

Investing in the land

The National Trust is committed to doing what we can to increase the environmental services provided by the land in our care. We know from experience, however, that we could do much more with the right investment and partnership working. Other land managers would also benefit, for the good of us all.

We believe the following investment is needed:

- Water company investment in land management to improve water quality at source, thereby reducing the need for expensive treatment.
- A greater share of the flood risk management budget in land management that makes space for water and reduces flood risk.
- Private sector investment in land-based carbon storage through inclusion within carbon markets to help mitigate against dangerous climate change.
- Local Health Board funding for green exercise prescriptions for people's health and wellbeing.

By aligning public and private investment from water companies, flood risk management, the health service and a new carbon market as well as better support from farm payments, we can secure a better return on existing public investment, move towards a more sustainable future for land use, and deliver multiple benefits for everyone.

Introduction

The climate is changing. Populations are rising. The pressure on land use is increasing. We need space to produce food, build our homes and workplaces, and generate energy. We also need to restore the health of precious natural resources which are being pushed to their limits. So what does this mean for our land? What do we really want from it in the 21st century? And who decides?

The National Trust is the UK's largest non-government landowner in Wales, owning 50,000 hectares, most of which is farmed. But unlike many other landowners, our land is held in perpetuity for the benefit of the nation. It is therefore important for us to understand what the nation needs from land, and how best to deliver it on the ground.

Land provides the nation with a range of environmental services, including clean water, protection from flooding, carbon storage and green space for the health of us all. We all need these vital services, but they are not yet properly valued or provided for. The current markets in water and carbon are inadequate and do not invest in these assets, though there are opportunities to remedy this. Agri-environment funding can play a part, but it is no panacea. Current investment in land for its role in promoting health and wellbeing is too small. New sources of investment are needed.

There is great potential for creative measures to pay farmers and land managers for providing these environmental services. Such measures also have other benefits, including boosts to biodiversity and an enhanced landscape, and are often cheaper than end of pipe solutions. Encouraging management techniques and land use changes that deliver multiple benefits for the environment, society and economy will also mean that future investment could buy far greater public benefits than is currently possible, making the most of every pound spent on the natural environment.

This briefing sets out the case for investment in four of the key environmental services the nation needs from land:

- clean water;
- flood risk mitigation;
- carbon stewardship; and
- access to green space for health and wellbeing.

Our arguments are based on the National Trust's practical experience of managing our land for these purposes wherever possible and the briefing provides examples. By working with partners and with additional investment we can, and often do, achieve much more, thereby delivering multiple benefits for the whole nation.

The nation needs... clean drinking water

Goal: Improved water quality through land management at a catchment scale.

Investment needed: Water company investment in land management to improve water quality at source, thereby reducing the need for expensive treatment.

Rationale: Clean water is essential to life, and its provision is widely taken for granted by the public. Yet pollution of water bodies remains a problem. We increasingly rely on expensive and energy intensive treatment to clean water to make it acceptable for drinking – between 2001 and 2006 the water industry made capital investments totalling £1.94 billion for water treatment¹. Households and businesses pay the costs of this through their water bills.

Enabling and encouraging water companies to invest in solutions that tackle water quality problems at source provides an alternative to the current expensive and inefficient approach. OFWAT (the economic regulator of the water industry) has an important role in making this happen: by allowing water company investment in land of neighbouring land owners as well as on water companies' own land. Others have a part to play too. For example, Government investment through agri-environment schemes is also important. Aligning public and private investment in this way will reap benefits not only for the environment, but also for the economy and society.

The National Trust will: Work with water companies to invest in land management which will deliver cleaner water downstream, reducing the need for energy intensive and expensive treatment, and delivering additional environmental and social benefits.

Case study: Upper Conwy Catchment Project

The Ysbyty Estate is one of the largest in the Trust's ownership including 51 agricultural tenancies, large areas of open mountain and the Migneint. This extensive area of blanket bog is designated as SSSI and SAC. This is a significantly important store of carbon, one of the largest of its kind in Wales, with the potential to become a nationally important carbon sink.

The Migneint is the source of the River Conwy with its streams feeding into Llyn Conwy. This lake provides some of the area's drinking water. Much of the Migneint has been extensively drained and there is visible evidence of peat-erosion. Such erosion is a common cause of sedimentation which has to be removed from water supplies.

This new project aims to restore the Upper Conwy to a healthy and robust catchment, with well managed soil and water resources. This includes a fully functioning peat bog eco-system, the water courses and rivers that flow through the catchment. Agricultural activities on adjacent farmland will be an integral part of the project.



The first step is to improve understanding of the condition and processes of the Upper Conwy. Vegetation monitoring has taken place and a water level monitoring system has been installed. As well as activities to restore the peat the project will address farm pollution risks and implement river corridor management. It is anticipated that this package of activities will improve water quality in the catchment.

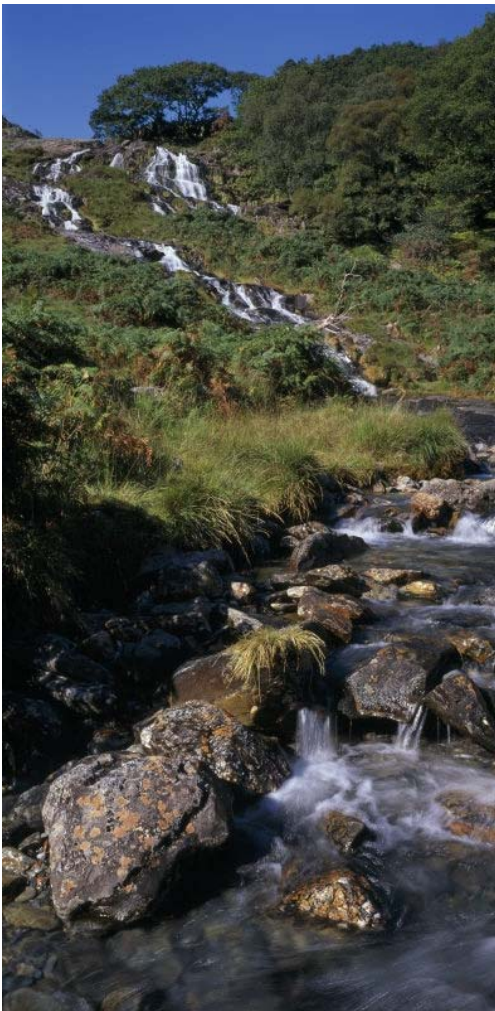
The river in Ysbyty Ifan village
© NTPL Ian Shaw

The nation needs... protection from flooding

Goal: Reduced flood risk through investment in land management which makes space for water.

Investment needed: Invest a larger proportion of the flood risk management budget in land management that makes space for water and reduces flood risk.

Rationale: The focus of current flood defence spending is on hard defences. Hard engineering works tend to increase the speed at which water moves through rivers, thereby increasing flood risk further downstream. Canalised rivers and drained floodplains are also bad for wildlife, and increased or more rapid run-off from land has a negative impact on water quality.



A typical upland river course
©NTPL Joe Cornish

In 2006 flood damage to properties and businesses in Wales cost an estimated £262 millionⁱⁱ. Furthermore, the effects of climate change are already causing an increase in flooding, particularly as a result of extreme rainfall. Unless a new, more strategic approach to flood risk is adopted, flood risk management will require more and more expensive (and carbon intensive) hard defences. Communities and businesses that do not qualify for defences can be offered flood warning but will become increasingly vulnerable in the face of climate change.

Although hard engineering will continue to play an important role in protecting infrastructure and populated areas, there are many advantages of looking more closely at how we manage our rivers and their catchments from source to sea. Every parcel of land, including those within built developments, can make a contribution to reducing the probability and consequence of flooding, with the uplands and floodplains playing vital roles in water capture and storage. By spending flood risk management funds in a more imaginative way, it will be possible to make much more of every public pound spent within a catchment. Through rewarding farmers and land managers for practices that help store water and slow the speed at which it flows through river catchments and downstream we can help secure a more sustainable future, reducing flood risk with additional benefits for wildlife, landscape, cultural heritage and access.

The National Trust will: Make space for water on our land and demonstrate the impact of land management on flood risk.

Case study: Afon Ogwen, Carneddau Estate, Snowdonia

The Afon Ogwen flows through the Nant Ffrancon valley in the Snowdonia National Park. It would naturally be a boulder-strewn river in a glacial valley with valley floor peatlands, but it was deepened in the 1960s over 4 kilometres of its length to reduce the frequency of flooding and improve livestock grazing. As a result, flood waters passed through with great speed scouring the river clean of any ecological interest and eroding its banks. This destroyed the valuable 'bottom land' that the 1960s project was designed to protect.

Working with the Environment Agency a careful restoration of the historic river-bed materials, elevations and profiles was carried out to reduce the amount of floodwater carried in the channel. Boulder cascades, gravel features, stepping stones, islands and a ford were recreated. Up to two metres of fill were used in the bed to recreate a cascade that proved, after much research, to be the key to stabilising the river for a distance of 600 metres upstream.

This project demonstrated the possibility and benefits of restoration of a high-energy upland river, although the length of restoration was restricted to those owners willing to participate. The restoration works have withstood subsequent flooding. The changes do not prevent the river from flooding, rather floods are re-routed over the flood plain fields according to predictable patterns. Re-directing water in this way helps avoid some damaging impacts of flooding.

This new pattern of flooding still allows farming to continue. Careful study of the floodplain's contours and 19th-century ordnance survey maps revealed that sheep folds and land use were laid out to work well within the natural flood patterns. This history of adapting to flooding chimes well with the aspirations for today.

The nation needs... land to store carbon

Goal: A recognised and accredited land-based carbon market.

Investment needed: Private sector investment in land-based carbon through inclusion within carbon markets.

Rationale: Globally, soils hold twice as much carbon as the atmosphere. Approximately 500Mt of carbon is estimated to be stored in Wales' soils, nine times the amount stored in vegetation. Peatlands are particularly rich in carbon and are the single largest carbon reserve in the UK, storing around 3 billion tonnes, the equivalent of 20 years' of UK CO₂ emissionsⁱⁱⁱ.

This enormous, natural carbon capture and storage system is under threat from past and present land use. Put simply, if peatlands are in good condition they absorb and store carbon – as well as delivering a host of other benefits such as water quality, flood amelioration, biodiversity and landscape. In bad condition they can release this carbon back into the atmosphere. Scientists estimate that UK peatlands could emit up to 381,000 tonnes of carbon per year if not managed appropriately¹.

Past policies have rewarded high grazing densities and encouraged land drainage resulting in damage to peatlands through loss of vegetation and erosion. Present policies do nothing to reward actions that conserve or enhance the peat's natural carbon capabilities. Nor do the emerging frameworks for carbon markets include this vital area. The final irony is that climate change itself is speeding up the degradation of peatlands, further increasing the UK's carbon footprint.

The National Trust will: Restore, create and conserve carbon banks on its land in soils, peat and woodland.



*Ditches blocked on Dyffryn Mymyr to raise water levels and reduce erosion
© NT*

Case study: Dyffryn Mymbyr, Conwy

Dyffryn Mymbyr is a large upland farm on southern flank of the Glyderau massif. It forms an important part of the Conwy catchment and supports a wide range of upland habitats including wet heath and blanket bog.

As part of the farm system, the peat bogs were drained over a long period causing drying and erosion which reduces the bog's effectiveness as a carbon store. To restore the bog the Trust has trialled ways to block the drainage ditches to reduce erosion and raise water levels. Grips are being blocked by fitting brash bales, heather bales, and constructing timber dams in the network of grips. The blocking will encourage sphagnum moss to develop which allows peat to accrete. Increased vegetation cover also helps to reduce erosion rates. Measures to reduce grazing intensity on the farm therefore aid the bog's recovery.

The methods used at Dyffryn Mymbyr will be used to inform peat restoration activities at other locations in Wales.

The nation needs... access to green space for health and wellbeing

Goal: To create more valued places out of open spaces by promoting and encouraging people to enjoy and use attractive wildlife rich green places close to where they live for improving their health.

Investment needed: NHS, Local Health Board and Local Authority funding for green exercise and wellbeing prescriptions.

Rationale:

Increases in heart disease, obesity and stress related illness have catalysed recognition of, and support for, a much greater emphasis on enhancing wellbeing and on preventative health care, particularly through encouraging more active lifestyles. Over half of adults in Wales are currently overweight or obese^{iv}. By 2050 it is expected that 60% of the UK population will be obese according to a UK Government Foresight report.

The 'natural health services' provided by our green spaces and countryside are often overlooked, yet access to green space and the natural environment plays a significant role sustaining people's physical and mental health and wellbeing, in addition to helping people on the road to recovery after illness^v.

For many people, taking up exercise, especially to improve health, needs some form of structured programme and inspiration. Activities such as walking, running and cycling are growing in popularity and are the most affordable means of improving physical health. Initiatives such as BTCV's Green Gym and Mentro Allan indicate the valuable contribution that formalised outdoor activities can make to improving health and wellbeing.

There are potentially very significant cost savings for the health service in more widely recognising green exercise as a clinically valid treatment option for mental and physical ill health. It has been estimated that a 10% increase in adult physical activity would benefit the UK by £500 million per year, saving 6,000 lives^{vi}. Research by Mind (The National Association for Mental Health) has also shown that a supervised programme of exercise can be as effective as antidepressants in treating mild to moderate depression. This could present another potentially significant saving when in 2007 more than £13.5 million worth of antidepressant prescriptions were written in Wales^{vii}.

More could be done to maximise the health benefits that our land can provide by introducing a framework in which local health funding is directed towards prescribing greater activity, encouraging green exercise and through partnership working. We should also expect more by way of green space provision on the back of new development.



Young visitors cycling round Stackpole Estate

©NTPL/Ian Shaw

The National Trust will: Work with local health services and others to provide greater opportunities for making our spaces accessible for everyday exercise needs and programmes of organised activity aimed at contributing to particular health requirements.

Case study: Erddig, Wrexham

The park and woodland at Erddig provides many beautiful places to explore on the doorstep of Wrexham. The town includes some of Wales' most deprived communities and has high levels of both obesity and physical inactivity. Activities at Erddig encourage local people to take outdoor exercise and feel the benefits of spending time in green places.

Walkabout Wrexham run a programme of free guided walks aimed at improving health and well being, including weekly walks at Erddig. The walks are designed to appeal to those with little experience of outdoor activities, and as participants walk as a group with leaders they also benefit from social contact. All walkers complete a health questionnaire, and have the opportunity to receive advice on nutrition and healthy living. The scheme is funded by CCW, WAG and the Local Health Board.

For those who don't need a structured activity programme or want to explore the estate at their own pace, Erddig also offers cycles for hire. The cycles and safety equipment were purchased with an Active Lifestyles grant with the aim of promoting healthy transport. Cycling is known to reduce stress, increase fitness, lower blood pressure and the risk of heart attack. Erddig has three designated cycle routes ranging from 1.5 miles to 3.5 miles long which offer a safe environment even for inexperienced cyclists.

Volunteering opportunities extend to groups or individuals of all ages and abilities. For those people who have suffered from mental illness or long term abuse, having access to a safe environment in which they can learn, develop and achieve is an invaluable experience and can provide a stepping stone for individuals who are re-building their lives.

Notes

ⁱ Financial performance and expenditure of the water companies in England and Wales 2005-06 report, OFWAT

ⁱⁱ Environment Strategy for Wales Report on Progress 2007

ⁱⁱⁱ Peak District Moorland Carbon Flux, Moors for the Future Research Note No 12, June 2007

^{iv} Health Survey Wales 2005-6

^v Ulrich R S. 1984. View through a window may influence recovery from surgery. *Science* 224, 420-21.

^{vi} Department of Health. 2004. At least five a week: Evidence on the impact of physical activity and its relationship to health. A report from the Chief Medical Officer. London

^{vii} Prescription Cost Analysis Wales 2007