

Case Study: The Economic Benefits of Ecosystems Services in the Bassenthwaite Catchment



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Executive Summary

In December 2009 Cumbria County Council and Natural England commissioned Rebanks Consulting to undertake analysis of the Bassenthwaite catchment area as a case study in the role of 'ecosystem services' and green infrastructure in economic development. Ecosystem services are those services that the natural environment and its ecosystems provide and which benefit people. The ecosystem services approach considers the long-term ecosystem health and its role in enabling and supporting human social, cultural and economic well being.

The research used the 11 economic benefits of green infrastructure developed by the Natural Economy North West. The Natural Economy NW project has developed a checklist of 11 themes used to help communicate the economic benefits that green infrastructure can deliver. This checklist is used in this report as a basis for setting out an agenda for further consideration of the potential future role of green infrastructure in broader strategy for economic development, regeneration and growth in Cumbria.

This report primarily looked at existing economic impact evidence, which is overwhelmingly GVA focused (Gross Value Added). There are other evolving measures of economic impact, some of which may be more suitable for measuring the benefits of ecosystem services than GVA. GVA is a challenging measure (some would argue inappropriate measure) to apply to environmental initiatives but it remains the primary measure used by economic development professionals in Cumbria.

GVA is just one way of measuring prosperity and wellbeing, and it should not be considered the only measure. Even if it were possible to have nothing but high GVA sectors, no community would want to be entirely reliant upon too narrow an economic profile. Some of the

highest growth sectors of the past two decades have recently been shown to be the most high risk. Tourism and agriculture may be relatively low GVA, but they employ large numbers of people in rural areas and are relatively recession-proof relative to, for example, the financial services. However, this cannot be a mantra to excuse the economic underperformance of rural areas.

The communities of the Bassenthwaite catchment need both economic dynamism and environmental sustainability, and the wider report in which this case study sits suggests how those two things can be approached in a more holistic manner. Here follows a summary of the Bassenthwaite Case Study¹.

Economic Growth and Investment

Sustainable economic development is about more than economic growth or GVA productivity, it also needs to be underpinned by healthy and well-functioning ecosystems. High GVA economic sectors require living and working environments that people want to live, work, and invest in. However, like much of rural Cumbria, the Bassenthwaite catchment suffers from relatively low productivity, because it is over reliant upon small businesses in 'low GVA' sectors like tourism and retail. Employment is relatively high in the catchment, so environmental projects should not prioritise creating relatively low value jobs. Raising the quality and value of employment is the key economic goal. Average wages in rural Cumbria are typically 20-30% below national averages. The quality of the catchment's environment is a

¹ In the full report we detail the limitations of taking a geographical area and trying to get accurate socio-economic data. A number of these statistics are the best available estimates based on relevant data. The tourism statistics in particular cover a rather wider geographical area than the geographical catchment, but we believe this reflects the realities of tourism.

mixed blessing. On the one hand it helps attract some workers, and businesses, and helps some businesses retain staff. But the perception of the Lake District landscape has led many people to think this is a non-business location and that is concerning for dynamic inward investment. Cumbria needs a new economic vision for its rural communities that builds on its strengths, but it also needs the infrastructure to attract new businesses. More effective relationships between tourism infrastructure and environmental projects could deliver higher value activity.

Land and property prices

The quality of this landscape has a powerful effect on house prices, making them 7-12 times the median incomes in the catchment's wards. The average house price being between £250,000 and £320,000; with a Lakeland landscape view adding c. 20% to the value of a property. Houses are more than £100,000 above the Cumbrian average. That is the good news; the bad news is that the catchment's economy cannot sustain employment that allows residents to buy these homes. Also the environmental premium paid on properties appears to not benefit the landscape. Land is a similar story: Valley bottom farmland has a market value of c.£15,000 per hectare, and unimproved land £2,500 per hectare. As much of this landscape is managed or owned (Only 4% of the Lake District is owned by the Lake District National Park Authority) by the private sector this is good news for selling landowners. But again the real effect of inflated property prices for farms is to make farm succession much more difficult.

Labour Productivity

As we have already seen too much of the employment in the catchment is relatively unproductive and relatively low paid – but these communities are also characterised by high levels of economically activity and self employment, low levels of unemployment, high levels of self employment and low levels of

persons on job seekers allowance. The GVA per employee in the Hotels and Restaurants sector in Cumbria is c. £17,000, the all sector average for Cumbria is £34,000. The challenge for environmental organisations and projects is to support tourism development of higher value activities, linked to quality hotels, shops, food and drink, and experiences which are capable of sustaining higher value employment. And not to perpetuate low value, part time, and seasonal tourism employment. Traditionally too many environmental projects have offered low value tourism facilities, and have as an un-unintended consequence perhaps perpetuated the problems.

Tourism

The catchment currently supports a £262 million per annum tourism economy, with nearly 1200 businesses providing, amongst other things, nearly 15,000 bed spaces. The catchment attracts in the region of 3 million visitors per year, and the spend supports more than 4,000 jobs (FTE). Tourism makes up more than half the economic activity in the catchment, so it is currently bigger in economic terms than all the other ecosystem services together. 95% of Lake District visitors are motivated to visit by the landscape and physical environment. The Lake District has tourism spend per hectare value of £2,875 (with 36.2 visitors per hectare). But despite this being such a big part of the economy of the catchment; there are challenges with the sector as a means of sustaining the landscape. Most tourism spend is on travel, accommodation, retail and food and drink. Very little of this tourism spend goes directly to environmental projects or land managers of any kind. Environmentally motivated visitor segments appear to spend less per day than other segments. Compare that with the high value of culturally motivated visitors (research has shown that a 1% shift to them is worth £20 million per annum). The tourism sector is not particularly good at generating significant amounts of money for landscape management. With a well managed and progressive visitor payback scheme £220,000 was raised by the

tourism sector across Cumbria for conservation last year. Opportunities exist to secure greater economic benefit from the environment but new investment and approaches are required.

Products from the Land

In recent decades economic statistics have shown agriculture and forestry appearing to have declined to a relatively marginal economic role even in rural areas like this catchment. However the role of agriculture in this catchment remains critical to the management of this landscape. The catchment is sustained partly by a £11.5+ million per annum agricultural economy; with £6.7 million of that coming from agricultural products, and £4.5 million of agri-environment, Hill Farm Allowance, and Single Farm Payment investment (farm subsidies). The 156 farm businesses manage perhaps 70% of the catchment's landscape as a side effect of their commercial activity. These farming families provide £2.48 million of unpaid labour. Subsidy of different kinds is approximately £220 per hectare (not including commons). The share of farm revenue from the public purse is c.40% but may well decline to 25% if forecasts on global food demand and CAP reform are correct (a potential decline of 20-40% in CAP funding). Loss of farm subsidy without an increase in food prices could also have a critical impact on farm viability. The contribution of commercial forestry is also significant. The Forestry Commission manage 2,500 hectares of coniferous woodland in the catchment, and 1300 hectares of broadleaved woodland. This wood sells standing for £10-£20 per cubic square tonne. There is the potential to harvest 6,400 tonnes of wood fuel from the FC woodland in the catchment each year, which would be capable of producing 22,000 MWh of thermal energy (and this does not include the non-FC woodland which is also a considerable resource). Our research suggests that the productive aspects of the land have perhaps been downplayed too far in recent years. Climate change and global population growth may well result in increased demand for red meat and other products from the catchment and with UK and EU government

spending possibly declining the balance will change. The overall numbers may be small relative to tourism, but the farms and forestry generate significant revenue which is then ploughed back into landscape management. The challenge is for public/private investment to pay for the provision of a range of ecosystem services as a part of viable farming businesses.

Health and Wellbeing

The Lake District hosts 15.3 million tourist days a year, with perhaps 40%+ of people engaged in activities that are good for their health and wellbeing. This is a significant public benefit for the UK. But there are challenges; environmental organisations and projects can play a powerful role in getting more health outputs from this landscape. Currently less than 10% of visitors engage in a walk of more than 2 miles. Residents of the catchment have high levels of good health and wellbeing. Life expectancy at birth in the Greystoke ward is 91 years, but only a few miles away in Moss Bay Allerdale the life expectancy is 71 years. The catchment appears to enable affluent residents to live long healthy lives but does not appear to benefit enough the deprived communities close by. There is considerable potential for new partnerships between health and environmental organisations that make this landscape work better for less affluent people.

Recreation and Leisure

As we have seen already, the game economic challenge for landscape and biodiversity is to turn it into experiences that people want to take part in and spend money on. The catchment has some great examples of this in practice. Whinlatter Forest Park is a key part of the catchment's tourism product with its mountain bike trails and Go Ape. Some environmental organisations like the Forestry Commission are switched on to this issue. Recreation is the fastest growing tourism sub-sector, with recreation employment in Cumbria growing by 51% since 2000. There are 35 activity providers in this catchment and 15 hostels. Adventure

Tourism is in total a £225 million enterprise for Cumbria, and is a key part of the future vision for tourism development. But the catchment's landscape also sustains a significant outdoor activity retail sector worth at least £25 million to the Lake District. The catchment's environmental assets can perhaps best be turned into economic benefit when they are 'translated' into learning, or adventure experiences that unlock spend, but this requires imagination and investment.

Quality of Place

The catchment is widely regarded as one of the highest quality landscapes in the UK. It is part of the prospective UNESCO World Heritage Site Cultural Landscape and is already part of a National Park, and subject to many other designations. Most importantly from an economic perspective is that the farming culture of this place helps sustain the landscape. Everyone who cares about sustaining this landscape should be trying to figure out how to keep land-based businesses financially viable. The Lake District landscape needs to evolve and change to face new challenges. But it should be noted that there are tensions about which changes are most desirable or necessary. There is insufficient evidence of the potential impacts of different scenarios to make these judgements in an informed manner at present, and little by way of informed public debate about what communities want.

Land and Biodiversity

Previous research has stressed the importance of rich biodiversity, because it underpins healthy ecosystems, and is critical to the functions and quality of green infrastructure. It is one of the hardest ecosystem services to place any kind of quantifiable economic value upon for the Bassenthwaite catchment, and given the methodology we have used which is more focused on direct and measurable economic outputs is necessarily treated more briefly than some of the other more directly economic ecosystem services. However new measurement

methodologies are emerging to better value biodiversity's contribution to economics. Biodiversity underpins some of the economic activity we have already explored in previous sections, including tourism, forestry, conservation and agriculture.

However it is possible to put a measurable economic value on some environmental projects: The Bassenthwaite Ospreys attract more than 100,000 people per year, generating at least £420,000 of attributable spend, and indirectly supporting 34 FTE jobs during the season, as well as employing 10 dedicated staff. This is a great example of the translation of biodiversity into economic impact, through investment in interpretation infrastructure and visitor facilities that unlock spend. But this is a challenge for environmental projects. There is encouraging evidence of private sector investment in increasing biodiversity from companies like United Utilities through their £15m phase 1 SCaMP project, but also at smaller scale from farms and tourism businesses. This investment may be part commercial self-interest, but this does not matter if it funds habitat improvements as well. Where the goal is economic impact new approaches are needed from environmental organisations.

Flood Alleviation and Management

This is perhaps the area where changes to environmental management could potentially have the greatest long term economic benefit. The November 2009 flooding occurring in the Bassenthwaite catchment and downstream: Resulted in c. £200 million of damage and flooding more than 2000 properties (450 of which commercial businesses). The flooding has a bridge and road repair bill of £50-£100 million for Cumbria County Council, with insurance claims perhaps reaching £100 million for household and business costs. Cumbria Tourism estimates that £2.5 million of bookings were lost in the aftermath of the floods. 72% of tourist businesses across Cumbria reported negative impact. 6% of tourist businesses closed down temporarily. Business Link estimated that 3,057

businesses in Allerdale were affected, and many farmers had land degraded by flood damage. At least one farmer was quoted a cost of £90,000 to clear a single field of gravel. The ongoing additional costs to businesses of increased travel time are £2m per week.

No one doubts the cost of this event, or the need to do something to reduce the impact of future events. It is important to emphasise that this relies upon landowner and community buy-in. Further research is required about the feasibility, cost and impact of the structural changes that may be needed to achieve significant flood alleviation. The relative costs and benefits of different scenarios require further research, and require an informed debate with communities.

Climate Change and Mitigation

The catchment contains significant amounts of carbon, stored in a range of soils and habitats, including peatlands and woodlands. The North West's woodlands are believed to have a carbon storage value of c. £600m. The economic potential of carbon storage in the catchment is complex. It has been calculated that peat soils of the Lake District National Park store 28 million tonnes of carbon. 'Pristine (peat) bog' accumulates CO₂ at a rate of 0.27 tonnes per hectare a year. In 2009 the 'shadow price' of carbon was £26.5 a tonne. The benefit of carbon capture per hectare could be as little as £7-10 per hectare per year. The Stern Report 2006 used a working figure of £42 per tonne as the social value of each tonne of CO₂ stored. There is potential here for this landscape and its landowners to charge in one form or another for this eco-system service, but considerable development work is required to make this a reality.

Under the current Environmental Stewardship Higher Level Scheme moorland restoration options, farmers can be paid a minimum of £40/ha for blanket bog restoration with 100% costs, which may be considerable, paid for any capital work needed (e.g. grip blocking). The

review of Environmental Stewardship as part of 2013 CAP is likely to include an adjustment in relation to climate change benefits. This could lead to significantly higher payments from 2014. Which could be further supplemented by new funding mechanisms such as carbon offsetting.

Conclusion

The value of ecosystem services is considerable in the Bassenthwaite catchment. There is scope to develop this value even further in the future. In the latter parts of the report we suggest that the economic benefit argument works from some environmental projects but suffers from a law of diminishing credibility. We suggest that many environmental initiatives are better justified with other economic valuation methods, or perhaps more effectively, by non-economic arguments.

This landscape generates considerable amounts of revenue for the public purse through taxation and delivers many other public benefits that reduce costs. Some projects which deliver less measurable economic benefits are probably likely to always be best resourced from the public purse, and should be.

If, however, the objective is to demonstrate a direct link to economic development then there is a need for greater strategic focus of environmental projects to other agendas to deliver value for taxpayer's money. Some of the findings of this report are challenging; the way the environment is managed is not always highly beneficial to economic development, and some 'ecosystem services' are in clear competition with one another.

It is not easy to see how competing visions for the future of this landscape can be reconciled, not least because this is not a publically owned or managed landscape, but a complex mosaic of different owners and managers, all of whom have their own say in the future prioritisation of land use. Most of this landscape is managed by private sector businesses for which it is their

'factory floor'. But this is perhaps nothing new; this has long been a 'contested landscape'.

Almost everyone agrees that the economy needs to be underpinned by healthy and well-

functioning eco-systems. If the argument is to progress beyond that point to genuine partnerships that involve investing in ecosystem services to create economic outputs then new approaches and partnerships are required.

Introduction

This report was undertaken as a case-study within the report “Green Infrastructure in Cumbria: a framework for Cumbria – the role of Green Infrastructure in aiding the delivery of sustainable growth and regeneration in Cumbria” being commissioned by Cumbria County Council for the Cumbria Green Infrastructure Forum.

This case study research and analysis forms part of the Bassenthwaite Vital Uplands programme, one of three ecosystem services pilot projects identified by Natural England’s Delivering Nature’s Services project and contributing to “Vital Uplands – A 2060 vision for England’s upland environment”. This pilot project aims to demonstrate the multiple public benefits (including Climate Change adaptation/sequestration, sustainable economic development, Quality of Life and Quality of Place that can be achieved through targeted and integrated management of this upland catchment. It seeks to raise awareness of the importance of our uplands as a natural resource with its natural processes and identify how society can benefit from environmental improvements in the uplands. Bassenthwaite Vital Uplands is a partnership project encompassed as a task group within the Bassenthwaite Lake Restoration Programme (BLRP), which has focused on catchment management since 2002.

One of the key aims of Bassenthwaite Vital Uplands is to develop tools that help to demonstrate the public benefits that the catchment’s environment provides, and their future potential. An understanding of the linkage between the natural resource – natural processes – economic benefit and stakeholder beneficiaries is critical. It is also important to identify the additional economic benefits of environmental improvement in an area such as this where the quality of the natural environment underpins its economy, particularly tourism. This report was commissioned to capture and articulate the economic benefits of environmental improvements, as set out in the 11 economic benefits defined for green infrastructure by Ecotec (2008) commissioned by Natural Economy Northwest (NENW) and adopted by the North West Green Infrastructure Think Tank (2008). The brief for this research had the following requirements:

- An assessment of the economic benefits, particularly in relation to tourism, of the ecosystem services projects of the Bassenthwaite Catchment as set out in the 11 economic benefits defined for green infrastructure by Ecotec (2008) and adopted by the North West Green Infrastructure Think Tank (2008).
- An analysis of the linkage between environmental improvement, economic benefits and stakeholder beneficiaries and the strength of these linkages in relation to current situation and future predictions.
- Consideration and identification of which environmental improvements provide the greatest economic benefit and who would benefit.
- Identification of the best sources of data to measure economic benefits resulting from environmental improvement.
- Consideration of how to develop effective partnership links between economic stakeholders and the Bassenthwaite Vital Uplands Project.

- Appropriate links between the Green Infrastructure in Cumbria Framework document and the Bassenthwaite case study.

NENW has also provided guidance and case studies (see www.naturaleconomynorthwest.co.uk) especially “how to Deliver, Measure and Demonstrate the Economic Contribution of the Natural Environment at the Project Level”. Whilst the report can be taken as a separate document, it is best read as part of the wider report which contextualises the wider arguments with other evidence from across Cumbria.

‘Eco-System Services?’

Lots of people who are non-specialists consider the words ‘ecosystem services’ to be unnecessary jargon... Yet the phrase conveys a fairly simple idea and one with which more and more people are engaging. In short, ‘ecosystem services’ are those services that the natural environment and its ecosystems provide and which benefit people. For a very long time indeed these were considered by many people to be almost ‘free’ goods provided by nature that would always be there no matter what. But there is now, of course, a growing awareness around the world that ecosystem services are not only limited but are often threatened and weakened by human activities. A sustainable economic future requires high quality and well-functioning ecosystem services.

The ecosystem services approach considers the long-term ecosystem health and its role in enabling and supporting human social, cultural and economic well being.

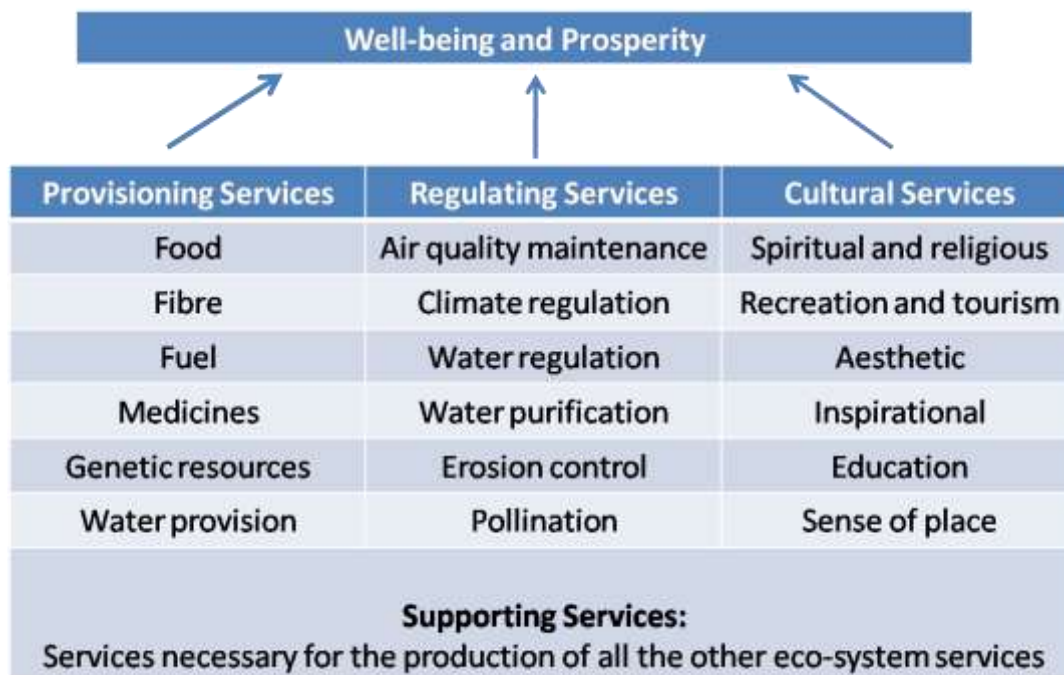


Figure 1 This DEFRA model shows the current thinking about how ecosystem services underpin well-being and prosperity².

The supporting services are a set of processes (e.g. photosynthesis, decomposition, nutrient cycling, soil formation, evapo-transpiration) that are fundamental to the functioning of ecosystems. These supporting services control the level of functioning ecosystem services provided by the natural environment. The ecosystem services approach is effectively about looking at the multiple benefits of ecosystems and managing the landscape in a holistic manner that maximises the multiple outcomes and enables more sustainable land management planning. Upland areas like the Bassenthwaite catchment supply a range of ecosystem services of potential economic value (see Appendix A), including:

- Landscapes where people live, work and run businesses;
- Food and fibre – the production of energy, food and wood;
- Renewable energy provision;
- Water supply (quantity and quality of drinking water) for downstream catchments;
- Reducing the costs associated with downstream flood risks;
- The use and enjoyment of uplands for outdoor recreation;
- The historic and cultural landscapes;
- Climate regulation through carbon storage in soils and vegetation;
- Biodiversity and wildlife.

Some ecosystem services have a market value that can be measured by sales; for example, tourism turnover or agricultural output from farm businesses. But increasingly, ‘non-use’ ecosystem services are assigned economic values (though it should be noted that this is far from an exact science and a number of new approaches and methodologies exist for attempting this³). This is in response to the need to have quantifiable benefits for project evaluation, especially for the economic benefits. Some of these methodologies are more satisfactory than others in what is a developing area of research. Cumbria’s landscapes are complex and multifunctional, and its uplands particularly provide multiple public goods, some of which (like drinking water) benefit people who live a long way from the landscape itself. Our research suggests that whilst the ecosystem services of this landscape can no doubt be enhanced, this will need to be done in ways that are sensitive to both the community’s aspirations and the delicate human ecology of this cultural landscape, respecting its ongoing productive nature and its almost uniquely sensitive cultural associations.

² Our research has been focused on the part of this diagram represented by the arrows; i.e. in the relationship and mechanisms by which ecosystem services actually result in well-being and prosperity.

³ For a demonstration of these approaches see *Economic valuation of upland ecosystem services*, Natural England Commissioned Report NECR029 (2009)

5 Genecon has been commissioned by 5 Regional Development Agencies, Natural England, Northern Way and Tees Valley Ltd to develop a toolbox for quantifying the 11 benefits.

Though looking at ecosystem services in isolation is useful and necessary, the key issue is that they are part of a greater whole. Ecosystem inter-connectedness is very apparent in the Bassenthwaite catchment in a number of habitats, but particularly with the ecological deterioration of one of the catchment's key natural and cultural assets, the Lakes themselves. Over the past couple of decades the impact that high levels of phosphates and soil run-off have had on biodiversity has become clear – with rare species of fish disappearing from Bassenthwaite Lake and risks of dangerous algal blooms developing. The perception of the Lake District's lakes has changed in recent years from something that most people took for granted as being robust, healthy and never-changing, to something that we can see has been damaged and weakened by human activity and in need of landscape scale management. Given the numbers of people who live in this catchment and who visit it, this is a matter of some economic importance and has led to new dialogues on the management of the catchment, to ensure it can continue to sustain the human demands placed upon it. The ecosystem services approach is about ensuring that our lake and other ecosystems are healthy and functioning and can provide a wide range of benefits to society.

Our Approach

Our research was commissioned by Natural England and Cumbria County Council to provide a foundation for a new dialogue between environmental organisations and practitioners and those working on economic development within Cumbria. It is not an academic study measuring ecosystem service outputs or modeling how they might hypothetically be valued⁴, but is a more practical assessment of the link between these two things in a Cumbrian context taking existing evidence and existing models that are appropriate to this task.

We have taken a highly pragmatic approach which is based on looking at measurable economic impacts that affect the traded economy. However there is increasing international interest in alternative approaches that seek to maximise, not traded wealth but economic welfare on a broader and more sustainable basis⁵. GVA is, arguably, not the most effective way of assessing ecosystem services as it does not take account of environmental and social capital. Self reported well-being also appears to no longer be closely correlated to increases in Gross Domestic Product⁶. DEFRA's Introductory Guide to Valuing Ecosystem Services considers alternative approaches to measure the economic potential of ecosystem services. Our methodology focuses on the economic baseline, looking at proposed interventions and looking forward

⁴ The reader looking for such analysis can find it in the following sources: *No Charge? Valuing the Natural Environment*, Natural England (2009), *Economic valuation of upland ecosystem services*, Natural England Commissioned Report NECR029 (2009), *The Social and Economic Value of the UK's Geodiversity*, Research Report Number 709, English Nature (2006), and *Strategic Review of the South Solway Peatlands for People; review, business plan and feasibility study*, Natural Economy North West (2009).

⁵ Readers wishing to learn more about this challenge to GDP as a measure should read 'The GDP Paradox', Jeroen C.J.M. van den Bergh, *Journal of Economic Psychology*, 30 (2009)

where possible at the impact and beneficiaries. But we have included a focus on whether the economic infrastructure has the potential to effectively unlock the economic value modeled.

We have not used economic valuation tools based on ‘replacement costs’, and ‘factor income’, except where current evidence exists of an economic benefit. We have also avoided using ‘travel cost’ as a measure of the economic value as it seems to us a poor way of measuring the value of the ecosystem services concerned. We have not used ‘contingent valuation’ in this report for two simple reasons; 1) too little data exists about what potential visitors to Cumbria might be willing to pay for alternative experiences/products in Cumbria, and 2) a significant body of academic work has shown that what people say they would pay more for, and what they actually will pay more for are two very different things⁶. These methodologies are interesting and valid indicators of the economic contribution of ecosystems, and extremely useful for some decision making, but we consider they are too different from how other elements of the Cumbrian economy are currently measured to initiate a successful dialogue between the environmental and economic development communities⁷. Future research may provide greater evidence on ‘avoided costs’ or ‘contingent valuation’ that is not currently available.

Because we have focused on the measurable economic benefits for which data exists in our case study area, our findings have a particular focus. The ecosystem benefits whose economic benefit is most difficult to measure are given less focus – we would suggest that the initial focus of that dialogue are those ecosystem services which are best evidenced and most directly linked to recognizable existing economic activity. But we acknowledge that most of the ecosystem services need to be in place and functioning well to underpin sustainable futures.

We have, where appropriate and possible, used ‘hedonic pricing’ as a measure of the extra prices people will pay for access to this landscape through housing, land, or other products, but have been careful to put this into socio-economic context. We have occasionally looked at ‘avoided cost’ because the November 2009 flooding provides relatively sound data on the potential cost benefits of flood alleviation⁸. There are compelling arguments for viewing enhancements to Ecosystem services as an investment in making the whole landscape more resilient and robust for the future. Sometimes, as with flood alleviation, this appears to be a very direct linkage with a very measurable cost, but at other times the impact is so incremental and so long-term that the economic impact will almost certainly be negligible and we have judged it beyond the scope of this study. Nothing in this report should be read as casting doubt on the importance of sustaining biodiversity or making ecosystems more resilient to climate change or

⁶ Willingness-to-pay studies can be excellent tools for valuing public goods but need to be extremely robust in terms of methodology, conservatively interpreted, and comparative, too often these methodologies are applied in ways that are unfit for purpose if the goal is attracting investment which is about economic development.

⁷ To properly contextualise such questions you would need to look at whether people were also willing to pay more for other social, economic or cultural interventions and assess these findings in socio-economic context.

⁸ Very little sound catchment-specific evidence exists for the costs of flood alleviation measures upstream, or even to prove that measures in the catchment could actually reduce downstream flooding sufficiently, in a cost effective manner, to prevent or significantly reduce the impact of such events in the future. Further research may well resolve this issue.

other challenges – but the direct present-day economic focus of this work means we have necessarily focused on the significant measurable economic issues and weighted our attention to those issues of greatest economic scale, especially in terms of GVA.

Much of our analysis uses the measure of Gross Value Added (GVA) productivity because this is the primary measure of economic performance in the UK at present, and is the measure most well understood by economic development professionals. Using GVA as a measure of environmental contributions is difficult and most commentators agree it has limitations. The draft Regional Economic Strategy RS2010 and UK Government Sustainable Development Strategy (Securing the Future, 2005) make quite clear that GVA is not the only measure of success, and that a high GVA economy also requires investment to sustain and enhance its often less directly productive environmental assets. There is more to life than GVA productivity, and there are many other powerful and compelling arguments for investing in environmental improvements and enhancements whether they deliver economic growth and productivity or not. However, this research was unashamedly targeted at the direct economic value of ecosystem services in terms of contribution to GVA or in other economic measures.

Our Model

We have created a relatively simple model for explaining the issues we have encountered in this report. We have worked with the Natural Economy North West 11 economic impact areas, but have recognised that some of these 11 areas are ecosystem services; **products from the land (food and fibre), tourism, health and well-being, recreation, quality of place, biodiversity, flood alleviation and climate change and mitigation** (stage 2 in the diagram below).

But others - **economic development and investment, labour productivity, or land and property values** are the benefits that flow from ecosystem services, or the elements that unlock that value, rather than ecosystem services in their own right (stage 3 in the diagram below). Key to our understanding is to relate environmental projects and interventions to the socio-economic context in which they are located.

Lots of environmental modeling of environmental goods remains disconnected from the economic geography of the areas concerned. But how much ecosystem services can enhance the economy of any given area is highly dependent upon the socio-economic baseline (**Stage 1** below). Economic context is everything in this debate. E.g. communities with high levels of employment and economic activity in high value sectors will have limited strategic need for seasonal relatively low value tourism jobs - whereas communities with high unemployment and low wages might deem the same job a welcome boost and a step forwards⁹.

⁹ Another example would be that farmers with significant acreages of extensively grazed fell land might benefit significantly from the likely modest return per hectare from future carbon capture schemes - more intensively stocked farms with smaller acreages might find the same return per hectare an unnecessary restraint on their productivity for too little overall reward and avoid initiatives of this kind.

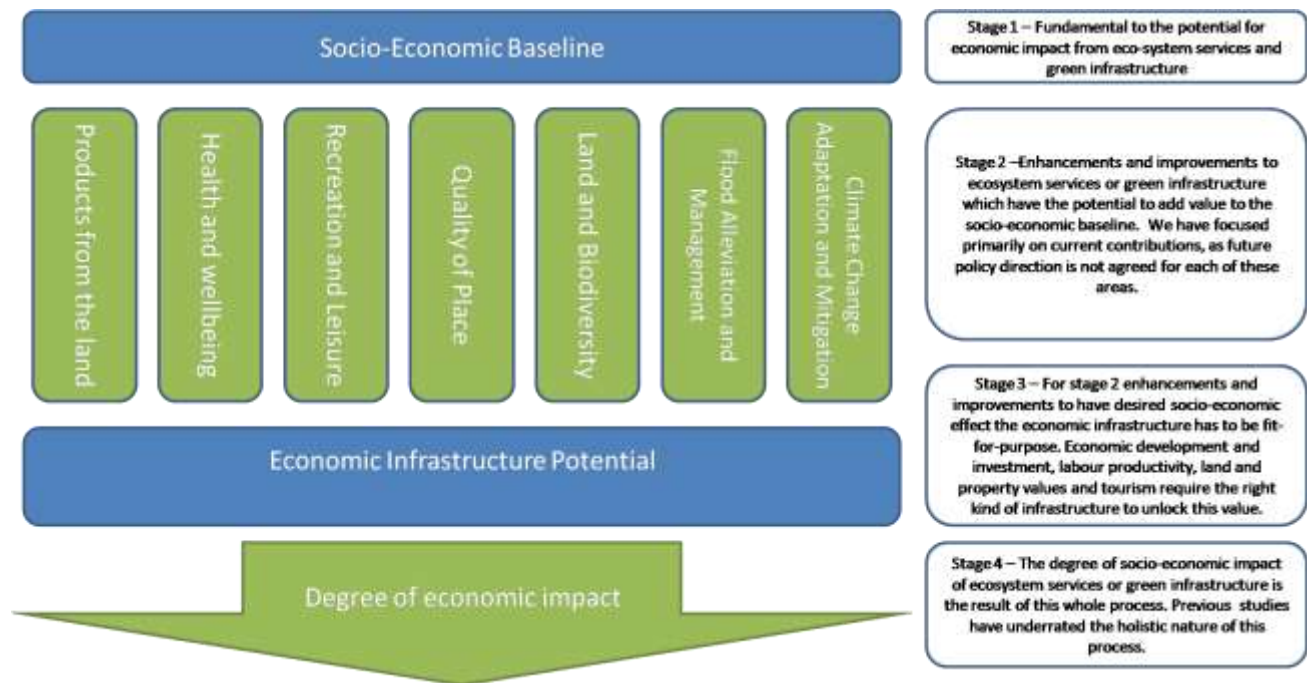


Figure 2 The economic infrastructure is critical to any understanding of the economic outputs of ecosystem services

It is also important to highlight that whilst ecosystems are full of potential economic value (**Stage 2 above**), if developed holistically they can be economically beneficial, their potential value being dictated overwhelmingly by the socio-economic infrastructure of local communities (**Stage 3 above**). Healthy ecosystems don't automatically result in health and well-being; they need a lot of human effort, investment and infrastructure to work effectively. Some of the most deprived communities in Cumbria live in close proximity to some of its most amazing natural landscapes, for example the wards of Barrow in close proximity to the stunning coastal environment of Walney Island. Whether ecosystem services or green infrastructure enhancements have a positive effect on **economic development and investment, labour productivity, or land and property values or tourism** almost entirely depends upon whether the economic infrastructure of local communities is fit for purpose.

Having explained our approach it is now appropriate to look at the 11 economic benefits:

The 11 Economic Benefits of the Bassenthwaite Catchment

The research brief for this work requested that the economic benefits of the environment of Bassenthwaite catchment be considered under the 11 economic benefit areas identified in the ‘Economic Value of Green Infrastructure’ report commissioned by the Natural Economy North West Steering Group. Those economic benefit areas are as follows:

- Economic growth and investment
- Land and property values
- Labour productivity
- Tourism
- Products from the land
- Health and wellbeing
- Recreation and Leisure
- Quality of place
- Land and biodiversity
- Flood alleviation and management
- Climate change adaptation and mitigation

We have taken each of these 11 economic impact areas and undertaken analysis in the Bassenthwaite catchment to ascertain, where possible their value or impact. Because of the economic geography of the catchment, with its heavy reliance upon tourism and land based industries, we have inevitably given much greater attention to some of these areas than others. We have for the most part been reliant upon existing evidence and previous research, but have in some cases been able to do new calculations to suggest the value of these 11 areas. At a landscape scale these are necessarily complex discussions and touch on a range of issues.

The 11 economic benefits are each discussed under a common structure. The **potential benefit** of the economic impact area is explained, in GVA terms, summarizing the effect that ecosystem services are capable of having as proposed or revealed by previous studies.

Then the direct **evidence that exists for the Bassenthwaite catchment** is examined to reveal benefit. Data is not always available simply for the Bassenthwaite catchment so we have tried to be candid about this where it occurs.

Where evidence does not exist solely for the Bassenthwaite catchment, we have attempted to construct the likely situation using **data from wider areas** that reflect the sectors of the catchment. The **key findings and evidence** emerging for the targeted area are then summarized. We then illuminate some of the challenges and issues emerging from the research.

Finally, we highlight what the benefits might be and who would be the **beneficiaries** of existing and improved ecosystems services, before offering a succinct **conclusion** that summarizes the key issues emerging.

1 Economic Growth and Investment

Background

Previous studies have suggested that high quality green infrastructure and environmental projects can positively influence perceptions of places and provide an effective setting for economic growth and investment, as well as helping businesses to attract and retain more motivated staff. In theory, environmental enhancements create a perception of a region that helps to attract and retain high value industries, and create and safeguard new jobs and start-up businesses. Research undertaken for the Welsh Development Agency (The Power of Destinations, Communications Group Plc, 2006) which included survey work of 102 members of YouGov's Think-tank panel of business leaders and 22 senior executives of companies employing over 500,000 individuals in up to 140 countries revealed that inward investment decisions are increasingly about 'softer' factors like the cultural, lifestyle, architectural and environmental profiles of locations. The survey revealed that the second most powerful determinant for decision makers was an 'agreeable climate and environment'. Perceptions of places are an economic issue, but it is difficult to change and measure. Whilst GVA has limitations in measuring the impacts and benefits of environmental projects it remains the primary measure used by economic development organisations in the UK (see above, 'Our Approach', Page 6 for explanation of the limitations of 'GVA' as a measure of ecosystem services).

The Evidence

GVA data specifically for the Bassenthwaite catchment does not exist in usable forms. The most local level that GVA data exists for is West Cumbria (Allerdale, Copeland, and Barrow). It is possible to make an informed judgment about the GVA situation in the Bassenthwaite catchment based on our knowledge of the sector breakdown of the Lake District Economy that emerges from studies like the Lake District Economic Futures (2004), the 2001 Census, and other surveys held by the Cumbria Observatory, and then looking at the GVA performance of those sectors at North West, Cumbrian and West Cumbrian levels.

Key Findings

The wider evidence tells us that like much of rural Cumbria, the Bassenthwaite catchment is reliant upon relatively 'low GVA' (Gross Value Added) industries, particularly tourism and is relatively lacking in higher GVA industries like finance, creative industries, business services, education and high value manufacturing. Lower productivity ultimately translates into lower

wages – and wages in rural Cumbria lag behind national average wage rates by 20-30%¹⁰. For some commentators GVA is an unrealistic driver for the Bassenthwaite catchment – it may be that the role of areas like the Bassenthwaite catchment is to provide other strategic outcomes to compliment the higher GVA activities that might be delivered in other areas of the North West¹¹.

Challenges and Issues

- The Cumbrian tourism product, which makes up more than 50% of the economic activity in the catchment, is actually a relatively low GVA economic activity¹²
- It is as important for environmental enhancements to support other higher GVA value sectors, as they are relatively much more effective at delivering economic growth and investment
- The catchment's economy itself is relatively unproductive or effective at delivering competitive economic growth rates – because it is dominated by small relatively unproductive businesses
- The population of the Bassenthwaite catchment is relatively affluent by national standards (not least because of the high rates of inward migration of elder affluent retirees)
- Although marked by a low GVA economy the catchment does have high levels of employment, low levels of socio-economic deprivation and high “quality of life” (as shown in the Quality of Place section), particularly compared with other northern rural areas.
- Like much of the Lake District the catchment experiences significant outward commuting of skilled workers to more urban areas like Cockermouth, Workington, Whitehaven, Carlisle or Penrith¹³ and inward commuting of blue collar workers
- Cumbria loses 2,000 young people in outward migration every year, as these young people leave to pursue opportunities elsewhere

¹⁰ To provide just one example is useful – according to the 2009 Annual Survey of Hours and Earnings (ASHE) from the Office of National Statistics a ‘skilled agricultural worker’ in the North West earned £342 per week, whilst a ‘teaching and research professional’ earned £634 per week. Whilst a balanced economy needs the full range of social, environmental and economically useful skills, clearly an imbalance towards lower value activities will have a negative effect on the macro-statistics and will result in serious challenges. Indicative figures provided by Invest in Cumbria for this report suggest that the GVA per employee in Cumbria in 2007 for the ‘Hotels and restaurants’ sub-sector was £15,452, compared with a rate of £52,222 for manufacturing, £42,406 for agriculture, forestry and fishing, and an all sector average of approximately £34,000. It is possible to have too much low value tourism in an area.

¹¹ It is worth noting, that the environment, and environmental projects, in Bassenthwaite catchment are almost certainly destined for the foreseeable future to have little significant impact on GVA because without a high value and effective economic infrastructure to deliver that impact they are likely to be underpinning relatively low GVA value industries.

¹³ At the stakeholder workshop associated with this research at the North Lakes Hotel, Penrith, one participant related how the headmaster of a school in Keswick had informed pupils that the primary ambition was to get them out of Keswick.

- The image of the Lake District may not be helpful to inward investment¹⁴ – by either suggesting that this is not an area of for dynamic business activity, or by attracting businesses that are run for ‘lifestyle’ benefits¹⁵.
- Quality of life factors can attract businesses and workers, but other factors are critically important in inward investment decisions; such as the availability of suitable workspace, connectivity, access to markets, and access to a skilled workforce¹⁶.

Potential Benefits and Beneficiaries

If Bassenthwaite catchment could develop a higher GVA economy the beneficiaries would be the local residents, and particularly the younger residents, who would over time find themselves better able to afford the cost of living in this catchment, instead of being at a huge relative disadvantage in terms of purchasing power vis-a-vis incoming residents. Ultimately this may be necessary for the sustainability of the catchment’s communities, as having a robust and high value local economy would be empowering in terms of local investment in the stewardship of the landscape.

Conclusion

Having a great natural environment doesn’t automatically equate to economic success in GVA terms: the link between environmental quality and economic growth is a weak one, (at least until the negative effects on the environment result in major impact costs). Though recent GVA figures for Cumbria suggest an upturn, until recently Cumbria had low GVA statistics, and appeared to be falling behind the rest of the UK as it appeared to be failing to attract the sectors that have increasingly driven the UK economy since 1995. Many economic regeneration professionals have stressed to the authors of this report that the external image needs to be progressive, peopled and about an economically thriving place. If the ambition is to have a dynamic economy in this landscape that can employ young local people in high quality jobs that

¹⁴ Survey work undertaken in 2006 on high value GVA ‘creative industries’ businesses revealed that many businesses could see that the landscape potentially had positive brand associations. But, worryingly, a significant number of other respondents felt that Cumbria was a holiday location, not a business one. As one respondent stated: “Because it is a tourist area, there is nothing there and there is nothing there commercially”. Research undertaken by B2B International – the aim of this work was to look at how businesses could be attracted to invest/relocate to Cumbria – the research covered surveyed 500+ businesses

¹⁵ The macro-economic impact of this ‘lifestyle business’ phenomenon is that the tourism industry, particularly, becomes less productive, less profitable and falls behind competitor destinations which have a more commercial approach. A similar criticism can be made of other small businesses in rural Cumbria including agricultural businesses, the difference is one of scale, and also that the agricultural businesses provide an environmental premium through their landscape management.

¹⁶ Quality of life based on the Lake District landscape may attract some ambitious entrepreneurs but most will make decisions based on the rules of the sector. Julian Raynor of Lakeland Ltd described the problem as the ‘cappuccino problem’ – potential designer employees readily agree to interviews in the Lake District, agree provisionally to take a position and then give back word some days later. The problem is that the applicant and their partner are not convinced that the Lake District presents the ‘lifestyle offer’ that they require. They complain about the quality of retail, nightlife and simple things like the inability to get a cappuccino in the locality¹⁶.

enable them to purchase houses in their own communities, then perhaps a different approach is required as to how this landscape is portrayed. Stakeholders in the future may have to decide whether areas like Bassenthwaite catchment can effectively be valued for the other public benefits they provide, or whether economic sustainability requires a dynamic and viable economy in GVA terms.

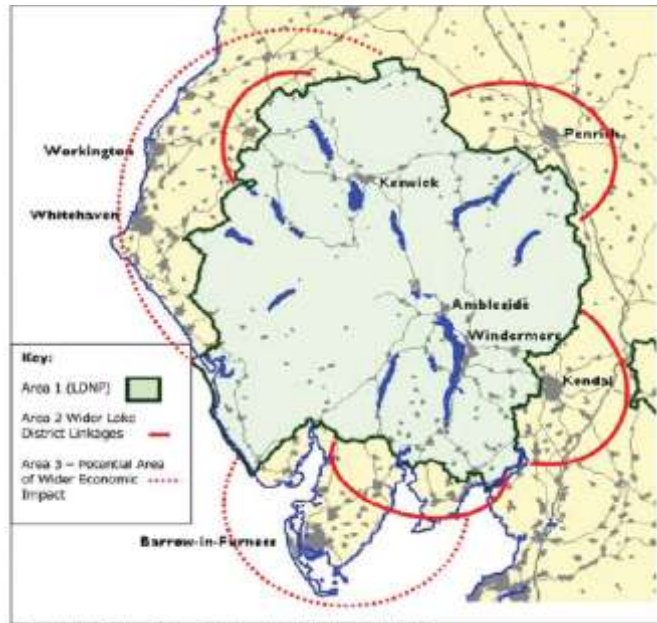


Figure 3 The Lake District Economic Futures Research of 2004/5 showed how areas of the Lake District are actually in the orbit of other economic centres outside the National Park. The Bassenthwaite catchment is not an economic ecosystem in its own right, but an area that supports and interlocks with other economic spheres.

2 Land and Property Values

Background

There is strong evidence from around the UK that suggests property prices within National Parks have higher values than similar property outside a national park. It was recently estimated that property prices in the South Downs National Park could rise by 10% as a result of the designation¹⁷. The following table shows an affordability index which is based on the ratio between the average house price and average full-time earnings demonstrates the affordability gap in the National Parks relative to the national average.

¹⁷ See <http://www.propertywire.com/news/europe/south-downs-park-prices-201002083870.html>

Affordability Index (2001)	Dartmoor	Exmoor	Lake District	Northumberland	North York Moors	Broads Authority	Yorkshire Dales	England
Wards wholly/largely in Park	7.73	7.73	7.11	5.48	6.22	NA	7.04	5.19

Figure 4 This is the most recent comparable data available, see ‘Planning for Affordable Housing: Lessons from the English National Parks, Paper to the Housing Studies Association Conference, Belfast (September 2004). Authors - Liz Cairncross and Lesley Downing Oxford Brookes University and Steve Green Sheffield Hallam University

The Evidence

Data held by the Land Registry Office, Cumbria County Council and the Cumbria Observatory make it relatively easy to look at house price affordability down to ward and postcode level and land prices. Local land agents can also provide an accurate picture of land prices based on sales. Previous studies of the relationship between property prices and green infrastructure tend to be unclear about whether the relationship is one of correlation, or one of causation. There appears to be a strong correlation in Cumbria between high house prices and designated landscape areas of high scenic value. Quite simply, more affluent house buyers seek out properties in these areas and choose to live there. The landscape itself rarely makes these people affluent in the first place, but having become affluent through other means they choose to live in these places. Many of the socio-economic indicators reveal this affluence. But we have to be careful not to fall into the trap of ascribing the affluence to the landscape itself. Key Quality of Life Survey data exists for Allerdale from 2006, and this revealed that affordable decent housing was given higher status as a quality of life issue for Allerdale residents than for the rest of the County. This difference is likely to reflect local house prices, which are typically higher in Allerdale than in many other parts of Cumbria¹⁸. The data on house price affordability shows that the esteem in which we hold this landscape can create some troubling socio-economic issues. The darker purple areas represent places where property prices are six to 12 times the average salary.

Key Findings

Land prices in the Bassenthwaite catchment are a curious phenomenon, inflated on the one hand by incoming residents who desire old farmsteads with some land, or people wanting small parcels of land for recreational usage, but on the other hand prices for larger parcels of land are tempered by the economics of farming. Most of the land in the catchment is grade 4 and 5 agricultural land. Significant proportions of the land belong to landowners like the National Trust and Forestry Commission and are thus not available for purchase.

¹⁸ Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

- However valley bottom farmland in the catchment is valued at between £10,000 and £25,000 per hectare (between £4,000 and £10,000 per acre).
- Good valley bottom grazing land regularly makes £15,000 per hectare (£6,000 to £7,000 per acre). Small parcels of land suitable for pony paddocks can make significantly more than this and as much as £61,750 per hectare (£25,000 per acre).
- Un-improved enclosed or fell land can be valued at approximately £2,470 per hectare (£1,000 per acre, with a spread range of £500 to £1,200 per acre).

Figure 5: Affordability ratio by Ward (Median House Price/Median Household Income)

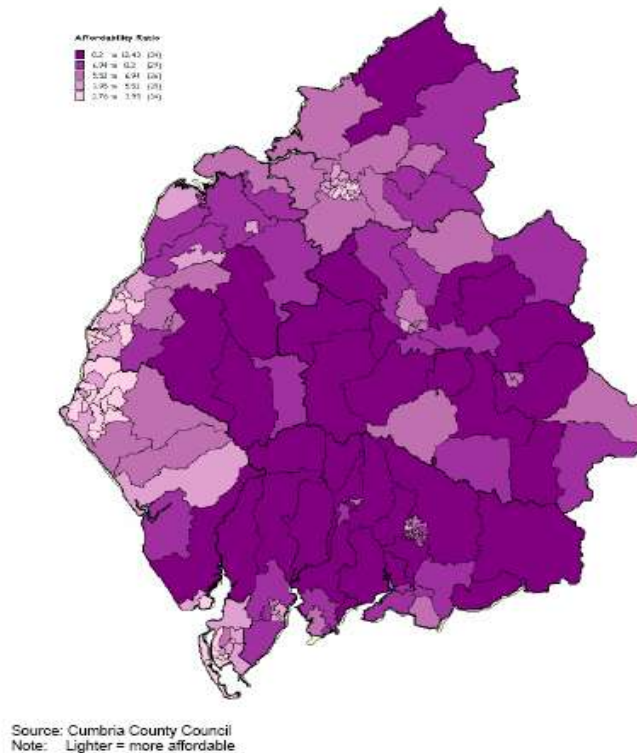


Figure 5 Cumbria House Price Affordability Map. The darker the purple the higher the house price relative to average income.

Residential property prices in the Bassenthwaite catchment reflect the demand to live in close proximity to this landscape and also the limitations on the supply of new builds. The **house price affordability ratio data created by Cumbria County Council shows that houses in the wards of Bassenthwaite catchment are anything from 7-12 times the median income** depending on the location (far in excess of the traditional affordability assumption of 3 or 4:1, or the Cumbrian median ratio of 6.8:1) . It is now not uncommon for a rural detached property in the catchment to make more than £1 million. At the time of writing:

- a 12 bedroom hotel in the catchment was priced at £1.675 million
- a 4 bedroom detached house was priced at £825,000
- a 3 bedroom bungalow in Keswick was priced at £650,000

- a modest 2 bedroom terraced house priced at £180,000.

The property market places a high premium on proximity and access to the landscape of the catchment area– with **estate agents ascribing at least 20% extra purchase price to a property with a landscape view**, above and beyond that of an otherwise identical property without such a view. A comparative study in 2001 revealed the the price differential for the Lake District was greater than any other UK National Park, with property in wards in the park, being £70,000 more than properties in wards outside the National Park¹⁹.

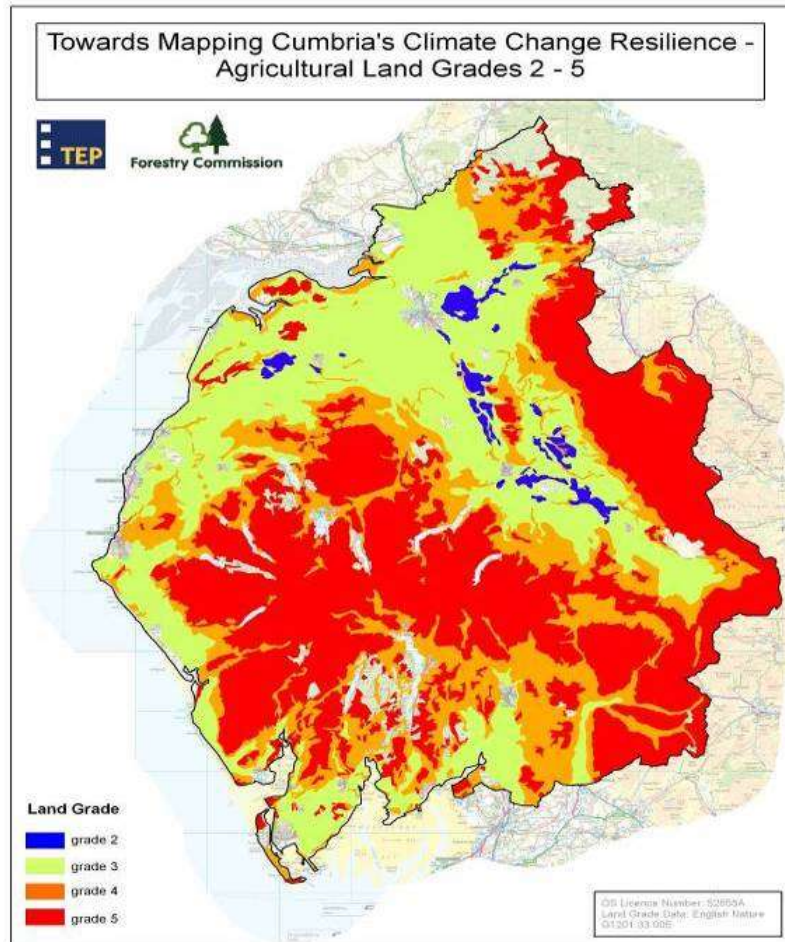


Figure 6 Mapping work undertaken by the Forestry Commission shows the distribution of land grades across the wider Cumbria landscape - Red land being grade 5, or the poorest quality farmland.

Of course, not all of this price differential can be put down to environmental factors, but the data on house prices does provide an interesting indicator of the value that individuals and families place on being closer to this landscape. This is increasingly an affluent persons'

¹⁹ See 'Planning for Affordable Housing: Lessons from the English National Parks, Paper to the Housing Studies Association Conference, Belfast (September 2004). Authors - Liz Cairncross and Lesley Downing Oxford Brookes University and Steve Green Sheffield Hallam University

landscape, and young local people are effectively locked out of the property market. The data below shows the scale of this environmental premium on property. The median property price of £313,000 in the Derwent Valley ward is £146,000 above the Cumbrian average²⁰.

Research undertaken on the socio-economic profile of Cumbria Communities using ACORN profiles shows the concentration of affluence in the rural areas of Allerdale, including in the Bassenthwaite catchment, with the exception of Keswick, which has a greater share of rather less affluent residents. The current average property price is not easy to establish for the catchment but a conservative estimate would be c. £250,000. Since 2000 122 properties in the CA12 4 postcodes of the Bassenthwaite catchment have been sold: at an average of £337,649²¹.

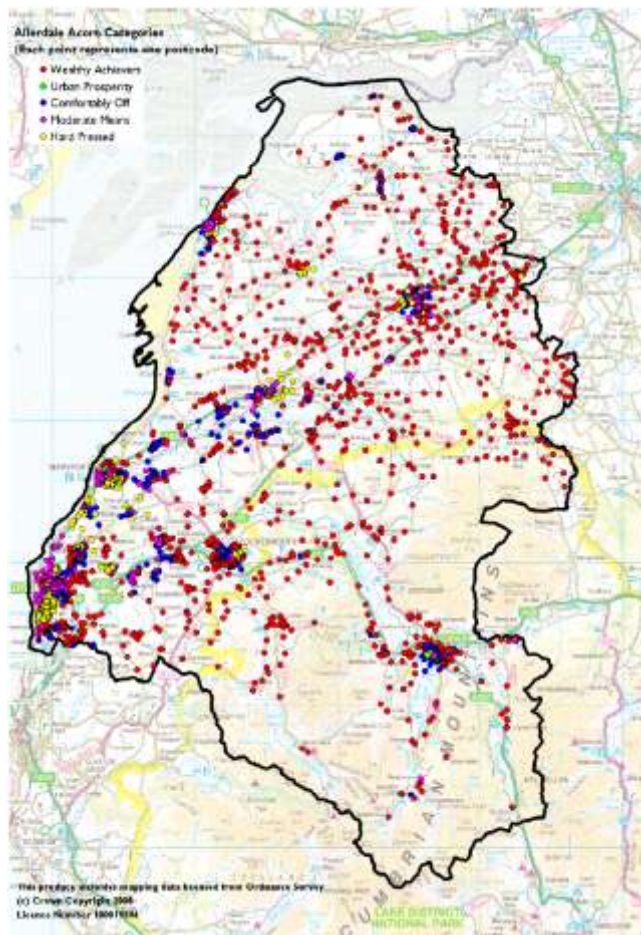


Figure 7 This ACORN analysis of Cumbrian postcodes shows the affluence of the rural areas, and the concentration of deprivation in more urban areas

Challenges and Issues

- The Bassenthwaite catchment is, obviously, overwhelmingly high quality 'green infrastructure'. This creates a different scenario to that of an urban area where even

²⁰ Source: Street Value & Paycheck 2008, CACI

²¹ <http://www.ourproperty.co.uk/search.html?mode=basic&date=post2000&postcode=ca12+4&submit=Search>

relatively small amounts of additional green infrastructure can radically change the sense of place.

- Proximity to this landscape has a major impact on property prices – with significant premiums being added to property by proximity to this landscape. This raises a curious dilemma: on the one hand many of the individuals and families who buy properties to be in close proximity to this landscape often pay a large environmental premium on their property, and often have large mortgages to sustain their purchases. These same people are often somewhat divorced from the management of the landscape, and often contribute little directly to its sustenance.
- Part of the problem is that the environmental premium on houses goes, obviously, to the vendor and not back to sustaining and maintaining that landscape (so that a hill farmer's farm may be worth £1.5 million when he retires, and no single member of his family can afford to buy enough of the business to ensure its continuance).
- This situation has led some commentators to argue that there should be some form of property taxation to secure at least a small proportion of this environmental premium for landscape management.

Potential Benefits and Beneficiaries

The beneficiaries of inflated house prices in the catchment are the owners of property and estate agents. The beneficiaries of some mechanism that would unlock some of this value for environmental stewardship would be environmental organisations and land managers.

Conclusion

Land and property prices in the Bassenthwaite catchment demonstrate the high value that people place on being in close proximity to this landscape. Unlike many urban areas where additional or enhanced green infrastructure can fundamentally improve the quality of life of residents, the situation is one of relatively affluent populations who enjoy some of the most beautiful landscape in the world, but which have to cope with a high cost of living because of inflated property prices. As ever, context is everything in these discussions.

3 Labour Productivity

Background

Previous research has suggested that better working environments, particularly in urban areas can significantly affect productivity²². Studies have suggested that employees work better and more productively in greener, more attractive environments, and health benefits such as lower

²² AMION (2008). The Economic Benefits of Green Infrastructure – an Assessment Framework for the NWDA; Veitch & Farley (2001) A Room with a View: A Review of the Effects of Windows on Work and Well-Being, National Research Council Canada

stress levels can reduce sickness and absenteeism. High quality employees may also stay in their jobs if there is a pleasant physical environment, which would reduce costs of recruiting and training staff. It is also claimed that green infrastructure can be used as a valuable educational resource, with the potential to improve educational attainment, resulting ultimately in a better qualified and more highly skilled workforce²³.

Evidence

GVA data specifically for the Bassenthwaite catchment does not exist in usable forms. The most local level that GVA data exists for is West Cumbria (Allerdale, Copeland, and Barrow). Data from the office of National Statistics gives us insights into the economic profile of communities at ward level. It is possible to make an informed judgment about the GVA situation in the Bassenthwaite catchment based on our knowledge of the sector breakdown of the Lake District Economy that emerges from studies like the Lake District Economic Futures (2004), the 2001 Census, and other surveys held by the Cumbria Observatory, and then looking at the GVA performance of those sectors at North West, Cumbrian and West Cumbrian levels.

Key Findings

Data from the Office of National statistics for the Keswick or Derwent Valley wards suggest that the catchment does have higher than average rates of ‘economically active’ persons (4-6% higher than the Allerdale or UK averages respectively²⁴). The catchment also has higher than average levels of people in employment, and significantly higher percentage of people who are self-employed. The percentage of persons claiming job-seekers allowance (JSA) is less than half the national average. The employment profile of the catchment shows higher than average percentages of ‘managers and senior officials’, ‘skilled trades’, ‘sales and customer services’, and ‘elementary occupations’. It also shows below average % of ‘professionals’, ‘associate professional and technical’, and ‘administrative and secretarial’ which is suggestive of communities with limited business activity other than tourism, building trades, agriculture and retail. The high house prices are often only affordable by relatively well-paid executives who commute out of the region for work.

Because of the catchment’s economic profile, with a heavy reliance upon tourism and less favoured area agriculture, the labour force is not particularly productive by national GVA standards, and wage rates reflect this low-GVA economy. The following tables contain indicative data for Cumbria²⁵ which shows the relative productivity in GVA terms of the different sectors of the Cumbrian economy:

GVA per Employee in Employment (£)	
	2007
Agriculture, forestry, fishing	42,406

²³ The Economic Value of Green Infrastructure, Natural Economy North West

²⁴ Source: ward data from Office of National Statistics (NUMIS 2001) on Keswick or Derwent Valley wards - <https://www.nomisweb.co.uk/reports/lmp/ward/1308630181/report.aspx?frommap=yes>

²⁵ Data provided by Invest in Cumbria – it is acknowledged that this data has a margin for error, and is included as the best available indicative data to demonstrate the point to a lay audience who are new to economic development.

Mining and quarrying	74,534
Manufacturing	51,565
Electricity, gas and water supply	118,710
Construction	46,484
Wholesale and retail trade	23,584
Hotels and restaurants	16,872
Transport, storage and communication	43,783
Financial intermediation	52,368
Real estate, renting and business activities	37,505
Public administration, defense etc	32,925
Education	25,812
Health and social work	22,741
Other services	33,830
Total	33,996

Source: Cross tabulated data from Office for National Statistics GVA & Annual Business Inquiry

The data available is merely indicative, and has a margin for error, but amply illustrates the relative contributions in terms of GVA productivity of workers in different sectors.

Challenges and Issues

- For green infrastructure to genuinely unlock greater productivity it needs the economic infrastructure to be capable of delivering that greater productivity.
- There are constraints on what can actually be done in terms of economic development in areas such as the Bassenthwaite catchment. Given the relatively low GVA economic profile of the Bassenthwaite catchment expecting dynamic economic outputs from its ecosystems is perhaps naïve.
- Even if it were possible to have nothing but high GVA sectors, no community would want to be entirely reliant upon too narrow an economic profile. Some of the highest growth sectors of the past two decades have recently been shown to be the most high risk.
- Tourism and agriculture may be relatively low GVA, but they employ large numbers of people in rural areas and are relatively recession-proof relative to, for example, the financial services.
- This landscape will never be competitive in terms of GVA productivity if it continues to be dominated by small relatively unproductive businesses in the tourism, retail and agricultural sectors. Other complementary high value economic activity is required.
- The challenge for environmental projects and organisations is to be part of the solution. Increasing the productivity in agricultural and tourism businesses might well require structural changes to businesses in those sectors that are difficult and unpopular in this landscape – e.g. new and larger hotels, or farm amalgamation or modernization with larger fields etc.
- Economic imperatives may clash with the environmental imperatives for this landscape.

FIGURE 2.5: IMPORTANCE OF DIFFERENT SECTORS TO THE ECONOMY IN THE LAKE DISTRICT AND THE REGION AS A WHOLE (SOURCE: 2001 CENSUS)

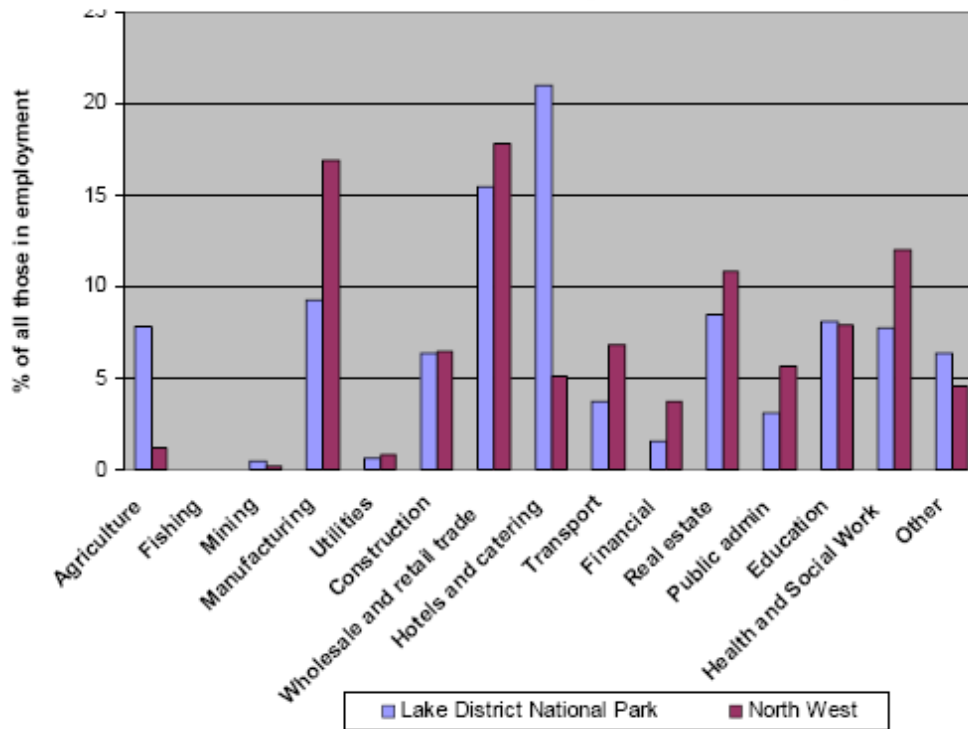


Figure 8 the reliance on hotels and catering in the Lake District is demonstrated by the last available census for 2001²⁶

Beneficiaries

(See section above on economic Growth and Investment).

Conclusion

Anecdotal evidence suggests that high quality employees can be attracted to the catchment to work (often for wage rates below those offered by other competitor areas) because of the quality-of-life this landscape offers them. As we have already seen, however, a stunning landscape setting is only an advantage if all other things are equal. The basic business infrastructure is needed initially to attract high value added businesses. Interviews with David Williams, founder of Impact International, make it quite clear that their global business transformation and people development business was inextricably linked to the Lake District landscape in which it was born. Impact International also find that the lifestyle they can offer existing and potential employees because of the landscape can be worth as much as 50% extra salary to an employee offered the same job in central London. Impact International employed 250 people in 17 countries worldwide in 2009 (100 of which are based at Cragwood, Windermere). The problem is that there are too few businesses like Impact in the Lake District,

²⁶ Source: A Sustainable Transport Framework for the Lake District National Park: Phase One: Evidence and Analysis Report 1: Problem identification, data and evidence base FINAL REPORT, Prepared for the Lake District National Park Partnership by Steer Davies Gleave, November 2008

or the Bassenthwaite catchment, and far too few that can sustain comparable wage rates to urban areas.

4 Tourism

Background

Previous research and analysis has suggested that green infrastructure offers a major opportunity to increase the GVA of a region. Tourism certainly looks like one of the most important economic relationships with the environment. It is clear to everyone that Cumbria's key tourism brand asset is its landscape, and particularly the Lake District²⁷. Previous research has shown that uplands are among the most popular tourist destinations in the UK with approximately £70 million visit days per year to the English upland National Parks²⁸. Tourism is also particularly important as a source of employment and income for upland communities.

Evidence

Tourism has particularly strong data to enable relatively robust analysis of economic activity. Data supplied by Cumbria Tourism's destination management system shows that Bassenthwaite catchment supports a **tourism economy worth in the region of £262 million**²⁹. The catchment hosts approximately 3 million visitor days (39% of the Lake District total) - this breaks down as approximately 1m overnight visitors and 2m day trippers. The spend resulting from that tourism economy is responsible for sustaining 1,171 tourism businesses (1,071 accommodation providers and 100 non-accommodation businesses) and supports 4,476 tourism (FTE) jobs³⁰. Data provided by Cumbria Tourism shows the breakdown of businesses in the catchment's postcodes, ranging from hotels through to B&Bs and campsites to museums, art galleries and food and drink businesses:

²⁷ The Economic Value of Green Infrastructure suggests that 'even urban green spaces and less well-known natural areas offer tourism opportunities by incorporating visitor attractions, preserving attractive landscapes, and generating economic activity in sectors such as agriculture, forestry, public services and hotels and catering.

²⁸ Source: The Economic Value of Green Infrastructure, Natural Economy North West

²⁹ We believe that 39% of the Lake District tourism revenue is a reasonable assumption given that 39% of the bed spaces, 14,877 out of 38,467 for the Lake District, are in the catchment. The tourism businesses actually spread beyond the catchment somewhat due to the postcode breakdown used, and should be understood as indicative. Source STEAM Data Cumbria Tourism 2008, and

<http://www.ctbweb.co.uk/researchreports/CumbriaAccommodationStockSummaryJul2009.pdf>

³⁰ Business numbers and breakdown from the Cumbria Tourism Destination Management System, and employment figure calculated as 39% of the Lake District tourism FTE breakdown (STEAM Visitor Volume and Value Survey 2000-2008)

Business Count (Postcode Count)

Property Type	Postal sector					Grand Total
	CA11 0	CA12 4	CA13 9	CA7 1	LA22 9	
Accommodation Providers						
Hotel	5	9	5	2	17	38
Self-Catering	116	247	40	22	340	765
B&B	18	20	6	2	23	69
Guest House	5	65	13	1	28	112
Caravan & Camping	10	16	7	0	2	35
Hostel	4	4	1	0	6	15
Agency	0	1	0	0	0	1
Farm	9	3	3	0	1	16
Inn	6	2	1	0	4	13
Holiday Park	1	3	1	0	2	7
Other Tourism Businesses						
Visitor Attraction	2	1	0	0	2	5
Café & Restaurants	12	4	6	2	23	47
Activity Provider	9	14	5	1	6	35
Gallery	3	0	4	1	2	10
Museum	0	2	0	0	1	3
Grand Total	200	391	92	31	457	1171

The 1,000 or more accommodation businesses offer nearly 15,000 bed spaces:

Bedspace Count

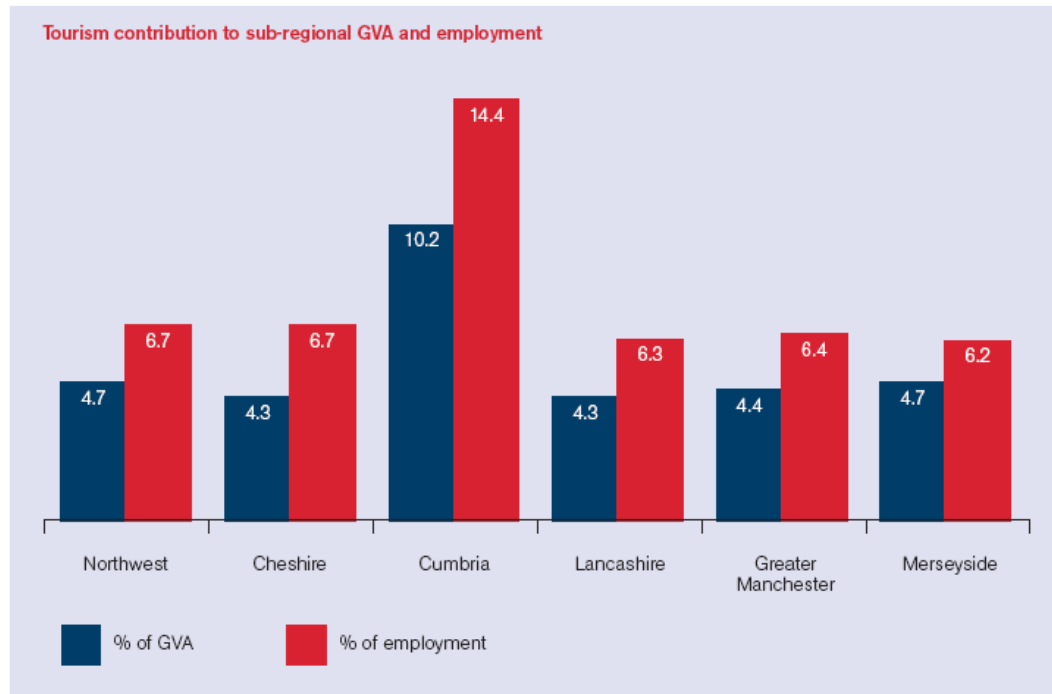
Property Type	Postal Sector					Grand Total
	CA11 0	CA12 4	CA13 9	CA7 1	LA22 9	
Accommodation Providers						
Hotel	306	485	199	35	1073	2098
Self-Catering	925	1718	254	126	2744	5767
B&B	238	130	33	9	199	609
Guest House	73	810	196	12	376	1467
Caravan & Camping	1146	614	357	0	720	2837
Hostel	176	206	70	0	409	861
Farm	66	14	22	0	6	108
Inn	104	28	20	0	84	236
Holiday Park	40	174	108	0	346	668
Grand Total	3074	4299	1311	182	6011	14877

Many of these businesses rely upon the Lake District landscape to provide the experience or backdrop that complements their business products. When asked 95% of visitors to the Lake District (Cumbria Visitor Survey 2006) gave the ‘scenery and landscape’ as the primary motivation for visiting - so in theory more than £600 million of Lake District tourism spend is associated with the environment (or £240 million of tourism activity in the Bassenthwaite catchment).

Tourism is a critically important industry for Cumbria, and particularly for rural Cumbria. The tourism sector in Cumbria is worth £1.17 billion, sustains 5,000 private sector businesses, and supports 21,000 jobs (FTE equivalent). The sector is responsible for 10.2% of Cumbria’s GVA, and 14.4% of Cumbria’s employment (compared with 4.7% of the North West’s GVA and 6.7% of its employment). More than 50% of the economic activity in the Lake District National Park is believed to be directly or indirectly linked to tourism. 55% of businesses located within the National Park identify tourists as ‘target market’. And tourism stakeholders acknowledge that the built and natural landscapes are the key brand asset.

Key Findings

That tourism is an important industry for Cumbria is beyond question, it creates the jobs and income for huge numbers of households. As the following graphic shows, Cumbria is much more dependent upon tourism than other parts of the North West.



**Source: Understanding Tourism's Economic Impact, Welsh Economy Research Unit & Regeneris Consulting*

All available data shows that tourism in Cumbria is an industry that is overwhelmingly dominated numerically by small to medium sized businesses (SMEs) that are struggling to make a profit. Because of this, much of the tourism activity in the catchment is relatively 'low GVA' industry (Gross Value Added) with low productivity added per worker, relative to other sectors. But on the other hand this landscape works for the whole North West as a key part of its brand appeal.



Source: England's Northwest Staying Visitor Survey 2007 – 2008, Arkenford Ltd & Locum Consulting

The tourism market has very modest growth indeed over the 2000-2008 period with growth of 11% for Cumbria as a whole (14% for the LDNPA area) – or 1% per annum. As will be apparent, this constitutes a relative decline in a period of overall strong UK economic growth³¹. During the same period the UK economy grew at an average of more than 2.5% per annum, or to put this another way tourism in Cumbria was growing from 2000-2008 at less than half the rate of the UK economy as a whole.

Total Economic Impact by District	Value £'s Millions 2008										Average Annual %Change	2000 to 2008% Change
	£'s Millions	2000	2001	2002	2003	2004	2005	2006	2007	2008		
Allerdale		202.95	181.49	215.65	223.19	225.72	216.81	214.72	217.78	216.19	1%	7%
Barrow		51.95	57.14	63.28	63.81	63.81	64.12	61.97	62.90	63	3%	21%
Carlisle		114.88	117.53	125.60	131.38	131.84	132.39	126.04	125.17	120.06	1%	5%
Copeland		98.72	73.06	87.96	91.41	93.71	94.42	96.10	98.54	99.51	1%	1%

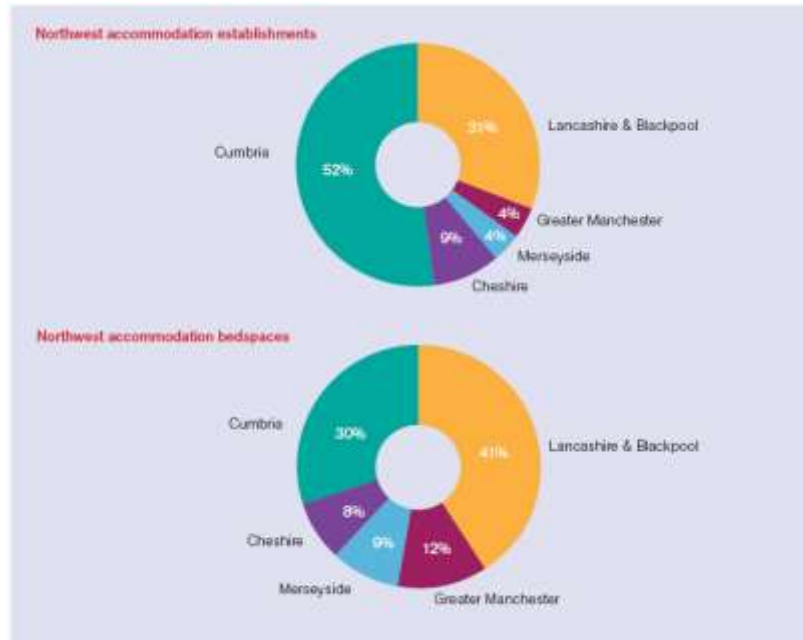
³¹ Since then the UK and world economies have, of course, suffered from a severe recession which has led many commentators to question the sustainability of that growth. This is a wider issue beyond the scope of this report.

Eden	144.16	122.85	147.78	156.17	163.95	156.62	155.08	155.68	154.28	1%	7%
South Lakeland	443.81	438.11	496.35	517.71	525.21	510.96	507.46	530.88	518.00	2%	17%
Lake District National Park Authority	593.19	554.51	637.77	665.49	676.36	658.40	655.89	686.37	677.19	2%	14%
Cumbria	1,056.47	990.18	1,136.62	1,183.68	1,204.25	1,175.32	1,161.38	1,190.95	1,171.06	1%	11%

Figure 9 Data from Cumbria Tourism STEAM Visitor Volume and Value Survey 2000-2008

Because of this tourism situation Cumbria Tourism receive investment through the North West Regional Development Agency (NWDA). The NWDA recognise that tourism in Cumbria requires the intervention of the public sector to coordinate product development, training and marketing to address the ‘market failure’ of a sector that is made up of many thousands of small to medium sized enterprises (SMEs) which have limited resources of staff, productive capacity and profits to reinvest in strategic solutions. Many of these businesses are ‘lifestyle businesses’ purposefully operating beneath the VAT threshold, and constrained by the physical limitations of their properties from developing capacity or delivering major productivity improvements. Many tourism businesses in the catchment are relatively small and of marginal profitability resulting in a situation whereby the tourism industry struggles to invest in its own strategic development, yet alone sustain the landscape of the catchment.

All the statistics on visitor spend patterns show that relatively small percentages of overall spend are associated with visitor attractions or recreation, with most of the spend going on food and drink and accommodation. This is why the focus of Cumbria Tourism has been on raising the quality of the accommodation and food and drink offer for visitors, through schemes like the Tourism Connect accommodation investment scheme.



Source: STEAM Model Bedstock Analysis 2008, Global Tourism Solutions

Figure 10 Cumbria has a larger share of accommodation establishments than it does share of bed spaces for the North West, clear evidence that the size per establishment is smaller – this has a significant bearing on the productivity and profitability of tourism.

The following table (source Cumbria Visitor Survey February 2010) reveals how visitor spend breaks down, and how small the discretionary spend is per day per visitor on items other than accommodation, transport and food and drink items;

Expenditure by Type of Visitor (Per Party Per Day)

	2002	2006	2009	Day Visitor	Staying Visitor	UK	Overseas	Repeat Visitor	1 st Time Visitor
	£	£	£	£	£	£	£	£	£
Food and Drink (excluding any that are included with the price of the accommodation)	£16.91	£20.07	£25.47	£21.06	£27.37	£25.20	£29.64	£24.46	£31.26
Travel in and around the area	£5.79	£10.21	£12.31	£15.31	£11.04	£12.50	£9.85	£12.06	£13.98
Shopping for gifts and souvenirs	£8.09	£6.60	£8.33	£8.02	£8.47	£7.90	£14.41	£7.93	£10.65
Admission charges and other spending	£4.07	£6.16	£7.83	£9.10	£7.29	£7.54	£11.85	£7.29	£10.93

at attractions									
Shopping for daily needs	£6.09	£2.82	£5.22	£3.33	£6.03	£4.95	£8.72	£5.28	£5.05
Other expenses	£2.99	£1.86	£1.58	£1.73	£1.52	£1.49	£2.80	£1.72	£0.83
Other leisure and recreation expenditure	£2.11	£1.62	£2.25	£2.49	£2.15	£2.12	£4.05	£2.01	£3.66
Average expenditure (excluding accommodation)	£46.05	£46.10	£52.18	£60.41	£47.68	£50.52	£75.43	£49.46	£66.03

Figure 11 Visitor Survey data from Cumbria Tourism – visitor spend on attractions is a small percentage of overall spend.

If environmental projects aspire to realise more money from visitors as paying attractions then this means they are competing for a relatively small share of the overall tourism spend. It is undoubtedly true that the natural environment of Cumbria is a key part of its tourism appeal, and that the landscape is the key lure for visitors. Repeated surveys have shown that this is both the primary motivation and destination of visitors to Cumbria and the North West (see Cumbria Tourism visitor surveys).

Values statements by visitor type

	2009	Day Visitor	Staying Visitor	UK Visitor	Overseas Visitor	Repeat Visitor	First Time Visitor
Good place for outdoor activities	95%	94%	95%	95%	94%	95%	94%
Worth travelling a long distance	93%	93%	94%	94%	91%	93%	93%
Good place to experience culture/heritage	84%	86%	83%	83%	92%	83%	84%
Suitable place to take children	82%	82%	82%	83%	77%	84%	74%
Has excellent places to	81%	82%	81%	81%	78%	82%	72%

eat and drink							
Place to indulge yourself	78%	79%	78%	79%	69%	79%	77%
Offers good value for money	76%	75%	77%	76%	81%	75%	77%
Environmentally friendly place	73%	74%	72%	73%	68%	74%	72%
Can find luxurious hotel	73%	73%	73%	73%	64%	74%	64%
Roads are free of congestion	58%	58%	57%	58%	55%	56%	66%
It has great events	56%	57%	55%	56%	45%	57%	47%
It has lovely scenery but not much else	25%	25%	25%	26%	29%	25%	30%
Total	1501	446	1054	1395	104	1265	230

Figure 12 Visitor surveys from Cumbria Tourism show how multi-faceted visitors’ needs are. The ‘outdoors’ is high on the list of priorities, but people also want good food, accommodation, events and child friendly facilities.

The landscape of Cumbria, and particularly that of the Lake District, is the result of several thousands of years of human management superimposed on spectacular geo and biodiversity – in other words, the place that is now visited by millions of visitors is the result of hundreds (or possibly even thousands) of years of cumulative investment and cultural influence, superimposed on all the natural processes. In short, the natural environment of the Lake District may be the key asset, but that asset only had potential value until it was unlocked. The fact that millions of visitors come to the Lake District each year is actually the result of a complex historical and technological story that stretches back at least 250 years and possibly as much as 12,000 years. The Lake District National Park designation recognises the importance of both natural and cultural factors.

Nurture Lakeland’s (formerly the **Tourism and Conservation Partnership**) ‘**visitor payback**’ **scheme** is a best practice example of the tourism sector and the landscape management organisations working together in partnership. This is a good scheme and has been copied by many other areas, with good reason. Since 1993 the scheme has raised £1.5 million for conservation and environmental works.

The Partnership has a membership of 230 businesses ranging from large and small hotels, guest houses and B&B's, service providers, visitor attractions, retailers and the food and drink sector. 51% of the membership have undertaken sustainable tourism training and/or achieved environmental accreditations. The organisation works one to one with its member businesses to fundraise to protect the environment, improve access to the countryside, and support sustainability initiatives across Cumbria. In 2010 Nurture Lakeland financially supported 22 conservation and environmental projects. However this really progressive initiative is limited in the scale of its revenue-generating activities relative to the potential shortfall in income in the Lake District in the next 5-10 years. It just doesn't look like, on its own, it can generate enough revenue from tourism to sustain anything more than a small part of the Cumbrian, or Lake District, landscape.

Nurture Lakeland's commercial membership constitutes less than 5% of all tourism businesses in Cumbria. The scheme generates from these member businesses approximately £1,000 for every business that participates, from membership fees, visitor payback and other initiatives, which is impressive, but to do this it needs a dedicated team with a significant management cost. Over the past financial year the Partnership raised in the region of £220,000 (and undertook extensive additional educational and training work with businesses), but required seven dedicated members of staff to achieve this with corresponding staff and overhead costs. The result is a good programme with significant achievements, but which can perhaps only ever provide a small fragment of the investment required by the landscape as a whole – and further development of the scheme will require additional investment to grow capacity and widen the membership.

Later in this report we will return to mechanisms by which this tourism economy might deliver greater economic return for landscape management, but here it will suffice to say that the current reality is a case study in how much tourism turnover can be created by a high quality landscape, but also how disconnected that turnover can become from the maintenance of the landscape itself. It is worth considering for a moment the Lake District Landscape's tourism economy in its UK context.

The Lake District is the UK's largest National Park, with the second highest population for a National Park, and the third highest visitor total. The tourism spend per hectare of the Lake District (and the Bassenthwaite catchment represents this), is in the region of £2,875 per hectare, which for a large dispersed landscape, with vast areas of unpopulated mountainous land is a comparatively high figure. The average tourism spend per hectare figure for the 9 largest UK National Parks (those with over 100 square kilometres of land) is £1,653 per hectare³². The Northern national parks (i.e. those north of the midlands) have an average spend per hectare of £2,131. But despite the Lake District landscape supporting a much higher tourism turnover than comparable destinations, this perhaps counts for little in the context of

³² The 'big 9' in terms size are as follows: Brecon Beacons, Lake District, Loch Lomond, Northumberland, North York, Peak District, Snowdonia, South Downs, and Yorkshire Dales

environmental stewardship if mechanisms are not found to turn that extra spend into re-investment in that landscape.

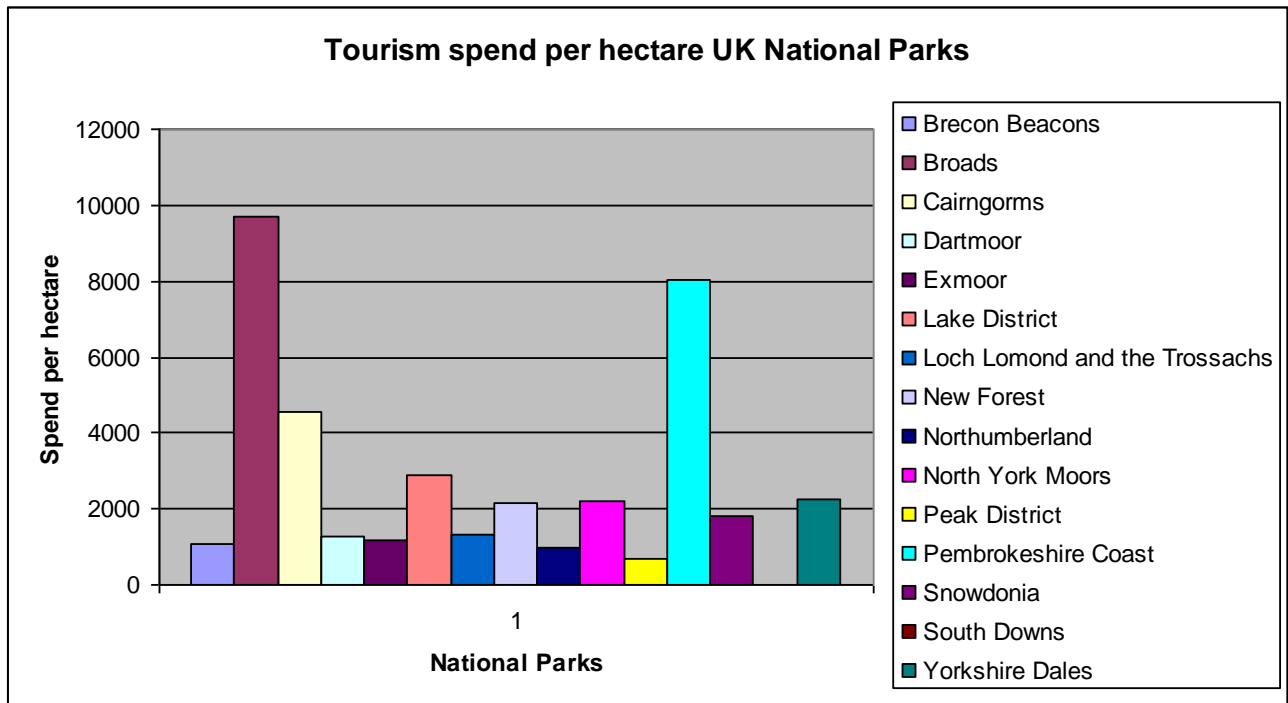


Figure 13 this table is constructed from data on the UK National Park website

Similar analysis of the different areas of Cumbria suggests that the Lake District landscape generates significantly more tourism revenue per hectare than other more peripheral landscapes³³.

³³ Barrow’s high tourism spend per hectare shows two things: firstly that the Borough is a relatively small geographic area with condensed tourism spend, but also that even less picturesque landscapes can unlock significant tourism output if they have the tourism infrastructure of accommodation and food and drink offer. The true comparison, of course, were it possible, would be between Keswick and Barrow, and the suspicion must be that Keswick would have a much higher tourism spend per hectare, which evened out over the whole catchment creates a relatively modest figure per hectare. It should also be noted that the figure for Eden and South Lakeland incorporate key parts of the Lake District National Park, and without these tourism honey pots, would have considerably lower spend per hectare figure.

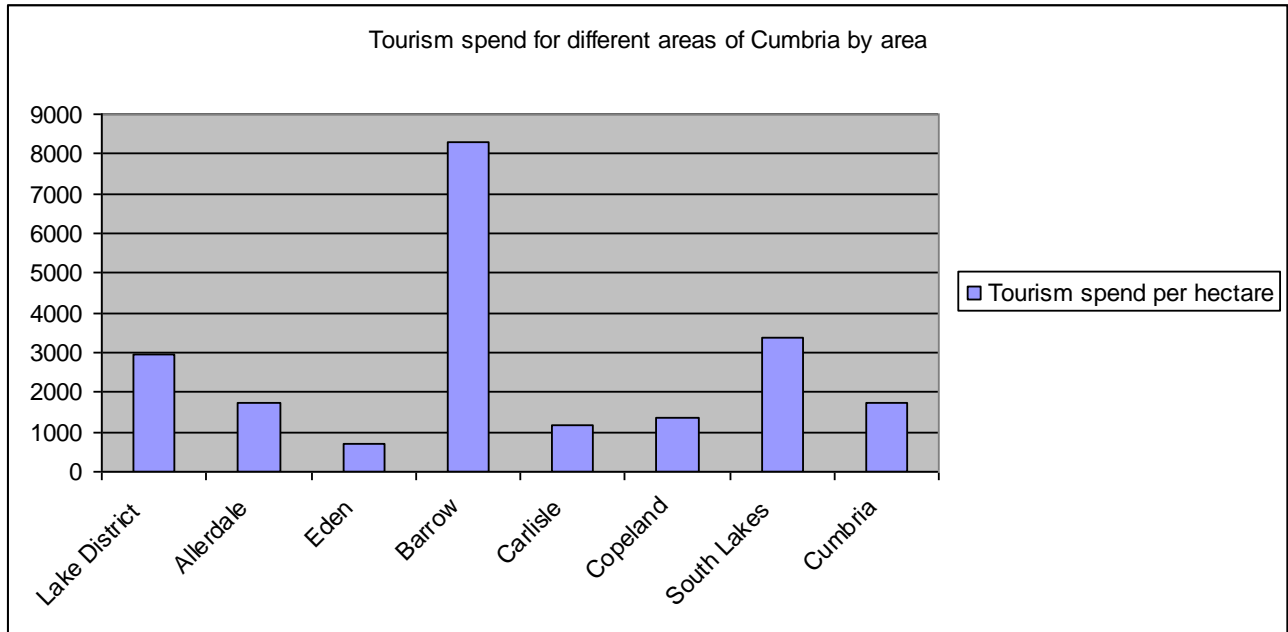


Figure 14 the tourism spend per hectare for the Lake District is almost £2,000 more per hectare than other areas of Cumbria that lack its landscape. The figure for Barrow is a statistical anomaly because of its small geographical size, but demonstrates that economic return on places is about tourism infrastructure, and other issues like business tourism, not just landscape.

That the Lake District Landscape even given its large scale, can generate this much tourism income per hectare demonstrates the potential economic value of the landscape in a powerful way, and is food for thought in future discussions about the value for money of investing in landscape management. But whether this revenue creates high quality employment and profitable and productive businesses is also critical. Discussions about the value of ‘green infrastructure’ often look at the multiple functions offered by those assets – our research suggests that some form of qualitative measurement of the economic outcomes of those functions is important. All areas of Cumbria have a tourism or amenity value, but some parts of Cumbria, including the Bassenthwaite catchment, have much more tourism and amenity value than others. The challenge is to make sure this overall turnover is translated into high quality economic outcomes.

Challenges and Issues

- The landscape alone does not create the economic value
- The landscape and biodiversity does sustain the assets on which tourism is based
- Tourism sustains high levels of employment in the catchment and beyond, but this employment is often low-paid and relatively unproductive
- The majority of the visitor spend is realised by only marginally profitable accommodation and food and drink businesses³⁴.

³⁴ Thank you to Richard Greenwood, Cumbria Tourism, for highlighting the issues. He points out that 80-90% of tourism businesses in rural Cumbria having less than 10 employees. Richard also points out that some

- For the tourism sector to have the landscape and infrastructure to generate £677 million of revenue required and continues to require a huge number of pre-conditions:
- The Lake District is more than a sum of its natural components it is a cultural landscape, perceived and packaged by a range of artists and writers such as Wordsworth, Ruskin and Turner. Their perceptions of the landscape helped to create a visitor demand to experience this landscape.
- From the 1760s onwards the communities within the Lake District started to respond economically in response to this demand. Local people began creating the places to stay, the transport infrastructure and services, the food and drink, the guiding businesses, the museums, the visitor attractions and the new houses to cater for this demand for an arcadia experience in the Lake District. This investment is not just of historic interest, it is actually largely the infrastructure on which the current tourism economy rests, and it constitutes an enormous incremental financial investment in the past to enable the £677 million of 2008 tourism revenue to be possible.

Reasons for visiting Cumbria by type of visitor

	2002	2006	2009	Day Visitor	Staying Visitor	UK Visitor	Overseas Visitor	Repeat Visitor	1 st Time Visitor
Because of the physical scenery and landscape of the area	20%	95%	47%	30%	54%	47%	53%	48%	45%
Because it is somewhere I know and trust	-	65%	45%	42%	45%	46%	18%	52%	3%
Because of the emotional characteristics	11%	92%	23%	14%	26%	22%	29%	23%	21%
To undertake a specific activity	10%	39%	16%	12%	17%	16%	13%	16%	12%
Because I have friends or relatives nearby/ a second home/free accommodation	14%	21%	14%	9%	16%	14%	16%	15%	6%

environmental projects create high quality infrastructure, but often fail to consider how a visitor will know about them or how the value will be translated into spend.

To visit specific places	8%	27%	9%	17%	6%	9%	18%	8%	14%
Because we have not been before, to see what it is like	4%	15%	9%	9%	9%	8%	23%	3%	40%
Because of its convenient location	5%	47%	7%	6%	7%	7%	5%	7%	4%
By chance/ because an opportunity presented itself	-	11%	6%	11%	4%	6%	5%	6%	7%
Because of a specific event or show	-	5%	6%	6%	6%	6%	2%	6%	4%
Because we were on tour/on route to elsewhere	5%	10%	3%	7%	2%	3%	13%	3%	8%
After researching the area fully before booking	5%	13%	2%	1%	2%	2%	8%	1%	7%
Total	-	-	1501	446	1054	1395	104	1265	230

Figure 15 the culture of landscape created by the romantic and picturesque movements is still what drives footfall to the Lake District. The ‘physical scenery and landscape of the area’ is repeatedly given as the key motivation for visiting (Source Cumbria Tourism Visitor Survey February 2010).

This is a critical point that needs to be understood if we are to properly acknowledge the relationship between the landscape and the tourism revenue it creates. It is the access infrastructure and cultural heritage that help to make the landscape an object of admiration, and it is the tourism infrastructure that releases the economic value (GVA) from visitors who come here motivated by a love of the romantic or picturesque landscape. A further challenge is, as the following graphic makes clear, that the visitor segments who are most attracted by nature, wildlife and being outdoors are also some of the lowest spending visitors:

Cumbria Tourism – Lake District Market Segments...

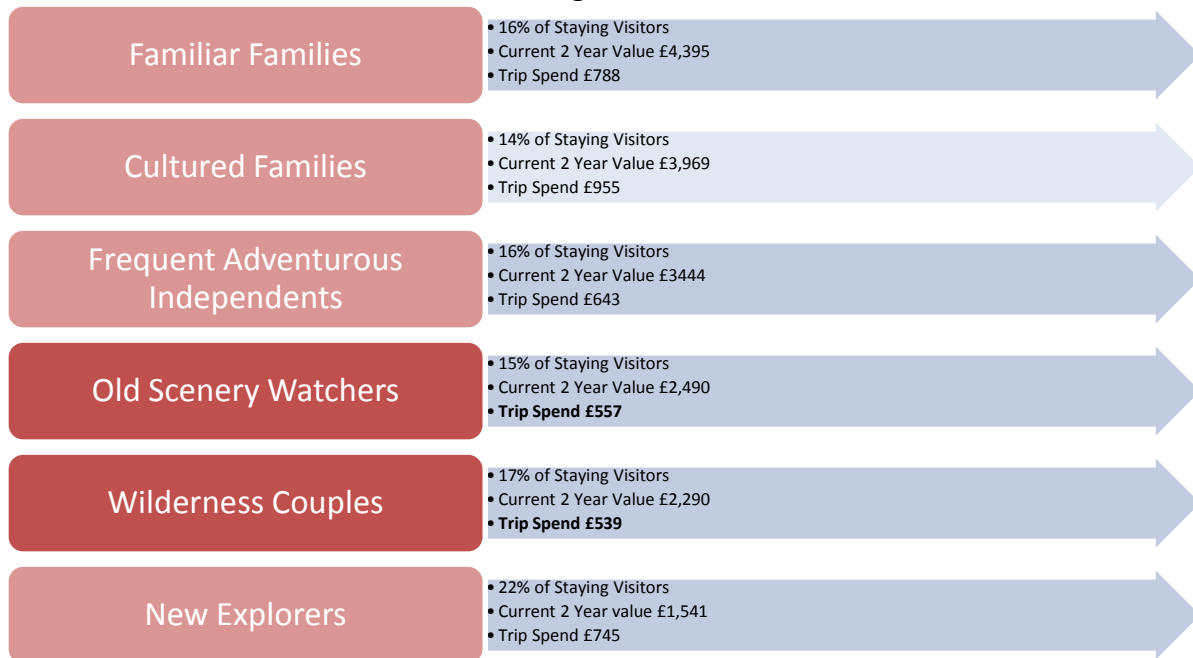


Figure 16 Tourism segments based on traditional appreciation of environment – provides relatively low spend per trip

The worst scenario for tourism economists is to have a visitor profile packed with people who drive to your location, bring their own sandwiches, and leave at the end of a day's walking without having contributed anything to the local economy. The worst scenario for a landscape management organisation is to have responsibility for a landscape (including the footpaths that those walkers use) and have no one willing to pay the real costs of maintaining it. It is in everyone's interest to have a sustainable economic model that links revenue to the maintenance of product upkeep and enhancement.

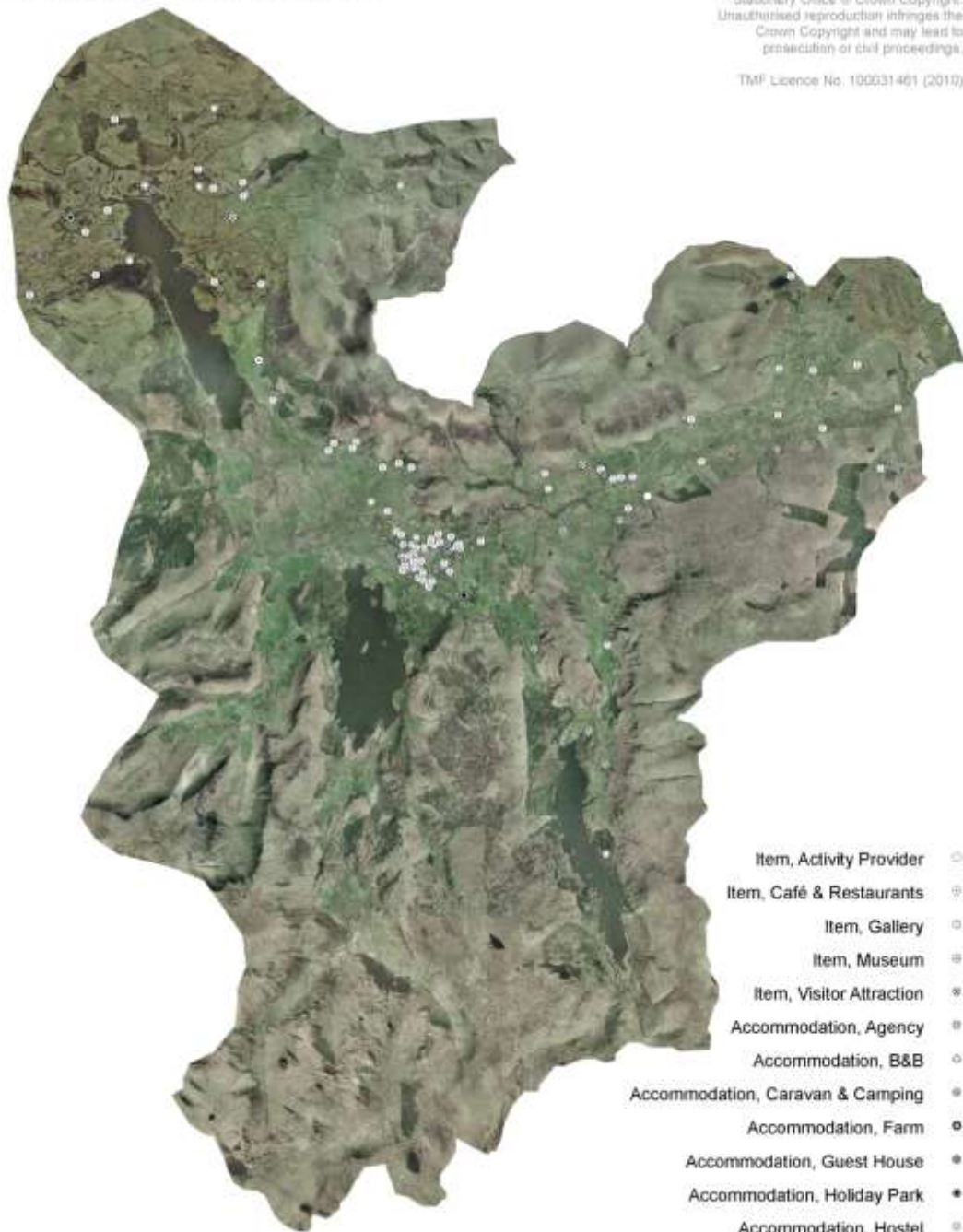
Potential Benefits and Beneficiaries

As we have seen more than half the economic activity in the Lake District is based on tourism. Ensuring that this sector is productive and profitable enough to create quality employment for its communities, is in everyone's interest. Making sure that the relationship between tourism and this landscape's stewardship works more effectively is both in the interest of the tourism sector and the environmental organisations and land managers.

Tourism Businesses

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- Item, Activity Provider ○
- Item, Café & Restaurants ⊕
- Item, Gallery ○
- Item, Museum ⊕
- Item, Visitor Attraction ⊗
- Accommodation, Agency ⊕
- Accommodation, B&B ○
- Accommodation, Caravan & Camping ⊕
- Accommodation, Farm ⊕
- Accommodation, Guest House ⊕
- Accommodation, Holiday Park ⊗
- Accommodation, Hostel ○
- Accommodation, Hotel ○
- Accommodation, Inn ⊕
- Accommodation, Self-catering ○
- Accommodation, Activity Provider ⊗

Figure 17 The tourism infrastructure is not spread evenly across the landscape, and environmental projects need to consider the accessibility if the objective is economic benefit through tourism.

Conclusion

Tourism in Cumbria, the Lake District and the Bassenthwaite catchment is powerfully reliant upon the natural and cultural landscape. However generating revenue for landscape management from tourism is complex. New relationships are needed between environmental organisations and the tourism sector, and new approaches to animating landscapes, to persuade new high value visitors to come, and/or stay longer, and spend more. But whether this landscape results in an effective tourism economy is heavily dependent on the tourism infrastructure being fit for purpose. If the tourism sector was to be 'low GVA' in the future then this key ecosystem service will be limited to providing a disappointing economic return. At present, this landscape underpins a tourism sector that employs large numbers of people, providing the income that sustains communities. That this tourism sector is defined by relatively low GVA is an issue which concerns some commentators more than others. Some commentators suggest that this area might always be relatively low GVA because of its location and economic profile, and that the current economy may be the optimum scenario. However, it is in everyone's interest to have a sustainable economic model that links revenue to the maintenance of product upkeep and enhancement, and in the Lake District the environment is a significant part of the product.

5 Products from the Land

Background

A number of products from the land are provided as ecosystem services, from food (livestock and crops), to fibre (timber and wool), to minerals (building stone, aggregates and lime), to energy provision in terms of renewable energy (woodfuel or wind or hydro power), to fresh water (provided by the uplands to urban areas). Traditional sectors such as food are seeing new possibilities as interest grows in local, regionally distinctive food and drink, and as some farmers develop new crops and products. According to the Forestry Commission, woodlands in the UK are still significantly underused, and using more domestically-grown wood for renewable energy could result in a 60% increase in wood production, with significant opportunities to create jobs in woodland management and product processing.

Evidence

The evidence for measuring directly agricultural production in the Bassenthwaite catchment is poor, with sources of data being either imperfect or inaccessible. More comprehensive data exists for forestry production, thanks to the Forestry Commission. It is possible to construct a reasonable picture of agricultural production by taking the farm numbers provided by Natural England, and constructing macro figures using data for the Less Favoured Areas (LFA) Mixed Livestock farms for the North West. Other evidence suggests that the farms of the Bassenthwaite catchment are larger in terms of livestock numbers than the LFA average, as the agricultural production figures we have calculated are conservative estimates.

Key Findings

The vast majority of the landscape of the Bassenthwaite catchment is used for agriculture or forestry subject to the complex market realities of those sectors. Data for the agricultural production from the catchment is poor: but taking information from DEFRA for 2008 on Less Favoured Areas Grazing Livestock farms for the North West we can suggest what the catchment's agricultural economy probably looks like in totality³⁵.

Bassenthwaite Catchment Farm Income

In 2008-9 the average Farm Business Income for a LFA Cattle and Sheep farm was £11,099, 12% up on the previous year³⁶. This represents a 2% return on capital on a total asset value of £546,185 per farm. Latest data from DEFRA³⁷ suggest that incomes for LF Mixed Livestock farms in England are likely to be £24,500 per farm in this financial year (2010)³⁸.

- According to DEFRA's Farm Practices Survey 2009, agricultural outputs provide less than half the income on 49% of upland farms, the larger the farm the larger to share provided by agricultural outputs³⁹. 56% of upland farms have a diversified activity or other income contributing to household income. Almost half (48%) have some form of off-farm diversification or other income (e.g. second job or contract work). 25% of upland farms have an on-farm diversified enterprise such as a farm shop or Bed & Breakfast.
- The average size for a mixed livestock LFA farm in the North West, excluding common grazing was 142 ha including 69 ha of sole occupation rough grazing on average.
- The average farm employed 1.31 annual labour units of which 1.08 were farmer and family and 0.23 would be paid regular and casual staff.
- The average investment in machinery and equipment in the year was £5,178 per farm, down 21% on 2007 and landlord capital type investment averaged £2,122 per farm, down 31% on 2007.

³⁵ All statistics from DEFRA, <http://www.farmbusinesssurvey.co.uk/regional/commentary/2008/northwest.pdf>. Thanks due to Phillip Bicknell, Senior Economic Advisor for the NFU, for guidance and insights on the available data. Phillip points out that since 2008 livestock prices have risen considerably (with sheep deadstock prices rising from approximately £2.00 per kilo to approximately £3.50 per kilo) and changed the relative weighting of income streams, but that this has been largely exchange rate driven, and that the 2008 figures may offer a more realistic long-term representation of the income streams for LFA farms.

³⁶ North West Commentary on 2008 (North West Commentary 2008/2009). This report includes data collected in the Farm Business Survey for the 2008/2009 financial year relating to the 2008 crop harvest. The Farm Business Survey is conducted on behalf of and financed by the Department for Environment, Food and Rural Affairs and the data collected in it are Crown Copyright.

³⁷ Agriculture in the United Kingdom, DEFRA (2009)

³⁸ Agriculture in the United Kingdom, DEFRA (2009)

³⁹ Information taken directly from The Farm Practices Survey 2009 – Uplands and other Less Favoured Areas (LFAs) survey report, Defra Agricultural Change and Environment Observatory Research Report No. 16 - Lindsey Clothier and Elizabeth Finch, DEFRA

The table below shows the average total farm output and how this is split between agricultural activities, diversification, agri-environment and other payments⁴⁰, and Single Farm Payment of the total agricultural output of £41,831, beef output accounts for 40% and sheep output for 54%. The figures for the Bassenthwaite catchment below have been calculated by multiplying the average farm figures for the North West by the number of farms (156).

	PER FARM	156 FARM TOTAL	% of farm income
Agricultural products	41,831.00	6,681,636.00	57%
Diversification	2,945.76	459,538.56	4%
Agri-environment schemes	11,046.60	1,723,269.60	15%
SFP	17,674.56	2,757,231.36	24%
Total farm output	73,644.00	11,488,464.00	NA

Figure 18 The scale of agricultural production in the catchment is difficult to ascertain, but can be approximated from data held by DEFRA for Less Favoured Area Mixed Livestock Farms for the North West.

But what does this mean for Bassenthwaite catchment? Applying the farm average figures to the 156 farms of the Bassenthwaite catchment we would have a total farm output of around £11.5 million per annum, with £6.7 million of that generated from agricultural products. This agricultural economy is sustained by approximately 200 employees of whom the vast majority are the farmers themselves or members of the farmer’s family.

Variable Costs

The variable costs from these farms are considerable with, for example, feedstuffs being the major component at £13,992 per farm (49% of the total) and veterinary costs at £3,453 (10%). Fixed costs for these farms were down to £29,125 per farm with machinery costs taking the largest share at 43%, followed by land and property costs at 21% (a reminder that many of these businesses are paying mortgages on land they have bought, or are renting grazing land). Grazing livestock numbers appear to be declining; the average beef herd has shrunk to 27 cows and the sheep flock reduced to 369 ewes.

Using the North West Upland Farm Average we can also model that these businesses are creating significant spend on variable costs: £808k on machinery and equipment (much of which will be spent in local market towns with agricultural engineering businesses) and £539k on veterinary services (supporting several high value professional jobs in local market towns). It is estimated that 80% of spend from farms is within 20 miles of the farm business⁴¹. But these

⁴⁰ For clarity - this includes Hill Farm Allowance.

⁴¹ Source: Phillip Bicknell, Senior Economic Advisor, National Farmers Union – from previous research.

farms would also spend £2.2 million on feedstuffs (much of which is spent on produce from other areas of rural Cumbria and, even if the feed is from further afield, would leave some value with local feed mills and merchants). These farms are almost certainly producing more than the North West average of LFA Grazing Livestock farms in the Farm Business Survey, but even at this rate they would be responsible for 51,000 stock sheep. This forms a significant share of the livestock sold through local auction marts at Penrith and Cockermouth, and is part of a national livestock sector with sales of £962 million⁴². But these businesses are also likely, because of the tourism profile of the Lake District, to be more reliant upon tourism and other forms of diversification than the LFA average, but even at the average figures these businesses would also be engaged in £460k of diversified activity.

Livestock Grazing

Grazing livestock numbers appear to be declining for the average North West farm; the average beef herd has shrunk to 27 cows and the sheep flock reduced to 369 ewes. There is evidence to suggest that the farms of the Bassenthwaite catchment are actually considerably larger in terms of stock numbers than these averages, and this would mean their output would be significantly greater than that modelled in these pages. Survey data collected by Viv Lewis for Voluntary Action Cumbria in 2007, based on 27 farms in Borrowdale, St Johns and Threlkeld, gave an average flock size of 750-1000, with average cattle herd of 30-50. Neil Johnson of the National Trust estimates that the National Trust flocks conform to this average size, with most being in excess of 600 but relatively few above the 1000. NT cattle averages are likely to be lower than the Voluntary Action Cumbria estimates, probably in the 20-30 range. Flock size does not, of course, include young stock and followers at foot, which actually means almost twice as many animals per farm depending on the time of year. These farms are almost certainly producing more than the North West average of LFA Grazing Livestock farms in the Farm Business Survey, but even at this rate they would be responsible for 51,000 stock sheep. At an average price of £85/animal (2009 autumn sales) the value of these sales can be estimated as £4.34 million for 51,000 sheep. This forms a significant share of the livestock sold through local auction marts at Penrith and Cockermouth, and is part of a national livestock sector with sales of £962 million.

Agri-Food Sector

Whilst agriculture is typically banded in statistics with forestry and fisheries, DEFRA analysis shows that it actually might be better categorized as what is called the 'agri-food' sector. This includes the wider food chain, including food processing, retail and restaurants and food. This agri-food sector is worth £85 billion to the UK economy, and represents 6.7% of national GVA. Why does this matter in the Bassenthwaite catchment? Because Cumbria Tourism Business Surveys show that 51% of tourism businesses (72% of accommodation and food and drink businesses⁴³) promote their products and services as originating in Cumbria, and believe that this is an attractive and positive factor at the point of sale. This suggests an intimate and mutually reliant relationship between the tourism and food and drink providers of the

⁴² Agriculture in the United Kingdom, DEFRA (2009)

⁴³ Data provided by Nick Truch, Cumbria Tourism

catchment with the farming of this landscape. A future in which ‘food miles’, ‘food security’ and ‘self sufficiency’ may become more pressing issues may also lead to greater focus on food production.

Agricultural Subsidies

If the 156 farms of the Bassenthwaite catchment possess the average value of an LFA Mixed Livestock farm in the North West in terms of fixed assets then they represent an asset value of £78 million⁴⁴. At regional LFA average rates they would be claiming more than £1.7 million of agri-environment scheme investment, and £2.8 million of Single Farm payment monies.

Percentage Business Output by Output area (2008)

Farm Type	Agriculture	Agri-environment and other Payments	Diversification out of Agriculture	Single Payment Scheme
Dairy	91%	1%	1%	7%
LFA Grazing Livestock	57%	15%	4%	24%
Mixed	77%	3%	6%	15%
Lowland Grazing Livestock	75%	4%	4%	17%
Cereals	71%	3%	11%	15%

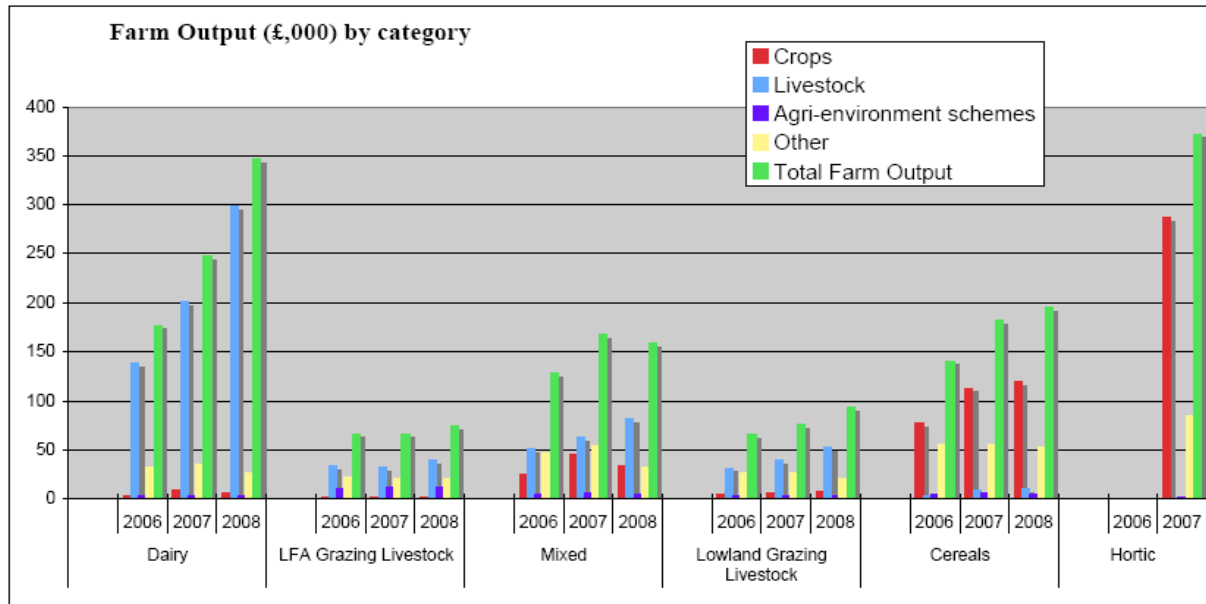


Figure 19 DEFRA’s North West Farm Business Survey data shows how low the outputs are for Less Favoured Areas Livestock farms, and how they are more reliant upon public support⁴⁵

⁴⁴ The fixed asset value was estimated to be £500,985 per farm.

⁴⁵ 2008 figures for cereal and dairy reflect particular market condition for that year, and are perhaps not accurate of the longer term situation.

Other data for the catchment suggests the total subsidy spend on the catchment is actually below this level. The data available is imperfect but suggests that the CA12 postcode⁴⁶, which covers much of the catchment, received 126 Rural Payment Agency payments (including items of direct aid/single farm payment, market schemes and rural development measures, and is inclusive of Hill Farm Allowance⁴⁷) totaling c. **£1,983,000** in 2008⁴⁸. More accurate figures exist for agri-environment scheme investment in the catchment: **£1,448, 828** per annum. (These figures cover annual payments for Environmentally Sensitive Areas (ESA), Countryside Stewardship Scheme (CSS), Wildlife Enhancement Scheme (WES), Higher Level Scheme (HLS), Entry Level Scheme (ELS) (including organic) schemes, excluding capital items and FEPs, based on data from October 2009⁵⁷). There are 156 farms in the catchment⁴⁹. The current annual agri-environment investment in the Lake District as a whole from these agri-environment schemes is **£8,572,898**⁵⁰. It is also worth noting that agri-environment payments are often inextricably linked to the agricultural activities of the farm, with some farms actually making a loss on livestock production but managing the landscape through that livestock and traditional management methods so that they are viable because of their agri-environment and SFP payments⁵¹. The average size of LFA Mixed Livestock farms in the North West is 142 hectares (excluding common grazing, which is significant for the Bassenthwaite catchment), and the notional **average combined Single Farm Payment and agri-environment scheme support is £28,721 per farm, or £202 per hectare**⁵².

⁴⁶ The postcode is by no means a perfect match, and the resulting figure is therefore simply indicative, until we have better numbers from the RPA. However, the scale of the postcode is broadly comparable to the catchment.

⁴⁷ Calculations can be made to estimate the amount of Hill Farm Allowance received in the Bassenthwaite catchment. Hill Farm Allowance is c. £14/ha above the moorland line and c. £38/ha below the moorland line. There are 20,218.57 ha above the moorland line (excluding woodlands) and 9,669.79 ha below the moorland line excluding lakes, woodlands and urban areas. At a 100% uptake rate for Hill Farm Allowance this would result in total payment of £283K above the moorland line and £367K below the moorland line. Divided between the 156 farms this would give an average payment of c. £4k per farm per annum. Source: Jane Lusardi, Natural England

⁴⁸ Agreements have a range of different start dates, and are not linked to financial years, so refer to annual payments for those in the scheme at that time. Source <http://www.cap-payments.defra.gov.uk/Search.aspx>

⁵⁷ Data provided by Natural England from October 2009.

⁴⁹ Data provided by Natural England from information in the Rural Land Register 2007. Some of these are for very small holdings.

⁵⁰ This is subject to significant change on an ongoing basis. The CAP figure for the Lake District is not known, but as the Bassenthwaite catchment covers approximately 20% of the National Park it might be assumed that this figure would be c. £10 million. This would suggest an approximate figure of c. £18 million for payments to landowners and managers for the Lake District per annum, or 1.5% of the tourism revenue created in Cumbria per annum.

⁵¹ The farmer investment in environmental management is often underestimated. Whilst some ESA capital grants pay 80% of costs, and some HLS schemes 100%, other evidence from the Farming Connect Cumbria agricultural grant scheme managed by Cumbria Rural Enterprise Agency suggests that a farmer match funding contribution for projects, even environmental improvement projects, was often actually in the 60-70% range. Thanks to Harry Martin, CREA, for his insights on these issues. And the cultural infrastructure of farming is often a free public good created as a side effect of the productive economy.

⁵² This figure is problematic and should be treated with caution as averages mean little given the complexities of farm support payments – we use it here to give the layperson a guide figure for the investment levels per hectare into agriculture.

According to DEFRA's Farm Practices Survey 2009, 71% of upland farm businesses have land within environmental schemes: 39% have Entry Level Stewardship (ELS) agreements (or its organic equivalent); 37% have either existing Environmentally Sensitive Area or Countryside Stewardship agreements; 9% have Higher Level Stewardship (HLS) agreements, and; 5% have other environmental agreements (e.g. Wildlife Enhancement Scheme)⁵³. Significant minorities of farmers would be interested in joining ELS and HLS, with interest greatest from those already in ESA or CSS agreements. 48% of farmers in Severely Disadvantaged Areas (SDA) expressed an interest in joining Uplands ELS. In the Bassenthwaite catchment 70% of farms are within ESA schemes, 7% in HLS and 5% in WES.

Statistics are limited in communicating the fact that the catchment is home to some of the most important flocks of Herdwick sheep in the Lake District. Susan Denyer of ICOMOS, an international authority on landscapes of this type has already highlighted the cultural heritage significance of Herdwick farms in valleys like Borrowdale and the need for this to be carefully considered in discussions about the management of such landscapes in the event that the Lake District becomes a UNESCO World Heritage Site⁵⁴. One way of illustrating the farming economy is to look in more detail at two farms (names have been changed):

Blackbrowe Farm¹ is a 180 hectare traditional mixed livestock Lakeland farm.

- The farm has common grazing rights for 250 ewes on a common in the catchment and carries 730 ewes in total and 65 suckler cows (so is almost twice the size in terms of livestock of the LFA North West average).
- Livestock sales for the farm totalled £70,000 in 2007, with an additional £45,000 paid in environmental and livestock subsidies.
- Financially the farm business is like many of the other 156 in the catchment – it has a dilemma; most of the costs of the farm are associated with the livestock, and traditionally the subsidies were linked to the livestock as well. In theory, current and future environmental payments have decoupled this income from the livestock, in reality the only way this particular landscape can be managed to produce the environmental outcomes required to date, has been to continue to farm the livestock.

Two other variables affect the business planning on the farm, firstly the future of Agri-environment payments is far from secure, so the business knows it may need to secure more revenue from livestock in the future; and, secondly, the business can flexibly control the productivity linked to livestock production to respond to market incentives (in the past 2 years the cost of livestock sales will have risen significantly and changed the balance of the business even further towards production).

⁵³ The Farm Practices Survey 2009 – Uplands and other Less Favoured Areas (LFAs) survey report, Defra Agricultural Change and Environment Observatory Research Report No. 16 - Lindsey Clothier and Elizabeth Finch, DEFRA

⁵⁴ See also, Geoff Brown; Herdwick Sheep and the English Lake District, Hayloft (2009)

High Nib Farm is a more extensively farmed sheep farm of 178 hectares located higher in the catchment.

- The farm carries 950 breeding sheep (three times the average LFA farm stock numbers), and 30 suckler cattle
- There is a significant amount of capital locked into the farm (several hundred thousand pounds) but the return on investment is poor (in the region of 1.5% in 2007).
- The farm has already diversified into tourism accommodation.
- The farm is highly ‘subsidy dependent’ with around 75% of gross output coming from ESA payments and historic headage payments (2007).
- Sheep sales and cattle sales account for 11% and 15% respectively of gross output.
- The subsidy payments are strongly linked to environmental outputs – in other words this farm is already primarily selling Ecosystem services, and tourism accommodation.

Agricultural products are actually a relatively minor part of its gross financial outputs, but the sheep on the farm are, of course, the management tools (through conservation grazing) that the farmer uses to produce the stipulated Ecosystem services, and they may well be his cultural motivation for managing the landscape in this way for such poor financial returns.

Clearly the two businesses have different levels of reliance upon the market and the agri-environment payments available. But what both farms have in common is that they directly sustain, alongside the other farms in the catchment and Lake District, a much wider economy; from the auction marts in Penrith and Cockermouth, to local agricultural suppliers, to dry-stone wallers, crop and feed producers, and the wider Cumbria landscape through winter grazing of much of rural Cumbria. The spend on farming is relatively ‘sticky’ in that revenue generated by farm businesses is largely ploughed back into the landscape itself, or into goods and services that are often sourced locally.

Woodland and Forestry

In addition to the agricultural economy of the catchment there is a considerable forestry and woodland economy. The following table shows the breakdown of woodland, broken into Forestry Commission and non-Forestry Commission ownership.

Woodland type	FC Woodland Area (ha)	Other Woodland Area (ha)	Total Area (ha)
Broadleaved	12.12	1329.54	1341.65
Coniferous	1139.76	1313.33	2453.09
Fells	68.77	58.53	127.30
Mixed	0	14.26	14.26

Young Trees	74.11	11.57	85.68
Total	1294.75	2727.23	4021.98

The Forestry Commission manages a significant area of commercial forestry in the catchment which is typically sold standing for between £10 and £20 per cubic metre: but many of the key opportunities exist for the non-FC woodland. Timber production generates over £1 million per annum from the North West’s forests, with annual production of 90,000 square metres of wood. The timber is a share of the raw material for businesses largely outside the catchment, across Cumbria or further afield, for example BSW Sawmills, Carlisle, or Iggesund Paperboard in Workington. In addition to this, commercial FC woodland the catchment is also capable of producing considerable wood fuel - the catchment could theoretically produce 6378 tons of timber per annum⁵⁵. If dried to 30% moisture content, this would end up as 4141 tons which could provide 22,323 MWh of thermal energy⁵⁶. There is real potential to better utilise the woodfuel potential of the FC woodland in the catchment.

Challenges and Issues

- Many of the issues raised with regard to tourism lifestyle businesses also apply to small hill farming businesses, namely relatively low productivity, low wages and limited direct contribution to high GVA growth⁵⁷
- Assumptions about planning for this landscape need to be considered in terms of future-proofing. These farms are very dependent on livestock markets and CAP funding. Both are likely to change significantly in the next 5 years. For example, it is fascinating to model what would happen if agricultural prices were to rise in real terms by say 30% over the next 5-10 years, and public subsidy (Agri-environment and Single Farm Payment combined) were to decline in real terms by 30%⁵⁸. Modelling this scenario shows that the proportion of LFA Mixed Livestock farm income coming from commercial agricultural products would rise from 57% to 71% (75% if you include diversification income), and the

⁵⁵ This assumes a 5 year thinning cycle that produces a sustained annual yield. 50% of the area will not be managed due to constraints such as owner attitude, and lack of access. This will be particular prevalent in the Borrowdale valley, where the National Trust would like to manage their woods for wood fuel, but cannot physically extract the timber. Wood fuel has a value somewhere in the region of £1-£10 a ton at the roadside, and is typically £70 delivered, equating to about 2.2p/kwh depending upon the efficiency of the boiler.

⁵⁶ Calculated by Peter Fox, Forestry Commission using FC multipliers.

⁵⁷ There is however a critical difference between the two sectors, primarily one of scale – there are approximately 7 tourism businesses in the catchment for every farm business. The GVA performance of both sectors in upland rural areas of Cumbria is, for some commentators, a matter of concern but the agricultural sector being much smaller, and contributing more directly to the landscape, would be of less concern. Whilst both sectors may be classified as relatively low GVA sectors, the scale of the tourism sector in this catchment means that it has a much greater impact on the macro-performance of the economy. A second critical difference is the 156 agricultural businesses directly sustain the landscape character and vernacular culture that makes this place potential UNESCO World Heritage Site, and authorities like Susan Denyer, ICOMOS, are warning of the dangers to the ancient farming system of losing any more traditional hill farmers.

⁵⁸ No one really knows whether or not this will happen, but it is not an unrealistic scenario, given the state of the public finances in Europe, and the projections on global food demand by a range of commentators.

combined value of subsidies would decline from 39% to 25% of farm revenue⁵⁹. Clearly in such a scenario the power of policymakers to secure environmental (non-farm production) objectives would markedly decline, and the farmers would concentrate much more on the production of agricultural products.

- There is significant potential for woodfuel extraction to be better utilised in the catchment.
- It is also critical to consider what would happen if public subsidy declined without an increase in food prices. In 2008 39% of income on a mixed livestock LFA farm in the North West came from public subsidy. In monetary terms for the year 2008-9 this amounts to £4329 of the average farm income of £11, 099. Would such a loss of subsidy result in farms going out of business, amalgamation of farm businesses or abandonment of agricultural land?
- However an increase in linkage to the provision of ecosystem services may make a decline in public subsidy less likely in the Bassenthwaite catchment than in other areas. Land Use Policy Group (see www.LUPG.org.uk) and Defra policy is for post 2013 CAP to have a strong ecosystem services link.

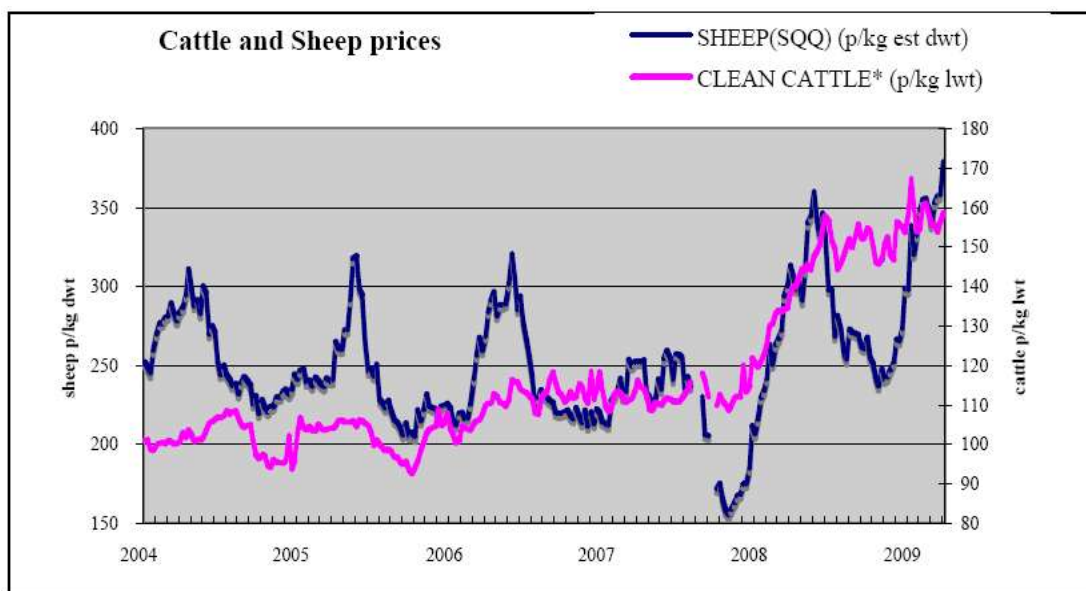


Figure 20 Rises in livestock prices since 2008 have changed the output focus of Lakeland hill farms (Source DEFRA⁶⁰)

- Farm succession is a major issue. The National Trust in the Lake District (who own a considerable amount of the farmland in this catchment), suggest that from their Lake District farming estate of 92 farms (with 22,000 sheep belonging to them in ‘landlord’s

⁵⁹ This scenario assumes for simplicity that the diversification income would remain static.

⁶⁰ Agriculture in the United Kingdom, DEFRA (2009)

- flocks') 40-50 will change tenancy in the next 10 years, and 60-70 in the next 15 years. Approximately two thirds of current tenants have 'no likely successor' at present⁶¹.
- One scenario for the future might be different kinds of tenants who are more interested in environmental management than sheep. The National Trust's previous experience has shown that the 'critical skill' is that of 'managing a fell-going flock of sheep, and a passion for quality stock'⁶². Farmers may be the only people that will manage this landscape for so little financial return because of the 'stockmanship' culture⁶³.
 - Many farm businesses in the Lake District are actually subsidising the traditional farming with off-farm income generated by the farmer's spouse or family. Data from DEFRA's Farm Business Survey for 2008 suggests that each farm represents £15,928 of unpaid labour provided by the farmer or his/her spouse – or for our 156 farmers in the Bassenthwaite catchment £2.48 million of unpaid labour ploughed into this form of landscape and livestock management⁶⁴. This raises the curious scenario that these 156 farming families' unpaid time may have a significantly greater economic value than the Lake District National Park's total budget for landscape management.
 - The DEFRA Farm Practices Survey 2009 revealed that 82% of upland farmers agree that maintaining the environment is "vital to the future of upland farming" and/or "part of the process of upland farming".
 - The DEFRA Farm Practices Survey 2009 revealed that the most important challenges for upland farmers were market prices (76% of upland farmers), changes to Single Payment Scheme payments (65%), the impact of new regulations (65%), input costs (59%) and the level of environmental payments (47%). Most upland farmers remain committed to the sector with 41% of upland farmers indicating, in the DEFRA Farm Practices Survey 2009 that they "will do all that they can to remain in farming" and 38% "will try to remain in farming" - just 2% are "thinking of leaving farming for another career".
 - Farming like this may be 'economically irrational' but for this catchment's management it is critical – because farm generated income, whether it be agri-environment, livestock sales or diversification or off-farm income, is heavily reinvested back into the landscape itself.

Potential Benefits and Beneficiaries

The curious thing about agriculture and forestry in the Bassenthwaite catchment is that relatively small numbers of people rely directly upon these sectors for their employment compared with tourism – but these activities sustain much of the landscape upon which so many of the other economic benefits rely.

⁶¹ For a wider perspective on this issue in the uplands see, The Farm Practices Survey 2009 – Uplands and other Less Favoured Areas (LFAs) survey report, Defra Agricultural Change and Environment Observatory Research Report No. 16 - Lindsey Clothier and Elizabeth Finch, DEFRA

⁶² Neil Johnson, National Trust; "if you can't, or don't, manage the sheep you can't manage the land, and we lose our ability to influence, to shape and to deliver all of the attributes which we believe are so important to the nation".

⁶³ Natural England's Vital Upland Vision for 2060 comments that "Farmers and other land managers have the right skills, knowledge and resources to manage the environment for the range of benefits it provides, and take pride in doing so".

⁶⁴ This single figure dwarfs some of the projects and investment schemes from the leading public or third sector organisations, and is a powerful reminder that this is to a significant extent a privately owned and sustained landscape.

Conclusion

Our research suggests that agricultural or forestry production is still critical to land management and generates the majority of its own costs. The public sector in Cumbria is unlikely to be able to secure the investment from the public purse to continue to carry out the roles it currently plays in this landscape – EU and UK National government investment is projected by all commentators to decline in the next few years – potentially making the productive elements of this landscape increasingly important in the future. Many stakeholders interviewed for this research stressed that hill farming in particular contributes significantly to the distinctiveness, authenticity and sense of place of the Lake District. Farmers in this catchment, as in other upland communities, are overwhelmingly committed to ‘maintaining the upland way of life’⁶⁵. The challenge is for the public/private sector to develop future arrangements that pay the farming community for the provision of a range of ecosystem services in addition to agricultural produce.

6 Health and Wellbeing

Background

Previous research has suggested that green infrastructure can play a powerful role in providing measurable physical and mental health benefits. According to the Office for National Statistics, the Northwest exceeds the UK average for long-term illnesses. Several high profile and extremely costly conditions, such as heart disease, diabetes, obesity, asthma and some cancers, are directly associated with low rates of exercise, high stress levels and polluted environments. The *Economic Value of Green Infrastructure* suggests that investment in environmental enhancements can encourage leisure and exercise activities such as walking, cycling and sport which directly address these problems. Clearly such impacts would have significant value in terms of reduced sickness costs and NHS costs⁶⁶.

Evidence

NHS data exists for wards in the catchment which make it relatively easy to make informed judgments about the health of the catchment’s communities. But further research is required to be comprehensive about the relationship between this landscape and health. Further specialist research is required to ascertain whether areas like the Bassenthwaite catchment are simply healthy because they are affluent, or whether there is an additional health gain (with a financial cost benefit) that results from specific landscapes, or specific landscape features like footpaths or cycle ways. To the non-specialist the Derwent Valley ward of Allerdale and the Greystoke ward of Eden, both in the catchment would appear to have equal access to the landscape, but

⁶⁵ See Farm Practices Survey 2009 – Uplands and other Less Favoured Areas (LFAs) survey report, Defra Agricultural Change and Environment Observatory Research Report No. 16 - Lindsey Clothier and Elizabeth Finch, DEFRA. 95% of farmers felt it was ‘very important’ or ‘important’.

⁶⁶ Social and Economic Benefits of the Natural Environment: Review of Evidence. GHK (2006).

though both wards score highly in terms of life expectancy they still have an 8.1 year life expectancy difference which suggests to us that other variables than access to green infrastructure are additional determinants of health and wellbeing.

Quality of Life surveys for Allerdale provide another perspective on the wider community. These statistics for Allerdale⁶⁷ show that 78% of Allerdale residents stated that they were ‘happy’ or ‘very happy’ compared to 77% for Cumbria as a whole, or 69% for Barrow⁶⁸. 66% stated that their health has been very good or good over the past 12 months (compared with more urban and less affluent areas like Barrow 61% and Carlisle 60%). Exercise levels in Allerdale are no better than the Cumbria average – with no way of distinguishing between those communities that are closer to the Bassenthwaite catchment than those that are further from it. Obesity levels are slightly below those for the whole of Cumbria – with 9% of respondents rated as ‘obese’ compared with 10% for Cumbria. According to the most recent census (2001) 30% of Lake District population were over 60.

The following stats from the key health documents for Cumbria paint a rather troubling picture: 16% of the Cumbrian population lives in areas which rate as among the most deprived in the country⁶⁹. There are approximately 15,000 Cumbrian children under 16 years old (16 per cent of the population), living in income deprived households⁷⁰. Around 9% of 4/5 year olds and 20 per cent of 10/11 year olds in Cumbria were classed as being obese in 2008/09⁷¹. The percentage of children who are physically active is significantly below the national average. Approximately 18,000-30,000 children (0-19 years) will be at risk of poor mental health due to social, economic and family conditions. There are relatively large numbers of people living in poor quality housing. There are across Cumbria high levels of fuel poverty. Cumbria has a relatively low level of the workforce educated to degree level or higher. There are low levels of employment for persons with disabilities. On average men in Cumbria lose 10 months of life and women 4.5 months directly attributable to alcohol. In summary, just over one in four Cumbrians are experiencing poor health and wellbeing comparable to some of the worst areas in England⁷². Worryingly, these health related inequalities appear to be widening.

Key Findings

Health and wellbeing in the Bassenthwaite catchment, as everywhere else, is strongly linked to levels of affluence. The more affluent you are the higher you score on most health indices, the more deprived your community the more likely you are to score lowly. Maps of health deprivation (see below) do suggest a close correlation between designated high quality landscapes and better health but not a causation. This section is not about the health and

⁶⁷ Frustratingly it is not possible to break these stats down toward level to identify whether this reflects the catchment. Cumbria Quality of Life Survey (2006) IPSOS MORI survey research commissioned by Cumbria County Council

⁶⁸ Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

⁶⁹ The Annual Report of the Director of Public Health (Cumbria 2010)

⁷⁰ This is lower than the national average of 21 per cent.

⁷¹ Health Profile. Allerdale – NHS (2009)

⁷² See Inequalities and health in Cumbria, Full report (NHS Cumbria/Cumbria Intelligence Observatory)

wellbeing of the catchment's communities⁷³ so much as the economic benefit of any health benefits that result from this landscape. This potential economic benefit probably affects three groups of people; those who live in the catchment, those who live close to the catchment (some of whom are in relatively deprived communities), and those who visit the catchment as tourists.

In previous sections of this report we have pointed out the challenge facing the catchment in needing to think carefully about attracting higher value visitors and avoiding offering too much low cost recreation because this leaves little economic impact within the catchment. However the future, like the past, may be more complicated than this; the catchment and the wider Lake District landscape may have to balance being both an economically efficient economic entity with being a green space offering public benefits for the rest of the UK in return for investment from the public purse. The future, in short, may like the past, be funded by a mixture of earned and subsidized income – and health may be a key reason why the public sector might invest in this landscape.

We should perhaps start with the **visitors**: The fact that 15.3 million tourist days are spent in the Lake District landscape, with a significant proportion of these within the Bassenthwaite catchment, and that a proportion of this time is spent in outdoor activities that will increase people's fitness and wellbeing, which constitutes a significant public benefit, and should, of course, be weighed against the investment in this landscape⁷⁴. The Lake District, and the Bassenthwaite catchment, has long catered for the fitness, health and wellbeing needs of other areas of the UK. There is a long history, for example, of other local authorities sending young people to Youth Hostels or Outdoor Learning Centre's to influence their current and future lifestyles. Local authorities in the North East, for example, even went so far as to buy facilities where they could bring young people to experience healthier lifestyles and adventure. It is part of the role of the UK National Parks that they offer easily accessible and low-cost recreation opportunities for diverse communities. That is partly why they receive UK government monies. One of the challenges for the future will be to demonstrate that visitors to the Lake District actually engage in physical activity, rather than more sedentary activities. Visitor surveys over the past 10 years have repeatedly shown quite modest proportions of visitors undertaking a walk of more than 2 miles (often less than 10%)⁷⁵. For the latest figures on this see the visitor survey data in the Tourism section above.

The second group we should consider is the **residents** of the catchment: As we have seen in previous sections the high house prices of the catchment have over time enabled the communities to economically self-select themselves out of deprivation and all the social and health problems that go with deprivation. This results in some staggering health and wellbeing inequalities from the head of the catchment to the point where the river joins the sea downstream. Statistics from the Office of National Statistics show that the Greystoke ward of

⁷³ The authors of this report are not experts in health matters.

⁷⁴ It is beyond the scope of this report to put a financial benefit on this public good.

⁷⁵ Anyone in any doubt about the link between physical activity and health and wellbeing should read *At least five a week: Evidence on the impact of physical activity and its relationship to health* (A report from the Chief Medical Officer)

Eden which includes part of the Bassenthwaite catchment has a staggeringly high life expectancy of 91.3 years of age (the second highest rate in the country); whilst in the Moss Bay ward of Allerdale the life expectancy is 71.8 years.

Figure 1a: Index of multiple deprivation 2007

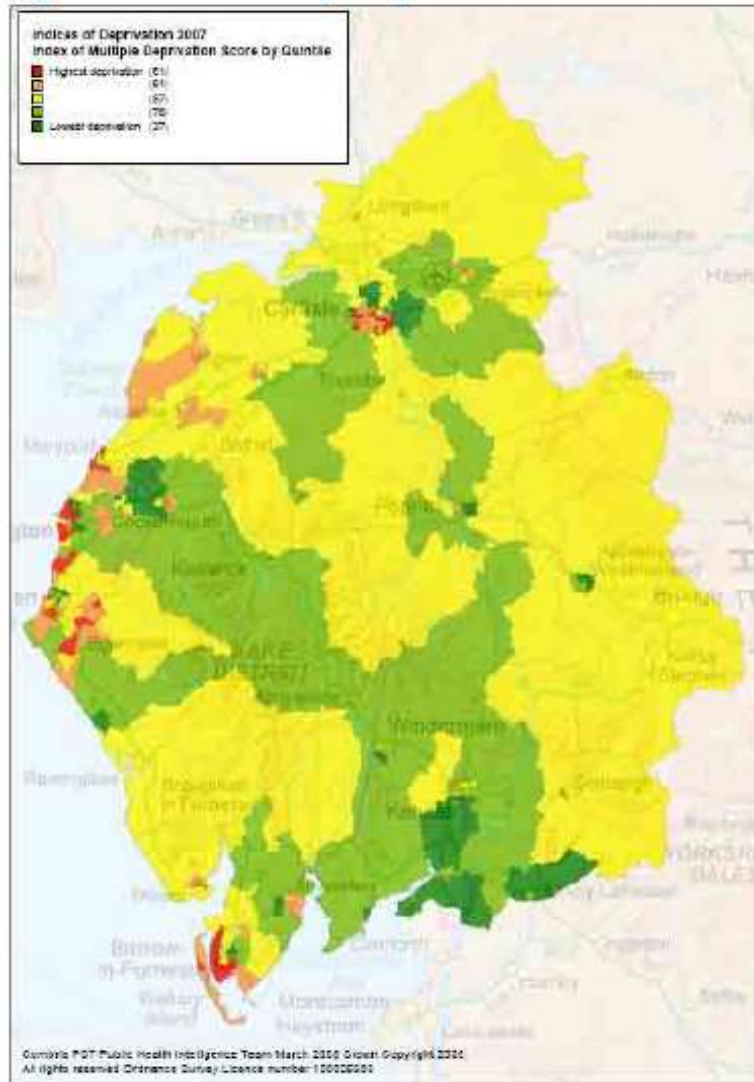


Figure 21 Closer partnership working between the Primary Care Trusts and the environmental management organisations can better target health impacts

The Greystoke level of life expectancy isn't, of course, attainable for everyone but if everyone in Allerdale lived to this average age they would live another 19.5 years. The determinants of wellbeing that emerge from recent health research in Cumbria highlight the following factors⁷⁶: People who are in full time employment or education or are self-employed have higher levels of wellbeing; people who are finding it difficult or very difficult to live on their present income are more likely to have lower levels of wellbeing; people with more qualifications have higher levels

⁷⁶ Health stats on this page from The Annual Report of the Director of Public Health (Cumbria 2010)

of wellbeing; people with a stronger sense of belonging to their immediate neighborhood, a strong belief that they can affect decisions about their area, and people who feel safe in their local area tend to have higher levels of wellbeing; and people with strong networks have higher levels of wellbeing. Presumably the ward of Greystoke has a high proportion of people who have the positive determinants and lack the negatives.

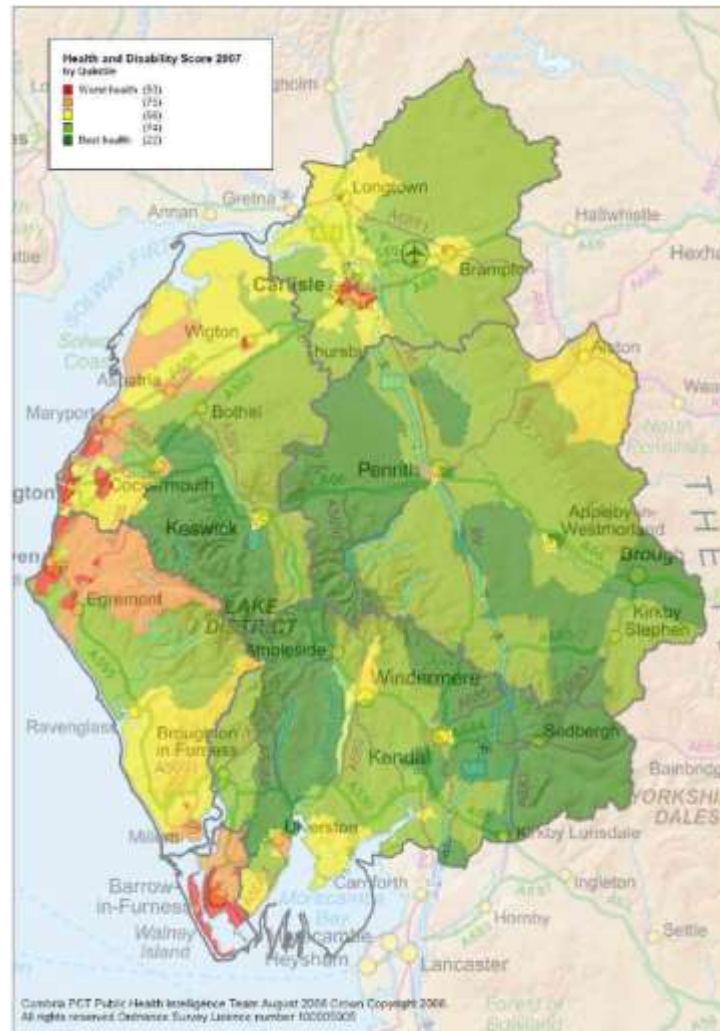


Figure 22 Health and Disability mapping suggests a Lake District landscape that works well for affluent residents and rather less well for deprived communities just outside the National Park. Key: The green areas have low health and disability scores, the yellow mid range scores, and the red high scores.

Challenges and Issues

- The key challenge is **those people living in relatively close proximity to the catchment, including those who live in deprivation.** Anyone taking the time to look at the health statistics for Allerdale wards might wonder whether relatively close proximity to the Lake District is having any positive effect on the health or wellbeing of many of the more deprived communities just a few miles from the catchment.

- The Bassenthwaite catchment may be supporting affluent rural residents in sustaining high levels of good health, but it is not clear to the authors of this report whether this landscape works for the people who live in communities just a few miles from it.
- Environmental projects with a social and community focus like the Bassenthwaite Reflections Project (a Heritage Lottery Fund Landscape Partnership project with more than 20 partner delivered sub projects across the catchment, and supported by most of the key stakeholder organisations) have found it hard to link the environmental works required with the communities of greatest need further to the West.
- Sometimes this is made difficult by the focus required by funders – a landscape partnership project for the HLF can have no more than a 200 square kilometre focus, and has to explain why it has a distinct landscape character. This is relatively easy for an area of the Lake District, but would be rather more difficult for post-industrial areas of West Cumbria. It is to the credit of projects like Bassenthwaite Reflections that they have tried to reach westwards through their education and cultural programmes. Likewise the Forestry Commission’s English Woodland Grant Scheme has targeted interventions based on deprivation data.

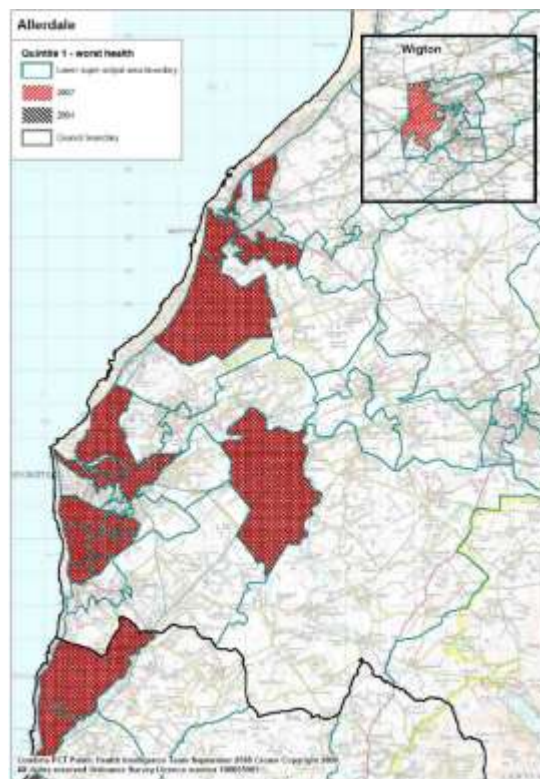


Figure 23 Just a few miles from the Bassenthwaite catchment exist communities who are experiencing the worst health – future environmental projects might better connect opportunity with need

- Environmental projects that involve volunteering⁷⁷ to take part in landscape management works inevitably attract relatively affluent, middle-class, middle-aged, well educated participants. This is the demographic with the greatest cultural interest in this landscape and the most time on their hands. It is a big ask to expect an unemployed single parent from Workington without a car to turn up and plant acorns as a volunteer on a Lake District fell-side. For this to work better in future it may be that environmental funders need to factor in to their thinking the social and economic geography of communities.
- The Forestry Commission has already undertaken some progressive work which maps catchments against deprivation, providing a robust evidence base for targeting investment in the future.

Potential Benefits and Beneficiaries

The beneficiaries of such landscape health initiatives would be some of the most deprived people in Cumbria who arguably at present get too little from this landscape. If this can be developed in the future, it has the power to result in investment that may benefit landscape management itself. It may be that Agri-environment schemes could reward some land managers for offering access and support for health initiatives.

Conclusion

This landscape already provides a setting for millions of people to engage in activities that improve their health and wellbeing, that is part of the rationale for the investment in it as a National Park. However, there is an economic challenge in this because offering low cost recreation and access can result in a low value tourism sector. Our research suggests that new ways need to be found to unlock economic value from this public service. One area worthy of further investigation is whether this landscape can be better utilised to improve the health and wellbeing of deprived communities which are often only a few miles from the Lake District.

⁷⁷ Though it is beyond the scope of this report to measure its economic value, it should be acknowledged that large numbers of people take part in volunteering with organisations like Lake District National Park Authority, the National Trust, Cumbria Wildlife Trust or Bassenthwaite Reflections across Cumbria, gaining a range of technical and life skills, which have a significant social and cultural value, and form part of a healthy and cohesive society.

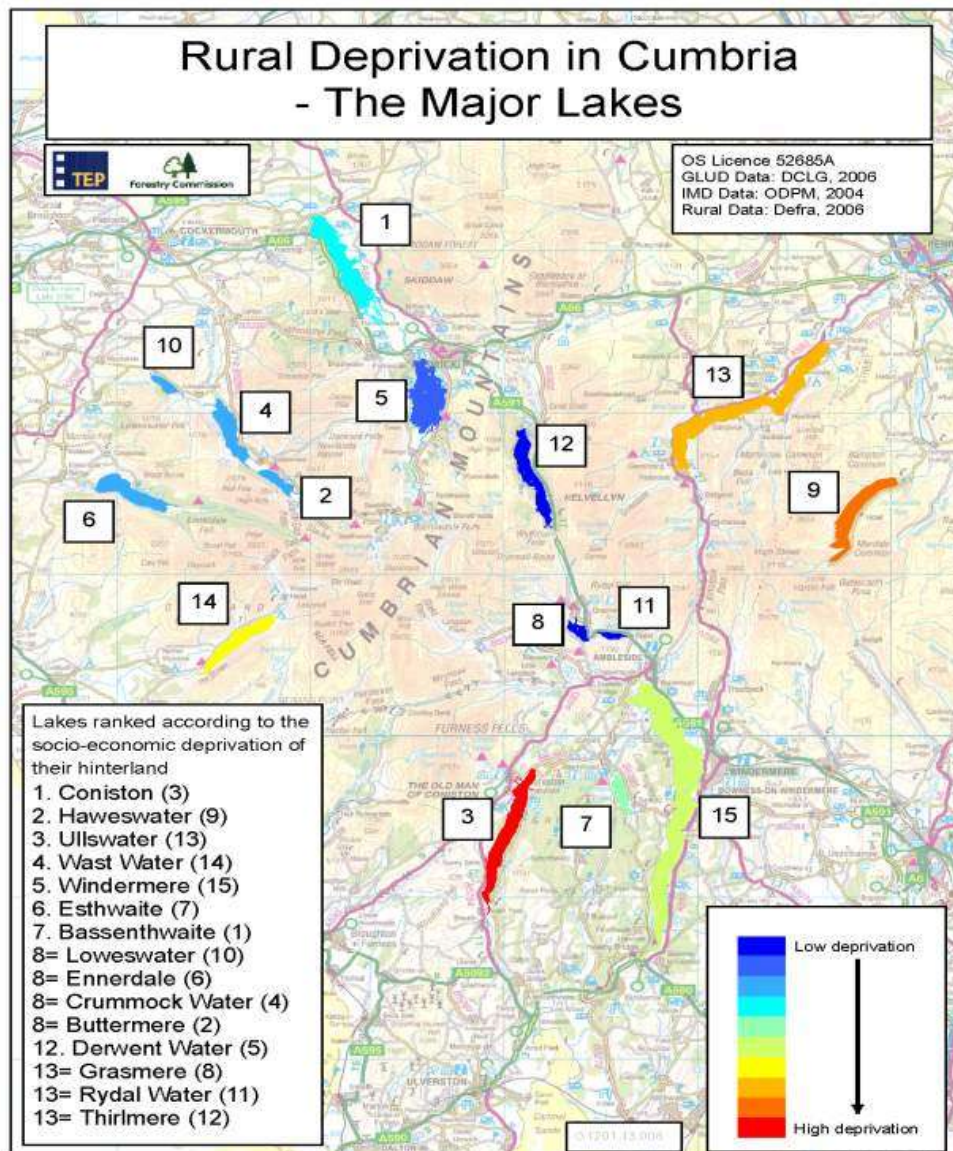


Figure 24 Environmental projects wishing to address deprivation of communities perhaps need to start with the socio-economic geography of communities. Some Lake District catchments are surprisingly close to areas of deprivation as bad as any in England and Wales. It will be noted that the Bassenthwaite catchment is towards the more affluent end of the scale. Source: Forestry Commission Public Benefit Analysis.

7 Recreation and Leisure

Background

The literature on the economic value of ecosystem services has long stressed the value of upland areas as settings for recreation and leisure activities. The English uplands National Parks are estimated to host 69.4 million visitor days per year⁷⁸. Upland ecosystems often provide ideal settings for a range of recreation and leisure activities, from rock climbing, to fell walking, to mountain biking to nature watching that are enjoyed by residents and visitors alike. As we have seen in the tourism section above, the effectiveness of this ecosystem services is heavily reliant upon the economic infrastructure.

Evidence

Data from the Cumbria Tourism destination management system enables us to breakdown the tourism businesses and see how many provide activities. Other data, like that for outdoor retail or outdoor education and learning is more accurate for a Cumbrian or Lake District sample. Data collected as part of the research for the Adventure Capital strategy for Cumbria, and in some cases the Lake District, enables us to make reasonable judgments about its economic value. It should be noted that recreation is a sub sector of the tourism economy, and therefore part of the value associated with that as explained in the tourism section above.

Key Findings

Recreation and leisure are largely part of the tourism economy of the Bassenthwaite catchment, and have been covered at length in the section above on tourism. Here it will suffice to add that the Bassenthwaite catchment is of national importance as a location for recreation and leisure. ‘Adventure activities’ such as hiking, canoeing, climbing, mountain biking, cycling, walking, etc have been identified by several respected international studies as being a sector with significant growth potential for areas like the Lake District. Survey data repeatedly shows that engaging in outdoor and physical activities is a major motivating factor for visitors to Cumbria – with at least 40%+ of visitors attracted by the chance to engage in outdoor activities, and as many as 69% of some key market segments⁷⁹. These activities have the potential to unlock greater value from this landscape by translating its potential into experiences that people will want to engage in and pay for⁸⁰.

The statistics for the economic value of these activities are complex and measure different things and include overlaps, so no comprehensive statement of value is possible. However, we

⁷⁸ Source: Ecosystem services – a new rationale for conservation of upland environments Aletta Bonn, Mick Rebane and Christine Reid, in Drivers of Environmental Change in the Uplands – Editors – Aletta Bonn, Tim Allott, Klaus Hubacek and Jon Stewart Routledge Press, 2009

⁷⁹ Cumbria Tourism market segmentation analysis -

⁸⁰ Thanks to Katie Read, Cumbria Tourism, for highlighting the need for environmental projects or sites to find ways to translate green assets into experiences and products that visitors will spend money on. See Growing Natural Tourism, Natural Economy North West (2009)

can get an idea of scale by looking at the different measures. The value of ‘activity tourism’ to Cumbria is estimated at **£95 million**⁸¹ per annum⁸². Cumbria has more than 100 outdoor Activity Centres employing around 2,000⁸³ people and an ‘outdoor education sector’ worth approximately **£100 million**⁸⁴ per annum. It is not possible to be categorical about what share of this is in the Bassenthwaite catchment, but a conservative working assumption would be 20-30%.

It is also of economic significance that Cumbria has one of the highest concentrations of outdoor retailers in Europe⁸⁵. The sector generates at least **£25 million** in revenue for suppliers, retailers and manufacturers of outdoor products. Cumbria Tourism’s Outdoor Providers database includes 153 outdoor businesses and shows that 53% of these businesses are located in six key towns – Penrith, Keswick, Kendal, Windermere, Ambleside and Coniston. Obviously Keswick with its high density of outdoor activity retailers constitutes another market that is based at least in part on the landscape in which it sits. Whilst we know that only a small proportion of visitors actually undertake a walk of more than 2 miles, the economic blessing is that this doesn’t stop lots of visitors buying expensive outdoor recreation gear from local retailers.

A great example of part of the Bassenthwaite catchment translated into a recreation or leisure experience that unlocks significant economic value is Go Ape at Whinlatter Forest Park. These tree-top obstacle courses with ladders, walkways, bridges and tunnels, rope and super-strong wires and zip lines are the result of significant investment and imagination, but they turn woodland into a high value tourism asset. The investment required for this kind of attraction is considerable, but can be commercially successful. The cost of an adult ticket is £30. Go Ape suggest that such facilities attract approximately 30,000 people per annum. Facilities like Whinlatter Forest Park are particularly valuable within the catchment because of the diversity of activities and experiences that it offers the visitor⁸⁶ (the ‘destination mix’) - with mountain bike trails, osprey viewing point, footpaths, Go Ape, food and drink, retail and other facilities. Previous studies have suggested that the Osprey Project alone at Whinlatter Forest Park generates over £2 million per annum for the local economy and attracts more than 100,000 visitors per year⁸⁷. These activities have been the result of strategic planning, partnership working, and significant investment by the Forestry Commission and partners.

Challenges and Issues

- As highlighted in the tourism section above, whether this delivers the high value economic activity required of it will depend upon the quality of the economic

⁸¹ In 2004 Rural Innovations estimated that activity tourism was worth £75-£100m – using growth figures since 2004 a conservative estimate for the sector in 2009 is £95m. Thanks to Sheona Southern, Cairn Consulting, for use of data from the Adventure Capital Strategy 2009.

⁸² Data supplied by Cumbria Tourism suggests that as much as one third of the total for the Lake District may be in this catchment or in close proximity to it.

⁸³ Adventure Activity Licensing Authority 2009

⁸⁴ Association of Heads of Outdoor Education Centres 2009

⁸⁵ Outdoor Industries Association 2009

⁸⁶ Monitoring the quality of experience in Whinlatter Forest Park, Final Report, TNS Travel & Tourism (April 2008)

⁸⁷ Forestry Commission, North West England Forest District Strategic Plan 2005 - 2009

infrastructure, and it may necessarily be that economic infrastructure rather than the natural assets which is the focus of investment.

- Projects like Fix the Fells and Bassenthwaite Reflections have undoubtedly provided underpinning infrastructure which can be used in recreation and leisure – some of which has been funded by the the public sector, lottery, and ‘visitor payback’ scheme administered by Nurture Lakeland
- Key stakeholders are concerned that often the whole-life costs of recreation activities are sometimes not full taken into account – with private-sector-organised events having a real cost in terms of wear and tear and damage to footpaths and rights of way.
- There is a disconnection between the organisations who create and sustain the infrastructure that recreation is based upon (and the cost of this activity), and the private sector businesses that profit from it.

Potential Benefits and Beneficiaries

A move towards enhancing the ecosystem of the catchment to make it more effective and attractive for recreation and leisure has the potential to deliver a significant share of the tourism growth targeted by Cumbria Tourism. In that sense the economic beneficiaries of recreation and leisure as an ecosystem service are those people who are wholly or partly dependent upon tourism for their employment.

Conclusion

Recreation is an important opportunity for the tourism sector in the catchment, offering a strategic solution to some of the issues highlighted in the tourism section above. There is a global market demand for landscapes and biodiversity to be translated into high quality experiences that are authentic and accessible. But environmental organisations and land managers will need to innovate if they are to play an important part in this process, The success of the Forestry Commission in terms of utilising its woodland for recreation and leisure shows that it can be done (with significant investment from UK government and through innovative partnerships with the private sector).

8 Quality of Place

Background

Quality-of-place debates are often focused on places that have poor quality places that can be radically improved by the addition of green infrastructure. The Bassenthwaite catchment is at the other end of the scale, with some of the highest quality green spaces in the UK. It also has internationally important natural and cultural heritage. Therefore the debate here is probably less about the addition of new green space or new ecosystem services than how to sustain, protect and enhance that which we already have to make it contribute economic benefit.

Evidence

Quality of place is a subjective business, measurable in many different ways. However mapping of the cultural and environmental assets of the landscape as part of the Lake District's World Heritage Site bid provides multiple measures of the cultural and heritage value. Other measures like Quality of Life surveys provide evidence for how the wider Allerdale communities perceive their environment and quality of place. The Cumbrian Quality of Life Survey (2006) revealed that 'access to nature' was one of the top ten aspects that make a place like Cumbria a 'good place to live in'⁸⁸ with 90% of residents saying they are satisfied with the local area⁸⁹. Allerdale has a strong sense of community cohesion, as does most of Cumbria – two thirds of residents say they feel they belong to their community and trust most people locally⁹⁰. The three aspects of the local area that Allerdale residents perceive as most in need of improvement are activities for teenagers, access to good quality affordable housing and job prospects⁹¹.

More Allerdale residents stated that 'access to nature' was 'most important' in 'making somewhere a good place to live' (Cumbria Quality of Life Survey 2006) than 'public transport', 'shopping facilities' and 'wage levels/cost of living'. Though it should be noted that it was also rated as less important to residents than 'affordable housing', 'levels of crime', 'Health services', 'Education provision', 'Job prospects' and 'clean streets'⁹². When Allerdale residents were asked to say what most needed improving 'access to nature' and 'parks and open spaces' were less of a priority than other issues. People in Allerdale are less worried about crime and feel safer in the area within 15-20 minutes of where they live than the Cumbrian average⁹³.

⁸⁸ Though it should be noted it was rated less important to residents than 'affordable housing', 'levels of crime', 'Health services', 'Education provision', 'Job prospects' and 'clean streets'. Cumbria Quality of Life Survey, IPSOS MORI (2006)

⁸⁹ Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

⁹⁰ Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

⁹¹ Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

⁹² Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

⁹³ Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

However the greatest single factor affecting people's sense of their place having 'got worse' was stated as the 'environment'⁹⁴. It is also worth noting that when asked how big a problem the 'state of their local river/stream' was 30% stated it a problem⁹⁵. But above the Cumbrian average of respondents were satisfied with the number and quality of parks and green spaces in their community. The impression created from the Quality of Life Survey is that most people's environmental concerns are tightly focused on their immediate surroundings.

Key Findings

The Lake District, with Bassenthwaite catchment as an important part, is deemed to be of such distinctiveness and quality that it is currently pursuing UNESCO World Heritage Site status as a 'cultural landscape'⁹⁶. The Bassenthwaite catchment is also recognised as being of international importance for its fell habitats, woodlands, rivers and lakes, with 30% (10,683ha) designated as Special Area of Conservation. Additional areas of Site of Special Scientific Interest are of national importance and cover a further 6% (2200 ha) of the catchment.

The catchment is home to proud communities with a strong sense of cultural identity and belonging. The indigenous farming communities in particular have a distinct and ancient culture that is still relevant and manifested through day-to-day landscape and livestock management⁹⁷. The resulting natural and cultural landscape is the foundation for many of the other 11 economic benefits – e.g. it provides the accessible leisure landscape for tourism, the upland peat bogs for carbon sequestration, and the setting for high value houses with great views⁹⁸.

The challenge for anyone wanting to explore the link between environmental improvements that improve the quality of place and economic impact is that this landscape is so multi-faceted. Mapping work undertaken by multiple stakeholder organisations linked to the Lake District's World Heritage Site Project starts to illustrate the layers of culture that lie across the landscape:

⁹⁴ This should be read as people in Allerdale communities referring to their own direct environment/streetscape as well as the wider natural landscape. Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

⁹⁵ Cumbria Quality of Life Survey 2006, IPSOS MORI (Commissioned by Cumbria County Council)

⁹⁶ It is worth noting that in UNESCO terms the Lake District was not deemed to have 'outstanding universal value' (OUV) as a 'natural landscape'. The international significance of the Lake District, is in short, based on its distinct hill farming landscape which in turn inspired the rest of the world to think differently about landscape and conservation through the work of writers and artists from the 18th century onwards.

⁹⁷ For example the flocks of the Lake District are all readily identifiable from their lug or smit marks as set down in the Flock Books which tie marks to farms, some of which are many hundreds of years old. The gathering of commons, and associated events (like shepherd's meets) and infrastructure (like sheep folds for strays, or dry-stone walls) would be instantly recognisable to farmers from many hundreds of years ago. This is an extremely unusual level of cultural persistence.

⁹⁸ Will Cockbain, NFU Hill Farming Spokesperson, tells the interesting story of tourists being lucky enough to watch a group of farmers gathering a fell with sheepdogs, and when the sheep were penned, they offered to pay for the privilege. Everyone laughed and they parted without any money changing hands it is a metaphor for lots of ecosystem services.

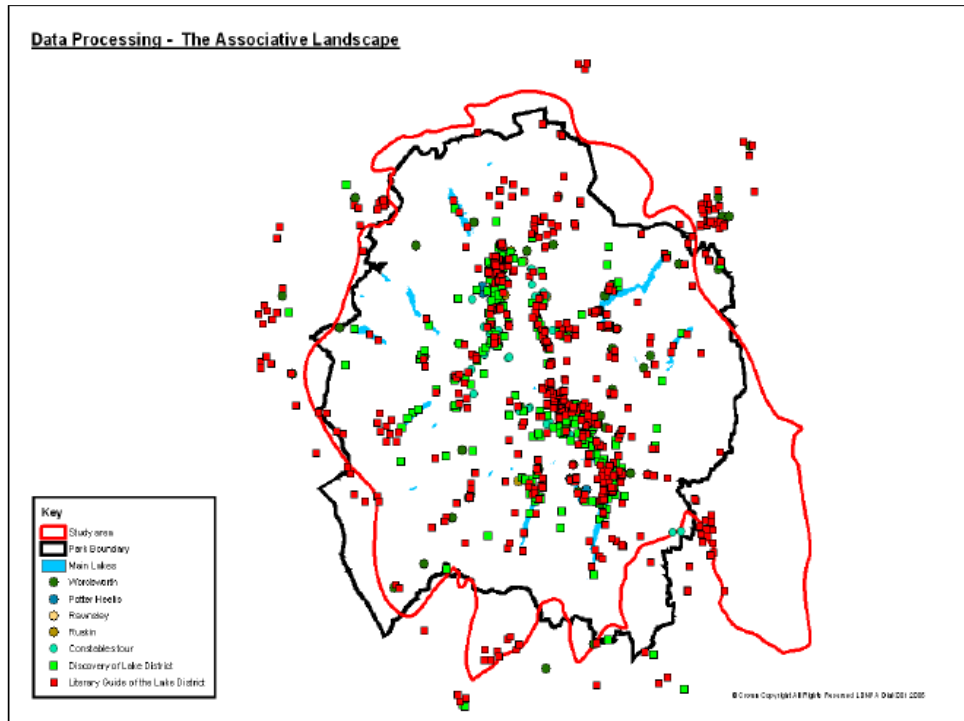


Figure 25 Map of the major sites with literary links to Wordsworth et al. This literary culture is a major determinant in how people think about this landscape, what they expect it to look like, and why they visit.

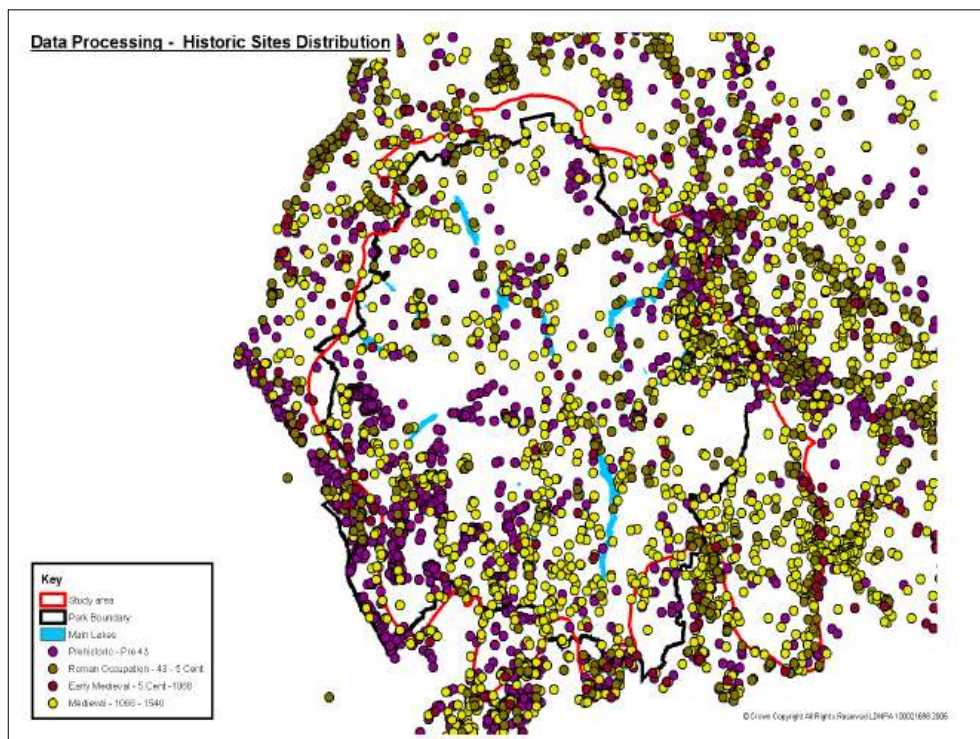


Figure 26 Mapping of historic sites of different kinds reveal this to be an ancient human landscape densely populated with sites of historic importance. Landscape change will need to take account of this.

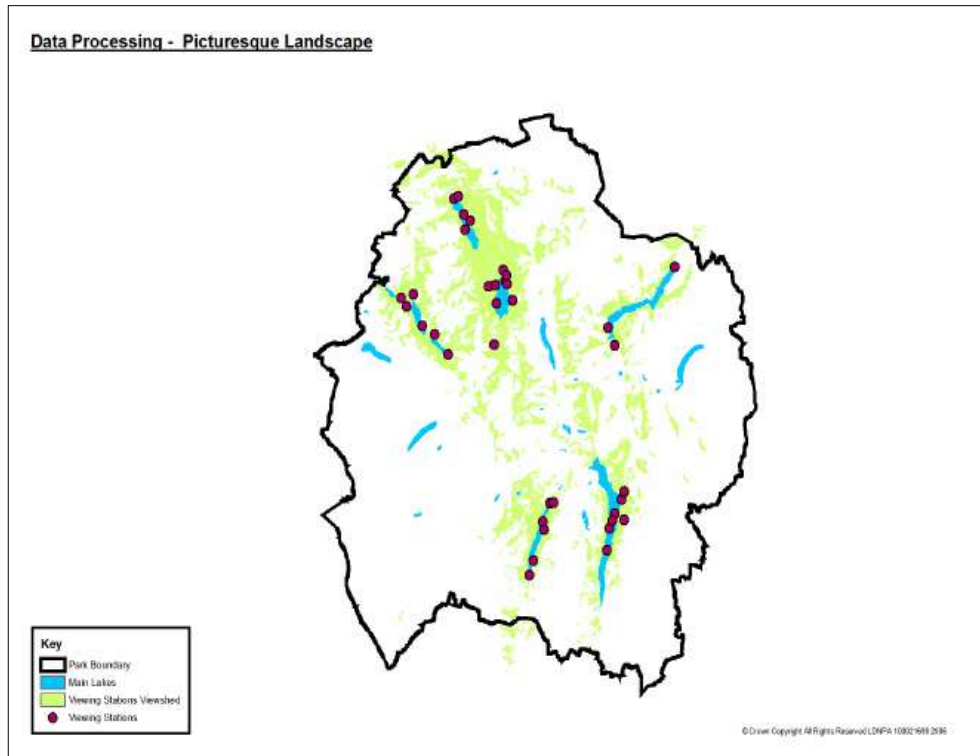


Figure 27 the picturesque landscape: Note the concentration on ‘Viewing Stations’ in the Bassenthwaite catchment and how much of its landscape is seen from them.

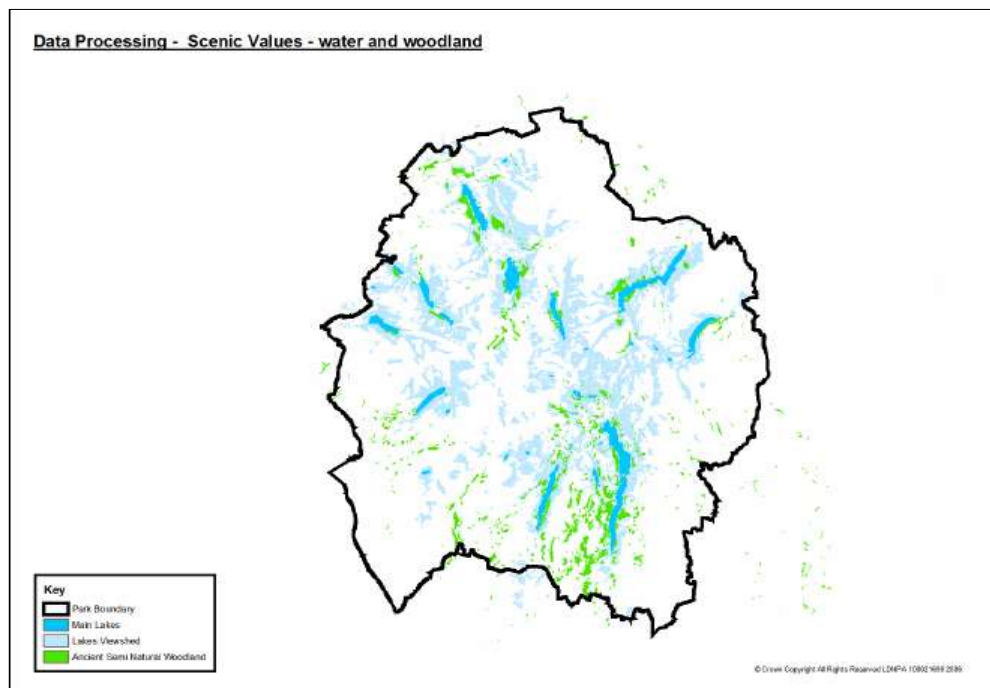


Figure 28 one of the key cultural assets of the Lake District is its iconic and much photographed views. This map shows the viewshed for the Lakes.

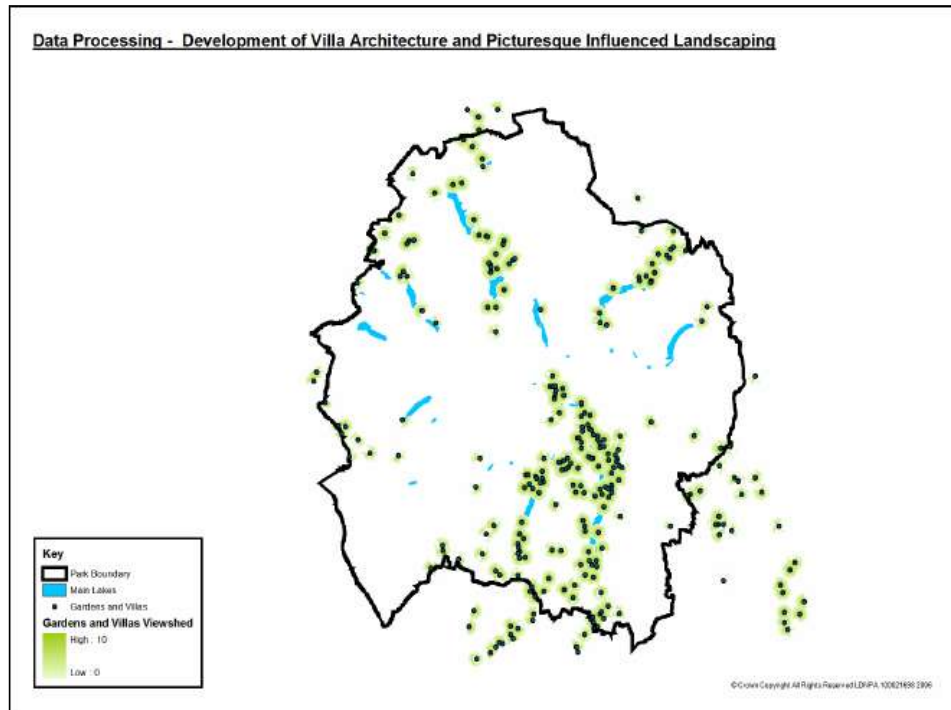


Figure 29 The Cultural Landscape of the Lake District is not just the landscape, but also the villas, vernacular architecture, dry-stone-walls and other built heritage.

Challenges and Issues

- Everyone agrees that the Lake District has evolved over time, and everyone agrees that it needs to evolve in the future. But that is where the agreement ends - virtually no one agrees about what kind of landscape change should happen in the Lake District.
- We simply don't know whether proposed environmental changes like increased woodland, wilder river valleys, less or more food production, would clash with popular cultural perceptions of this landscape and result in visitors falling out of love with it⁹⁹. However landscapes evolve and people's affinity with them does change over time. The Lake District landscape has changed over the last century e.g. with a reduction in arable in the uplands.

Potential Benefits and Beneficiaries

At the moment environmental organisations and land managers pick up much of the cost of sustaining the quality of the Lake District. It would seem to be in everyone's interest to establish mechanisms by which they can be better rewarded for producing desired ecosystem services. In other words, those that benefit, both private and public, should contribute towards this investment.

⁹⁹ Research by University of Cumbria suggests that people assume there are more trees in the Lake District than there actually are, and that they appeared to favour wooded landscapes.

Conclusion

Cultural values like judgements about quality of place are contentious and to a degree subjective – it is not possible to put a meaningful economic value on the quality of place offered by the Bassenthwaite catchment. We simply do not know enough at present to make informed judgements about how visitors or residents might respond to landscape changes that might be necessary for creating enhanced ecosystem services. Evidence from other landscapes is mixed with some evidence suggesting people are attached to the status quo, and other evidence suggesting people would welcome change. But what we can say is that the distinctive quality of this place is perhaps its greatest single brand asset, and needs to be protected, sustained and enhanced. Quality of place is the net result of looking after many other ecosystem services; the Lake District will not be able to sell itself as a world class cultural landscape if it has algal blooms in its lakes, poor quality tourism and recreation infrastructure, and degraded habitats.

9 Land and Biodiversity

Background

Previous research has stressed the importance of rich biodiversity, because it underpins healthy ecosystems, and is critical to the functions and quality of green infrastructure. It is one of the hardest ecosystem services to place any kind of quantifiable economic value upon for the Bassenthwaite catchment, and given the methodology we have used which is more focused on direct and measurable economic outputs is necessarily treated more briefly than some of the other more directly economic ecosystem services. Biodiversity underpins some of the economic activity we have already explored in previous sections, including tourism, forestry, conservation and agriculture. Land management and conservation also results in direct investment and employment from a range of sources.

Evidence

Accurate data for economic outputs from biodiversity or conservation in the Bassenthwaite catchment is not available, but evidence from the Osprey project at Whinlatter and individual projects is available. Biodiversity probably requires non-price based methods of valuation other than GVA such as ‘contingent valuation’. Academics around the world are working on methodologies to solve this problem¹⁰⁰, but it may be that the economic argument is the wrong

¹⁰⁰ ‘Contingent valuation’ has many critics, because of the divergence between ‘stated preferences’ (what people say they would pay for’ and ‘revealed preferences’ (what they really do pay for given the chance), response bias, and respondents ignoring income constraints, and needs to be methodologically robust and conservative if it is to be accepted by a wider audience, see the seminal paper by Nobel Laureates Robert Solow and Kenneth Arrow’s for the National Oceanic and Atmospheric Administration (NOAA) in 1993. <http://www.darrp.noaa.gov/library/pdf/cvblue.pdf>. Further work is required to ascertain whether such an approach can practically inform economic development investment decisions in the North West.

argument with which to engage economic development professionals. The variables are so complex, the timescales so long, and the impact so site-specific that there may never be a satisfactory methodology to translate biodiversity into pounds and pence. Biodiversity however, as well as having a cultural value to society, also underpins all of the other ecosystem services and it is this that is currently the subject of the developing valuation approaches.

Key Findings

Whilst the catchment-specific data for jobs dependent upon green infrastructure or Ecosystem services is limited, there is good reason to believe that significant numbers of people in the catchment rely directly or indirectly upon the landscape and environment for their employment. Arguably, most of the employment in the catchment is reliant upon the landscape, cultural heritage, and the environment to some extent (see tourism and agricultural sections). Key stakeholders suggest that employment directly associated with green infrastructure is often strategically important because it is located in isolated rural areas where even limited numbers of jobs can make a significant positive difference¹⁰¹.

Land management and conservation in the catchment have a long record of attracting investment and funding that creates jobs – one recent example being the Bassenthwaite Reflections lottery-funded project that has created and sustained several jobs in the catchment for the past three years. Many other persons working for the National Trust, United Utilities, Environment Agency and Lake District National Park Authority, to name just four employers, work in the catchment and are reliant upon the landscape and biodiversity for their employment. As we have already seen, the Bassenthwaite Ospreys are an example of this within the catchment, with more than 100,000 people visiting per year, reportedly generating at least £420,000 of spend that is directly attributable to the Ospreys¹⁰² and supporting 34 jobs throughout the season. The project directly employs 10 dedicated staff.

Whilst no accurate data is collected on the employment created in response to Agri-environment management or conservation, anecdotal evidence and common sense suggests that significant number of people are employed in works associated with conservation or habitat maintenance. For example, private contractors were employed by the Forestry Commission to implement the continuous cover forestry management of 30 hectares of woodland as part of the Bassenthwaite Reflections.

Challenges and Issues

- With an approach focussed on GVA it is extremely difficult to prove that most small to medium sized enhancements to biodiversity or habitat creates any discernible economic impact.
- Many environmental works may have a significant time lag for impact; the improved biodiversity will often be relatively inaccessible to visitors or residents, it may be part of a

¹⁰¹ Thanks to Steve Ratcliffe, LDNPA, for highlighting this issue.

¹⁰² Figures from the 2003 study quoted in 'The Economic Value of Green Infrastructure', Natural Economy Northwest.

free access site, or may simply be almost invisible (as the lost vendace In Bassenthwaite were for most residents and visitors).

- Biodiversity is very difficult to value in its own right in monetary terms, however its value is also in underpinning other ecosystem services. The challenge is for the developing work on ecosystem valuation to, if possible, robustly demonstrate this value both in terms of prosperity and well-being.

Potential Benefits and Beneficiaries

Biodiversity clearly benefits everyone from an ecological perspective and from the ecosystem services it supports. Whether it benefits anyone directly economically in GVA terms in the short term depends upon whether it is effectively utilised. The economic beneficiaries range from United Utilities who clearly believe that restored habitats and biodiversity provides them with cleaner and more cost effective water for their customers, to farmers who are finding in some cases new sources of revenue as providers of habitat and biodiversity.

Conclusion

Whether biodiversity and conservation provide a direct economic return is depends on whether it is seen to be an economically worthwhile investment through providing a product worth investing in. The SCaMP project provides powerful evidence that even large profit-seeking private utility businesses like United Utilities can see this as an economic investment.

10 Flood Alleviation and Management

Background

Upland areas like the Lake District are important sources of water, and have for more than a century supplied urban areas further South with water. But with severe weather events on the increase there is another important potential role for the uplands of flood alleviation and management. The major costs of flooding in communities like Carlisle and Cockermouth in recent years make this potentially a high value ecosystem service. Some 212,500 properties in the Northwest are already assessed as 'at risk', without the increased sea and river levels threatened by climate change¹⁰³. Vegetation type and land management systems influence water run-off patterns and can ameliorate or exacerbate the effects of extreme weather events on downstream settlements.

Evidence

Evidence of the costs of flooding in or downstream of the Bassenthwaite catchment is extensive from the extreme floods of November 2009. Flood alleviation is by definition about a wider landscape area than the catchment itself – the impacts occur downstream when water meets

¹⁰³ Figure quoted in the Economic Value of Green Infrastructure, natural Economy North West, taken from the Environment Agency (2008)

settlements. We have therefore looked at the wider cost effects from data provided by Business Link, the Cumbria Observatory, University of Cumbria and Cumbria County Council.

Key Findings

Flood alleviation and management is a live issue of some relevance to the communities of Bassenthwaite catchment and those communities downstream from the catchment to the sea. Between Wednesday 18th November and Friday 20th November up to 372 mm of rain fell over Cumbria¹⁰⁴. In the 24 hours ending 00:45 on Friday 20th 314 mm of rain fell in Seathwaite: a record daily rainfall for the UK. The ground in the catchment was already saturated with rain from earlier in the week. The result was flooding across Cumbria (with particular severity in the Bassenthwaite catchment) resulting in the flooding of as many as 2,200 properties across Cumbria (approximately 450 of these were commercial businesses). Large tracts of farmland were also flooded and covered with flood debris. Apart from the obvious human tragedy of this devastation there was also a huge economic cost.



Figure 30 Flood costs in Cumbria are not a hypothetical risk scenario; they are very real and very expensive. The flooding of Cockermouth in this image was an enormous human and financial disaster for Cumbria.

The November 2009 floods provide a fascinating case study in the negative cost of flooding and the potential for alleviating flooding in the future. The March 2010 Cumbria Economic Bulletin captures the latest evidence of the cost of this natural event – here we will summarise those findings as a case study to demonstrate the cost of flooding and the potential value of flood alleviation in the Bassenthwaite catchment. **The latest estimates (and it will be some time before the full cost is known) from Cumbria County Council are that the full cost of the floods may be as much as £200 million.**

¹⁰⁴ The section borrows heavily analysis undertaken as part of the Cumbria Economic Bulletin (University of Cumbria, Centre for Regional Economic Development and Cumbria Intelligence Observatory, March 2010).

Infrastructure Impact: It has been estimated that rebuilding bridges and repairing roads damaged by the floods may cost Cumbria County Council between £50 million and £100 million. Insurance companies are expected to pay out a further £100 million to cover building repairs and damage to business and household contents¹⁰⁵. According to Cumbria County Council, at least 6 bridges need to be completely rebuilt, at a cost of c. £6 million each. Local authorities have also spent considerable sums of money on emergency staffing. To date the costs of this damage have fallen largely on local authorities.

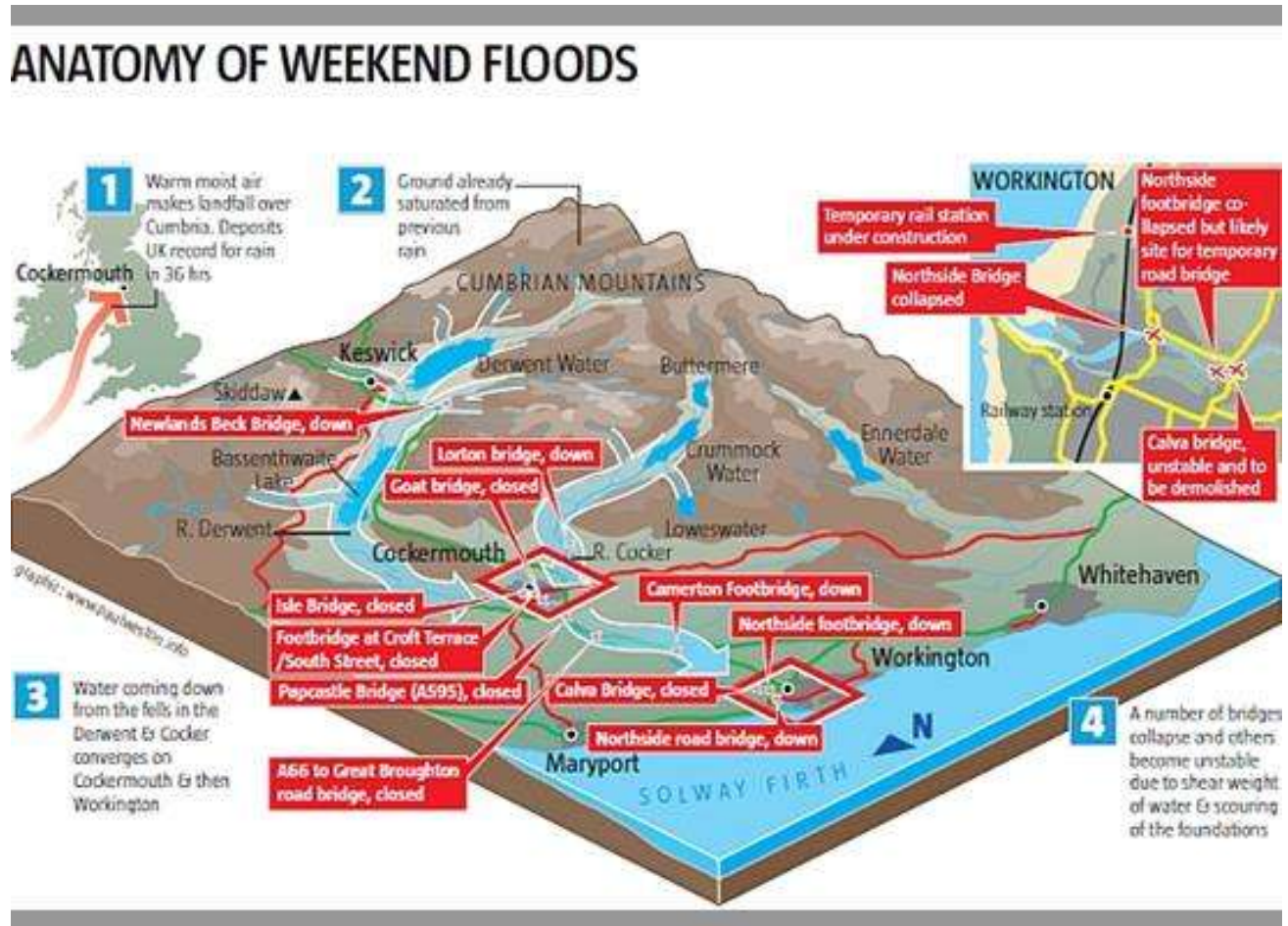


Figure 31 The costs of flooding are often several miles downstream. Source: New Civil Engineer (26th November 2009)

Tourism Impact: The impact of this natural disaster affected many parts of Cumbria’s economy, but the tourism sector was particularly badly affected. As with previous events that resulted in negative PR at a national and international level the impact was felt across a wider area than that physically affected by the flooding – as potential visitors perceived the area to be inaccessible or closed for business. It is estimated by Cumbria Tourism that £2.5 million of

¹⁰⁵ Jill Sherman, Miles Costello – ‘Flood Bill for Cumbria Could Hit £200m’, The Times, November 24, 2009

bookings were lost over the Christmas period¹⁰⁶. A survey by Cumbria Tourism suggested that 72% of tourist businesses across the county had suffered some negative impact because of the floods, and 6% of tourist businesses closed down completely. The survey showed that 41% of businesses suffered cancellations and around a fifth believed bookings and enquiries were down on previous years¹⁰⁷. Ten Cumbrian tourism businesses each reported flood damage in excess of £100,000. Between them these businesses suffered almost £12m worth of damage. Several significant cultural attractions were also damaged. In the aftermath of the floods Cumbria Tourism ran a marketing campaign on TV to get the message out that Cumbria was open for business, at a cost of £150,000¹⁰⁸.

Business Impact: Business Link estimates that 3,057 businesses in Allerdale were affected directly or indirectly by the floods - 1,606 in Workington, 693 in Cockermouth and 758 in Keswick. In Cockermouth 80% of the retail and manufacturing infrastructure in the town centre was disrupted - though traders were quick to re-establish themselves in temporary premises elsewhere in the town. Major employers in the town including the Jennings Brewery and James Walker were severely affected and interruption of supply has had consequences for customer confidence. Whilst businesses in Workington were not directly affected by flooding they were very badly affected as retail activity has been deferred or diverted because of the loss of transport infrastructure. In the immediate aftermath of the floods the Dunmail Park retail centre reported a 90% loss in revenue whilst the local Debenhams store estimated an 80% reduction in footfall. The loss of the bridges cut the direct route from the port of Workington and surrounding industrial areas to the A66 adding substantial economic costs to industry. Increased travel to work times for staff has also had significant impact for employers leading to business disruption and lost productivity. **Cumbria County Council estimated the additional costs to business because of increased travel time to be in the region of £2m per week.**



Figure 32 the damage to land and property as a result of flooding in the catchment, and neighbouring catchment was considerable

¹⁰⁶ Cumbria Economic Bulletin (University of Cumbria, Centre for Regional Economic Development and Cumbria Intelligence Observatory, March 2010).

¹⁰⁷ The negative impact was compounded by the snow and ice over subsequent months with 78% of business saying that the sustained cold weather had a negative affect on business.

¹⁰⁸ Ian Stephens, CEO Cumbria Tourism, interviewed on ITV Border Lookaround - 17th Feb 2010

Landscape impact – A significant amount of agricultural land was also damaged by the floods. One farmer featured in the national media, was quoted £90,000 by contractors to clear the gravel from his land. This has prompted discussions about whether it would be cheaper, and potentially more sustainable, to simply buy the land from the farmers and accept its loss as a necessary cost of climate change and flooding¹⁰⁹.

Challenges and Issues

- The damage downstream has also added emphasis to discussions about the management of flooding in the catchment. Government policy set out in “Making space for Water” and the Pitt review of the summer 2007 floods identify the need to achieve greater working with natural processes.
- As we have seen (see Agriculture section above) even if the aspiration were to simply change the land use upstream in the catchment to prioritise flood alleviation over food production – this is highly complicated by the land ownership of the catchment, and the other social, cultural, heritage and economic issues we have encountered in this report already.
- The influencing power of the public purse may be stronger now than it may be in the near future.
- If the Bassenthwaite catchment could demonstrate that it could reduce the cost and impact of future flooding events like that of late 2009 then clearly this would have a significant cost benefit for Cumbria. But this raises many questions that will need to be answered:

Could local authorities, environmental organisations or insurance companies offer incentives to land managers upstream to mitigate flooding downstream¹¹⁰?

Can such measures actually deliver the required level of flood alleviation benefit¹¹¹?

How could this be achieved in conjunction with viable farm businesses?

Can, or will, landowners or farmers pick up the cost of sustaining the existing canalized rivers?

¹⁰⁹ <http://www.cumberlandnews.co.uk/farming/minister-offers-last-resort-package-to-buy-flood-wrecked-cumbrian-farmland>

¹¹⁰ In bye land is the most valuable land agriculturally in the catchment and a critical part of the hill farming system. Allowing flooding of in bye land may require sizeable financial incentives and a long-term guarantee. The truth is the farming community is distrustful of such initiatives and deeply sceptical about their benefit; favouring instead continued canalisation of the rivers as has been done for centuries. It should also be noted that many respected authorities on this issue believe that this form of river management is unsustainable in several Lakeland valleys. Some of the rivers are now higher than the surrounding farmland and left to their own devices would relocate to the line of least resistance – in some cases where roads, houses, farms or other infrastructure is now located. Thank you to John Malley, National Trust, for his patience in explaining the challenges of these issues.

¹¹¹ Most interviewees for this research felt that the reduction of flooding in places downstream like Cockermouth from an extreme event might be relatively small. The weather of November 2009 was so extreme perhaps nothing cost effective would have prevented it.

How could farmers be paid for a long term approach to river management that works with natural processes and reduces the risks of flood damage to agricultural land?

If the communities of Cockermouth or Workington were somehow to pay for upstream flood alleviation, how much would they pay? To whom? For what exactly?

Is it cheaper to ‘prevent’ or reduce the impact of these flood events, or to insure against damage?



Figure 33 The Lake District landscape that is beloved of tourists, poets and painters has been sustained by a particular socio-economic system of river and land management.

Potential Benefits and Beneficiaries

If appropriate mechanisms can be found to reward upland land managers for this ecosystem service then they would clearly be beneficiaries. But perhaps the primary beneficiaries of this ecosystem service would be the people potentially affected by downstream flooding.

Conclusion

Further research is required to ascertain whether catchment management for flood alleviation in the Bassenthwaite catchment can have the desired degree of impact in reducing flood impact, and then to calculate the costs and benefits of different land management initiatives. Whilst this ecosystem service has significant economic potential it is also highly contentious and raises a series of questions about whether it can be maximised without undermining some of the other ecosystem services that make this place distinctive. There are clear divisions amongst stakeholders about whether this catchment is the appropriate place for some of the measures that might be required.

11 Climate Change and Mitigation

Background

Uplands can provide an important function in global climate regulation. Peatlands are the single largest carbon store in the UK with 40-50% of the UK soil carbon stored in 8% of its land area. Upland peat bogs in England could absorb around 400,000 tonnes of carbon per year if in pristine condition. Upland soils are the largest carbon store in England – with peat lands (mostly concentrated in the uplands) storing 300 million tonnes of carbon. Healthy peat bogs soak up carbon and store it in perpetuity. Damaged peat soils are a source of carbon as it is released into the atmosphere.

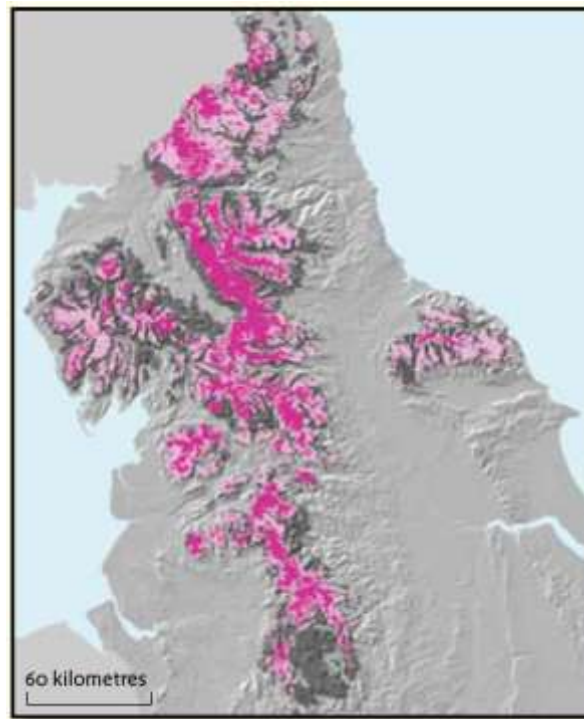


Figure 34 Mapping undertaken by Natural England shows the concentration of peaty soils (Pink areas) in the Northern Uplands including the Bassenthwaite Catchment

The Climate Change Action Plan for the Northwest identifies green infrastructure which includes blanket bog and other soil carbon assets, as being important for climate change mitigation and adaptation¹¹². Carbon storage also represents a potential economic market. Carbon capture and storage from Woodland in the North West has been valued at £600m in possible offset markets¹¹³. Carbon offset may provide new ways of funding management needed to restore and expand carbon storage by woodland and blanket bog, helping the North West to adapt to the challenges of climate change. However such markets do not yet operate. Areas like the

¹¹² Economic Value of Green Infrastructure, Natural Economy North West

¹¹³ The Economic, Social and Ecological Value of Ecosystem Services, EFTEC DEFRA (2005).

Bassenthwaite catchment might also play an important role in providing renewable energy through hydro, solar, woodfuel and micro-wind schemes¹¹⁴.

Evidence

The evidence available for the Bassenthwaite catchment is limited at present. It has been calculated that peat soils of the Lake District National Park store 28 million tonnes of carbon¹¹⁵. Mapping of blanket bog in the national blanket bog inventory identifies the location of those carbon stores. Work has been proposed by the Lake District National Park Authority to provide more detailed peat condition data but has not yet commenced. United Utilities hold condition information for land they own in the Bassenthwaite catchment.

Key Findings

Maps from Natural England suggest that large amounts of carbon are stored in the uplands of the Bassenthwaite catchment (though exactly how much is beyond the scope of this study). Much of the peat stores of the catchment are also SSSI habitats. These mainly have an ‘unfavourable recovering’ status. This indicates that with suitable management (such as a sustainable grazing regime) these peat habitats will recover to a state where they stop losing carbon and start sequestering it. Unlike the North Pennines only a very small area of the Bassenthwaite catchment has been drained by moor gripping (200ha of Skiddaw Forest, spanning the Bassenthwaite/Eden water shed on Candleseaves Mire¹¹⁶). The key issue for this study is the economic implications of sustaining or enhancing this Ecosystem service.

Challenges and Issues

From an economic perspective this ecosystem service raises some interesting and challenging issues. The beneficiaries of carbon storage and sequestration in the catchment are not all local. Wider global society benefits from the carbon being stored and captured here. The land owners and managers of these carbon rich habitats are “suppliers of carbon storage and sequestration for wider society. Currently some of them are paid for sensitive blanket bog management via agri-environment agreements, but these pay for biodiversity and not carbon benefits. How could the land owners/managers be “paid for this service in the future?

One option is to tweak agri-environment schemes to incentivize carbon sequestration. A bolder option is to develop carbon sequestration by suitable land management via a carbon offsets credits market. This would require national government regulation and legislation to set up.

¹¹⁴ This subject is only very briefly touched upon in this report and justifies further research in the future to ascertain the potential for development and economic benefit.

¹¹⁵ Natural England/Association of National Park Authorities commissioned work 2009.

¹¹⁶ Penny Anderson Associates 2009, Peat status mapping for England

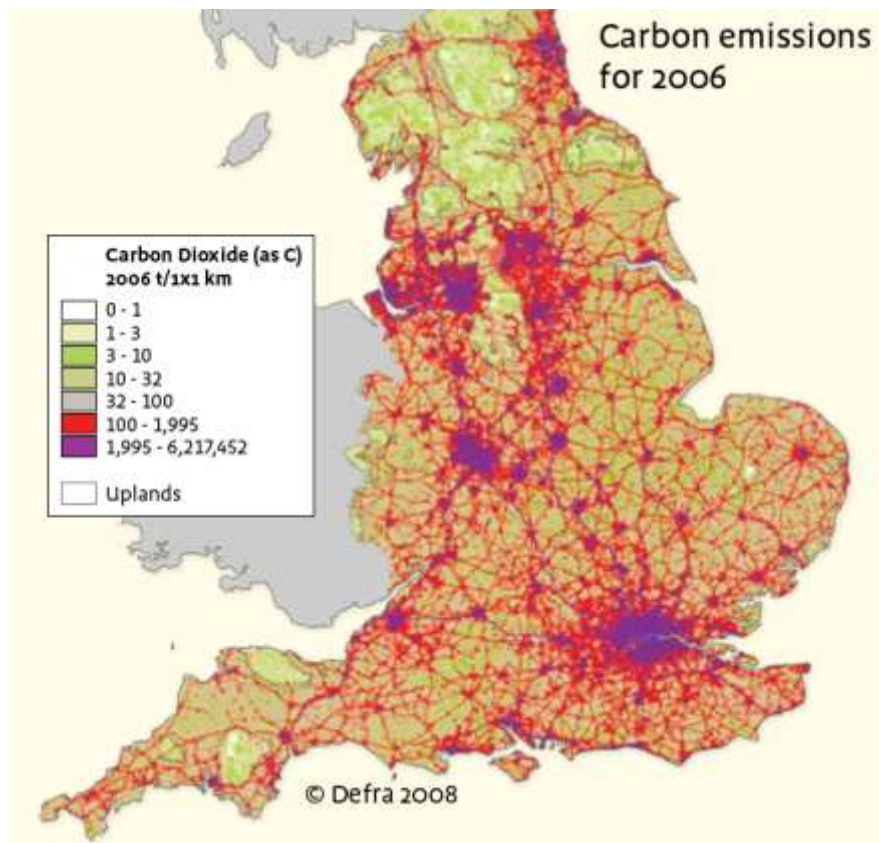


Figure 35 Carbon emission map

The big issue from an economic perspective is what mechanisms could incentivize land owners or managers to produce more of this public good. Previous studies at regional or national level have attributed significant market values to woodland or peat bogs as carbon capture and storage facilities. The North West's woodlands are believed to have a value of c. £600m in this context¹¹⁷. Likewise, the Environmental Stewardship scheme is believed to deliver savings of 3.46 million tonnes of CO₂e per year, with a saving of £1.25 billion to society¹¹⁸.

Potential Benefits and Beneficiaries

Until effective mechanisms are found to reward land managers directly for carbon storage it is hard to ascertain who would benefit economically in the catchment. This is an ecosystem service which is partly provided for the benefit of other communities.

Conclusion

Trapping carbon is clearly a good idea and of societal benefit, but the current economics of this are far from black and white in an area like the Bassenthwaite catchment. The Tynedall Centre for Climate Change research estimates that each hectare of 'pristine bog' accumulates CO₂ at a rate of 0.27 tonnes per hectare a year. In 2009 the 'shadow price' of carbon was £26.5 a

¹¹⁷ DEFRA (2005). The Economic, Social and Ecological value of Ecosystem Services, EFTEC

¹¹⁸ No Charge: Valuing the Natural Environment, Natural England (2009)

tonne¹¹⁹. This would suggest that the cost benefit of new carbon capture per hectare could be as little as £7-10 per hectare per year.

Under the current Environmental Stewardship Higher Level Scheme moorland restoration options, farmers can be paid a minimum of £40/ha for blanket bog restoration with 100% costs paid for any capital work needed (e.g. grip blocking). The review of Environmental Stewardship as part of 2013 CAP is likely to include an adjustment in relation to climate change benefits. This could lead to significantly higher payments from 2014. This could be further supplemented by new funding mechanisms such as carbon offsetting.

¹¹⁹ No Charge: Valuing the Natural Environment, Natural England (2009) – other studies have suggested that The ‘social cost’ of every additional tonne of carbon emitted is £42 (see Natural Economy North West Study on South Solway Mosses, 2007).

Conclusion

Our research suggests to us that the meeting point between ecosystem services and economics is complex, and no sensible analysis of which ecosystem services provide the greatest economic benefit can ignore the mechanisms through which ecosystem services are translated into economic benefit. In this sense the DEFRA diagram at the start of this report is, in the light of our research, incomplete; ecosystem services don't automatically result in well-being and prosperity. There is (as shown below) an intermediate layer of economic infrastructure that is critical to the economic outcomes of the environment.

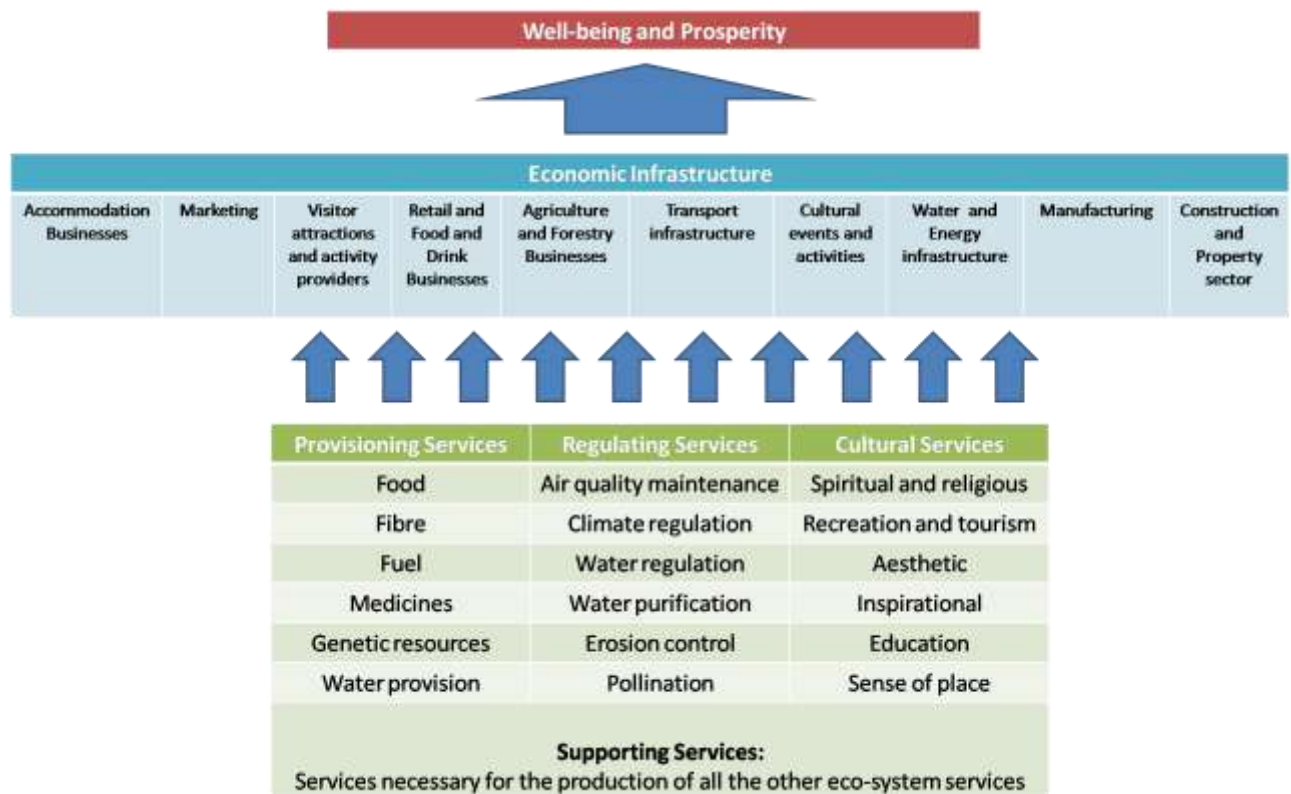


Figure 36 The relationship between ecosystem services and economic infrastructure is the critical relationship

No one can predict the future: but it is quite possible that the levers for change that local, regional or national government have at their command to influence the future of this landscape will weaken in the years to come. Agricultural subsidies may well decline by 20-40%. Food prices may well rise, resulting in a swing towards the production of marketable commodities and away from the production of other Ecosystem services. And all the signs are that public sector funding for Cumbria will decline markedly in the next 5 years¹²⁰. The investment models are changing forever and the funding systems that have existed in Cumbria may never be the same again. The

¹²⁰ It is suggested that the North West Regional Development Agency (as of December 2009, and therefore before the current climate of further budget cuts) are seeking £100 million cuts across the North West, and Cumbria and the UK may potentially be in its last round of significant European Union structural funds

reality is that the future of this landscape is likely to be the result of an infinite number of compromises and accommodations. It already looks as though the level of public sector funding available is insufficient for the public realm works required for the Lake District¹²¹.

As we have seen the ecosystem services approach highlights the multiple public benefits created by this landscape, and the extremely high value of some of these, like tourism. Stakeholders need to work together to better communicate this value to both government and consumers and work creatively to secure greater investment in it. The authors of this report believe that the value of this landscape is greater than its direct economic outcomes.

The Lake District is not a municipal park with one paternalistic owner – as has been pointed out before, it is arguably neither ‘National’ or a ‘Park’, much of it being privately owned by local people for whom it is their ‘factory floor’. Only c. 4% of the Lake District National Park belongs to the Lake District National Park Authority¹²². Approximately 25% belongs to the National Trust, c. 15% to the Forestry Commission, and c. 11% to United Utilities¹²³. However our mapping work suggests that something like 70% of the Bassenthwaite catchment is managed by 156 different farm businesses. The authors of this study encountered a powerful sense of resistance from local people interviewed for this research to the idea of the Lake District with a primary purpose of providing public goods (ecosystem services) for the rest of the UK or the world. There is a powerful sense within Lake District communities that this landscape needs to work economically first and foremost for the people who live there.

As one stakeholder suggested, ‘this is a great place to retire to, or commute from, but it’s a lousy place to find a decent job if you are 20 years old¹²⁴’, the implication being that there is virtually no employment in the catchment for a young adult that would allow them to buy a house in their own community.

At the heart of some of the future decisions to be made for this landscape lie some difficult decisions about who this landscape is for; is it for the communities within the landscape and the continuation of their living cultural heritage? Is it for the alleviation of flooding for people downstream in Cockermouth and Workington? Is it to trap carbon in peat bogs and woodland in order to soak up the emissions of the industrial world? Is it a green playground for holidaymakers? Is it a place to produce quality food? Is it a place where young local people will have a chance to engage in high quality and high value added employment and economic

¹²¹ This is an important point: the Discussion Paper from Cumbria Vision 2009 suggests that at least £49 million of public realm or public investment projects are required to sustain the tourism product of the Lake District. These projects are not landscape management ones, but public realm, accommodation upgrade, marketing, product development and sustainable transport. In other words, the public sector is increasingly unable to carry out its traditional role of supporter of certain limited tourism activities in this landscape – let alone taking on new roles of more direct landscape management in place of the 156 farmers. The answer to the question, ‘Is farming in the Lake District a good investment?’ has to be ‘Yes, if it supports effective businesses that generate their own income for carrying out a landscape management role that complements other strategic needs’.

¹²² Lake District Economic Futures - Stage 1 Report (Regeneris Consulting July 2004)

¹²³ Figures provided by the Lake District World Heritage Project.

¹²⁴ This person asked to remain anonymous but holds a senior position in a major stakeholder organisation.

activity? It might, of course, have to be several or all of these things and that will make for a complex and negotiated process of change and balancing of competing agendas.

This landscape is complex, multi-functional and affected by the economic, social and cultural choices of many thousands of people, some of whom belong to a landscape culture that stretches back many hundreds of years. The future of this landscape can only be 'planned' in the loosest sense of the word. The response to the recent floods has shown that whatever the major stakeholders and policymakers may believe is the right course of action; individual landowners can often ignore this, or even act in contradiction of the consensus.

Green Infrastructure, or for that matter Ecosystem services, in the Bassenthwaite catchment, as elsewhere, is not one thing but many. Choices remain to be made. Choices in pursuit of one Ecosystem benefit can mean losing public benefit for another. Better evidence is required of what is actually achievable, what the different scenarios might cost, and how choices might impact on other economic benefit areas. It may be that as a society we desire, and are willing to pay for, a different cultural landscape in the future, with naturalised river valleys providing greater flood alleviation value, with increased woodland cover, more stable soils, and greater carbon capture... This a matter of debate beyond the scope of this research.

What can be said, is that the choices could have profound socio-economic impacts on communities. This is no ordinary landscape, it is a landscape that comes with what the great French historian Fernand Braudel called 'heavy cultural baggage'¹²⁵. The Lake District has always evolved and changed, and it will continue to do so. It is certainly clear that to enable the provision of ecosystem services by farmers they will need to be part of financially viable farm businesses.

There is another issue here of some economic significance; namely, who manages (and pays for the management of) this landscape. For the past couple of decades stakeholders have got used to thinking of agriculture as being a rather small proportion of overall economic activity. The statistics support this view from a macro-perspective, but when one changes the focus to look at who pays for landscape management then it quickly becomes clear that the farm businesses remain extremely important in this catchment. Their importance comes from the fact that they generate much of their own running costs and that much of this revenue is ploughed back into managing the landscape. As we enter a period when the public purse strings are likely to be drawn tighter in the UK, and agri-environment investment from the EU is likely to decline for UK farmers, this self-generated farm income is likely to be more important in the future. Conversely, if public funding for farming is lost without a parallel rise in food prices, real concerns exist about the future of hill farming. The tourism sector appears to have enough of its own issues to worry about, and other sectors are even less responsible in terms of paying for the costs of the landscape. No public organisation in the Lake District is remotely capable of generating comparable levels of investment to undertake this function if these traditional businesses disappear. The challenge for everyone involved is, of course, to find accommodation with each

¹²⁵ This is no blank slate on which the optimum eco-system services scenario can be imposed – the future will almost certainly be about accommodation and compromise between different functions and activities.

other so that a productive economy is sustained by effective and resilient ecosystems that are also producing the optimum amount of ecosystem services.

Bass Catchment Appendix

The following table from ‘Ecosystem services – a new rationale for conservation of upland environments’ (Aletta Bonn, Mick Rebane and Christine Reid) in ‘Drivers of Environmental Change in the Uplands (Editors – Aletta Bonn, Tim Allott, Klaus Hubacek and Jon Stewart, Routledge Press, 2009) shows the range of ecosystem services provided by the uplands.

Types of ecosystem services provided by the English uplands

Category of ecosystem service	Ecosystem services provided by the English uplands	Explanation
1. Provisioning services	Food (livestock, crops)	Dramatic increases in sheep numbers from 1950-1990s (250 - 400% in Devon and Derbyshire) and a decrease since late 1990s (Condliffe, this volume). Cereal and other crop production is of little importance in UK uplands today.
	Fibre (timber, wool)	Deforestation of UK upland started in prehistoric times. Some ancient woodlands remained, mainly for charcoal and tannin production. From 1920 onwards, woodland grant schemes encouraged afforestation, mainly with conifer plantations. Sheep provide wool.
	Minerals	Building stone, aggregates and lime
	Energy provision	Due to their topography and climate the uplands have been harnessed as sources of hydro-electric power and wind energy. Peat cuttings can provide fuel (non-renewable energy source). Wood fuel can be derived from forests.
	Fresh water provision	70% of UK drinking water flows from upland catchments. For example, the Peak District uplands provide 450M litres of water per day to surrounding conurbations.

2. Regulating services	Carbon storage and sequestration for Climate regulation	Uplands can serve an important function in global climate regulation. Peatlands are the single largest carbon reserve in the UK with 40-50% UK soil carbon stored in ca 8% of its land area. Upland peat bogs in England and Wales could absorb around 400,000 t carbon per year if in active condition (Worrall & Evans, this volume). Upland woodlands also contribute to carbon sequestration.
	Air quality	Uplands contribute to air cooling. Uplands are main areas for atmospheric deposition of pollutants due to higher levels of precipitation and cloud deposition, thereby 'cleaning' the air (Caporn & Emmett, this volume).
	Water quality	Clean water is a valuable good to all consumers, but often taken for granted. Treatment costs can be substantial. The EU Water Framework Directive sets strict targets to reach good chemical and ecological status of all water bodies by 2015.
	Flood prevention	Uplands will always be a source of water. Vegetation type and land management influence run-off patterns and thereby ameliorate or exacerbate effects of extreme weather events on downstream settlements (Holden, this volume).
	Wildfire prevention	Wildfires are natural processes in many ecosystems. Healthy ecosystems with habitat mosaics and high water tables are less prone to exacerbated levels of wildfires.

3. Cultural services	Recreation, tourism, education (RTE)	Uplands are among the most popular tourist destinations with 69.4M visitor days per year to the English upland national parks. Tourism is one of the main income streams to upland communities (see also Curry, this volume). In the Peak District National Park tourism accounts for 27% of employment. Uplands also provide a resource for outdoor education. Wildlife watching is a source of enjoyment for many people.
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Field sport / game management	In England, 74% of upland Special Protection Areas (SPAs) are managed as grouse moors. Deer shooting and fisheries are also sources for recreation. As game in the UK is mainly managed for recreational field sports than for food supply, this is classed as cultural service.
Landscape, including tranquillity, scenic beauty, sense of wilderness	Uplands have concentrations of landscapes of national significance, e.g. 50% of the English uplands are designated as National Park. Scenic beauty, 'ruggedness' and tranquillity (CPRE, 2006) are the main reasons mentioned for visiting Peak District uplands (Davies, 2006).
Cultural heritage	Sites of archaeological and vernacular interest, spiritual places, traditions and customs in communities, e.g. well-dressing, as well as local dialects and languages.
Biodiversity	Biodiversity has intrinsic and bequest values for many people.
Health benefits	Outdoor recreation and experience of nature provides measurable physical and mental health benefits (Pretty <i>et al.</i> , 2007; SDC, 2008). Due to their steep slopes and weather conditions uplands also provide a significant degree of challenge, physically and mentally.

4.Supporting services

Nutrient cycling, water cycling, soil formation	Support for all of the above services.
Habitat provision for wildlife	Uplands are the largest remaining tracts of un-fragmented semi-natural habitats of national and international importance in the UK. In England uplands cover 12% total land and contain 53% of the SSSI area (419,000 ha) (see Crowle & McCormack, this volume).
