



National Parks Wales
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Valuing Wales' National Parks



ARUP



Contents

Key Findings	5
Executive Summary	6
1 Introduction	11
2 The Economic Contribution of the National Parks	14
3 Tourism and Recreation	21
4 Health and Wellbeing	31
5 Socio-Cultural Value	37
6 Other Ecosystems Services and Non-Use Value	44
7 Conclusions	54
Footnotes	55



Valuing Wales' National Parks - Key Findings

Economy

- Wales' National Parks account for over half a billion pounds of Wales' Gross Value Added, representing 1.2% of the Welsh economy.
- Nearly 30,000 people are employed within the park boundaries. Of the jobs provided within the Park, 38% are linked to the environment.
- The Parks receive 12 million visitors each year spending an estimated £1bn on goods and services.
- The Parks are home to eight of the 50 most visited attractions in Wales.
- National Parks in Wales attract a high proportion of staying visitors, averaging 2.26 tourist days per visitor compared to 1.59 for National Parks in England and Scotland.
- The National Park economies are proving relatively resilient in the face of recent economic turbulence with higher levels of employment in 2012 compared to 2006.
- The National Park Authorities receive funding of around £15m per annum, representing less than £5 per person in Wales.
- The Park Authorities lever in additional income so that the National Park Grant and Levy represent only 65% of total income and expenditure.
- The Park Authorities approve 85% of planning applications they receive.

Society, Health and Well Being

- Wales National Parks are 'living places' with a residential population of over 80,000 people.
- Nearly three quarters of the population of Wales make a visit to a National Park each year.
- The National Parks recruit and coordinate over 15,000 hours of volunteering activity each year, with a value in the region of £175,000.
- The Parks are important centres of Welsh culture (for example, more than half of the residents of Snowdonia National Park speak Welsh).
- When surveyed, 95% of people in Wales consider National Parks to be important to them.
- The Parks make a vital contribution to the health and well-being of residents and visitors although these benefits are difficult to quantify.

Environment and Ecosystem Services

- The National Parks make up around 20% of the land area of Wales.
- The National Park environments sequester carbon through their peat and woodland, the value of which is estimated to be between £24.4m and £97.2m.
- The Parks contain a number of strategically important reservoirs are the origin of a supply of water supply valued at £6.7m annually.
- The Parks are introducing development and land management practices within the river catchment areas that help reduce flood damage and its costs.
- For each hectare of wetland created there could be potentially an annual benefit of about £292.

Executive Summary

Valuing Wales' National Parks

Arup was commissioned by a partnership of the Welsh National Park Authorities, Natural Resources Wales and the Welsh Local Government Association to consider the economic value of Wales' National Parks – the Brecon Beacons, Snowdonia and Pembrokeshire Coast.

Wales' National Parks

The National Parks in Wales cover around 20% of the land area of Wales. The Parks have a population of around 80,000 with nearly 30,000 people employed within Park boundaries. In many parts of the world, such as in the United States, National Parks are areas of wilderness or sparsely populated areas that are owned and managed by National Government. In the UK, National Parks are 'living places' with diverse economies and with the majority of land in private ownership. The need to balance environmental protection with the wellbeing of people and communities is reflected in the role that has evolved for the Parks since their creation.

Wales' National Parks were amongst the first ten Parks established in the UK in the 1950s to preserve and enhance the natural beauty of the environment as well as to provide recreational opportunities for the public. In the early 1970s National Parks assumed the role of local planning authorities under delegated powers, as a committee

of the local authority. As a result the National Parks took responsibility for maintaining the spatial development framework and for granting consent for development. The 1995 Environment Act established independent National Park Authorities and introduced a duty on the National Parks to 'seek to foster the economic and social wellbeing of communities.'

This is a timely point at which to consider the direct and indirect benefits of the National Parks in Wales. There is increasing interest in understanding and, where possible, quantifying the value that the environment brings to society. This is in the context of increasing pressure on public resources, which is leading policy makers to revisit public expenditure priorities to ensure value for money is maximised.

Approach – Total Economic Value

This report provides an assessment of the economic benefits of the three Parks in Wales. Importantly, the study considers not only the measurable economic contribution of the Parks to employment and Gross Value Added (GVA), but also the less tangible benefits of the National Park environments. The approach to this study is based on the concept of Total Economic Value, a holistic approach which takes into account the social, cultural and environmental value of the National Parks.

This report is informed by a statistical exercise to assess the size and shape of the National Park economies, in addition to interviews with a selection of businesses and industry representatives, and case studies of activities and initiatives undertaken in the National Parks that exemplify the role that they play.

Figure 1: Assessment Framework



Key Findings

Valuing the Environment

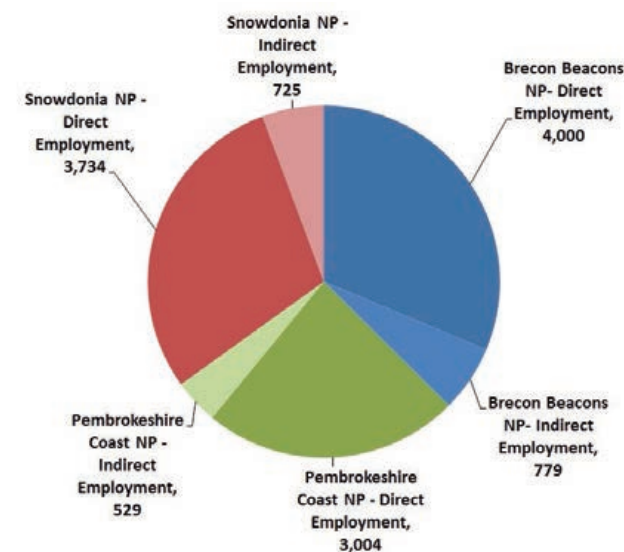
The three National Parks are a significant part of the Welsh Economy. Overall, the National Park economies account for £557m of GVA, representing 1.2% of the Welsh economy. This study has also attempted to quantify the specific contribution of the environment within the three National Parks. Economic activity that is concerned with the protection or management of the environment, or that is dependent in some way on the environment supports 10,738 jobs directly within the National Park boundary and a further 2,033 jobs across Wales. This activity generates 0.7% of Wales total GDP. This excludes the impact of the spending of National Park visitors in other parts of Wales.

The economic benefits of the National Parks are felt outside the Park boundaries. Nowhere are the ‘spillover’ benefits of the National Parks more evident than with regard to the tourism sector. The Parks receive 12 million visitors each year spending an estimated £1bn on goods and services. This greatly exceeds the turnover of tourism related businesses within the National Parks themselves, highlighting the fact that visitors to the Parks also stay and spend time in other parts of Wales.

Beyond economic effects, the National Parks contribute to quality of life in a variety of ways. The National Parks are a recreational resource. A survey commissioned by the National Park Authorities found that 65% of UK residents had visited a National Park in the previous year, rising to 73% for residents of Wales. National Parks have previously been described as ‘Wellbeing Factories’. Wales’ three National Parks provide access to open space, which allow a wide range of activities that are beneficial to individuals’ mental and physical health and wellbeing.

There are also a range of other ecosystem services provided by the National Parks, the value of which is not always captured in measures of output and GVA. These include the benefits of clean water, carbon storage, and clean air. This study estimates that the value of water supply originating from National Parks to be £6.7m annually. The value of carbon sequestered through peat and woodland within the National Parks is estimated to be between £24.4m and £97.2m.

Figure 2: The Contribution of the National Park’s Environment to Employment in Wales



The Benefits of the National Park Designation

There is a danger of employing a circular argument when considering the benefits of National Parks. Snowdonia, the Brecon Beacons and Pembrokeshire Coast were designated as National Parks for the very reason that their environment is of an outstanding quality. Clearly, this area of Wales would be popular with visitors irrespective of their designation. Therefore, it is also important to consider whether National Park status *enhances* the benefits of the Parks.

At the most basic level, the level of environmental protection afforded by the Parks ensures that the value of the environment is sustained for future generations. Environmental protection and economic wellbeing are often seen as conflicting aims and the role of the National Parks to balance competing demands on the environment. However, the analysis in this report places greater focus on the complementary relationship between conservation and economic wellbeing. Increasingly it is recognised that the quality of the environment is a source of competitive advantage to Wales. The value of economic activity that is dependent on the quality of the environment within the National Parks greatly outweighs the value (and cost) of activity concerned with the protection and management of the environment.

This report also identifies that National Park status is important beyond the level of environmental protection it affords. The National Parks are recognised by Visit Wales¹ and others as some of Wales' most important tourism brands and they contribute positively to Wales' image, domestically and internationally. The National Park brand is used to promote the whole of Wales and the economic benefits of this are felt beyond National Park boundaries. The label 'National Park' marks out an area as 'special' and confers on the Parks a level of visibility that is not matched by other environmental designations.

Added Value of National Park Authorities

This report contains many examples of the added value of the activities of National Park Authorities. The National Park Authorities maintain the tourism infrastructure of the Parks – from information centres to footpaths – ensuring access to the environment for recreation. They work in partnership with tourism bodies to promote the Parks to visitors and promote the benefits of sustainable tourism to the industry.

A statutory purpose of the National Parks is to promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public. The National Parks enhance social capital, through the provision of education programmes, social inclusion programmes and community development programmes which add to the base inherent value of the assets found within National Parks.

Effective conservation programmes by the National Park Authorities add value by sustaining and strengthening the ecosystem services provided by the Parks, ranging from carbon storage to flood prevention.

In recent years, the role of National Parks Authorities as facilitators – working to provide expertise to others and delivering projects in partnership – has become more important as the Authorities seek to deliver more with limited resources. The Authorities receive funding, through the National Park Grant and National Park Levy, of around £15m per annum, representing less than £5 per person in Wales. Importantly, the Park Authorities lever in additional income such that the grant and levy represent only 65% of total income and expenditure. The Authorities also recruit and co-ordinate of over 15,000 hours of volunteering activity each year, with a value in the region of £175,000.

Conclusions

The three National Parks in Wales need to be viewed as key strategic assets that must be sustained for the future. This study finds that the economic benefits of the National Parks extend well beyond the boundaries of the Parks themselves. The National Park designation has served Wales well over the past half a century and has enhanced the economic and social value of the Parks to Wales. Landscape is an important part of Welsh culture and the National Parks contribute positively to Wales' image.

It is not in question that the Parks continue to require protection. It is valid, however, to consider what the nature of this protection should be in the future and whether the role of the National Parks needs to be updated to reflect the issues that the Parks face in the 21st century. In many ways the remit of the National Parks – pursuing the economic and social wellbeing of communities alongside environmental management – is a thoroughly modern concept that fits well with the Welsh Government's approach to sustainable development. In this sense, the Parks are 'exemplars of sustainable development'.

The added value of the National Park Authorities is difficult to quantify but it is worth considering the activities that would be lost if the National Parks were protected but without an independent Park authority. Whilst it is not the purpose of this study to evaluate the effectiveness of National Park Authorities, it is questionable whether the breadth of activities undertaken in the National Parks could be provided by other organisations. The National Parks enhance biodiversity, enable access to the countryside; and contribute to the quality of the visitor experience; and provide a high quality environment for local communities and businesses. These benefits are not a product of the designation alone. The National Park Authorities attract staff with particular conservation skills and work in partnership with others to deliver their objectives and enable engagement with designation by communities and stakeholders in a way that other organisations might not.

Regardless of the debate that may continue over the management of the National Parks, the value of the Parks themselves is not in doubt.



“Walkability helps local people to see what is in their local area and increases awareness of the local environment.”

(Paul Casson, Walkability Project Coordinator)



1.0

Introduction

1.1 Study Purpose

Arup was commissioned by a partnership of the National Park Authorities, Natural Resources Wales and the Welsh Local Government Association to consider the economic contribution of Wales' three National Parks – the Brecon Beacons, Snowdonia and Pembrokeshire Coast.

Specifically, the study is concerned with the economic contribution of the environments within each National Park. This study follows on from a previous report undertaken in 2006 entitled Valuing our Environment: Economic Impact of the National Parks of Wales² which attached values to the economic contribution of each of the National Park environments.

1.2 Wales' National Parks³

Wales is home to three National Parks, each very different and with a distinctive character. The three Parks cover an area of 4141 km², representing approximately 20% of the land area of Wales. Snowdonia was designated in 1951 followed by Pembrokeshire Coast in 1952 and Brecon Beacons in 1957.

Brecon Beacons

The Brecon Beacons National Park covers a land area of 1344km² and covers parts of nine of Unitary Authorities. The Park has a population of 32,367 and attracts 4.15 million visitors each year. It also contains Fforest Fawr Geopark to the west of the Park.

Pembrokeshire Coast

Pembrokeshire Coast National Park covers a land area of 621km² and is the most coastal of all the UK's National Parks with over 400km of coastline. The shape of the National Park around the coast means that its relationship with the rest of Pembrokeshire is particularly important, in terms of its economy and impact. The Park has a population of 21,870 and 4.2 million people visit Pembrokeshire (the Park and surrounding areas) each year.

Snowdonia

Snowdonia National Park is the largest of the three Parks in Wales, covering a land area of 2176km². It is home to Wales' highest peak (Snowdon at 1085m). The Park has a population of 25,585, more than half of whom speak Welsh. The National Park attracts 4.27 million visitors annually.

Policy

There is currently a Welsh Government Consultation on the strategic policy framework for Areas of Outstanding Natural Beauty (AONB) and National Parks in Wales⁴. It replaces 'Policy Statement for the National Parks and National Park Authorities in Wales' (March 2007).

The 2007 Policy Statement set out a vision for National Parks in Wales, which stresses the importance of the Parks as 'living landscapes', and on their role in experimenting with 'new Policy.

Purposes and Duties

Each of the National Parks is managed by a National Park Authority (NPA). The Environment Act 1995

sets out two statutory purposes for National Parks in England and Wales:

- To conserve and enhance the natural beauty, wildlife and cultural heritage;
- To promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the Public.

When National Parks carry out these purposes they also have the duty to seek to foster the economic and social wellbeing of local communities within the National Parks.

The Environment Act states, 'if it appears that there is a conflict between those purposes, [relevant authorities] shall attach greater weight to the purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage of the area comprised in the National Park.'

The current consultation document, 'Taking the Long View': Welsh Government Consultation on the draft Policy Statement for Protected Landscapes in Wales', reflects a similar vision; 'These living, working landscapes will be exemplars of sustainable development, with vibrant rural communities, extensive recreational opportunities, thriving ecosystems and a rich biodiversity.' The proposals also reflect the wider Welsh Government policy on taking an 'ecosystem approach' to landscape management, which 'will mean considering and regulating the environment and its health as a whole rather than dealing with individual aspects separately.'

1.3 Environment and Economy

There is increasing recognition of role that the natural environment plays in our economy. This is particularly relevant to Wales, which is characterised both by the quality of the natural environment and the range of sectors and communities which are dependent, in some way or other, on the environment to sustain them. In the past, exploitation of natural resources was the basis of the economy. Once again, the natural environment is being viewed as Wales' main source of competitive advantage through the opportunities it affords in tourism, agriculture, environmental management and energy.

However, the true or 'total value' of our environment goes beyond economic measures of employment and income. It also relates to the role of the environment in delivering wellbeing more generally.

This study takes a holistic approach to understanding the value of the National Park environments. This encompasses an understanding not just of the economic contribution of the National Parks to Wales in terms of employment and economic activity, but also the wider value of the Parks to health and wellbeing of Wales. This wider role for the National Parks is articulated in the vision for Wales' National Parks statement which notes:

'Although predominantly rural in nature, the Parks contain a resident population of over 80,000, are close to important urban communities and have significant potential to enrich the lives of the people of, and visitors to, Wales and to contribute positively to public health and wellbeing and to the Welsh economy.'⁵

1.4 Total Economic Value

The concept of valuing the environment can have different meanings. It may refer to either placing a monetary value on the natural assets of the environment or it may seek to isolate the economic impacts arising which are directly related to the environment from other economic activity. It can also be a combination of the two.

Following the Welsh Government's 'A Living Wales' programme, the Welsh Government has embraced the ecosystems approach to environmental management and regulation, and moved towards a unified approach to natural resource management. Under this new approach, Welsh Government policy decisions should reflect the 'Total Economic Value' of the environment across the wide range of services that the environment provides. The ecosystem approach requires an understanding of the relationship between the environment and the economic and social wellbeing of people in Wales.

A Living Wales⁶, set out the new approach to managing ecosystems in Wales; ensuring that:

'The true long-term value of ecosystems and their services – both where they are currently under or over-valued is fully reflected in our decision making, policies and delivery programmes, taking the International Union for Conservation of Nature's ecosystems approach as our guide for future work: "*The integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way*".

One of the results of this draft framework was the establishment of Natural Resources Wales, whose purpose and mission states "*We aim to take an ecosystems based approach to managing our air, land and waters*".'⁷

In line with the Total Economic Value model, a framework has been developed which captures, in a more holistic way, the value of Wales' National Parks. This is shown in Figure 3.

Within the model, the 'Total Economic Value' of the National Park environments derives from the direct and indirect use of the environment which includes the role that the environment plays in the economy (through agriculture, tourism and other environmentally related economic sectors) but also the use of environment for recreation, health and wellbeing as well as supporting and regulating environmental services. Less easily captured or understood are non-use values which reflect the value that people place on the environment and its preservation irrespective of whether they have or will use the environment for recreation or economic gain.

Figure 3: Assessment framework



1.5 Approach

The analysis is informed by:

- A review of the literature on environmental valuation and the economic and social impacts of National Parks in the UK and beyond.
- A quantitative analysis of the National Park economies with a particular focus on the contribution of economic activity that is specifically linked to the National Park environment.
- Case studies of National Parks businesses and projects related to each of the above impacts informed by interviews with relevant stakeholders

1.6 Report Structure

The remainder of this report is structured according to the Total Economic Value framework shown in Figure 3.

- Section 2 the direct and indirect economic contribution of the Parks as measured by employment and GVA;
- Section 3 an assessment of the importance of the Parks to Wales' visitor economy;
- Section 4 the benefits of the National Park environments to health and wellbeing in Wales;
- Section 5 the socio-cultural value of the National Parks;
- Section 6 some of the main ecosystem services provided by the National Park environments, as well as 'non-use' values – the value that people attach to the environment irrespective of the whether they use irrespective of whether they 'use' the environment for recreation or for economic gain.

2.0

The Economic Contribution of the National Parks

2.1 Introduction

In delivering their role as environmental stewards, the National Parks in England and Wales have a duty to 'seek to foster the economic and social wellbeing of local communities within the National Parks'. Environmental protection and economic wellbeing are often considered to be conflicting aims. However, there is increasing recognition that large parts of the modern economy are dependent on the quality and sustainable use of the environment.

This Section presents evidence on the scale and importance to Wales of the National Park economies and seeks to understand the unique role that the National Parks can play in the modern Welsh economy. This Section also incorporates an attempt to quantify the specific contribution of the National Parks environments to employment and Gross Value Added (GVA)⁸ in Wales by identifying those economic activities that are directly linked to or dependent on the environment.

2.2 The National Park Economies

Size and Scale

In total, there are 29,291 jobs and 5,295 businesses located within the boundaries of the National Parks in Wales⁹. In comparison to England, the National Parks in Wales account for a much higher proportion of Wales' total economy. In total, the National Parks in Wales account for £1.4bn of output and £557m of GVA¹⁰. This represents 1.2% of total GVA in Wales compared to between 0.4% and 0.6% in England¹¹. To put this into context, the agriculture, forestry, fishing and mining and quarrying sectors combined contribute £335m or 0.7% of Wales' GVA, significantly less than the National Parks¹².

Economic Structure

The economic structure of the National Park economies is illustrated in Figure 4. The relative importance of the agriculture sector (and other primary industries) reflects the rural nature of the Parks.

Snowdonia has a higher proportion of its employment in farming and primary industries than the other Parks. As would be expected, sectors linked to tourism are also well represented highlighting the importance of the visitor economy.

Pembrokeshire Coast is particularly notable for the relative scale of its accommodation, food and retail sector reflecting both the importance of tourism and the fact that the National Park boundary follows the coastal 'strip', excluding some nearby towns. What is notable, however, is that the National Park economies

are relatively diverse with a wide representation of different economic sectors. The economic structure of the Brecon Beacons, for example, is not greatly different from that of Wales as a whole.

On average, businesses in the National Parks (measured by number of employees) tend to be smaller than the rest of Wales. This reflects the relative lack of large manufacturing plants or office-based services as well as the fact that tourism, retail and agricultural businesses tend to be small businesses. There also tends to be a higher level of self-employment in National Parks which is a product of the sectoral mix but also a reflection of the number of lifestyle businesses in the Parks¹⁴.

2.3 The Economic Contribution of the National Parks Environments

Whilst the overall size and shape of the National Parks' economies is important, a more pertinent issue is the specific contribution of the natural and historic environment within the National Parks to the Welsh economy. 'Valuing the environment' requires us to isolate the activities or sectors of the economy that are dependent on the environment and the goods and services that derive their value from the environment.

A 2003 study by the Valuing our Environment Partnership¹⁵ estimated that environmental goods and services account for £8.8bn of Wales GDP and one in six jobs in Wales. The Partnership defined the following broad categories of economic activities which impact on the environment¹⁶:

- Activities concerned with the protection and enhancement of the environment;
- Activities that make intensive use of one or more elements of the environment as a primary resource; and
- Activities which are dependent on the quality of the environment.

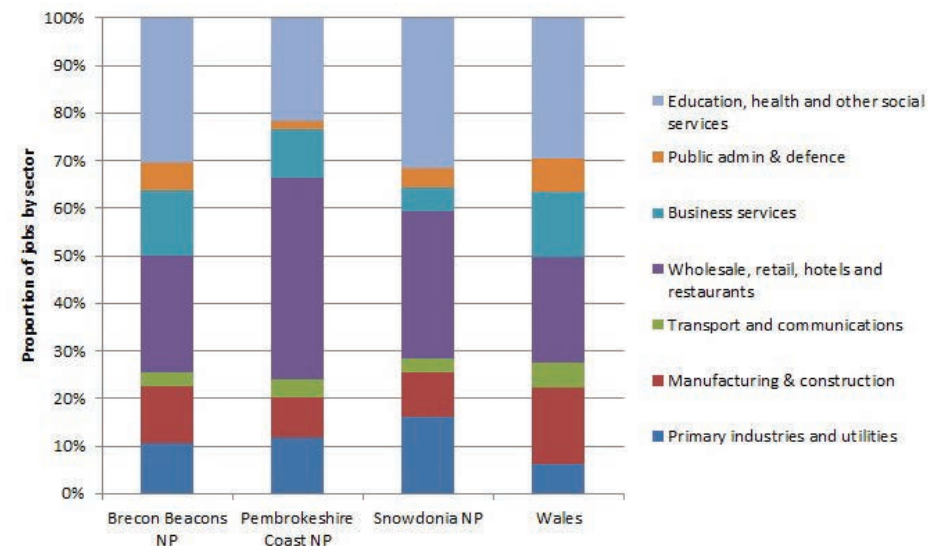
This framework has been applied to assess the direct and indirect contribution of the National Parks environments.

Table 2.1: Economic Activity in Wales' National Parks, 2012

	Brecon Beacons	Pembrokeshire Coast	Snowdonia	Wales' National Parks	Wales
Population	32,367	21,790	25,585	79,742	3,006,500
Business Units¹³	2,075	1,390	1,830	5,295	111,675
Employment	13,419	7,039	8,833	29,291	1,199,879
Gross Value Added	£236m	£187m	£134m	£557m	£32,315m

Source – ONS data

Figure 4: Profile of National Park Economies



2.0 The Economic Contribution of the National Parks

Table 2.2 identifies the sectors which fit within the Valuing our Environment framework¹⁷. Some of these sectors may not be wholly attributed to the environment and therefore it is necessary to estimate the proportion of activity within different sectors which is dependent on the environment.

Direct economic effects relate to the economic activity within environmentally related businesses located within the National Parks' boundaries. Indirect effects relate to the supply chain expenditures of such businesses and their impact on employment across Wales. Estimates of indirect effects are based on typical supply chain relationships

taken from input-output tables¹⁸. An example of indirect employment could be employment of a mechanic to repair farm machinery.

Protection and Enhancement

There are a range of economic activities that relate to the management and protection of environmental assets. Within the National Parks, the Authorities themselves account for a large part of this sector. The National Park Authorities are significant employers in their own right. They directly employ around 400 people and spend a total of £22m per annum on related goods and services. Importantly, the National Park Authorities generate a proportion of their own

income and leverage funding from other sources, such that the National Park Grant and Levy is just 65% of the value of National Park expenditure.

The activities of the National Park Authorities also include recruiting and co-ordinating the activity of volunteers. In total, the three Park Authorities recruit and co-ordinate the activity of over 15,000 hours of volunteering each year which (if average wage rates are applied) has a value in the region of £175,000 per annum.

Activities concerned with the protection and enhancement of the environment within the National Parks are estimated to account for 990 direct jobs within the National Parks and an additional 256 indirect jobs across Wales.

Intensive Use

The economies of the National Parks are dominated by industries which derive their value from the direct 'use' of the environment. Primary industries such as the agriculture, forestry and fishing sector which account for 13% of employment in the National Parks, compared to 6% for Wales as a whole. Agriculture accounts for the vast majority of activity within this category.

Sectors which are based the intensive use of the environment are estimated to account for 3,880 direct jobs within the National Parks and an additional 847 indirect jobs across Wales.

Table 2.2: Employment in the Environmental Sector within Wales' National Parks

	Brecon Beacons National Park	Pembrokeshire Coast National Park	Snowdonia National Park	Total
Agriculture, forestry, fishing and mining	1,445	1,018	1,539	4,001
Electricity	83	77	54	215
Retail trade	726	474	406	1,606
Accommodation and travel agents	586	831	1,072	2,489
Restaurants and bars	370	619	382	1,371
Recreation and culture	688	238	273	1,199
Water, sewerage and waste	133	22	356	511
Land transport	43	47	43	133
Public administration and defence	705	206	334	1,246
Total	4,779	3,532	4,459	12,771

Environmental Quality

The tourism industry, in its widest sense (including retailers and other services that tourists spend their money), is a prime example of an activity which is dependent on the quality of the environment. The accommodation, travel and catering sector accounts for 17% of jobs within the National Parks compared to 7% for Wales as a whole.

The importance of environmental quality is not limited to the tourism sector. There are examples from the food sector of businesses trading on their location within the National Parks. For example, Capestone Organic Poultry in Pembrokeshire Coast National Park noted that being located in the National Park provides a 'point of difference' for their businesses. They note: 'One of our key selling points is our location. Without a doubt, the majority of our customers make a specific reference to our location. We are extremely proud of our location and promote it wherever possible. It gives our story and product provenance.'

Penderyn Whisky is an example of a business that uses the National Park brand to market its products across the UK and internationally. The Brecon Beacons is an important part of the Penderyn 'brand story' that is used promotional materials and social media. The company's marketing material often refers to Penderyn Whisky being 'nestled in the foothills of the Brecon Beacons' and the whisky itself being produced with 'our very own Brecon spring water'.

Sectors which are dependent on the quality of the environment are estimated to account for 5,868 direct jobs within the National Parks and an additional 930 indirect jobs across Wales.

Bringing the three elements together, the key findings of this analysis are as follows¹⁹:

- The environments of the three National Parks in Wales supports 10,738 jobs directly within the National Park boundary and a further 2,033 jobs across Wales when indirect effects are included, a total of 12,771 jobs;
- This activity generates a total of £318m of Wales' Gross Value Added or 0.7% of Wales total GDP and around 3% of Wales GDP in environmental goods and services; and
- Economic activity dependent on the environment accounts for 38% of employment within the National Park boundaries compared to 17% for Wales as a whole.

Although the above impacts highlight the importance of the National Parks, it is important to note that the above analysis only partially accounts for the contribution of the Parks to Wales' economy because it fails to fully capture impacts of the spending of visitors to the Parks in other parts of Wales.

Figure 5: The Contribution of the National Park's Environment to Employment in Wales

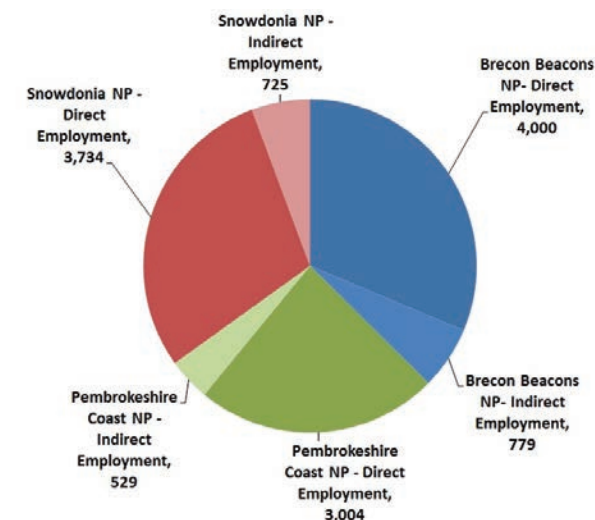
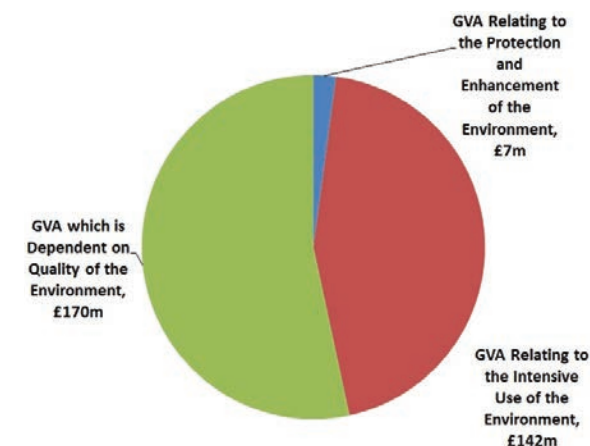


Figure 6: The Contribution of the National Park's Environment to Wales' GVA



2.4 Relationship with Regional Economies

Goods, commuters and visitors are not constrained by National Park borders and therefore the National Park economies cannot be easily separated from the wider regional economies within which they exist. This is particularly evident for Pembrokeshire Coastal National Park where the boundary follows the coast and therefore excludes many of the towns, villages and settlements which are highly dependent on their proximity to the coast.

The economic benefits of proximity to the National Park are known as the 'Halo effect'. The major source of such impacts relate to the visitor economy. Firstly, the expenditures outside the Park boundary of visitors to the National Park visitors on accommodation, food and other services, and secondly the less tangible benefits of the Parks to Wales' tourism brand. This is dealt with further in Section 3.0.

Beyond tourism, there are a range of other benefits of the Parks to the wider Welsh Economy.

Wales' National Parks contribute greatly to the quality of life in Wales, both for those living with the National Parks, but also for residents of other parts of Wales for which the Parks are a recreational resource on their doorstep. It is a fair assertion that the National Parks in Wales play a more central role in to the quality of life in Wales than National Parks do

in other parts of the UK. A survey of the perceptions and behaviours of UK residents found that people in Wales are more likely to have visited a National Park in the previous 12 months (73% of Welsh residents compared to 63% of English residents), whilst 95% of respondents from Wales reported that the Parks are 'important to them' compared to 90% in England.²⁰

Although the economic effects of this are difficult to measure, there is some evidence to suggest that the quality of life afforded by the Parks helps to attract and retain skilled people in Wales. Notably, residents of National Parks across the UK are more likely to be employed in managerial, professional and skilled occupations than the wider population²¹. Improvements in communications mean that small and medium sized business are choosing where to locate based on the quality of life afforded to owners and employees. As in any rural area of Wales, many businesses engaged as part of this study report difficulties recruiting staff, many skilled people choose to relocate to the National Park. For example, the Melin Tregwynt Woollen Mill in Pembrokeshire has noticed an increase in the number of people making a lifestyle choice to come to the area and that this has resulted in a more youthful workforce.

Equally, the National Parks also provide employment for residents of neighbouring settlements. Based on 2001 commuting data, 31% of total National Parks employment was filled by non-residents of the National Park.²²



2.5 Conservation and Sustainable Economic Development

Environmental protection and generating economic wellbeing are often considered to be conflicting aims. There is a perception that the National Park designation and the role of the National Park Authorities role as local planning authorities place a restriction on economic development. In reality, the issue is much more complex.

It is notable that 85% of planning applications submitted to the National Park Authorities are approved and that this is commensurate with other planning authorities in Wales.²³ Notwithstanding this, it should be acknowledged that the level of environmental protection that comes with National Park status shapes the scale and nature of development within the Parks. This can serve to limit particular types of development, such as wind farms and large scale hotel development. Whilst the requirements for new development to be in-keeping with the character of the Parks may increase the costs of investment, such as investment in farm buildings. Equally however, the National Park planning designation contributes to the quality of development and therefore can further the sustainable economic benefits investment.

The National Park Authorities are responsible for determining the appropriate balance between their conservation role and their duty to enhance economic wellbeing. Although the degree to which these are in conflict should be questioned, with careful management the two objectives can often be achieved in parallel. As discussed in this Chapter,

there are a range of positive economic benefits of the natural environment that the conservation role of National Parks helps to reinforce and sustain. It is instructive that - as shown in Figure 6 - the value of economic activity that is dependent on the quality of the environment greatly outweighs the scale (and costs) of activity concerned with the protection and enhancement of the environment. This suggests investment in environmental management may be modest in comparison to the value it sustains or generates.

2.6 Outlook and Resilience

The most recent attempt to quantify the economic contribution of the National Park environments was undertaken in 2006. The study found a total of 11,926 direct and indirect jobs in Wales related to the National Parks environments.²⁴ Whilst the results of this study are not directly comparable to the 2006 study, the results of the assessment provided in this report suggests that the contribution in 2013 is greater at 12,771. Given the findings of this study, this suggests that the scale of economic activity dependent on the environment may be larger than initially estimated by the previous study.

The economic downturn has placed increasing focus on the importance of economic resilience, an issue which has always been important for rural communities. Overall, economic indicators appear to suggest that the National Parks have been relatively resilient to the wider economic climate. In Wales' National Parks, employment increased between 2006 and 2012 and unemployment has not risen as sharply in the National Parks as in other parts of Wales.²⁵

This is, in part, likely to be a consequence of the relative fortunes of the sectors which make up the National Parks economies. There are relatively fewer people employed in both the construction and manufacturing sectors, which have particularly suffered in recent years. Across the National Parks there has been a decline in manufacturing employment, but this has been offset by an employment in the retail sector and the hotels and restaurant sector.

The outlook for the environmental sector in Wales' National Parks appears to be positive given the presence of a number of growth sectors in the Parks. In addition, the priority placed on energy and environment, food and farming and sustainable tourism is likely to benefit the Park economies.

Taking the example of the energy sector, a recent study for Snowdonia National Park Authority estimated that there is the theoretical potential for 47.4MW of renewable electricity, and 57.3MW of renewable heat within the National Park boundary.²⁶ The potential for the energy sector is reflected in the establishment of the Snowdonia Enterprise Zone located on a 50 acre site at Trawsfynydd and Llanbedr. The aim of the Enterprise Zone is to become a hub for low carbon technology, building on the skills of the Trawsfynydd workforce and the Centre for Alternative Technologies. Importantly, the potential of the zone is also based on the benefits to technology businesses of a resilient local renewable power supply based on the natural resources of the area.

2.7 Key Findings

The key findings of this Section are as follows:

- The three National Parks are a significant part of the Welsh Economy, directly accounting for £557m of GVA, or 1.2% of the Welsh economy, even before indirect impacts and the wider contribution of the tourism sector are taken into account;
- The environment underpins much of the economy in the National Parks. Sectors and businesses dependent on the environment account for 38% of employment within the National Park boundaries compared to 17% for Wales as a whole. This activity contributes £318m to Wales GVA when supply chain effects are included;
- The size of the economy dependent on the quality of the environment greatly exceeds the scale and cost of activity related to environmental protection and enhancement.
- Overall, economic indicators appear to suggest that the National Parks have been relatively resilient to the wider economic climate.

The economic contribution of the National Parks' environments is supported by the activities of the National Park Authorities which have a duty to promote economic and social wellbeing as part of their conservation role.



3.0

Tourism and Recreation

3.1 Introduction

Tourism is a vitally important component of the Welsh economy, directly supporting 88,300 jobs across Wales.²⁷ The National Parks are a key part of Wales' visitor economy and therefore the contribution of the Parks to this sector merits specific attention. Further, the National Parks play a broader role in recreation providing an array of activities for residents of the local area and further afield which are of value in their own right, irrespective of any associated tourism or economic impact.

A statutory purpose of the National Park Authorities is to 'promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the Public.' Thus, National Park Authorities have an obligation to undertake a proactive leading role in the provision of tourism and recreation opportunities.

3.2 Volume and value of visits to the National Parks

According to tourism monitoring data,²⁸ Wales' National Parks have over 12 million visitors a year which equates to an annual injection of spending into the Welsh economy of around £1bn²⁹. Research to assess the overall size of the tourism sector in Wales estimated that annual tourism demand in Wales amounted to around £4.5bn. The National Parks are home to eight of the most visited 50 attractions in Wales.³⁰ Therefore, visitors to the National Parks represent a sizeable proportion of Wales' tourism industry.

Importantly, the National Parks in Wales attract a high proportion of staying visitors, averaging 2.26 tourist days per visitor compared to 1.59 for the Parks in England and Scotland. Because visitors are more likely to stay overnight, the average expenditure of visitors to the Parks in Wales is higher (£87 per head) than in the rest of the UK (£60 per head).³¹

3.3 Contribution to Wales' Visitor Economy

The National Parks have an area of influence that goes well beyond Park boundaries. As with broader economic activity, the tourism and recreation sector is subject to a 'Halo effect' as benefits spillover beyond the National Park boundaries. In practice, the boundaries of the National Parks are porous and people visit Wales with the intention of visiting the National Parks, but will combine visits with other parts of Wales. The responses of tourism operators suggests that, on the edges of the Parks, people will have limited awareness of whether they are staying inside or outside the boundary.

This is exemplified by the relationship between Snowdonia National Park and the surrounding resort towns in North Wales such as Llandudno and Porthmadog. A high proportion of tourism accommodation in North East Wales is located at the coast, outside the boundaries of the National Park. The type and range of accommodation provided at the coastal resorts – for example, holiday parks and large hotels differs from that available in the Park itself. The National Park designation has shaped the pattern of tourism development in and around the Parks. In this sense, restrictions on development within the Park itself have actually served to widen the area of influence of the Park. The Imperial Hotel

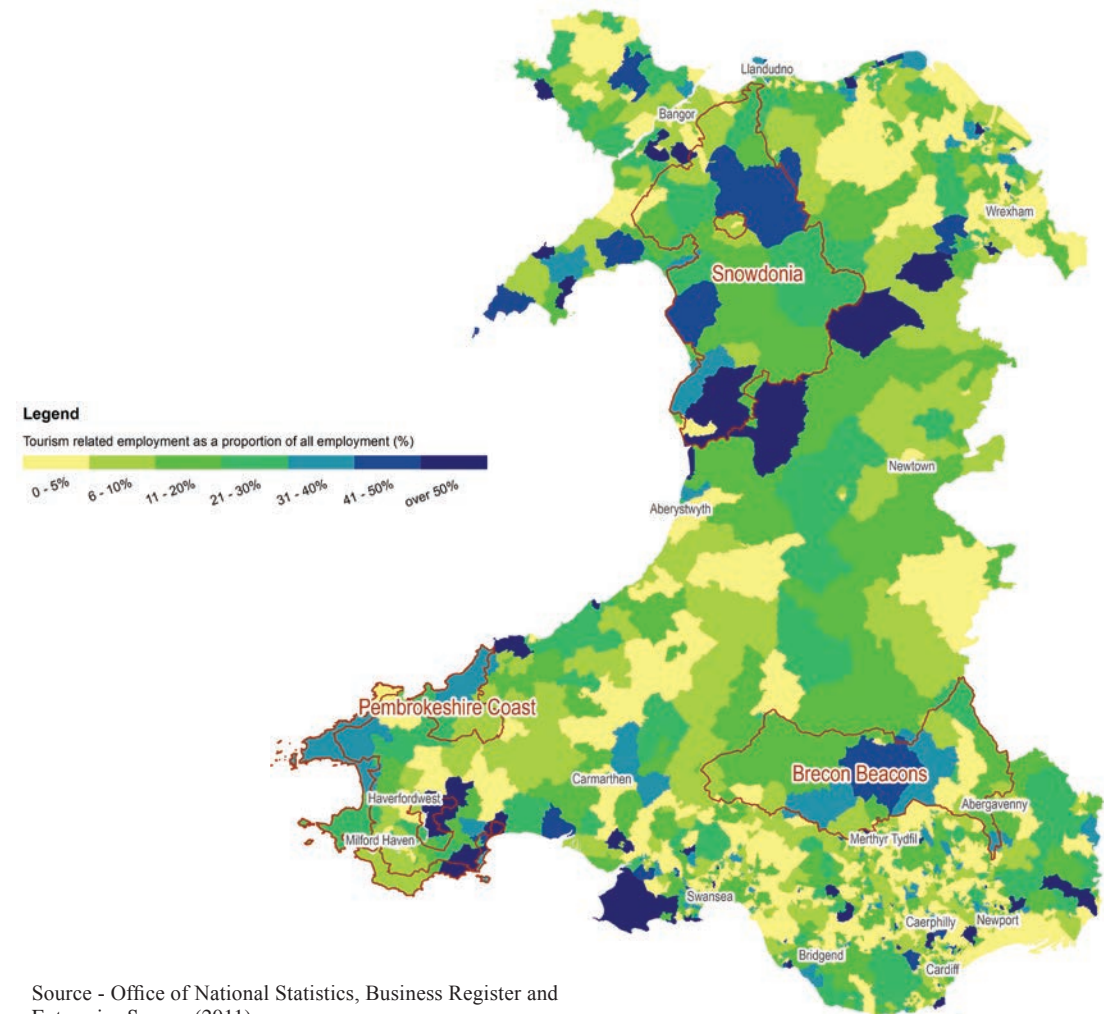
in Llandudno, for example, uses the strapline: ‘Discover Victorian charm and first class service in the Queen of Welsh Resorts where Snowdonia meets the sea.’

This interdependence is reflected in the approach to tourism marketing. The ‘Snowdonia Mountains and Coast’ brand recognises the complementary relationship between Parks and neighbouring resorts and assets. This approach deliberately identifies the Park and the surrounding area as a destination in its own right. The boundaries of the Parks give visitors a sense of arrival, but visitors are unlikely to distinguish between the Parks and the surrounding area.

Owner, Hammet House, located outside the Park boundary in Pembrokeshire stated *‘The local environment is hugely important to attracting business and the Wales Coastal Path through the National Park is a big draw with customers. Customers tend to regard the whole of Pembrokeshire as the National Park so its reputation benefits Pembrokeshire as a whole.’*

The importance of the National Parks and the implications of ‘fuzzy boundaries’, can be seen in Figure 7 which shows the areas of Wales for which tourism accounts for a high proportion of total employment. It is noticeable that there are many areas with a high density of tourism employment bordering or in close proximity to the Parks themselves. Whilst these areas are important visitor destinations in their own right, they will also be used as bases from which to explore the National Parks and the proximity of the Parks is likely to be a significant factor in attracting visitors.

Figure 7: Tourism related employment as a proportion of all employment¹⁸



Source - Office of National Statistics, Business Register and Enterprise Survey (2011)

Tree Top Adventures, Snowdonia National Park



“As a businessman I am a stakeholder in Snowdonia National Park as my business relies on the continued quality of the landscape of the National Park.”

Shaun Taylor, owner of Tree Top Adventures.

Project Description

Tree Top Adventures is a high ropes centre located in Betws-y-Coed in the Snowdonia National Park. The business opened in 2007 and operates year round offering outdoor activities suitable for education groups, corporate team building and birthday parties.

The business has won awards including best sustainable tourism business in the 2009 Green Snowdonia Tourism Awards and is listed in the ten top attractions in North Wales. The Tree Top Adventures has received positive feedback from users with Trip Advisor reviews describing the attraction as a “great day out in the area” and “best high ropes ever and the swing is out of this world.”

Operating in the National Park

Tree Top Adventures is owned by Shaun Taylor, a local businessman who is keen to ensure that the business is able to offer year round sustainable employment for local people. He recognises the importance of the quality of the continued quality of the environment for the success of the business.

“The National Park Authority have a hard task balancing their roles in protecting the special qualities of the National Park and promoting economic growth but overall they do a good job.”

3.4 The National Park 'Brand'

The National Parks are amongst the most valuable tourism brands in Wales. National Park status gives Pembrokeshire, Snowdonia and the Brecon Beacons a level of visibility to both domestic and international visitors that other parts of Wales cannot achieve. The perceptions survey cited in Section 2 found that 90% of people in the UK are aware of National Parks³². Furthermore, when asked to name a National Park, more respondents named Snowdonia than any other National Park in the UK.

It is important to acknowledge that each of Snowdonia, the Brecon Beacons and Pembrokeshire would be recognised for the quality of their landscape irrespective of their status as National Parks. Their profile and popularity are based on their intrinsic beauty. However, a number of tourism businesses engaged as part of this study stressed that the label '*National Park*' confers a different status on an area that gives Pembrokeshire Coast, the Brecon Beacons and Snowdonia a profile which is unmatched by other parts of Wales. This provides a profile that is not achieved by other environmental designations such as an Area of Outstanding Natural Beauty.

The organisers of the Hay Festival which takes place in Hay-on-Wye on the edge of the National Park note that '*Hay is an ideal location because it provides a relaxed and beautiful environment combined with cultural significance. The National Park label adds a caché and signals to visitors that the landscape will be of high quality and that the area will be a pleasant place to visit.*' Dafydd Roberts of the National Slate Museum notes that National Park status, '*marks Snowdonia out as special.*'

The strength of these brands is being harnessed to benefit Wales' visitor economy more generally. This is exemplified in the destination marketing undertaken by Visit Wales who use imagery from the National Parks in their promotion of Wales as a visitor destination. The ethos and character of the National Parks fit with the image that Wales as a whole is trying to portray '*inspiring places*', '*heritage, culture, walking and wellbeing*'.³³

The quality of the environment is clearly a primary reason for the relative importance of Wales' visitor economy. Wales Visitor Survey 2011 found 46% of UK Day Visitors and 68% of UK Staying Visitors identified '*enjoying the scenery/landscape/countryside*' as a reason for making their visit.³⁴ A 2011 Brecon Beacons Visitor Survey found that 91% of respondents considered scenery/landscape as a factor influencing their decision to visit the Brecon Beacons.³⁵

The National Parks are also at the forefront of the tourism areas that have been identified as likely

to grow, notably adventure tourism or activity tourism and sustainable tourism. The National Parks are associated with conservation and exceptional environmental quality and, as such, the National Parks are well placed to be exemplars of sustainable tourism. The Brecon Beacons National Park has also recently been awarded the European Charter for Sustainable Tourism in Protected Areas for the second time. The Charter is a recognition of high quality sustainable tourism management based on strong partnership working with private, public and community sectors. The Brecon Beacons is the first area in Wales to attain the status.



3.5 The Role of the National Park Authorities

Tourism and Conservation

The National Park Authority's purpose to '*promote opportunities for the understanding and enjoyment*' ensures that they play a key role in Wales' visitor economy. They maintain the tourism infrastructure by maintaining footpaths and rights of way and providing consistent and comprehensive signage. The National Park Authorities in Wales operate a number of visitor centres, country parks and attractions. Moreover, the National Parks act to conserve the quality of the environment, which is the basis of the visitor economy.

Promoting Quality

The National Park Authorities work in partnership with tourism bodies to promote quality. One such example of this is the National Park Ambassador Scheme in the Brecon Beacons. This scheme consists of a three day training course run by the National Park Authorities for tourism businesses. The course covers both the ethos of the National Park and the tourism offer. This enables tourism businesses to better market the National Park to visitors, benefitting both the National Park and the tourism businesses involved. Ambassadors have to return each year to renew their award by undertaking further training annually. This ensures their knowledge is both current and expands over the years, with the relationship with the National Park deepening over time.

The Ambassador scheme has been completed by 130 people to date and is being expanded to include add-on schemes to become a Geopark Ambassador and a Dark Skies Ambassador. Dark Skies status was awarded to Brecon Beacons National Park in 2013, becoming only the fifth destination in the world meaning that the night-sky is protected.

Another example is the Green Snowdonia business network. The network began as part of a Snowdonia National Park Authority supported project to provide training and support to enable tourism businesses in Snowdonia to act more sustainably. This was supported by the Green Snowdonia Tourism awards which awarded businesses that demonstrated innovation and sustainable practices. The Network has since become self-sustaining and operates through social media.

Strengthening the Brand

The Park Authorities also work with tourism boards to strengthen the National Park brand. In 2012, Pembrokeshire Coast National Park produced a range of vintage-style posters to celebrate 60 years of the National Park. An extensive marketing campaign was undertaken with these posters to target both UK residents outside of Pembrokeshire and international visitors. A key focus of the poster campaign was at the mainline railways stations and on the London Underground with the period of the campaign covering both the Queen's Diamond Jubilee and the Olympic Games. The campaign resulted in 75% increase in traffic to the Park Authority's website while there was a 25% increase in visitor levels at

the National Park Tourist Information Centres on the previous year³⁶. The campaign was shortlisted for the Chartered Institute of Marketing Awards.

Wales' National Parks also include other brands and designations. For example, Fforest Fawr Geopark, which comprises the western half of the Brecon Beacons National Park, is a member of the European Geopark Network. As a Geopark the area actively promotes its geological heritage through initiatives including information boards, Geotrails and an annual Geopark Festival. The aims of the Geopark extend beyond geology, seeking to increase awareness and enjoyment of the broader natural and cultural environment. Moreover, Fforest Fawr Geopark seeks to create community benefits for areas which may not previously have experienced much tourism activity.

3.6 Key Findings

The National Parks are of a major part of Wales' visitor economy. Nowhere are the spillover benefits of National Parks to other parts of Wales more evident than in the spending of visitors. However, the significance of the National Parks is also linked to the positive image and profile of National Parks contributes to the promotion of Wales as a whole. The key findings of this Section are as follows:

- Wales' National Parks attract over 12 million visitors a year which equates to an annual injection of spending into the Welsh economy of around £1bn;
- Visitors are not constrained by Park boundaries and there are strong interdependencies between the tourism sectors inside and outside the Parks;
- The National Parks contribute positively to Wales tourism 'brand' and National Parks have a status and profile that is unmatched by other parts of Wales;
- The National Parks are at the forefront of growth markets in adventure tourism and sustainable tourism and the ethos of the Parks fits well with the messages that Wales is trying convey to potential visitors; and
- The National Park Authorities play a multi-faceted role in supporting the visitor economy.



Rhyd Ddu – Beddgelert Multi-User Path, Snowdonia National Park



“The path will provide benefits for local people as well as local businesses.”

Simon Roberts, Snowdonia National Park Authority.

Project Description

The Multi-User Path is a new 6.5 km long multipurpose route from the National Trust car park in Rhyd Ddu to Beddgelert village. The path is currently being constructed and is expected to open autumn 2013. It will utilise existing bridleways and forestry tracks combined with new sections of the path. The whole route will be suitable for use by walkers, cyclists and horse riders.

Project Benefits

The path will benefit local people and tourism businesses. The area the path is being developed in is already a popular area with tourists and it is intended that the new path will provide an additional attraction for potential visitors to the area. In particular, the Multi-User Path will provide one of the few routes in the area for biking and horse riding. In the longer term, the path is intended to form the first part of a Snowdon Circular Route – a route around 42km around the base of Snowdon.

The start and end points of the path are both close to stations on the Welsh Highlands Railway and served by the Sherpa Bus service; as such, there is the option to use the Multi-User Path in one direction and use public transport to make a return journey. The path will also bring health and wellbeing benefits for local residents who use the path and provides an additional linkage between the communities.

Added Value of the National Park

The new path is being delivered by Snowdonia National Park Authority in partnership with the National Resources Wales, Snowdonia Society, Forestry Commission Wales and Gwynedd Council. The project fits the National Park Authority's aims of providing better access within the National Park. The path will also include interpretation boards that provide information relating to local history, local folklore and ecology together with a detailed description of the route.

Brecon Beacons Sustainable Destination Partnership



“The development of genuine partnership working has been both exciting and productive in terms of delivering action based outcomes”

Gary Evans, Hawk Associates & Partnership Chair.

Project Description

For National Parks, tourism can only be a partnership project. In the Brecon Beacons, there is a formal Partnership with 44 members from 32 organisations, led by the National Park Authority. They come from public, private and voluntary sectors with interests in economy, environment and community. Key to success has been the involvement of Brecon Beacons Tourism which represents 260 local businesses.

The Partnership has evolved over ten years and now has five sub-groups dealing with Visitor Transport, Training for Business, Marketing, Geopark and Dark Skies.

Project Benefits

The Partnership is the framework around which key tourism projects are organised.

- Most prominent have been the NPA's COLLABOR8 and Rural Alliances projects, funded by the EU's Interreg IVB NWE programme. They have supported firstly 15 clusters of tourism businesses and secondly their combination with community interests together with funding for action on the ground.

- The Visitor Transport group oversees a £125,000pa project promoting the use of public transport and running Beacons Bus.
- Marketing is a major issue and the Partnership now boasts a Destination Website, an emerging new brand and coordinated work to achieve PR for the destination.
- There are 25 training courses each year and an Annual Tourism Conference. Training includes National Park Ambassadors and Green Business Management linked to the internationally recognised Green Tourism Business Scheme.
- Geopark and Dark Skies both generate more interest from more visitors and support the less affluent west of the Park

Added Value of the National Park

The National Park Authority has a tourism team of six with a budget of £800,000, 75% of which is externally sourced. This has allowed it to bring the partnership together and generate shared solutions.

There is no doubt that tourism is fundamental to the Park's economy. By working together, partners have been able to take on the challenges of tourism development within the context of a Protected Landscape. Only by working together, can we more effectively protect and conserve the area's special qualities and encourage enjoyment and understanding whilst also contributing to socio-economic development.

Glynmeddig Barn, Brecon Beacons National Park



“Brecon Beacons National Park Authority is very keen to support green and sustainable tourism.”

Punch Maughan, owner of Glynmeddig Barn.

Project Description

Glynmeddig Barn is a bunkhouse which lies around a mile to the north of Brecon Beacons National Park boundary. The bunkhouse is able to sleep up to 20 people and in 2012 a total of 2,885 visitor nights were spent at the Glynmeddig Barn.

Project Benefits

The Brecon Beacons National Park is a key attraction for visitors to the Glynmeddig Barn. The vast majority of visitors come to the bunkhouse to use as a ‘base’ for outdoor activities with the National Park providing a wide range of options.

Glynmeddig Barn attracts visitors from across the UK as well as international visitors. In particular, the bunkhouse attracts school groups who use the accommodation for residential trips centred on outdoor activities primarily undertaken within the National Park. Duke of Edinburgh groups who use the bunkhouse as a base for training weekends. Some groups are also influenced to stay at the Barn because of specific attractions in the area, such as the Forest Ffawr Geopark. Other regular users of the bunkhouse include families, stag and hen groups, walking/cycling clubs and business management groups.

Added Value of the National Park

Glynmeddig Barn has benefitted directly from support from the Brecon Beacons National Park Authority, particularly through its COLLABOR8 and Rural Alliances projects funded by the EU’s Interreg Programme. Even though the business is located outside the National Park boundary, its customers and so its marketing are focused on the National Park and so it is seen as an important partner for the Authority.

Along with 43 others, Glenmeddig has been supported to gain the Green Tourism Business Scheme award. This validates the efforts they have made towards sustainable tourism, particularly by minimizing their impact on the environment. With project support, these businesses are featured on the Green Traveler website, in BBNPA’s Green Tourism booklet and in other marketing material. Further, as it is a National Park Ambassador too, it has been awarded Sustainable Tourism Champion status by the Authority and along with nine others, the project supported the production of a video outlining their green credentials for use on their own website and elsewhere.



4.0

Health and Wellbeing

4.1 Introduction

The Office for National Statistics (ONS) has recently begun to measure national well-being, which they consider is *‘influenced by a broad range of factors including economic performance, quality of life, the state of the environment, sustainability, equality, as well as individual wellbeing.’*³⁷ Some of these factors are assessed elsewhere in this report. This Section considers individual wellbeing, mental and physical health.

Physical and mental health and emotional well-being are closely related. Sarah Stewart-Brown, a professor of public health, describes wellbeing as being *‘about living in a way that is good for you and good for others around you. Feelings of contentment, enjoyment, confidence and engagement with the world are all a part of mental wellbeing. Self-esteem and self-confidence are, too. So is a feeling that you can do the things you want to do. And so are good relationships, which bring joy to you and those around you.’*³⁸

4.2 Link to the environment

There is a growing evidence base that the natural and built environment can have a significant impact on the health and wellbeing of individuals and communities. However, as acknowledged in a recent report, *‘quantifying exactly ‘how much’ health and wellbeing is produced by our surrounding environments is a challenge that we are just beginning to address, and converting this value into financial value is no simple task. This means that it is impossible to quantify the health benefits of the National Parks without undertaking substantive research.’* (Valuing England’s National Parks).³⁹

A Department for Rural Affairs (Defra) paper⁴⁰ sets out two ways in which the natural environment may influence physical activity. Firstly, it may affect the amount of physical activity individuals undertake. Secondly physical activity in the natural environment may be more beneficial than elsewhere, for example at the gym. The UK National Ecosystem Report⁴¹ identifies three key impacts relating to the natural environment, which overlap with those identified by Defra:

- i. direct positive effects on both mental and physical health;
- ii. indirect positive effects which facilitate nature-based activity and social engagement (by providing locations for contact with nature, physical activity and social engagement), all of which positively influence health, and provide a catalyst for behavioural change in terms of encouraging the adoption of healthier lifestyles (improving life pathways, activity behaviour, consumption of wild foods);
- iii. a reduction in the threats of pollution and disease vectors to health via a variety of purification and control functions, such as local climate regulation, noise reduction, and scavenging of air pollutants.

These benefits overlap in some respects with some of the other benefits that we have identified in other Sections; for example social engagement and inclusion, which have a positive impact on wellbeing, are discussed separately in Section 5. The provision of purification and control functions is considered in more detail in Section 6.

The benefits of physical activity is perhaps the area with the most advanced evidence base. A range of existing studies highlight the benefits to mental and physical wellbeing from taking exercise in the natural environment.

A study comparing physical activity in outdoor natural environments to indoor activity found that: ‘most trials showed an improvement in mental well-being: compared with exercising indoors, exercising in natural environments was associated with greater feelings of revitalisation, increased energy and positive engagement, together with decreases in tension, confusion, anger and depression. Participants also reported greater enjoyment and satisfaction with outdoor activity and stated that they were more likely to repeat the activity at a later date.’⁴²

4.3 Impacts and Value

National Parks have previously been described as ‘Wellbeing Factories’⁴³, reflecting both the growing Evidence base linking wellbeing with the natural environment, and in particular, outdoor spaces that people ‘can easily use and feel comfortable in’, and the duty of National Park Authorities to promote Social and Economic Wellbeing.

However, as discussed previously, it is difficult to quantify ‘how much’ health and wellbeing value the National Parks deliver.

The UK’s National Ecosystem Assessment (UK NEA) was an initiative involving government, academia, the private and third sectors. It is described as the first analysis of the UK’s natural environment in terms of the benefits it provides to society and continuing economic prosperity. The UK NEA concluded that there is limited evidence to indicate that habitats with more biodiversity have a greater effect on health (and it would expected the National Parks to have a greater level of biodiversity due to their greater proportion of natural and semi-natural habitats), even though they may encourage greater use.

National Park Authorities clearly have an important role to play in ensuring that the natural environment that they ‘curate’ is accessible to all, for a wide range of people to benefit from the positive impacts it can have on their health and wellbeing.

The 2011 Census asked respondents to report on their general health. From this data, the Office of National Statistics has reported on the health of the population in the National Parks in England and Wales:

‘The majority of National Park residents, 82% (331,300), described themselves as being in good, or very good health. This percentage is slightly higher than for England and Wales overall. Given that the National Parks have an older age structure than nationally, and that generally, health deteriorates with age, this is an indication that people residing in National Parks tend to have better health than those living in the rest of the country.’⁴⁴

4.4 An Example: Walking in Pembrokeshire

Pembrokeshire Coast National Trail is 186 miles long, and a 2011-12 visitor survey found that 25% of all visitors came to Pembrokeshire to walk.⁴⁵

Walking has well-documented health benefits⁴⁶. Walking reduces the risks of cardiovascular and respiratory diseases, type 2 diabetes, some cancers and helps to counter depression and maintain mental wellbeing.

The provision and use of paths and trails for walking and hiking are prime examples of the way in which the National Parks contribute to high levels of physical activity.

The Coast Trail runs from St Dogmaels near Cardigan in the north to Amroth Castle, east of Tenby in the south. The path provides access to some of the most spectacular coastal scenery in Britain, access to wildlife and geology.

There are opportunities for people with varying levels of fitness to use the route, with some physical challenges, including 35,000 feet of ascent and descent in total, but there are some stretches which have been adapted for wheelchair use or with easy gradients and no stiles.

The Pembrokeshire Coastal National Trail is well served by daily buses in summer, and there is also a more limited winter service.

A 2006 report⁴⁷ found that the Trail has a greater impact on accommodation providers than other National Trails in Wales, with almost half saying that the Trail was '*very important to the profitability*' of their business.

There are similar opportunities for walking in the other two National Parks, with 1,497 miles of public footpaths in Snowdonia, and three long distance trails running through the Brecon Beacons; the Beacon Way (100 mile route); the Offa's Dyke National Trail (16 miles of the 177 mile route are within the National Park) and the 55 mile Taff Trail, which joins Brecon to Cardiff.



Walkability, Pembrokeshire Coast National Park



“Walkability helps local people to see what is in their local area and increases awareness of the local environment.”

Paul Casson, Pembrokeshire Coast National Park Authority.

Project Description

The Walkability project was established in autumn 2011 with the aim of encouraging people who live in Pembrokeshire to use local walking routes to improve their health and wellbeing.

The project receives funding from Sports Wales and Hywel Dda Health board and is hosted by Pembrokeshire Coast National Park. Up to January 2013, the project delivered 250 walks to over 3,000 individuals.

The Walkability project is a year round scheme which currently has one full-time co-ordinator. The project has reached capacity with seven different groups meeting regularly; the project aims to expand further through use of volunteers and ‘champions’ from within existing groups taking organisational and leading roles with training and guidance provided by PCNPA.

Project Benefits

Walkability works with a wide range of community groups including:

- Cardiac rehabilitation exercise referral patients;
- Mental health day care patients and ex-patients;

- Palliative care and disabled groups;
- The Army Family Welfare Team.

Each group meets regularly for Walkability organised walks which are tailored to the specific needs of the group. In addition to the obvious health benefits for participants in the project, there are also social and therapeutic benefits from the walks.

The project aims to make participants aware of interesting places in their local area. Where possible the project also shows how these places can be accessed using sustainable transport such that participants are able to enjoy these places independently in addition to during walks organised by the Walkability project.

The Walkability project operates across Pembrokeshire and thus benefits participants that both live inside and outside Pembrokeshire Coast National Park.

Added Value of the National Park

The Walkability project fits with Pembrokeshire Coast National Park Authority’s aim of promoting public enjoyment and understanding of the National Park while also helping the social wellbeing of communities living with the National Park. The natural environment of the National Park provides an important setting for the walks. As set out above, exercise in the outdoor environment has been found to be more beneficial for an individual’s health and wellbeing than indoor activity.

Iron Man Wales, Pembrokeshire Coast National Park



“The setting for Iron Wales has proved popular with participants and we have experienced no additional restrictions due to being in a National Park compared to other Iron Man races being held elsewhere.”

Kevin Stewart, Iron Man Wales.

Project Description

Iron Man Wales forms part of the Iron Man series of long-distance triathlons which are held across the globe. The event consists of a 2.4 mile swim, 112 mile bike ride and 26.2 mile run starting from Tenby in Pembrokeshire Coast National Park. The event has a positive reputation as being one of the harder triathlons of the Iron Man series and the race course takes advantage of local scenery such as Tenby's North Beach and Pembrokeshire coastline.

In 2012, the second year that the event was run, 1,500 athletes participated in Iron Man Wales and a television highlights show of the race was broadcast internationally as part of the wider Iron Man series. Going forward the event is keen to expand the field to around 2,000 participants.

Project Benefits

The key benefits of Iron Man Wales to the Pembrokeshire Coast National Park are in terms of expenditure on accommodation and food. According to a survey of athletes participating in Iron Wales 2012, participants and spectators accompanying participants spent just under £2.5m on accommodation and food whilst visiting for the event. Also, over £150,000 was spent by Iron Man Wales on products and services from Welsh based businesses in the course of organising the event. Clearly there are also wider benefits the area such the international exposure of the area through the internationally broadcast TV highlights show.

In 2012 Iron Man Wales 130 participants, almost 10% of the field, came from the local area. This is a higher proportion of local participants that at other Iron Man events and is testament to the local popularity of the event.

Added Value of the National Park

Iron Man Wales feel that the National Park status and the landscape more broadly, help with the promotion of the event. In particular, it gives credibility to the event to international participants, which make up 20-25% of the field. It also doesn't feel that the National Park designation imposes any additional burden on the organisers compared to other Iron Man events not held in a National Park.

4.5 Key Findings

Whilst it is not yet possible to quantify the health and wellbeing benefits of Wales' National Parks, there is a growing evidence base linking the natural environment and health and wellbeing:

- There are numerous existing studies that highlight the benefits to both mental and physical wellbeing from taking exercise in the natural environment.
- There is evidence to demonstrate the significant level of exercise in the natural environment that takes place within the National Parks. For example, 25% of visitors reported visiting Pembrokeshire Coast National Park to walk.
- Census data suggests that the resident population in England and Wales' National Parks have slightly better self-reported general health than the average for the UK.
- The National Park Authorities add value over and above the natural environment within National Parks. One of the purposes of National Parks Authorities is to promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public; the upkeep and promotion of footpaths and trails in the National Parks are an excellent example of this.



5.0

Socio-Cultural Value

5.1 Introduction

The UK National Ecosystem Assessment⁴⁸ defined the cultural services from ecosystems as ‘*the environmental settings that give rise to the cultural goods and benefits that people obtain from ecosystems.*’ This reflects the human interaction with nature over time, giving rise not only to natural features that develop cultural significance, but also to the social practices related to these.

In the context of a National Park, in addition to the value from the natural environment itself, there are also wider cultural and heritage assets, such as Castell Henllys and Carew Castle in Pembrokeshire Coast, Harlech Castle in Snowdonia, or Fforest Fawr Geopark in Brecon Beacons, creating further value. All three National Parks also make much use of the Welsh language as part of the cultural offer, for example, as part of Snowdonia’s Ein Treftadaeth initiative which comprises a range of cultural events linked to the area’s history and heritage.

The 2012 survey into the awareness and perceptions of National Parks found that 89% of respondents said that National Parks are important to them, demonstrating the value of National Parks to communities across the country.

In addition to value from physical cultural assets, value can be found in social interactions between people in the setting of a National Park, both in terms of increasing human and social capital.

5.2 Cultural Assets

Cultural assets can be described as ‘*cultural factors that contribute to the vitality and robustness of the people living [in a community]*’⁴⁹. Professor Ross Gibson points out that ‘*cultural assets can be material, immaterial, emotional, or even spiritual.*’

Each of the three National Parks in Wales has its own distinct culture and attributes. For example, Snowdonia may be strongly linked to the cultural influence of the Welsh Language whereas the Brecon Beacons is more strongly linked to the community of commoners and graziers while for Pembrokeshire history and heritage is central to its culture.

The value of these assets can sometimes be measured in terms of visitor income, but many cases, it is much more difficult to place a meaningful value on these assets.

A 2010 report, Valuing the Welsh Historic Environment⁵⁰, estimated that the historic environment sector supported over 30,000 FTE (full time equivalent) jobs across Wales. In addition, it was estimated to contribute some £840m to Wales’ national GVA.

The wider value of the historic environment to other sectors such as tourism and regeneration was also recognised in this study. It determined that the historic environment sector delivers wider environmental and social value, for example in terms of carbon savings and improved biodiversity, promoting civic pride and providing learning and training opportunities.

The UK National Ecosystems Assessment⁵¹ recognised that there are still gaps in our knowledge and understanding in relation to culture-nature interactions, which is essentially what is at play in a National Park setting. However, a 2000 Ipsos MORI study for English Heritage showed that almost every feature in an environmental setting will have a form of value for someone through personal memories and attachments. It is likely that similar patterns can be expected in Wales.

5.3 Education and Better Informed Societies

The UK National Ecosystem Assessment describes that ‘*environmental settings provide surroundings for outdoor learning where engaging with nature can lead to enhanced connectedness to nature and increased ecological knowledge*’⁵². There is value to be found in increasing the skills and knowledge of individuals, and improving their employability prospects. Others have also identified the potential advantages in enhanced connectedness leading to improved pro-environmental behaviours⁵³, which might further extend the value created.

The second purpose of National Park Authorities is ‘*to promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the Public*’⁵⁴, which stresses the importance of education in this context. Each of the three National Park Authorities in Wales deliver a number of education

and learning programmes, both on their own, and in collaboration with others. This includes, for example, visits for schools related to specific areas of the national curriculum to vocational training in outdoor education. In the Brecon Beacons National Park, 5,852 participants (students/teachers/assistants) received education messages from National Park Officers in 2011/12 (1,026 of these through the medium of Welsh).⁵⁵

Almost all respondents from a 2012 UK National Parks opinion survey thought that every child should experience firsthand a National Park as part of their education.

The UK National Ecosystem Assessment⁵⁶ identified adult participation in nature-based learning in environmental settings as a gap in knowledge. However, it recognised that a number of studies have highlighted the importance of lay, as well as expert, knowledge in shaping the public understanding of key environmental issues.

Within Wales' National Parks, there are examples of less formal education and learning, as demonstrated by the initiatives run by the Green Valleys CiC (see Section 6) training local people in woodland management, for example.

5.4 Social Inclusion

In 2003, social exclusion was described by Welsh Government as 'a term used to describe the experience of individuals who are unable to play a full part in society because of the range of disadvantages they face, be it through a lack of employment, low skills, poor health or discrimination. Often particular groups are more likely to experience these problems, for example people from minority ethnic communities, older people and people with disabilities.'⁵⁷

This definition suggests that social inclusion will help to improve skills, health and reduce discrimination. This encompasses both communities inside the National Parks, and ensuring that access to opportunities for them is not restricted; and that access to the National Parks is available to all, nationally and globally.

In their position statement on social inclusion, National Parks Wales have committed to 'foster a sense of public ownership in relation to National Parks and the wider countryside, recognising that many socially excluded groups do not currently enjoy their social, cultural and health benefits.'⁵⁸ This recognises that in order for all sections of society to benefit from the value that the natural environments within the National Parks can offer, there is a need for input from the National Park Authority, or a similar management body.

There are a number of examples of where the National Park Authorities have worked with partners to reach out to particular groups; including young people at risk of becoming involved in crime or anti-social behaviour in the Brecon Beacons; disabled young people in Pembrokeshire Coast; blind and visually impaired people in Snowdonia.⁵⁹

In addition to these specific projects, the National Park Authorities of Wales have committed, within their 'Social Inclusion & Child Poverty Strategy and Action Plan 2012-14'⁶⁰, to embed social inclusion within their mainstream work.

The Mosaic case study, described on page 40, is an excellent example of how the National Park Authorities are working together, with others, to promote social inclusion and equal access to the extraordinary natural environments within the National Parks.

North West Wales Outdoor Partnership, Snowdonia National Park



Project Description

The North West Wales Outdoor Partnership was formed in 2004 with the aim of promoting outdoor recreation to local people, both in terms of participation and employment. North West Wales is able to offer outdoor activities including canoeing, walking, rock climbing, mountain biking and sailing. The Partnership aims to ensure that people from the area make the most of the opportunities; by March 2012, over 23,500 people had been engaged in the scheme.

The Outdoor Partnership includes Isle of Anglesey County Council, Conwy County Borough Council and Gwynedd Council along with Welsh Government, Sports Council for Wales and University of Wales in Bangor and Snowdonia National Park Authority.

Project Benefits

The Partnership sought to facilitate outdoor activity clubs being established across communities in North West Wales; 60 new community outdoor clubs have been established across North West Wales with over 5,000 members. There are over 500 volunteers leading these outdoor groups who have received training and mentoring from the Partnership.

The Partnership engage with primary schools, secondary schools and colleges across North West Wales to ensure opportunities are provided for participating in outdoor activities and support is provided for people pursuing this as a career choice. This ranges from providing taster/introductory

sessions for school children to the BTEC in Outdoor Education being available at colleges.

In the past three years, the Outdoor Partnership has also developed a 'Pathways to Employment Outdoors' programme, with funding from the Big Lottery Fund. The programme has provided access to training, volunteering and supported employment in order to gain employment in the outdoors sector. To date, the programme has involved 110 unemployed people, of which 80% are now in sustained employment. Of those who are employed, 90% are Welsh speaking.

The Welsh language has been an important part of the Outdoor Partnership's work insofar as they wish for local people to be able to get involved using a language of their choice. The Outdoor Partnership had proactively sought to ensure that training opportunities for instructors and volunteers are available bilingually. A majority of the outdoors clubs in North West Wales are now able to offer Welsh speaking instructors.

Added Value of National Park

The Park itself provides an important environment in which outdoor activities can take place. The quality of the natural environment in providing places to undertake such a wide range of activities is an important part of the value created by this partnership. SNPA is an executive member of the North West Wales Outdoor Partnership and has a director on the Partnership's board, thus adding additional value through staff expertise.

Mosaic, All National Parks



Project Description

Mosaic is a national project run by the Campaign for National Parks (<http://www.cnp.org.uk/search/node/mosaic>). It aims to bring new audiences to the National Parks, with a particular focus on Black and Minority Ethnic (BME) communities in Wales.

Following the successful completion of the Mosaic project which ran for three years in the UK, Mosaic has been setup to open up Welsh National Parks in response to evidence that while ethnic minorities make up around 7% of the national population, they only represent 1% of visitors to National Parks.

Project Officers are engaging with local BME communities to highlight the resource provided by the National Parks and match this against some of the needs of these communities. The Mosaic project is based on two parallel strands of activity:

- i. Assisting the project's partner organisations and i.e. the National Park Authorities, Campaign for National Parks and the YHA.
- ii. Training Community Champions to promote National Parks, youth hostels and the countryside.

Project Benefits

The project helps to address the second purpose of the National Park, to “*promote opportunities to for the public understanding and enjoyment of the special qualities of the parks*”.

The project has been successful in encouraging visits to National Parks through promoting their profile, raising awareness and by enabling Community Champion led taster visits. Mosaic has created numerous benefits to its partnership organisations. In the three scheme in England, investment of approximately £4,000 match funding and about 20-30 days of in-kind time toward the project (per partner, per year), partner organisations were able to leverage a return of investment valued at approximately £50,000 (per partner, per year) through external funding.

As well producing as a leading model of community engagement which is transferable to other sectors and/or settings e.g. museums and/or urban nature reserves, the project has been successful in tackling barriers faced by BME groups including: a lack of awareness, issues of relevance and problems of accessibility.

For example, over 100 individuals from BME communities have been introduced to Pembrokeshire Coast National Park.

Added Value of the National Park

The high quality environment and setting of the National Parks was a driver for this project. Co-ordination with the National Park Authorities has helped in ensuring that access and interpretation is meaningful.

5.5 Community Cohesion and Social Capital

As noted, the National Park Authorities have the duty, in achieving their two core purposes, to seek to foster the economic and social wellbeing of local communities within the National Parks. National Park Authorities therefore have the opportunity to bring local communities together through activities within the Park, and support them in developing economic opportunities.

The definition of Social Capital used by the Office for Economic Co-operation and Development (OECD) is 'networks together with shared norms, values and understandings that facilitate co-operation within or among groups'. The natural environments of the National Parks provides spaces in which people can come together and co-operate, and National Park Authorities can often act as the facilitators of co-operation (as seen in the Green Valleys case study, Section 6.1).

The Sustainable Development Fund, described in detail below, is an example of how the National Park Authorities add value to the natural environment found within the National Parks. The multiple objectives of the fund; environmental, social, economic and cultural, means that projects funded in these way have multiple benefits to the local communities in and around the Parks.

Examples of projects funded through this scheme include a Menter Siabod Project Officer, who will support a project which aims to develop and regenerate the community around Dolwyddelan in Snowdonia, supporting existing community groups and adding value.

Another example is Take pArt, a not for profit Community Arts workshop providing access to art facilities for disadvantaged and socially excluded members of the community within the Brecon Beacons National Park. As a result of support from the Sustainable Development Fund, they were able to continue 'Earning and Learning' opportunities through the provision of a selection of Agored Cymru qualifications, volunteering opportunities and job finding skills. The aim of the project was to help disadvantaged people make a difference to their lives by developing greater self-confidence and tolerance whilst acquiring new skills and producing work for sale.



Sustainable Development Fund, All National Parks



Project Description

With money from Welsh Government, National Park Authorities in Wales run the Sustainable Development Fund (SDF). Launched in July 2000, this grant scheme encourages individuals or communities to find sustainable ways of living and working, while enhancing and conserving local culture, wildlife and landscape.

In 2012/13 and 2013/14, the annual budget of the fund for each National Park Authority was £200,000. Projects can receive up to 50% matched funding (or up to 75% for community groups). Pembrokeshire Coast National Park Authority reported supporting approximately 15 projects per year.

An example project that has received funding is Coed Canlas, a honey producer inside the Park. They received funding for the construction of a wooden building for their enterprise. A biomass boiler and solar panels provide heating for the extremely well insulated building, which is the operational hub of the business.

Project Benefits

Projects receiving funding have to demonstrate how they are meeting at least two of the following four objectives; environmental, social, economic or cultural. Pembrokeshire Coast NPA report that the majority of their applicants are social enterprises or community groups. Given the breadth of objectives that projects can meet, there are benefits in terms of each of the five capitals; natural, human, social financial, and manufactured.

In terms of the Coed Canlas case study, there were benefits to biodiversity as they developed a queen bee breeding programme of bees that are disease-resistant. In addition, the use of local natural materials in the building delivered local economic benefits, as did the ongoing success of the business in a rural area, and the use of natural resources to produce a local food source.

Applicants to the fund have to demonstrate that there is benefit within the National Park. In the case of Pembrokeshire Coast, given the area of the National Park, this is can often be achieved by organisations based outside the Park. This was the case with a training provider, who provided training for people with learning difficulties, many of whom lived inside the Park, and many of whom will eventually gain employment inside the Park. However, these opportunities were equally available to those outside the Park.

Added value of the National Park

The National Park itself provides the environment in which opportunities arise. In the case of Coed Canlas, the ecosystems within the Park mean that honey production is possible. The National Park Authority is there to act as a facilitator, supporting others to achieve positive social, economic and environmental outcomes.

5.6 Key Findings

It is difficult to place a value of on the socio-cultural impact of Wales' National Parks, partly due to the fact that different parts of the community experience value in different ways. However, through our research and case studies, we have found that:

- The socio-cultural value of Wales' National Parks is achieved as a result of the natural and built assets present within the National Parks' boundaries, as well as through activities run to meet the purpose of the National Parks to promote enjoyment and understanding of the National Parks;
- The case studies examined show ways in which the value can be enhanced through the presence of the National Park Authority and other agencies, who are able to maximise the socio-cultural value for all. The Sustainable Development Fund is a particularly good example of this;
- National Park Authorities provide socio-cultural value, both through assets that they directly manage, and through programmes that they run (such as education programmes), as well as by acting as a facilitator and convenor to allow local communities to deliver value, as demonstrated through the Sustainable Development Fund;
- Further research would be needed to understand the socio-cultural value of Wales' National Parks more fully.



6.0

Other Ecosystems Services and Non-Use Value

6.1 Introduction

The natural resources of the environment have a key role to play in providing value to society. In recent years, the concept of ecosystem services (ES) – the benefits to humans of the natural resource of processes supplied by ecosystems – has been increasingly used to shape the decisions we make that affect the environment. The Millennium Ecosystem Assessment defined four categories of ecosystem services that contribute to human well-being, and thus provide value, each underpinned by biodiversity⁶¹:

1. Provisioning services: for example food, fresh water and fuel;
2. Regulating services: for example water purification by wetlands, climate regulation through carbon storage, and flood regulation;
3. Cultural services: for example recreation, spiritual and aesthetic values, education;
4. Supporting services: for example soil formation, photosynthesis and nutrient cycling.

ES are an integral part of the ecosystem approach which has been promoted by the United Nation's Convention on Biological Diversity (CBD) as *'a strategy for the integrated management of land, water and living resources that promotes*

conservation and sustainable use in an equitable way'. It represents a fundamental shift in the way we think about and manage the natural environment, introducing a holistic and integrated approach that recognises that humans are an integral component of ecosystems. The essence of the ecosystems approach, management of whole ecosystems and their benefits using the framework of ES is to recognise this range of multiple, simultaneous benefits, such that realisation of one benefit is not achieved through the inadvertent degradation of other benefits potentially harming other beneficiaries, which may include future generations

Sections 4 and 5 dealt with, the cultural services provided by Wales' National Parks. The values from provisioning services are largely captured in the quantitative analysis in Sections 2, although, the case study for The Green Valleys Community Interest Company explores this value further.

The remainder of this Section focuses on regulating and supporting services.

A full evaluation of ecosystems services is difficult to assess but the figures provided in this section go some way towards developing a fuller understanding of the value of these services.

In addition, it is important to recognise the non-use value of the natural environment; that is the intrinsic value of the environment, for just being.



Green Valleys Community Interest Company (CiC), Brecon Beacons National Park



"It would have been hard to set up something similar outside the National Park; the ethos of the National Park Authority, along with the dedication and expertise of the staff has been a crucial element in our success."

Gareth Ellis, Green Valley CiC.

Project Description

The Green Valleys CiC was set up in 2008, in response by NESTA's Big Green Challenge, offering a £1m prize fund for communities across the UK to develop a plan to reduce carbon emissions. The application was driven by the expertise and dedication of staff members from Brecon Beacons National Park Authority, but with enthusiasm and input from community groups.

The Green Valleys CiC now runs a range of projects focused on helping communities to reduce carbon emissions, notably;

- TGV Hydro: This was set up as a company to design, install and maintain small scale hydro schemes. Its only shareholder is The Green Valleys CiC.
- Community Woodland Management Groups: These groups manage woodland to enhance biodiversity and collect woodfuel.

Project Benefits

This project focuses on supporting community groups within the National Park. To date most of

these groups have been to the east of the park, but all are offered support. The benefits of the organisation have been multiple:

- Reduced carbon emissions
- Improved biodiversity
- Improved skills for local people
- Improved community cohesion
- Better appreciation of natural environment for local community

Whilst the focus is on supporting communities inside the National Park, where communities further afield can benefit from the expertise, and there is capacity to support them. This now includes members as far afield as Bridgend. In addition, the supply change for the TGV Hydro will extend outside the National Park.

Added Value of the National Park

The focus for The Green Valleys CiC was building on the natural assets available within the National Park; this included altitude and rainfall (leading to a focus on hydro); and woodland (leading to a focus on woodland management).

The Brecon Beacons National Park Authority continues to financially support the CiC, and the focus on small scale community action to reduce carbon emissions could be seen to be unique amongst local authorities (no other local authority was involved in any of the Big Green Challenge winners).

6.2 Water Supply

The value clean water is not necessarily something that we often recognise, and too often, in a developed country such as Wales, the right to services such as clean air and clean water for is taken for granted.

Water supply is just one of the diverse regulating services; the Millennium Ecosystem Assessment defines regulating services as ‘the benefits people obtain from the regulation of ecosystem processes, including air quality maintenance, climate regulation, erosion control, regulation of human diseases, and water purification.’⁶²

Around 95% of Dŵr Cymru Welsh Water (DCWW) water resources originate as surface water either from reservoir storage or river abstractions many of which are within the National Parks of Wales. There is very little dependence on groundwater supplies⁶³.

Brecon Beacons

The Dŵr Cymru Water Resources Zones (WRZs) across South East Wales serve 1.5 million people living mainly in Cardiff, Newport and the South Wales Valleys. They also serve industry as well as households.

There are several upland raw water reservoirs in the Brecon Beacons that can feed this system, including Talybont, Pontsticill, Beacons, Cantref and Llwynon, with a total capacity of over 35,000 Megalitres (MI).⁶⁴

Pembrokeshire Coast

One of the most significant zones in South West Wales is Pembrokeshire WRZ which serves 118,000 people mainly from reservoir storage.

Bolton Hill Water Treatment Works (outside the National Park) is fed from the Eastern and Western Cleddau (inside the National Park) and supplies water to the southern half of the zone including Haverfordwest, Pembroke, Milford Haven and Tenby. Preseli Water Treatment Works, fed from Llys-y- fran Reservoir (outside the National Park) and the Eastern Cleddau (via Rosebush Reservoir), supplies the northern, more rural area.

Snowdonia

The water of Snowdonia provides drinking water for people as far away as Liverpool and Manchester.

Snowdonia encompasses about seven out of the ten Dŵr Cymru’s WRZ in North Wales which serve half a million. They also supply some large non-potable customers in the area, notably on Deeside.

On average Dŵr Cymru abstract around 800 million litres a day (MI per day) for public water supply from the environment⁶⁵. The value of the water supplied through the National Parks can be estimated at of £18,250 per day or £6.7m per annum, assuming that raw water is valued at 5p/m³. These cost-based prices grossly underestimate the very considerable consumer surplus that water users enjoy over and above the prices paid for this essential good.

Water Quality

Water quality is a major determinant of the capacity of freshwater ecosystems to provide a range of market and non-market services. Market benefits from improvements in water quality can be valued directly, as a reduction in water treatment costs for water utilities for example.

The environmental benefits stemming from improved water quality, such as enhanced fish productivity and other aquatic wildlife, can be captured to some extent by the estimation of their human welfare impact via amenity/recreational and habitat values. Using data from Defra and the Environment Agency, Morris & Camino have estimated that to improve all waterbodies across England and Wales that were classed as moderate quality in 2009 (based on Water Framework Directive standards) to good quality by 2015 will have a value of £766.4m/year.⁶⁶

Morris & Camino⁶⁷ have also estimated the average, total and marginal values for water quality improvements provided by inland and coastal wetlands in the UK. Their willingness-to-pay methodology⁶⁸ estimated the marginal value of service when provided by an additional hectare of new inland wetland at £292 per hectare per year. This means that for each hectare of additional wetland created by the National Parks there could be potentially an annual benefit of about £292.

NPAs and others promote land use and land management practices that enhance water quality. Water treatment works ensure that drinking water meets legal standards, but are increasingly costly to operate. The focus on improving water quality has therefore shifted to managing water at source and higher up in their catchments. The following are examples of projects within the National Parks that are taking an integrated catchment approach:

- The Wye and Usk Foundation has been working within the Brecon Beacons National Park since 2004. The main aim of the project is to restore fisheries habitat projects on tributaries of these two major rivers; the Usk rises in and flows the length of this National Park, whilst the Wye enters the Park for a short distance at Hay-on-Wye.
- Dŵr Cymru owns large areas of land in the Park and all of the many drinking water reservoirs present here. At Talybont Reservoir, Dŵr Cymru aims to develop a catchment management project to reduce the levels of water discolouration and siltation entering the water. Dŵr Cymru is also running a catchment management project for the Cantref Reservoir to solve problems of water discolouration and siltation. In 2013, Brecon Beacons Authority provided a grant of £12,000 towards this catchment management project.



6.3 Carbon Storage and Sequestration Benefits

Climate regulation has been differentiated into two separate components – the carbon stocks and the rate of current sequestration. Stocks are important per se as they are a potential source of greenhouse gas (GHG) if lost. Sequestration is the ongoing service provided.

Valuing climate regulation benefits can be difficult because the (positive) capture of greenhouse gases (water vapour, carbon dioxide (CO₂), methane (CH₄), ozone (O₃) and nitrous oxide (N₂O)) has to be balanced against the (negative) release of greenhouse gases in the atmosphere in the process of carbon storage and nitrogen transformations. In order to allow the interactions between these greenhouse gases an estimate of net (or equivalent) carbon sequestered per hectare is required (e.g. tonnes of carbon dioxide equivalent per hectare, t CO₂e/ha).

The two types of habitat with particular significance for carbon storage are Peatlands and Woodlands. This habitat types are both present in all three National Parks. There are estimated to be 54,532 hectares of peatlands and 58,651 hectares of woodlands.

The carbon storage function of peats in Wales is very significant: peat soils contain 30% of the soil carbon resource of Wales despite possibly occupying only 3% of the land surface and the total carbon stock amounts to 121 Mt – almost ten times the total net annual emissions from Wales⁶⁹. There are over 50,000 ha of peat in the National Parks in Wales, representing approximately 13% of the surface area.

There are variations in estimates for the amount of carbon sequestered per hectare of peat. One study reported that peatlands in good condition are able to sequester up to 4.1 t CO₂e/ha per year⁷⁰. This relatively high sequestration rate applies to very actively growing peatbogs which is not the case over much of the peatland area in Wales. A more conservative rate of 1.83 t CO₂e/ha per year has been used in the Pumlumon Pilot Rewetting Project in Wales⁷¹ and is therefore used in this study.

In a recent review of the role of forests under a changing climate⁷² it has been estimated that UK forest (including soils) currently store 790 Mt C (or 2897 Mt CO₂e) and can sequester large amount of Carbon ranging from 6 to 29 t CO₂e/ha per year depending on the type of forestry.

Considering the Department of Energy and Climate Change's current price of £54 per tonne CO₂e for non-traded carbon,⁷³ the annual range of sequestration rates peatlands and woodlands mentioned above, and the total areas of these habitats in the National Parks (as above), the annual sequestration benefits are thought to be in the range from £24.4m to £97.2m.

An important and significant benefit that is not included in the estimate above is the prevention of GHG emissions through the degradation of peatlands. If peatlands dry out or start to erode, they become net emitters of GHG and the carbon store is depleted. As an example, in the Pumlumon Pilot Re-wetting Project the protection of the carbon store (by re-wetting) was a more significant benefit than sequestration. It was estimated that an emission of 2.5 tonnes of CO₂e/ha per year could be prevented by

re-wetting and restoration of upland peatland (based on IUCN data). This safeguarding service would on these estimates be valued at around £69 per hectare per year.

Several management interventions are currently undertaken by the National Parks of Wales and partners which play an important role in assuring that peatlands are protected and/or restored. Although when compared to peatlands, woodlands have a lower carbon storage capacity, harvesting and replanting forests sustainably transfers carbon into long-term storage in the soil and into wood products that can be used to substitute for products otherwise derived from fossil fuels.

Peat Restoration at Waun Figlen Felen, Brecon Beacons National Park

“Thousands of tonnes of carbon have been saved”

Paul Sinnadurai, Brecon Beacons National Park Authority.

Project Description

Since 2005, Brecon Beacons National Park Authority has been working on a peat restoration project in Waun Figlen Felen to the west of the Park. The project was unique in that was aiming to restore eroded peat, rather than protecting peat from damage.

Peat plays an important role in carbon storage, and is globally at risk from agricultural claim, forestry, landfill, and peat extraction. This often means that as well as a reduction in carbon storage, the CO₂ previously stored is emitted into the atmosphere.

Following a planning application by Dŵr Cymru Welsh Water (DCWW) at Cray Reservoir, a Section 106 agreement lead them to provide financial and technical support to set up a Waun Figlen Felen Management Forum, with stakeholders from academia, the public, private and third sectors to support ongoing work in the area.

Project Benefits

The driver for the project was initially to improve biodiversity, but the wider benefit of carbon storage of peat was soon an equal driver and benefit for the project. As soon as the peat restoration began, it was reported that cleaner water could be found in local caves at Dan-yr-Ogof.

Another key benefit is the partnership working approach, which has proved particularly successful, in particular bringing together those who depend on the natural environment for their livelihoods with conservation organisations. This approach to working with graziers is being taken forward in other areas too, for example, Brecon Beacons National Park Authority is providing support for applicants to the Welsh Government's Glastir agri-environment scheme.

A second project has been given support by the Brecon Beacons National Park Authority; this is a project led by a local artist, Pip Woolf, which has begun to help restore a 300 metre long area of eroded upland peat at Pen Trumau in the Black Mountains. This project has received funding through the Sustainable Development Fund, and worked with volunteers recruited through the Green Valleys Community Interest Company (see previous).

Following on from the initial work at Waun Figlen Felen, Brecon Beacons National Park Authority has looked to carry out similar projects elsewhere.

Due to the quality of the habitat, a site specific approach is required each time. For example, in the Black Mountains SSSI (Site of Special Scientific Interest), working in the Northern Part of the SSSI, in partnership with Natural England, a second peat restoration project has been completed. Funding is currently being sought for a third project on an erosion scar crossing the Welsh/English border.

In addition to these indirect benefits of spreading best practice in peat management and restoration out the park, there are direct benefits to reducing carbon emissions through this work.

Added Value of the National Park

The work on peat restoration was achievable, in part, due to the fact that the landscape and habitat had been designated, ensuring its importance is recognised. In addition, the expertise of staff within the National Park Authority meant that this value could be realised.

6.4 Flood Prevention

The National Strategy for Flood and Coastal Erosion Risk Management in Wales (National Strategy), published by the Welsh Government in November 2011 states that one in six properties in Wales are at risk of flooding. It is not possible to prevent flooding, as this is a natural process. However, the risks they present and the resulting consequences can be potentially reduced if appropriate steps are undertaken to mitigate and minimise their impacts.

Changes to development and land management practices within the river catchment areas in National Parks can help reduce flood damage and its costs. Flood events carry a risk to life, damage to property, infrastructure, utilities supply and agricultural land. This causes disruption during the recovery process and can also affect employment and supply chains as local businesses may cease trading. The financial cost of the 2007 flooding in England has been put in the region of £3bn⁷⁴. Average annual costs of flooding in Wales are in the region of £200m⁷⁵. The economic impact of flooding on a personal, regional and national level cannot be overstated. However, perhaps the most marked long-term impact is that on the wellbeing of those who have experienced flooding.

Climate change projections suggest that weather patterns will continue to change and that Wales will experience an increase in the intensity of rainfall, the frequency of sudden storms, and a rise in sea levels. Taken together these factors are likely to increase the

likelihood and consequences of flooding⁷⁶. Flooding is not just a result of severe weather conditions, but can be aggravated by inappropriate development, land use, and land management decisions.

The Government policy set out in ‘Making Space for Water’⁷⁷ and the Pitt Review following the Summer 2007 floods, highlighted the need to work more with natural processes. Natural flood management, defined here as the alteration, restoration or use of landscape features, is being promoted in the UK as a novel way of reducing flood risk. Changing the land use upstream in the catchment can not only mitigate flooding downstream by using natural processes but can also have economic benefits for those who own the land of the catchment⁷⁸.

The Foresight Future Flooding Project⁷⁹ and the Foresight Land Use Futures Project⁸⁰ concluded that some of the most effective and cost beneficial approaches to flood risk reduction involve better land management, namely catchment scale storage, and reconnecting rivers with their flood plain.

The NPAs in Wales are working with partner organisations to seek to, amongst other benefits, reduce flood risk through natural processes. For example, the Brecon Beacons National Park Authority is working closely with graziers of the Mynydd Du common (within which the Mynydd Du Site of Special Scientific Interest lies) to help them to develop their proposals for habitat management to be funded under the Welsh Government’s Glastir

Common Land Scheme. Works are likely to include protecting large areas of bare peat, re-seeding these areas with heather seed and cutting heather brash. This in turn will improve the water-holding potential of the surface vegetation and underlying peat. Helping the graziers to secure the Glastir contracts will also help to build up the graziers’ economic resilience, which in turn will improve the resilience of the hill farming community.

6.5 Supporting Services

Supporting services are described by the Millennium Ecosystem Assessment as ‘those that are necessary for the production of all other ecosystem services. They differ from provisioning, regulating, and cultural services in that their impacts on people are either indirect or occur over a very long time, whereas changes in the other categories have relatively direct and short-term impacts on people.’⁸¹

Examples of supporting services include soil formation, nutrient cycling, and erosion control. Effective conservation programmes by the National Park Authorities will add value through improved supporting services.

The state of supporting services are impacted by effective land management⁸², and the input of National Park Authorities in supporting farmers and graziers to take part in schemes such as the Welsh Government’s Glastir scheme (see above) creates additional value.

6.6 Non-Use Value

A central concept of ecological economics is that of Total Economic Value; Defra has developed a framework⁸³, which sets out the elements of non-use value. Non-use value refers to the value that people attach to the environment even if they never have and never will use the environment for recreation or economic gain. These are shown in Figure 8.

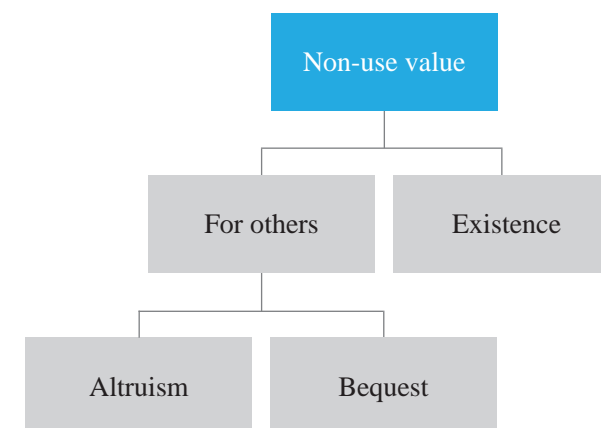
Non-use values are split into three distinct groups:

1. Existence value – an individual may value the natural environment even if they never use it.
2. Bequest value – individuals may value the natural environment as a bequest for future generations.
3. Altruism value: individuals may value the fact that others can use the natural environment, even if they personally cannot.

A Defra working paper on the value of National Park Authorities in England suggested that ‘given that ‘conservation’ is the first purpose of the National Parks; it may be argued that in theory non-use values may form a significant element of the overall value of the National Parks.’⁸⁴

Non-use values explain why people choose to donate to conservation charities without any expectation that they themselves will benefit. The scale of such donations can help us measure the value that people place on the preservation of the environment. The National Ecosystem Assessment analysed legacy donations to environmental charities⁸⁵, suggesting that if donors had intended their legacy income to be spent on National Trust countryside or Royal Society for the Protection of Birds (RSPB) reserves, we would have been able to estimate a legacy-based non-use value of around £219 per hectare of National Trust countryside and £190 per hectare of RSPB reserve for 2008/09. However, it was noted that donors’ preferences about the allocation of their legacies are not known and these figures are therefore liable to overstate the environmental component of these legacies.

Figure 8: Non-use value, adapted from Defra, introductory guide to ecosystems services



Upper Tawe Valley Living Landscape, Brecon Beacons National Park



Project Description

This project is run by Brecknock Wildlife Trust, and aims to restore, recreate and re-connect priority BAP habitat to benefit wildlife. In particular, it will bring areas of habitat into appropriate management for the marsh fritillary butterfly, which has seen a decline in numbers over recent years.

The first phase of the project, funded by WREN⁸⁶, focussed on habitat restoration within the four nature reserves managed by the Wildlife Trust; three of these were new nature reserves. Two of the reserves are inside the National Park on the uplands, and two outside in Ystradgynlais.

There are plans for stage two, which will work with partners and incorporate the areas in between the nature reserves. There is currently work underway to consult the community on their vision for what this would encompass.

Project Benefits

A non-use value is, by its very nature, difficult to define. However, the expectation of involving the community in designing the second stage of the project is that they will subsequently place greater value on the improvements to the local environment as a result.

As half the project is outside the National Park, this demonstrates how the leakage effect can apply to non-use values, and the value of the landscape, as well as to direct economic effect.

Added Value of the National Park

The fact that the National Park Authority has conservation as its primary purpose helps to make projects like this easier to support. And perhaps means that important habitats, whilst often in need of restoration, are still restorable.

6.7 Key Findings

Wales' National Parks are able to offer a huge amount of value in terms of the goods and services provided by their ecosystems. This value comes in the form of benefits such as clean water, carbon storage, and clean water. This value is not always captured in measures of output and GVA, but is important for communities locally, nationally and internationally.

- This study estimated that the value of water supply originating from National Parks is estimated to be £6.7m annually;
- The value of carbon sequestered through peat and woodland within the National Parks is estimated to be between £24.4m to £97.2m;
- For each hectare of additional wetland created in the National Parks there could be potentially an annual benefit of about £292; and
- This value can be enhanced by the presence of the National Park Authorities, with conservation as their first and overarching aim. In recent years, National Park Authorities have moved to more of a role a facilitator, working to provide expertise to others and delivering in partnership. This means that the value that they provide can stretch further.



7.0

Conclusions

The importance and value of the National Parks to Wales needs to be understood in the context of the Total Economic Value framework. This study considers not only the quantifiable economic impact of the National Park environments, but also the wider economic, social and cultural contribution of the Parks. The key findings of the analysis are as follows:

- For Wales, the environment is a source of competitive advantage. Nowhere is this exemplified more than in the National Parks for which **38% of employment is directly linked to the environment**, compared to 17% for Wales as a whole.
- **The National Park environments account for 10,738 direct jobs within the National Park boundaries. A further 2,033 jobs are created in the supply chain in Wales.** This, however, significantly underestimates the wider contribution of the National Parks to Wales' visitor economy. It is notable that economic activity linked to the protection and enhancement of the environment (including the activity of the National Park Authorities) is greatly outweighed by the scale of economic activity that derives its value from the quality of the environment.
- The National Parks have a unique relationship with regional economies. In economic terms the boundaries of the parks are porous and, in an economic sense, the boundaries of the National Parks are rather artificial. The 'Halo effect' describes the benefits that communities and businesses located outside the Park boundaries experience from the National Parks. Across the three National Parks, **31% of jobs located within the Parks are filled by people resident outside the Park boundary.** Tourists visiting Wales identify with the National Parks, but are not constrained by, or are necessarily aware of National Park boundaries.
- The National Parks, with their iconic coastal and upland landscapes, play a role in the Welsh economy that is more significant than their share of population would suggest. National Park status gives Pembrokeshire Coast, the Brecon Beacons and Snowdonia a profile which is unmatched by other parts of Wales. **The Parks provide strong tourism 'brands' which are recognisable to both domestic and international visitors and convey positive messages about Wales as a place to live, work or visit.**
- Beyond economic effects, the National Parks contribute to quality of life in a variety of ways. The National Parks are a recreational resource. A survey commissioned by the National Park Authorities found that **65% UK respondents had visited a National Park in the previous year, rising to 73% for respondents from Wales.** National Parks have previously been described as 'Wellbeing Factories'. Wales' three National Parks provide access to open space, which allow a wide range of activities that are beneficial to individuals' mental and physical health and wellbeing.
- **The National Parks are rich in cultural assets, including the historic environment.** A statutory purpose of the National Parks is to promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the Public. Enhancing social capital, through the provision of education programmes, social inclusion programmes and community development programmes can add to the base value of the assets found within National Parks.
- There are also a range of ecosystem services provided by the National Parks, the value of which is not always captured in measures of output and GDP, but is important for communities locally, nationally and internationally. The value of regulating services comes in the form of benefits such as clean water, carbon storage, and clean air. **The value of water supply originating from National Parks is estimated to be £6.7m annually. The value of carbon sequestered through peat and woodland within the National Parks is estimated to be between £24.4m to £97.2m.**
- Whilst there are tangible benefits of National Parks – whether economic, social or environmental – the environment also has an intangible value which is less easily captured. Non-use value refers to the value that people attach to the environment even if they never have and never will use the environment for recreation or economic gain. **Part of the rationale for the National Parks is to conserve the environment for future generations for its own sake, irrespective of contribution to quality of life through other domains.**
- **There is a clear fit between above values and impacts and statutory purpose and activities of the National Park Authorities.** It is often perceived that the National Park designation places constraints on economic development. However, this is a simplification which ignores the overall value and contribution of the environment which National Park status is intended to conserve and enhance.

Footnotes

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- ³ Data on area, population and visitor numbers in this Section taken from <http://www.nationalparks.gov.uk/learningabout/whatisanationalpark/factsandfigures>, (accessed 23rd July 2013).
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- ⁶ Welsh Government (2010), A Living Wales – A New Framework for Our Environment, Our Countryside and Our Seas, Consultation.
- ⁷ Natural Resources Wales, Business Plan 2013-14, <http://naturalresourceswales.gov.uk/content/docs/pdfs/our-work/about-us/business-plan-2013-2014-E.pdf?lang=en> [accessed July 2013].
- ⁸ Gross Value Added (GVA) is a measure of the total value of goods and services produced by an economy, it measures the value of economic outputs less the cost of intermediate inputs.
- ⁹ Office for National Statistics (2012), UK Business: Activity, Size and Location 2012.
- ¹⁰ Office for National Statistics (ONS) data and Arup analysis.
- ¹¹ Based on the findings of a 2013 for National Parks England entitled 'Valuing England's National Parks'. Note that differences in GVA are due to differences in sector structure, employment rates and levels of productivity in England and Wales. There are also minor differences in the method used to calculate GVA.
- ¹² ONS (2012), Regional GVA NUTS1.
- ¹³ A business unit is an enterprise or part of an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically identified place).
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- ¹⁵ The Valuing our Environment Partnership was led by the National Trust Wales and brought together major organisations working across Wales: Countryside Council for Wales, Environmental Agency Wales, Heritage Lottery Fund Wales, National Trust Wales and Welsh Government.
- ¹⁶ Tourism Associates with Geoff Broome Associates for The Valuing our Environment Partnership (2003), Valuing our Environment: The Economic Impact of the Environment of Wales.
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- ¹⁸ Further detail of the methodology can be found in the Technical Note which accompanies this study.
- ¹⁹ A more in-depth analysis of results can be found in the Technical Note which accompanies this study.
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- ²¹ Office for National Statistics (2013), Characteristics of National Parks – 2011.
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- ²³ Brecon Beacons National Park (2012), Pembrokeshire Coast National Park & Snowdonia National Park, National Parks: Supporting Economic Wellbeing.
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- ²⁷ Arup for Snowdonia National Park Authority (2012), Renewable Energy Capacity Assessment for Snowdonia. Analysis carried out using Welsh Government methodology.
- ²⁸ STEAM data measures tourism activity based on a range of sources including accommodation providers and visitor attractions. Visitor spending estimates derived from STEAM data are based on average spending per visitor. These estimates include all spending of visitors whether spending occurs within National Park boundaries or elsewhere and therefore.
- ²⁹ Note that figures for Pembrokeshire include visitors to the County of Pembrokeshire rather than the National Park itself.
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- ³⁸ NHS Choices website, <http://www.nhs.uk/Conditions/stress-anxiety-depression/Pages/improve-mental-wellbeing.aspx> [accessed 12 Feb 2013].
- ³⁹ Cumulus Consultants Ltd and ICF GHK for National Parks England, Valuing England's National Parks, May 2013 (p58).
- ⁴⁰ Defra, National Park Authorities: Assessment of Benefits – a working paper, May 2011 UK National Ecosystem Assessment (2011) The UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge.
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- ⁴² Thompson Coon et al., Does Participating in Physical Activity in Outdoor Natural Environments Have a Greater Effect on Physical and Mental Wellbeing than Physical Activity Indoors? A Systematic Review, published in "Environmental Science and Technology", 4th February 2011.
- ⁴³ As in the article Wales and the Well-being Factories; <http://www.bevanfoundation.org/blog/wales-and-the-well-being-factories/> [accessed 12 Feb 2013].
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- ⁵⁷ Welsh Assembly Government, the 3rd Annual Report on Social Inclusion in Wales “*Promoting Social Inclusion*”, 2003.
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