associated products and services.

### Regulating

**Carbon capture and retention** has probably received the most attention as a potential subject for PES in recent years, given the urgent need to reduce atmospheric carbon in order to lessen the effects of climate change. As an Ecosystem Service, efforts have mainly concentrated on protecting and restoring carbon in peatland and woodlands<sup>9</sup>, but it is also sequestered in grassland soils and salt marsh<sup>10</sup>. However, while it was discussed in wider terms, only one person felt that there was potential in the context of the Levels. Tree planting would be inappropriate for the area, and with predominantly clay soils, perhaps the best possibility is currently with grassland soils. Carbon sequestration within the salt marsh area may possibly be a minor option.

The regulation of **water levels** in the area is different to most other areas of Wales, in that the Levels are at the lowest end of the water catchments. However, it is vital for many aspects of the farming systems. As workshop participants and interviewees pointed out, the ditches and reens act as “wet fences”, keeping livestock in their fields, as well as supplying drinking water for them. Thus, both flooding and drying out must be avoided. There were

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<sup>9</sup> <https://gov.wales/sites/default/files/publications/2021-03/the-path-to-a-net-zero-wales-advice-report.pdf> p. 19

<sup>10</sup> [https://erammp.wales/sites/default/files/ERAMMP%20Rpt-40%20SFS%20Logic%20chains%20v1.0\\_en.pdf](https://erammp.wales/sites/default/files/ERAMMP%20Rpt-40%20SFS%20Logic%20chains%20v1.0_en.pdf) p. 16 and 20

calls for the flow to be looked at in more detail, as once capacity is reached, even in a well-managed system, flooding occurs. Additional pressure comes from the spread of development from the neighbouring urban and industrial areas which reduce natural absorption capabilities and cause more water to flow into the Levels. The main flooding issue described is when there are high tides, which prevent run-off leaving the land, or when the tidal flaps in the coastal defences leak and allow saline water into the freshwater system.

### Supporting

**Water quality** is essential for supporting most of the wildlife interest in the Levels, as it is the reason for most of the Site of Special Scientific Interest (SSSI) designations. Poor water quality was thought to be a major or the biggest environmental problem in the Gwent Levels by several people, either through diffuse pollution or because of direct run-off and leakage from cess pits and the sewerage system causing direct contamination and increasing the nutrient levels in the water, thus upsetting the ecological balance.

*“The underlying pressure from nutrients is in danger of undermining everything else.”*

While the Living Levels team and some of the farmers were praised for having worked hard on this issue, it was widely felt that much more needs to be done. Ideas varied from individual actions like collecting wastewater (grey-water) at each household to repairing the high-pressure sewage pipe that runs across the Levels and up-scaling the Living Levels project so that many more farmers can be engaged in ensuring clean water systems.

In addition to water quality, the Levels contain **wildlife habitats** and species that were very much valued by interviewees. Many described how popular the Newport Wetlands National Nature Reserve is with visitors, along with Magor Marsh Nature Reserve and Goldcliff Lagoons. These and the species that they attract - Cetti's Warbler, Bittern, Little Egret and Common Crane were particularly mentioned – were seen as particular success stories that could be built upon further for the benefit of humans and nature. Probably reflecting the efforts of the Living Levels and Sustaining the Gwent Levels projects, work to encourage pollinating insects – the Shrill Carder Bee being a nationally rare example, but also pollinators in general – received praise and a desire that more be done.

### Cultural

While it may be debated whether local **identity** is a function of the ecosystem, interviewees reported that the Gwent Levels has developed a stronger sense of identity recently in the

## SEA DEFENCES

Climate and flood risk management are both concerned with the sea wall that borders the Gwent Levels. Some respondents called for more investment in it – with the added impetus that the Levels are lower a few miles inland. Others wondered how high the wall would need to be in the long term, and whether a partial breaching and managed retreat – and the promotion of proposed “Gwent Levels salt marsh lamb” – might be an option.

*“What is the landscape going to look like in 50 years’ time? Under water? How do you start that conversation in a sensitive way?”*



minds of those that live and work in them, as well as with the Welsh Government. Part of this is because of the area's unique history, partly because of the controversy over the proposed M4 relief road, and partly because of the Living Levels project. The area is described as having gone from a "very *underappreciated*" landscape that had been "*eroded and neglected*" to a place that people want to visit in order to learn about the wetlands, their history and wildlife.

*"[The Levels landscape] was ecologically interesting – but everyone's back yard for dumping stuff –, now [it is] potentially widely valued in its own right."*

As the Levels' ecosystem helps to strengthen the area's identity, it also creates a demand for access, in particular for three main (although inter-related) reasons: leisure and tourism, education, and health and wellbeing. Wildlife and natural environment can play an important role in each of these.

Almost all of the interviewees commented on the potential of the Levels to provide **leisure and tourism** opportunities. Although some areas are already very popular, including the Newport Wetlands National Nature Reserve, Caldicot Castle and Magor Marsh Nature Reserve, it is:

*"[...] not a landscape that immediately reveals itself.... It's a landscape that deserves exploration...."*

Public transport was generally felt to be reasonable between Newport and the Newport Wetlands Reserve before the Covid-19 restrictions came into force, and it was hoped that this would be re-instated, but there was scope for improvement overall in order to enable the large number of people on the edge of the Levels to gain access to the area. Of particular interest were opportunities for walkers and cyclists. One respondent commented that "*one of the best things about the Levels is that they are not car-dominated*", although the quality of footpaths and cycle paths varies, and there are specific issues in certain areas. For example, the B4239 in the western side of the Levels was felt to be too off-putting for many, especially inexperienced or nervous cyclists and, therefore, reduces the potential for circular

## THE M4 RELIEF ROAD

Several interviewees felt that the campaign to stop the proposed M4 relief route (termed the "black route") had helped to highlight the area's unique ecology and landscape. While there is relief that the development has been cancelled, and appreciation of the recognition that the area now receives, particularly from politicians, there is also acceptance that the issue may not have entirely disappeared. A future government could re-introduce the proposal. One respondent commented that its prospects could be tied to the future of devolution, and that those defending the Levels have to win every challenge, whereas a developer only has to win once. On the other hand, it was suggested that the longer the Levels continues to avoid being built upon, and the more the ecology develops, the less likely it may be that it will be developed.

routes to be developed. One interviewee hoped that by enabling leisure cycling, this would build people's confidence and encourage them to eventually commute to work by bicycle, which would help with health, pollution, congestion and contribute towards the Welsh Government's Active Travel (Wales) Act 2013<sup>11</sup>. However, the maintenance of rights of way is extremely complex, particularly in the Gwent Levels where the wet landscape requires many bridges to be built and maintained.

The Gwent Levels also provides **educational** opportunities, in ecological and environmental subjects and related to food and farming. Interviewees reported some inspiring stories about enabling children and young people to engage with the environment, either as part of the Living Levels or through wider projects.

*“If you have a healthy landscape, you have those opportunities.”*

This has challenges, such as avoiding the accidental introduction of invasive species and diseases affecting wildlife, and enabling opportunities for those who find paying for school trips difficult, but the benefits it has on individuals and communities – and on their subsequent defence of the environment – were felt to be enormous.

The third opportunity that access to nature provides – and which has gained increasing attention recently – is for physical and mental **wellbeing**. There was wide recognition of this aspect, and some of the interviewees work on projects that promote health and wellbeing. In addition to the general public visiting the Levels, either as individuals or taking part in organised activities, a number of organisations arrange events. These vary from community events to corporate workdays and volunteer work parties. While “social prescribing” is fairly new to most people, those that work with voluntary groups have long been aware of the benefits that such activity can bring, in terms of improving physical and mental health, and in helping the individual gain confidence. In fact, one interviewee reported that new voluntary opportunities in the Levels are somewhat limited, as there are so many people already doing this work there. However, organising these opportunities does require a lot of background work: arranging

## BARRIERS TO ACCESS

As well as physical and financial obstacles to getting outdoors, e.g., the availability and cost of public or private transport, road safety and the quality of paths, the need to feel personally safe was described as the biggest barrier to walking and cycling.

However, the problem mentioned most often was fly tipping, despite concerted efforts to tackle it by a number of agencies and organisations. It was reported to be linked to wider criminal activities, it is difficult to get convictions and the punishments are not effective as a deterrent. Further, rubbish removal is complicated, depending on where it has been dumped. It affects people's opinions of a place, reduces their willingness to visit and, thus, the perceived 'value' of the area.

<sup>11</sup> <https://www.legislation.gov.uk/anaw/2013/7/contents>

suitable locations, ensuring the work is suitable for the volunteers, undertaking Health and Safety assessments, negotiating access to land, gaining appropriate licences or permits (e.g., for working in SSSIs) and providing suitable tools and equipment are all time-consuming and costly for service providers.

*“If there are any positives to come from the pandemic, it’s that people are scrambling to be outdoors.”*

## Types of schemes

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Having identified several Ecosystem Services provided by the Gwent Levels that people appreciate, the importance of a **clear vision** of exactly what is expected from the Levels without draining those resources was emphasised by several interviewees. In order to create a PES scheme, the service must be **quantifiable** and then **valued**. Some Ecosystem Services, like carbon, have a recognised, measurable and economic value, while most other services are more difficult to quantify. However, this type of work has been undertaken by the Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP)<sup>12</sup>. A further consideration is whether the asset has a worthwhile **market**.

*“The existence of something valuable is only the first step to assessing whether a PES scheme might be valuable or not.”*

The market itself may be **demand-led or supply-led**, although in deciding this the need to protect the natural assets that form the basis of PES schemes should be borne in mind. There are a couple of different mechanisms currently recognised, and interviewees felt that a **blend** of options would be needed, given the complexity of both PES schemes and the problems that they are attempting to address.

### Public payment schemes

These schemes are the most widely used and best understood, as they are the basis for agri-environmental schemes. In essence, these are programmes where the government is the buyer and pays landowners to undertake or avoid certain actions related to Ecosystem Services, e.g., they have included planting trees and maintaining habitats. They often involve services that have wide-ranging benefits (such as supporting a stable climate), but for which no individual person or company pays, therefore governments end up paying.

*“The farming community don’t have the time or energy and the conservation community don’t have the resources to get on top of the grips and smaller reens that have been allowed to scrub over.”*

It was widely thought that Welsh Government’s new **Sustainable Farming Scheme** will have an important role in maintaining and enhancing the ecological health (and therefore other

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<sup>12</sup> This exercise uses logic chains to provide environmental valuations in order to inform the Welsh Government’s Sustainable Farming Scheme. The main focus is on social values for public goods, and includes evidence for air quality, water quality, soil husbandry and direct value of biodiversity. <https://erammp.wales/en/40>

## PES OR REGULATION?

One of the key features of PES is that the beneficiary pays the costs of the Ecosystem Service. Things can become complicated when these services should be supplied legally. For example, regulations exist that cover the maintenance of SSSIs, and currently those found to be at fault pay fines – normally to help with the cost of clearing up – after any pollution incidents.

*“... any buyer who depends on environmental quality could argue that the government should be delivering this.”*

PES schemes need to be clear about where they fit with environmental regulation.

Ecosystem Services) of the Levels by paying farmers to manage the land appropriately. For workshop participants and interviewees, this included active ditch management, which incurs costs in terms of time and equipment, but has little financial benefit for the farm. However, it was feared that this funding alone would not provide enough income for the Levels to be protected as many people would like them to be. A concern was also voiced that Levels’ farmers would effectively be penalised for being in a landscape very different to the rest of Wales. It was thought that, as the area is inappropriate for some of the relatively straightforward activities, such as tree planting, actions that are equally simple should be found to allow Levels’ farmers to participate in such schemes.

For the workshop participants, the specific way that **water** is managed should be re-visited. While some felt that the public would be willing to pay through the public purse for water quality improvements and water management, the benefits should be clearly explained. There may be scope for farmers taking a greater role in re-en management, although it was debated how far this role should extend.

While agreements with farmers over how they should manage land and water resources formed the main focus of discussions, the inclusion of physical and mental **health** promotion and **education** were also seen as having great potential. Given the huge amount of public expenditure on health, it was felt that an investment from health budgets in providing

opportunities for people to spend time in nature, particularly in a therapeutic setting would pay dividends in the longer-term.

*“... I think that if someone has a health issue, is conscious of their weight or size, or lacking in confidence, it’s more likely that they’ll prefer to go for a walk somewhere reasonably remote, in a therapeutic outdoor space, than put some leggings on and go to a gym.”*

Projects of this nature already exist, and linking health services with environmental and arts organisations have had much success, but are often funded for short periods.

Similarly, the schools’ curriculum could be adapted to include more access to nature and healthy ecosystems. As with the potential health schemes, many environmental organisations provide educational opportunities and resources, but are often constrained by

## LAND

Almost all of the mechanisms discussed rely on strong engagement by farmers and landowners. However, land is a much sought-after resource and is subject to a great deal of competition. With the increasing recognition that the role soils play in carbon storage and the expanding market for carbon trading, this competition will increase. While this will benefit some, it is a concern for others. One potential answer is to look again at land ownership models, and one of these alternatives is community ownership. A model already being used is where a group is established, registers its interest in a piece of land and is then offered first refusal when the owner decides to sell.

a lack of funding, while some families and schools are not able to afford coach travel or other charges. It was suggested that including this type of education on the curriculum would ensure that opportunities were offered along with other curriculum requirements.

### Formal markets with open trading

In some ways, this is one of the easiest and most straightforward examples of PES, with established market mechanisms already working, particularly for trading **carbon emissions**. One way into this for landowners is through the International Union for Conservation of Nature (IUCN) Peatland Code<sup>13</sup>, as peatland sequesters large amounts of carbon. Here, a block of land has a certain amount of peat in it, is registered and accredited by the Peatland Code, and a third party pays for it because they want to offset their carbon emissions. It was mentioned that it can be a difficult scheme to get accepted into, as the rules are strict (for example, regarding the amount of vegetation covering the area), and that small plots of land are not usually financially viable.

Carbon may also be traded through the UK's Woodland Code<sup>14</sup>, where new planting projects are registered and approved, before the land is planted up and the carbon credits sold. However, as one of the interviewees commented, the Levels is unlikely to be a suitable place for woodland creation.

On the other hand, work is being undertaken in other areas to develop projects that monetize carbon capture.

One that may be most relevant to Levels' farmers is the Farm Soil Carbon Code<sup>15</sup> that aims to encourage carbon sequestration through regenerative agricultural practices, and enable entry into the carbon market. The Environment Agency in England is looking at whether a salt marsh code developed for the USA can be adapted for use in the UK<sup>16</sup>, while the Game and Wildlife Conservation Trust are proposing a Hedgerow Carbon Code<sup>17</sup>.

With all these schemes, interviewees warned of the financial implications of this type trading: carbon prices may fall, and it is possible that governments may open up new

<sup>13</sup> <https://www.iucn-uk-peatlandprogramme.org/peatland-code/introduction-peatland-code>

<sup>14</sup> <https://woodlandcarboncode.org.uk/>

<sup>15</sup> <https://sustainablesoils.org/soil-carbon-code>

<sup>16</sup> <https://environmentagency.blog.gov.uk/2021/05/10/carbon-offsetting-reviewing-the-evidence/>

<sup>17</sup> <https://www.gwct.org.uk/news/news/2021/august/proposed-hedgerow-carbon-code-could-unlock-more-than-60m-income-for-farmers/>

schemes with better incentives, but in which landowners may not participate if they have already traded their carbon allowance away on the open market.

### Self-organised private deals

As one interviewee commented, constraints on public finance are helping to increase interest in bringing on board private money. Discussions on this type of mechanism tended to consider ways that individuals could develop or capitalise on new or existing markets, although there was some consideration of broader schemes.

Suggestions for bringing companies in to pay for Ecosystem Services included charging a **levy on new developments** around the Levels, although it was also thought that the rate of major developments in the area may be slowing as the risk of sea level rises is increasingly accepted. Smaller developments are still felt to be likely, and commercial developers benefit financially from local green space and infrastructure, achieving higher rents and sale prices<sup>18</sup>. The likelihood of developers meeting the costs of Ecosystem Services may be possible on a very local scale, but is unlikely to have much impact on the wider area the under current situation<sup>19</sup>. However, this may be a way for developers to differentiate themselves. An additional issue here is: how long should developers be expected to pay for Ecosystem Services? Relatedly, it was suggested that there may be opportunities around **insurers** helping to pay for flood prevention schemes although, again, another interviewee suggested that there are few examples of this in practice. Offering more possibilities is the market for **corporate days out** – either for team building, environmental project work parties and volunteering, or staff welfare purposes. Charities are also increasingly taking advantage of these occasions. Some of these elements are arguably included in companies' Corporate Social Responsibility obligations, but it was felt that much more could be done in this area. Finally, large landowners in the Levels, whether they are commercial companies, governmental or non-governmental organisations could re-visit their land management strategies and practices. Specific suggestions included looking again at water and reedbed management and grazing practices, and developing plans in conjunction with, for example, local farmers or conservation organisations to see how land could be better used for wildlife or water quality.

A few locally developed PES examples with partners from the private and charity sectors were mentioned by interviewees, although others are known about from France and, particularly, Costa Rica. UK examples included:

- SCaMP<sup>20</sup> (Sustainable Catchment Monitoring Programme), a project in the North West of England with United Utilities and the RSPB, delivering clean water, improved wildlife habitats and, more recently carbon sequestration and storage.

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<sup>18</sup> [https://www.merseyforest.org.uk/BE\\_group\\_green\\_infrastructure.pdf](https://www.merseyforest.org.uk/BE_group_green_infrastructure.pdf)

<sup>19</sup> <https://www.gcvgreennetwork.gov.uk/publications/788-csgn-study-resourcing-the-csgn/file>

<sup>20</sup> <https://ww2.rspb.org.uk/our-work/conservation/conservation-projects/details/218780-scamp-sustainable-catchment-management-programme>

## LOCAL FLEXIBILITY

In the same way as ‘one size does not fit all’ when dealing with health and education issues, the need for locally nuanced approaches was also felt to be important. At one level, the possibility of a Wales-wide tourist tax was mentioned, and it was wondered how this would work in areas that are less appealing to visitors. More specifically to the Levels, it was felt that the area around Cardiff may need more interventionist actions to overcome some of the physical and social issues that have resulted in a poorer environment and thus less engagement than that on the Newport side. The importance of including the community when trying to improve the physical environment was highlighted.

*“Quite often the western side of the Gwent Levels gets forgotten.”*

- The Pumlumon Project is an upland project by Montgomeryshire Wildlife Trust, also aiming to deliver clean water, regulated flow and improved biodiversity, as well as economic and social viability for local communities<sup>21</sup>.
- Exmoor PES project<sup>22</sup>, where South West Water pays for farmers and landowners to take steps to manage the land in ways that ensure that water is cleaner and its flow is moderated, by, for example, restoring peatland. It is part of South West Water’s Upstream Thinking project<sup>23</sup>, delivered in partnership with the Westcountry Rivers Trust and Devon and Cornwall Wildlife Trusts, along with government agencies, environmental experts, landowners and tenant farmers.
- The Solent around Hampshire and the Isle of Wight, provides a rather different example, with a large area suffering from a severe nitrate pollution issue that is being addressed by a variety of actions and including a large number of partners and advisers. The actions include the local Wildlife Trust buying a farm, taking it out of production and selling nitrate credits to housing developers, and a local authority reclaiming one of its farms in order to do the same<sup>24</sup>.

Schemes and projects that engaged with individuals were discussed more often than those that brought in commercial companies and other third parties, although there is often an overlap. In some cases, these are developments of existing market mechanisms; for example, many interviewees wished to see a scheme that **promoted Gwent Levels’ products** that also produced environmental benefits through sympathetic farming methods. While this is part of the Welsh Government’s Sustainable Farming Scheme, it was felt

that the Gwent Levels could develop its own identity and branding to enable this, and the re-planting of orchards, as well as beef and lamb, was mentioned particularly in this context. Related to this, was a desire to see **farming cooperatives** and **food hubs** developed to promote these products to local markets in Newport, Cardiff and beyond. Local schemes

<sup>21</sup> <https://www.montwt.co.uk/projects/pumlumon-project>

<sup>22</sup> <https://neat.ecosystemsknowledge.net/exmoor.html>

<sup>23</sup> <https://www.southwestwater.co.uk/environment/working-in-the-environment/upstream-thinking/>

<sup>24</sup> A variety of articles and resources describing the issue and actions is available from the Solent Protection Society - <https://solentprotection.org/nitrates/>

between those who live or work in the area and farmers also included **payments to maintain watercourses** and **access**, although, as already noted, the legal situation with maintaining rights of way is complex.

Other specific suggestions discussed included the possibility of paying to use footpaths and cycleways or for volunteering activities, but those who had already discussed it with their potential beneficiaries / payers reported mixed reactions, perhaps unsurprisingly. It was suggested that in many ways, people do already make contributions of this kind through the membership of organisations that they feel undertake the type of work or provide the sort of place that subscribers wish to support, or by making donations to such groups. Other services often offered by charitable organisations, including things like the exclusive use of facilities, the organisation of activities and parties, educational outings and training, were also presented as possible ways of helping to fill the shortfall in resources. However, charities must balance the income generated with their aims, which may include an undertaking to offer equality in accessing their facilities and activities.

## Issues for consideration

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There are many elements to the Gwent Levels that can be used to build a PES scheme and several options for doing so: these are summarized in Table 1. The possibilities for land management and habitat-related opportunities have been included in a mapping exercise by Environment Systems<sup>25</sup>, which uses spatial data to measure the importance of any area of land for specific habitats and environmental attributes, including water quality and carbon storage. Modelling then allows different scenarios to be explored, including the intensification of land use or the wide adoption of high nature value farming practices, and potential areas of opportunity and risk to be identified. The potential for habitat improvement through **high nature value farming** practices is particularly demonstrated, as are some of the locally specific decisions that will need to be made, such as balancing the need for more woodland, scrub and hedgerow cover to suit some species (small mammals, passerines) with maintaining the ditches and a generally open landscape to favour others (waders and the ditch flora and fauna).

However, before beginning to plan any PES schemes, interviewees were keen to stress that there are also some broader issues that must be thought about carefully in order to ensure that the decisions that are most appropriate for the area are taken.

Designers of and participants in any PES scheme must be aware of **market** issues. Not all environmental products have markets. For those that do, participants must be prepared to accept that prices will vary; in international schemes like carbon trading this may depend on global factors over which individuals will have almost no control. Values in these wider systems will depend on the supply, the beneficiaries and who is prepared to pay. As mentioned earlier, participation in one PES scheme may preclude a supplier from entering a subsequent, perhaps more appropriate or financially beneficial, project.

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<sup>25</sup> Pike, S and Medcalf, K. (undated) Monitoring Sustaining the Gwent Levels for the Sustainable Management Scheme Project Environment Systems.



**Table 1: PES opportunities, possible benefits and constraints**

<b>PES opportunity</b>	<b>Possible benefits</b>	<b>Possible constraints</b>	<b>Potential mechanism</b>	<b>Potential lead partners</b>
<b>Farm products (existing &amp; new food / drink)</b>	Maintain viable farming systems; Economic & cultural benefits; Maintain farmland wildlife.	Balancing productivity with protecting / improving biodiversity; Time & expense marketing products.	Private markets; Public payment scheme.	Individuals (producers, consumers); Food, farming & environment groups; Welsh Government.
<b>Fam products (willow coppice)</b>	Environmental, wildlife & cultural benefits; Minor economic benefit.	Lack of market for products.	Private markets; Public payment scheme.	Individuals (producers, consumers); Arts & crafts organisations; Welsh Government.
<b>Carbon capture (soil, salt marsh)</b>	Climate benefits; Existing, established market.	May be difficult to access; Danger of 'greenwashing'; Potential exclusion from future schemes; Subject to global markets.	Formal market. (New schemes being developed.)	Commercial trading companies; Sustainable Soils Alliance (developing Farm Soil Carbon Code).
<b>Water level</b>	Maintain 'wet fences' & drinking water for livestock; Maintain & improve biodiversity & habitat; Reduce flood risk.	Need more information about flow; Initial investment to improve ditches.	Public payment scheme; Private schemes.	NRW; Welsh Government; Private companies (e.g., developers, insurers).
<b>Water quality</b>	Maintain & improving biodiversity and wildlife habitats.	Financial implications of addressing pollution; Behavioural change in farming practice.	Public payments scheme; Private schemes with environmental & farming organisations.	NRW; Welsh Government; Dŵr Cymru; Farming & environmental organisations.
<b>Wildlife habitats</b>	Include Water quality, and form the basis for tourism / leisure, education & health / well-being opportunities below.			
<b>Tourism / leisure (walking / cycling)</b>	Health; Engagement with the area; Economic.	Complexity of rights-of-way development & maintenance; Access.	Public payments schemes; Private schemes.	Variety, including tourism and transport organisations, local businesses and communities / individuals.
<b>Education and Well-being / health</b>	Engagement with farming, landscape & environment; Education; Health.	Access. Appropriate locations & activities.	Public payment schemes; Private schemes.	Variety, including education & health authorities; Environmental, arts & training organisations.

As well as markets varying in performance, **nature** does not always behave as expected, and has limits that may challenge financial systems used to an established set of relationships. While some potential PES relationships will be fairly straightforward – person *a* pays person *b* up the hill to take action to reduce *a*'s risk of being flooded – others are not clear: person *a* could pay anyone in the world to sequester carbon on their behalf. Where specific natural processes are being paid for, there is a danger that things may go wrong; for example, if habitats for birds are being created, the likelihood of predators being attracted to the area is greater. Similarly, while peat bogs store and slow the flow of huge amounts of water, there is a point at which capacity is reached. Capacity is also an issue for food and other resource production: the clay soils and their tendency to be easily compacted by machinery were mentioned as a specific concern, while available grazing, particularly under more natural, low-input systems, will restrict the numbers of livestock on the Levels. Similarly, orchards that sustain healthy ecosystems will produce sustainable rather than maximum amounts of fruit. Several interviewees pointed out, directly or indirectly, that humans have not paid the full cost of the damage we have caused. Therefore, there is an element of 'making up', as we must stop causing more damage and extracting more resources as well as restoring and strengthening the underlying Ecosystem Services.

Perhaps the biggest considerations are some of the background, **philosophical** decisions. Firstly, some people will be unhappy with putting a value on nature – on buying and selling Ecosystem Services – whereas others believe that this may be the only way to get people to seriously think about the resources that are at stake. One interviewee commented that if people don't value nature, they won't protect it. Value is also not necessarily a financial figure, although alternatives to this are scarce. Then there are issues about restricting the ecosystem service to those prepared to pay for it, or allowing a payment for Ecosystem Services to all of those who are happy to join. This was particularly raised in connection with landowners who have public footpaths over their land. Should they all be paid? Should all landowners receive the same opportunities, whether

## APPROPRIATE FUNDING

One of the appeals of PES is the possibility of long-term finance. Almost every interviewee commented on the difficulty of dealing with short-term funding. When this is the only option, problems include being forced to work with those projects that are easy to establish quickly, rather than those that are genuinely needed. This can be demoralising for staff who would rather deliver a project that has enough time to provide results. The continuing priority given to new projects was also criticised. On-going support for projects may not be "good PR" for funders, but many potentially beneficial ventures are lost.

*"Opportunities get missed: good projects get discontinued quite regularly, and something new is created, which might have its own value and merit, but it's also at the expense of something that has already been created."*

they are farmers, smallholders, environmental charities or large companies? Finally, there may be competition between Ecosystem Services, and the detail within them can have huge implications. This comes back to what people value and what the scheme aims to protect. The example given was “dunlin and redshank” or “two species of wetland birds”: protecting two specific species may require different approaches to enriching a habitat for the benefit of any two species.

The unanimous **key message** from the interviewees was clear: PES is complicated, with many different elements to consider. This does not mean it is impossible, of course, and the main pieces of advice were that a well-defined vision of what a proposed PES scheme wishes to achieve is essential, as is a sound understanding of the Ecosystem Services available and the potential market opportunities.

*“It is incumbent on those interested in nature conservation to have reasonably well-formed ideas about what would be desirable to do, to think very carefully about the kinds of Ecosystem Services that they could supply, and use that to drive any market, rather than letting the market drive them.”*

Further, although PES can be a useful tool for achieving conservation aims, it is unlikely to replace existing measures.

*“Ecosystem Services has to be as an adjunct to ‘command and control conservation’ rather than a substitute for it.”*

It was felt to be vital that everything should link back to the Ecosystem Service: although it would be a delicate balancing act, money should not skew the aim of protecting and improving the Ecosystem Service being utilised. It was also widely believed that mixed funding streams will continue to be important for developing and ensuring the sustainable management of natural resources.

## Recommended reading

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As an initial introduction, the [World Wildlife Fund](#) has a useful page, including downloads about PES and providing examples from Eastern Europe.

[https://wwf.panda.org/discover/knowledge\\_hub/where\\_we\\_work/black\\_sea\\_basin/danube\\_carpathian/our\\_solutions/green\\_economy/pes/](https://wwf.panda.org/discover/knowledge_hub/where_we_work/black_sea_basin/danube_carpathian/our_solutions/green_economy/pes/)

Practical guides have been published by the United Nations Environment Programme (UNEP) and the Department for the Environment, Food & Rural Affairs (DEFRA):

Forest Trends, Katoomba Group and United Nations Environment Programme (2008)

[Payments for Ecosystem Services: Getting started - A primer](#) UNEP.

[https://wedocs.unep.org/bitstream/handle/20.500.11822/9150/payment\\_ecosystem.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/9150/payment_ecosystem.pdf?sequence=1&isAllowed=y)

URS (with Westcountry Rivers Trust, Birmingham City University and Pundamilia Ltd.) (2013) Payments for Ecosystem Services: A Best Practice Guide Department for Environment, Food & Rural Affairs.

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/200920/pb13932-pes-bestpractice-20130522.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/200920/pb13932-pes-bestpractice-20130522.pdf)

The logic chain modelling by the Environment and Rural Affairs Monitoring & Modelling Programme (ERAMMP) is available in English and Welsh:

Dickie, I. and Neupauer, S. (2021) ERAMMP Report-40: SFS Logic Chains. Report to Welsh Government (Contract C210/2016/2017) (UKCEH 06297/06810)

<https://erammp.wales/en/40>

Environment Systems' mapping of a variety of ESs and wildlife habitats in the Gwent Levels:

Pike, S and Medcalf, K. (undated) Monitoring Sustaining the Gwent Levels for the Sustainable Management Scheme Project Environment Systems. Available from [cymru@rspb.org.uk](mailto:cymru@rspb.org.uk).

### Additional references

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[https://www.merseyforest.org.uk/BE\\_group\\_green\\_infrastructure.pdf](https://www.merseyforest.org.uk/BE_group_green_infrastructure.pdf)

Hislop, M. (2016) Resourcing the Central Scotland Green Network – Potential sources of funding for the capital costs of the CSGN GCV Green Network Partnership for the CSGN Trust

<https://www.gcvgreennetwork.gov.uk/publications/788-csgn-study-resourcing-the-csgn/file>

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