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## **Inquiry into the Future of the Uplands in Wales**

### **Response from The RSPB.**

**RSPB Cymru Submission to Rural Development Sub Committee Inquiry into the future of the uplands in Wales.**

#### **Summary of our position**

- Uplands are vital for our wildlife. The Welsh Assembly Government, in line with the UK and EU Governments, set a target to halt the loss of biodiversity by 2010, and although this will not be met next year, it is clear that any future targets, (such as the 2026 target to have evidence of recovery) cannot be met without a major role for the uplands. **The Welsh Assembly Government should review why the target to halt biodiversity loss by 2010 will not be met and make recommendations for all policy areas, including the uplands on how to make rapid progress.**
- In January 2008, the Welsh Assembly Government (WAG) adopted a List of Species and Habitats of Principal Importance for Conservation of Biological Diversity in Wales (Principal Biodiversity Species/Habitats) under Section 42 of the Natural Environment and Rural Communities Act 2006, a significant number of these species and habitats are found in the uplands and many are declining in number, range and diversity. Both curlew and golden plover, two birds characteristic of the Welsh uplands have declined by more than 80% in the last 20 years.<sup>1</sup> **WAG should use programmes to restore and recover priority species and habitats, as a driver for investment in upland management.**
- As a result of EU expansion and changing priorities, the Common Agricultural Policy (CAP) subsidy system is undergoing significant reforms and it is expected that there will be declining amount of subsidy coming into Welsh farming. Upland farming which is already marginal is likely to be under greater strain than ever. The Rural Development Plan (RDP) will be key to supporting upland farming and RSPB Cymru welcomes the announcement of

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<sup>1</sup> Johnstone IG, Bladwell S, Noble DG, (2008). The State of Birds in Wales 5: a review of 2006 and 2007. RSPB Cymru, Cardiff

the Glastir scheme which aligns Less Favoured Area support with Agri-environment schemes and has the potential to create a more integrated approach to upland land management and support rural development. **RSPB Cymru recommends that WAG put in place a robust monitoring programme for Glastir. This will help demonstrate that agri-environment schemes deliver on their environmental and socio-economic objectives and will be a strong argument for future Rural Development support in Wales.** This will be increasingly important as Pillar 1 payments decline.

- A more sustainable future is needed for the uplands; we need to retain people in the uplands managing the land for food production but also the environmental and social outputs that the public in Wales require, such as biodiversity, landscape, access/recreation opportunity and natural resource management (e.g. water, soils, carbon). **The management of these ecosystem goods and services, especially in the context of climate change, looks set to become one of the main drivers for valuing the uplands.**
- At present the market does not pay in full for those “ecosystem services” and RSPB Cymru believes that the Government should use the CAP subsidy support to buy these ‘non market’ goods. Even with the new Glastir budget of approx £90million being spent on such support, this is still less than a quarter of the total CAP support coming into farming in Wales. **RSPB Cymru urges WAG to commit to higher levels of modulation from Pillar 1 to RDP payments and increasingly channel the public money of CAP subsidy to deliver these non-market public goods.**
- Reforms of the Less Favoured Area (LFA) regime in Europe are focused around defining High Nature Value (HNV). In Wales, HNV farming needs to be defined so that the types of farming that are of greatest benefit to the environment can be identified and supported. Support should be directly related to the public goods provided by those farms. **It is currently unclear how HNV will link into Glastir and it would help if the Committee could investigate this further as part of their inquiry.**
- Common land is important as an agricultural, environmental, recreational and cultural resource. Large areas of the Welsh uplands are common land and the grazing of commons is crucial to the commercial viability of many farms in the uplands. **RSPB Cymru urges the swift implementation Part 2 of the Commons Act 2006 on commons management. Until Part 2 of the Act is brought into Welsh regulation, there is no mechanism for commoners holding rights to reach a mutual decision and be able to sign up to an agri-environment agreement.**
- In addition to using the CAP subsidy regime there are a number of other key drivers and opportunities to consider in developing a vision for the future of the uplands
  - Creating a markets for value-added products as a second income e.g. processed food and branded products
  - Greater diversification of farm incomes e.g. contractor work in traditional boundary management, coppicing and wood products
  - Tourism
  - Renewable energy industry – from small scale hydro to wind farms
  - A greater partnership with the utility companies e.g. the SCaMP project
  - Using the WAG targets to drive public investment in getting protected sites into favourable condition and using this as a key driver for land management skills development and nature tourism.

- Better enforcement of existing legislation and duties placed on public bodies and statutory undertakers e.g. duties under section 28G of the Wildlife and Countryside Act 1981 (as amended)<sup>2</sup>. Where there is a duty to [...] to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which the site is of special scientific interest.
- Encouraging localism; developing place linked products and a vibrant local economy in the uplands

## **Introduction**

The RSPB is Europe's largest wildlife conservation charity with over one million members, with over 50,000 of them living in Wales. The Society manages one of the largest conservation estates in the UK, covering more than 140,000 hectares. In Wales, we manage 18 nature reserves covering 17,000 ha. Much of the RSPB's reserve network in Wales is farmed, including the 4,500 ha Ty Llwyd farm in the Vyrnwy estate, which is managed in partnership with Severn Trent Water as a commercial organic farm. Throughout our estate, we protect and enhance habitats such as upland and lowland farmland, blanket bog, upland and coastal heath, wet grassland, estuaries and reedbeds, and our reserves help to protect many rare and threatened birds.

Given the importance of the uplands for biodiversity, the RSPB has a major interest in the uplands both as a landowner and manager. Here we work with a range of partners for the benefit of biodiversity and people. People are central to the work we do, as employees, contractors and as visitors. A number of our staff and volunteers live in the uplands and are passionate advocates for the uplands.

The RSPB's vision is of a farmed countryside that supports thriving rural communities and wildlife. We want to see a more sustainable land-use policy for the uplands that delivers the full range of environmental goods and services (e.g. access/recreation, carbon storage, drinking water, biodiversity) that the uplands provide for society as a whole. This is a key time of change with Climate Change and ongoing reform of the Common Agriculture Policy likely to exert further pressure on the uplands and associated interests.

We welcome the opportunity to contribute our thoughts to this inquiry at such a crucial point.

### Welsh Uplands introduction

The Welsh uplands comprise some 800,000 to 1,000,000 ha of land much of which is managed for food (hill farming) and timber production. Over 1 million ha of the Welsh uplands are designated as Less Favoured Area (80% of Wales) with 736,000 ha designated as Severely Disadvantaged Area. Hill farming is often considered the backbone of the Welsh uplands. This is hardly surprising given that within the LFA there are some 28,000 holdings supporting 42,000 full and part-time farmers. The designation of the LFA and associated support measures is indicative of a post-war drive to increase and support food production across the uplands. Despite this and other measures, the future of hill farming is in doubt with declining incomes, ageing farmers and a growing lack of confidence about what the future holds.

Traditionally, hill farming has been valued for food production and sustaining a rural population and the environmental outputs were secondary by-products of this land

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<sup>2</sup>. [Wildlife and Countryside Act 1981](#)

management. However, society is becoming more aware of the wider role of the uplands as a vital provider of environmental goods and services (ecosystem services). These include the provision of drinking water, climate change regulation (e.g. sequestration and storage of carbon by peatland habitats), an appealing and physical landscape for access and recreation and of course, home to important wildlife.

**What form should future public support for the uplands take (including a consideration of the European Commission's emerging proposals for the designation of Intermediate Less Favoured Areas)?**

RSPB Cymru believes that it is the role of public policy to ensure that agriculture continues to provide those goods which society needs and expects (ecosystem services, historic environment, natural resources, and rural community structure). This should be provided through a combination of regulation against pollution and degradation, by creating a market for public goods through the Rural Development programme, and by enabling and educating consumers to opt for goods produced to high environmental standards.

RSPB Cymru believes that both LFA designation and future LFA support needs to be based on an objective and transparent system that rewards the production of public goods in the form of sustainable land management. We welcome the integration of the LFA payment into agri-environment structures.

History

Since its introduction in 1975, the LFA measure has evolved from a policy tool designed to prevent rural depopulation and land abandonment to one whose stated aim is to achieve environmental objectives reflecting changing pressures and priorities. It has failed to fully meet any of these objectives on a European level, and has been criticised by the European Court of Auditors.<sup>3</sup>

In Wales, upland farms have been supported since 2001 by Tir Mynydd but, apart from a some minimum and maximum stocking rates and some cattle grazing enhancements, it has never been targeted at environmental outcomes. LFA support is seen in the farming community as a socio-economic support measure. The lack of clear environmental output for the payment became very clear in the context of the review of Rural Development and Axis 2 objectives.

RSPB Cymru believes that being able to provide evidence that agri-environment schemes can deliver on their environmental and socio-economic objectives will be one of the best ways of being able to justify future Rural Development support in Wales.

The announcement of Glastir in 2009 signals the end of Tir Mynydd – support in the LFA will, from 2012, be part of Glastir and linked to delivery of environmental goods. This recognises the positioning of LFA support under Axis 2, the environmental land management Axis of the Rural Development Plan. RSPB Cymru strongly welcomes this move but believes that the detailed structures of the new Glastir scheme will determine how successful it will be in delivering environmental outcomes.

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<sup>3</sup> [Special Report No 4/2003 concerning rural development: support for less-favoured areas, together with the Commission's replies](#) European Court of Auditors.

### Future changes to the LFA

The European Commission proposals to revise the designation criteria for Intermediate LFAs, will establish objective criteria for the designation. RSPB Cymru believes that this is a welcome step but recognises that this may be difficult on a EU scale given differences in farming systems.

The EU is promoting the definition of High Nature Value (HNV) farming as a way of creating objective criteria. In Wales, HNV farming needs to be defined so that the types of farming that are of greatest benefit to wildlife can be identified and supported. Support should be directly related to the public goods provided by those farms. It is currently unclear how HNV will link into Glastir, it would be helpful if the Committee could investigate this further as part of their inquiry.

### **How can the uplands be valued for their contribution to the social and economic future of Wales as well as the environment?**

The framing of this question is interesting as it implies that we have placed a higher environmental value on the uplands and that we need to pay greater attention to the social and economic value. We would question whether this is indeed the case, especially given the history of unsustainable management of our environmental resources – and there is plenty of evidence – from declining biodiversity, water quality issues and degraded carbon soils – to show that we have not adequately valued the upland environment.

In reality, it is impossible to separate out environmental, social and economic values as these are all inter-related. The mountains, hills and valleys of Wales play a central role in the culture, recreation, economy and environment of Wales<sup>4</sup>. These upland landscapes are an integral part of the national identity of Wales and are frequently used as a backdrop to promote Wales.

Whilst the uplands are often thought of as wild areas, the truth is very different. The upland landscape we see today is in part, a result of the influence of generations of people over thousands of years, where human intervention has influenced and shaped the landscape, particularly through farming, forestry and mining. The evidence of how people lived and worked in the uplands over hundreds of years has been documented by the Uplands Archaeology Initiative. A particular feature of the uplands is that the impact of past activity has often resulted in change that is visible at a landscape scale (e.g. woodland removal, land enclosure) and that some features have been well preserved under a layer of deep peat soil.

The geography of these hill and mountain areas has also led to the establishment of often isolated and close-knit communities. Here, the Welsh language is a living and working language putting these places at the heart of Welsh national culture and identity.

Tourism is of major economic importance to Wales. Around 80% of visitors to Wales cite the quality of the environment as a reason for their visit. The Welsh uplands include some of the most magnificent and iconic landscapes in the UK with two large areas designated as National Parks and the Clwydian Hills AONB. Snowdonia National Park extends to 213,000 ha and the Brecon Beacons to 135,000 ha. Together, these National Parks attract some 17.5 million day/visits/year making an important economic contribution to the uplands as a whole. These upland landscapes are in themselves icons for tourism and a strong brand image for Welsh goods and services.

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<sup>4</sup> Cherished Heartland – Future of the Uplands in Wales (2005) (Midmore & Moore-Colyer)

The Welsh uplands comprise a suite of upland habitats including 80,000 ha of upland heath (5% UK resource), 70,000 ha of blanket bog (5% UK resource), 39,000 ha of West Atlantic oakwood (40% UK resource), 17,000 ha of upland mixed ash woods (25% UK resource) and 1% of the UK resource of montane heaths and grassland.

Some of these habitats are listed under the UK Biodiversity Action Plan and are listed as priority habitats under the EC Habitats Directive. Over 150,000 ha of the uplands have been designated as Sites of Special Scientific Interest with major areas afforded further protection as Special Areas of Conservation (EC Habitats Directive) and Special Protection Areas (EC Birds Directive). Despite their importance many of our most important upland sites are in poor condition – in 2006, 60% of Welsh upland SACs features were judged to be in unfavourable condition.<sup>5</sup>

In addition to supporting important wildlife, these same areas are important for water provisioning, carbon storage, food production and offer fantastic opportunities for access and recreation.

The uplands are home to a number of birds that are listed as Birds of Conservation Concern and/or are listed on the UK Biodiversity Action Plan (BAP). Key upland birds include:

- Black grouse
- Black-headed gull
- Chough
- Curlew
- Golden plover
- Hen harrier
- Lapwing
- Nightjar (in upland conifer plantations)
- Pied flycatcher
- Red grouse
- Ring ouzel
- Twite
- Willow tit
- Wood warbler
- Yellowhammer (on ffridd)

#### Economic valuation

The quality of the Welsh environment is fundamental to the economy of Wales. A recent study found that the Welsh environment as a whole supports an estimated 117,000 full-time equivalent jobs rising to 169,000 full-time equivalent jobs when multiplier effects are taken into consideration<sup>6</sup>. This equates to 1 in 6 Welsh jobs. Environment related activities contribute £2.4 billion of the total Welsh Gross Domestic Product generating an estimated spend of around £9 billion each year. This amounts to 15% of the total value of goods and services.

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<sup>5</sup> A Framework to set Conservation Objectives and Achieve Favourable Condition in Welsh Upland SSSIs, Dr Barbara Jones (2007). Countryside Council for Wales

<sup>6</sup> Valuing our Environment: The Economic Impact of the Environment of Wales (2003) (Bilsborough & Hill)

It is currently difficult to assess the economic value of the Welsh uplands *per se*. The Welsh uplands form a major part of the Protected Landscapes of Wales, which include Snowdonia National Park, Brecon Beacons National Park and the Clwydian Hills AONB. In total, these areas comprise approximately 45% of the Welsh uplands and attract over 18 million day/visits per year.

The contribution of the upland environment to the economy of Wales is poorly understood. However, a recent study on the economic impact of the National Parks of Wales, two of which are upland (Snowdonia and Brecon Beacons) helps tease out the relative importance of environmentally linked activity in the uplands<sup>7</sup>. The Welsh National Parks support almost 12,000 full-time equivalent jobs with much of the indirect employment occurring outside of the Parks. In the National Parks, twice as many jobs (38%) are linked to the environment as in the rest of Wales. Within the Parks, an estimated 25% of all employment is linked to the environment. Despite covering an estimated 20% of Wales, the suite of National Parks contribute less than 10% of environmentally linked Gross Domestic Product.

In the Brecon Beacons, 88% all employment was in three sectors – farming (49.1%), recreation, culture & welfare (23.3%) and hospitality (15.3%). In Snowdonia, the same three sectors comprised 86% of all employment – farming (39%), recreation, culture & welfare (17%) and hospitality (30%). The report authors conclude that the environment is a more significant component of the economy of the national parks than it is in the wider Welsh economy.

RSPB nature reserves attract thousands of people and generate economic activity in local areas through direct employment (e.g. site staff) and through grazing lets and agricultural tenancies. Spending from staff, volunteers and visitors support additional local jobs. For example, RSPB Lake Vyrnwy Reserve was estimated to support 35 full time equivalent jobs through associated programme of habitat and visitor operations.<sup>8</sup>

Our nature reserve at Lake Vyrnwy was the subject of a recent case study on farming and conservation<sup>9</sup>. The case study highlights the long term vision, shared by The RSPB and Severn Trent Water of managing a successful upland farm, and demonstrating that farming can work together to produce a profitable farming operation and benefits for birds and other wildlife.

Wildlife and nature conservation is also of considerable economic importance. Recent studies by The RSPB have assessed the value of birdwatching and nature conservation to local economies. Nature conservation supports employment and provides benefits to local economies in the UK. Protecting and restoring habitats will provide direct employment, maintain and enhance the quality of the countryside and the tourism industry that depends on it, and will provide new opportunities to develop and market food and rural produce consistent with a high quality rural environment<sup>10</sup>.

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<sup>7</sup> Valuing our Environment: Economic Impact of the National Parks in Wales, Dr Tony Hyde, Prof Peter Midmore (2006). A report to the countryside Council for Wales on behalf of the Valuing our Environment Partnership

<sup>8</sup> RSPB Reserves and Local Economies, Anna Shiel, Matthew Rayment, Graham Burton (2002), RSPB

<sup>9</sup> Lake Vyrnwy, Farming and Conservation, A Case Study. RSPB and Severn Trent Water

<sup>10</sup> Conservation Works ... for local economies in the UK. (2001) RSPB

### Social value

The Welsh uplands have been central to Welsh culture and an inspiration for poets and artists for centuries and continue to be so. Uplands feature some of our most charismatic landscapes and should be celebrated and protected beyond the network of protected landscapes.

A modern project to restore the blanket bog habitat on the Berwyn Mountains near Lake Vyrnwy<sup>11</sup> inspired a local poet to pen these lines, rejoicing in the restoration of wildlife and the glory of the hills:

*I fywyd yr adfywio, daw giach,  
tafod y gors eto,  
her a braint ailagor bro  
a hen lwybr i'w ail-lwybro.*

*Gorgors y Berwyn, Robin Hughes, 2009*

Local school children, after visiting the restoration project, were moved to describe the waving cotton grass, the music of the place names and wild nature:

*Wedyn yn y Berwyn, doedd dim breffu ar y bryn,  
Ond ymhobman roedd plu'r gweunydd fel gwlan mân o wyn.  
Roedd yno hen hen enwau, fel cân o'r amser gynt,  
Carnedd y Ci a Chlochnant, Cwm Tywyll, Moel y Gwynt.  
Roedd yno stalwyn clærwyn, fel ceffyl unicorn blêr,  
Ac mi ddaeth i syllu arnon ni, a'i lygaid yn llawn sêr.  
Roedd yno flodau bychain wrth y miloedd, ar fy llw,  
Na fasai'r teithiwr talog ddim yn sylwi arnyn nhw!*

*Disgyblion Ysgol y Parc, 2009*

In addition to inspiring art, literature, and music, the sparsely populated uplands now host millions of tourists every year. Rural tourism often depends on, but does not contribute to the land management providing the services that visitors want. The uplands economic base needs to be developed to couple wildlife and landscape to revenue generating activities and encourage the development of localism, including high value, place linked products such as food from special farming systems (e.g. High Nature Value Farming).

### **How can government policy work with land manager's needs to achieve the best use of Welsh Uplands?**

Today, the Welsh uplands are important for farming, forestry, wind energy generation, water provisioning and outdoor recreation. Employment has declined in many areas and upland farmers, dependent on subsidies and rural development grants, face a tough future. It is important that farming continues in the uplands because of the important role that farmers can play in maintaining the special environmental qualities of these areas.

In the long term, the future prospects of upland agriculture will be swayed by the outcome of future CAP negotiations. Beyond 2013, fundamental reform of the CAP is anticipated, though at this stage the future objectives and content of the CAP remain uncertain. Recent

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<sup>11</sup> LIFE - [Blanket Bogs Wales - Restoring Active Blanket Bog in the Berwyn and Migneint Special Areas of Conservation](#)

reforms have led to livestock reductions in some parts of the UK, raising concerns by some about the future of hill farming in some areas. Clearly, without public support, the vast majority of farms in the Welsh uplands (and beyond) would be loss making. The Welsh Assembly Government has decided to integrate LFA support into the new Glastir agri-environment scheme. In this way, they are recognising and rewarding the role hill farming plays in delivering environmental and wider landscape objectives. Similar policy changes are being made or are under consideration in other parts of the UK.

The trend toward a more market orientated and sustainable agriculture is likely to continue, particularly given the likely outcome of the EU budget review. Whilst change seems inevitable, it is worth noting that upland farmers are likely to fare better under a more environmentally focused policy that recognises the role farmers play in sustaining key upland products rather than policies that focus on the disadvantages of farming in difficult, upland terrain.

Future policy should seek to support those farming systems that are considered to be of Higher Nature Value (HNV) and/or are delivering more in terms of environmental goods and services. Typically, HNV farming systems deliver more in terms of public goods and services and are better placed to deliver more in terms of upland ecosystem services.

Whilst HNV farming is increasingly recognised, it is interesting to note that current support measures in Wales tend to distribute support in accordance with historical rates of production support and position within the LFA. In effect, those systems that are currently delivering most in terms of public benefits are currently receiving less support (£/ha) than farms on better soils that are better able to compete in the market place<sup>12</sup>. Clearly, current support measures are not working in the best interest of the farmers and other land managers currently responsible for managing some of our most special places. This has to change. Once lost, these High Nature Value Farms and the social structure and skill base that underpins them would be difficult to recover. We need to focus attention on sustaining those systems that deliver most for access/recreation, soil conservation (e.g. carbon stocks), protected sites and wildlife and which would be unable to do so without some form of public support.

### **How can a value be put on the natural, ecosystem services provided by the uplands, such as carbon storage and flood management?**

The uplands provide society with a range of environmental goods and services (e.g. drinking water, climate change regulation (e.g. sequestration and storage of carbon by peatland habitats), access and recreation, biodiversity) that benefit our well-being. These goods and services (ecosystem services), directly attributable to the upland ecosystem, comprise a range of cultural, provisioning and regulating services<sup>13</sup>. In many cases, these benefits are provided free of direct charge with no direct link between the use of the service and payment for it. This may mean that society fails to understand or indeed appreciate the actual value of some of these services, some of which are vulnerable and subject to major changes, including social, economic and climate change<sup>14</sup>. Where the market fails to adequately pay for environmental goods and services, there is a clear role for public policy.

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<sup>12</sup> Targeting CAP support at High Nature Value farming and crofting systems (2008) (Swales & Moxey)

<sup>13</sup> Millenium Ecosystem Assessment (2005)

<sup>14</sup> Economic valuation of upland ecosystem services (2009) (eftec report for Natural England)

A number of projects are currently seeking to evaluate a range of services considered to be of importance, including water provisioning (quality & supply), flood mitigation (downstream flood reduction), climate change regulation (carbon storage and greenhouse gas flux) and access/recreation usage of the uplands. In many cases, the benefits accrue to those who live downstream (or away) from the uplands.

Developing methodologies to assess actual and relative values of ecosystem services may help land managers and policy makers to make more informed decisions about the broader consequences of changes in land use and management. Economic valuation of ecosystem services may also help highlight the importance of particular upland areas in ways that other valuation methods currently fail to do. This would help cast the uplands in a more positive light.

#### Carbon storage

The Welsh uplands comprise extensive areas of deep peat and other organo-mineral soils that are a major store of carbon. The areas of deepest peat soil are overlaid by blanket bog. A recent study estimated that organic soils in Wales contain 196 Mt carbon<sup>15</sup>. The loss of carbon from these soils in gaseous (CO<sub>2</sub> or CH<sub>4</sub>) or fluvial form (Dissolved Organic Carbon) may have serious consequences for emissions of greenhouse gasses and water quality. Further work is required in Wales to understand the impact of future land-use and climate change on deep peat soils.

Protecting our carbon soils from further degradation (thereby reducing carbon loss) must be a high priority for our land management. However, the evidence base for restoring peatland habitats such that they sequester carbon and become a net sink is still in development.

#### Water provisioning

The Welsh uplands are an important provider of drinking water with water collected in a network of reservoirs and transported to customers across Wales and beyond. In recent years, upland water has deteriorated in quality and colour in some upland areas. The costs of water provisioning have increased because of deteriorating water quality. Changes in water quality are associated with changes in upland land-use and land management, and require enhancements to water treatment works. Increased treatment costs are currently borne by the customer through increases in water rates.

The future price for drinking water in Wales will reflect rising costs of upgrading water-treatment works and the cost of habitat enhancements (e.g. grazing reductions, blanket bog restoration) delivered at a catchment scale, intended to improve water colour and quality at source. The idea of tackling deteriorating water quality at source through habitat restoration and enhancement has been pioneered by United Utilities and the RSPB in the Sustainable Catchment Management Programme (SCaMP).

Through SCaMP, United Utilities and the RSPB have sought to improve water quality and colour through restoring degraded blanket bog (e.g. grip-blocking, reductions in grazing pressure) and restoring riparian woodland habitats. Thus, SCaMP sought to improve drinking water quality and the condition of the network of protected sites (e.g. SSSIs) within the wider water catchment area. A range of monitoring work is now ongoing to determine

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<sup>15</sup> ECOSSE Estimating Carbon in Organic Soils Sequestration and Emission (2007) Report to SEERAD

the effectiveness and wider applicability of the approach. Whilst initial results look very promising, a quantitative assessment and monetary valuation of the costs/benefits is proving more challenging<sup>16</sup>.

#### Water flows

In 2006, flood damage to properties and businesses in Wales cost an estimated £262 million<sup>17</sup>. Climate change may change the pattern, incidence and extent of rainfall and rainfall events potentially leading to more frequent flood events with economic consequences for those affected by floodwater. Upland land-use and management may also impact on water flows and consequently on the incidence of downstream flood events. Developing a better understanding the importance of land-use and associated management activities may help elucidate the value of undertaking habitat management/restoration at a catchment scale, to help reduce (or manage) peak water flows. Whilst hard defences will continue to be required, we hope it is possible to reduce the probability and consequence of flooding through restoring and enhancing habitats that may help better capture and store water and reduce the rate of water run off.

#### Access and recreation

As we have seen above, the Welsh uplands support a major visitor economy. Not surprisingly, visitors to the parks are a major source of employment and spend.

The upland landscape can in itself be considered an ecosystem service, providing opportunities as it does to enhance both physical and mental well-being. The benefits of access provision are increasingly recognised in terms of the need to tackle obesity, heart disease and stress related illnesses. Physical inactivity has serious effects on human health and this costs the UK economy more than £8 billion a year in 2004. Research commissioned by the RSPB indicates that varied and wildlife rich environments are most effective in promoting sociable walking and a healthier lifestyle<sup>18</sup>.

These so called 'natural health services' are often overlooked, yet, it is now widely recognised that access to places such as the uplands could result in significant cost savings for health service provision.

#### Valuation of ecosystem services

The ecosystem service of upland and lowland peatland is the focus of considerable research activity across the UK. A Defra funded research project (SP0572) includes a Case Study for the Berwyn uplands. This project is developing a series of ecosystem service maps for the provisioning, regulating and cultural services of peat and is developing a number of valuation techniques to assess the monetary and non-monetary value of peat and associated services.

Natural England is developing a vision for the English uplands and is keen to assess how changes in land-use and management impacts on a range of upland ecosystem services including food production, renewable energy provision, water supply, recreation, game

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<sup>16</sup> Case Study on the Ecosystem Services Provided by a Sustainable Catchment Management Programme (in the UK Uplands) (2009) (eftec report for RSPB)

<sup>17</sup> Nature's Capital – Investing in the nation's natural assets (2008) (The National Trust Wales)

<sup>18</sup> [Natural Fit. Can Green Space and Biodiversity Increase Levels of Physical Activity?](#) Dr William Bird.(2004) RSPB

management, climate regulation and biodiversity and wildlife. As part of this work, Natural England has attempted to assess how changes in tree cover, peatland restoration, grazing and burning impact on a range of upland ecosystem services. To support this work, Natural England is developing a range of methodologies and maps to assess the economic value of upland ecosystem services. The approach and developed methodologies are relevant to the Welsh uplands.

#### **Case study: Restoring blanket bog - The LIFE Active Blanket Bog in Wales Project**

The RSPB are engaged in a major programme of habitat restoration work (in partnership with Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales) to restore an extensive area of drained blanket bog on RSPB Lake Vyrnwy nature reserve. This work, co-funded by the EU LIFE Nature programme aims to bring about an important, significant and sustained improvement in the condition of blanket bog in two Special Areas of Conservation (SACs) in Wales, which in turn will trigger complimentary work both locally and more widely. The two sites concerned, the Berwyn and Migneint SACs, are two of the most important SACs for blanket bog in the United Kingdom. A large area of blanket bog within these SACs will directly benefit from the project actions, which include extensive drain blocking and the eradication of invasive tree species. Getting the SACs into favourable condition is the driver behind this work. This in turn helps the Welsh Assembly Government to meet the Environment Strategy target on designated sites. It also means that blanket bog is conserved, it is an extremely rare and localised habitat, 10-15% of which occurs in Britain.

Conservation of blanket bog is important for a number of reasons:

- Blanket bogs have been utilised by man over 1000s of years, making them an important link with our past.
- They support a unique assemblage of plant, invertebrate, and bird species.
- Blanket bogs are an important carbon store.
- Damaged blanket bogs release large quantities of carbon dioxide, methane and nitrous oxides, greenhouse gases that have been implicated in global warming.
- The loss or degradation of blanket bogs may result in increased runoff and greater sediment loads, reduced water quality, and increased sedimentation of lakes or reservoirs, or change in aquatic ecosystems down stream
- Blanket bogs are wetlands often in the headwaters of major catchments. The loss of or damage to blanket bog may result in less reliable water supplies, increased droughts, or greater likelihood of flooding.

A more recent collaboration with a major NERC funded research programme (UKPopNet) has funded detailed monitoring work to assess the impact of blanket bog restoration works (especially grip blocking) on carbon storage, greenhouse gas flux, water colour and water flows. The majority of work is taking place on the RSPB Lake Vyrnwy Reserve, part of Berwyn SAC and owned by Severn Trent Water.

#### Wildlife

It is now widely accepted that the target to halt biodiversity loss by 2010 will be missed. The Welsh Minister for Environment, Sustainability and Housing, Jane Davison, submitted written evidence to the inquiry stating, "the target to halt biodiversity loss is most unlikely to be

achieved by 2010.”<sup>19</sup> Looking to the future, targets on biodiversity will not be met without the uplands playing a major role, especially in protected site management.

The uplands support a range of internationally important species and habitats. Some species are only found in the uplands, while others may become increasingly dependent on them in the future. Some of our most important wildlife depends on land use and management that has a declining support base and the conservation benefits of upland farms, moors and forests are not always recognised or rewarded. The huge potential of the uplands to conserve and protect Wales’s wildlife should be explicitly developed and richness restored.

**Table 1. Status of upland birds in Wales**

Species	Wales Birds of Conservation Interest	Species of principal biodiversity importance (Wales)	UK BAP
Black grouse	Red	Y	Y
Black headed gull	Amber	Y	-
Chough	Amber	Y	-
Curlew	Red	Y	Y
Golden plover	Red	Y	-
Hen harrier	Red	Y	-
Lapwing	Red	Y	Y
Nightjar	Amber	Y	Y
Pied flycatcher	Green	Y	-
Red grouse	Red	Y	Y
Ring ouzel	Red	Y	Y
Twite	Amber	Y	Y
Willow Tit	Red	Y	Y
Wood warbler	Green	Y	Y
Yellowhammer	Red	Y	Y

In Wales, farmland wildlife is declining at an alarming rate. There is overwhelming evidence, particularly for some of our most familiar birds that these declines have been happening over

<sup>19</sup> [Memorandum submitted by the Minister for Environment, Sustainability and Housing, Welsh Assembly Government](#). Environmental Audit Committee Inquiry on halting UK biodiversity loss. 2 June 2008

decades. The breeding curlew population in Wales declined by 81% between 1993 and 2006. Breeding lapwing numbers fell by 77% between 1987 and 1998 and the decline appears to be continuing. Golden plover numbers have dropped from 214 pairs in the mid 1970s to 36 pairs in 2007<sup>20</sup> All these species are characteristic of upland farming.

Addressing biodiversity declines is complex and action is required simultaneously on a range of fronts if we are to reverse declines in many widespread species that are found in the uplands of Wales.

- No further loss on farmed land through cross compliance and starting to promote recovery through agri-environment agreements
- Management of protected sites to ensure that these are in favourable condition and managed positively for the priority species and habitats they support.
- Targeted habitat and species recovery measures through a new funded programme
- A major programme of habitat restoration and creation linked to a new climate change adaptation programme for the natural world

### **How can climate change and the potential impacts of climate change be built into the planning for the future of the uplands?**

The Welsh Assembly Government farming strategy, *Farming, Food & Countryside, Building a secure Future*<sup>21</sup>, highlights the role land managers must play in planning for a changing climate:

...land management can significantly alter the outcome in terms of reducing greenhouse gas emissions, conserving carbon and mitigating climate change.

And that:

Safeguarding habitats and their connectivity, managing water resources and quality, reducing flood risk and carbon emissions are all dependent on the actions of land managers.

The uplands have a particular role to play in this and land use policies need to reflect the need to adapt to a changed future.

#### Climate change impacts

Climate change in Wales during the course of the 21<sup>st</sup> century is very likely to show the following characteristics:

- Hotter and drier summers
- Milder wetter winters
- Increased number of extremely warm days
- Reduced incidence of snowfall and frost
- Increased incidence of intense rainfall events

These outcomes are taken from the UKCP09 climate projections for Wales, published in June 2009, and are consistent across low, medium and high carbon-equivalent emission scenarios and for different statistical probability levels.

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<sup>20</sup>Johnstons IG, Bladwell S, Noble DG, (2008). The State of Birds in Wales 5:a review of 2006 and 2007. RSPB Cymru, Cardiff

<sup>21</sup> [Farming, Food & Countryside. Building a secure future](#), Welsh Assembly Government, May 2009.

Average annual temperature increases – from the 1960/91 average level - using the medium emissions scenarios for Wales, are suggested to be:

- Up to 2°C higher by the 2020s;
- Up to 3°C higher by the 2050s;
- Up to 4°C higher by the 2080s.

The high emissions scenario projects an average temperature increase by the 2080s of around 6°C.

Rainfall is projected for the 2050s to decrease in summer by an average of 16%; and to increase in winter by an average of 14%. Overall, annual rainfall is projected to remain broadly constant at baseline levels.

Within these overall Welsh averages, there will be local and regional variations.

The possible implications of these projected climate changes on the Welsh uplands are likely to include:

- The enhanced possibility of hill farmers diversifying into more crop-based forms of agriculture, with possible implications both for biodiversity and for soil carbon retention.
- Wetlands will be at greater risk of drying out, again with soil carbon implications, especially for peat-based soils.
- Current lowland and southern species might retreat uphill and to the north.

#### Implications of climate change in the Welsh uplands

The north and westward movement of warmer climate zones will create possibilities for the expanded growing of cereal crops in Wales, including the upland farming areas. With rising UK and global population levels creating rising demand worldwide for food, agriculture will need to respond. It will need to do so in a manner that minimises carbon emissions, which would also suggest a move away from livestock and towards crop-based food production.

The direct impact of climate change on continuing upland pastoral farming may include:

- Grass growth will start earlier and finish later in the season.
- Forage utilisation by grazing in spring and autumn will become more difficult because of increased rainfall.
- Increased heat stress and reduced water availability for livestock in the summer.

#### Climate mitigation and adaptation

Given that much of our drinking water is collected in the uplands, water management will become increasingly important in the future. Managing the uplands to alleviate the impact of flooding downstream may also become vital. This may require major changes in upland land use and management, potentially changing the economic rationale for managing key upland catchments in the future. Under every climate scenario, it is apparent that we will need to store more water in the landscape. This could also result in major changes to the way the upland landscape looks.

Whilst the need to move to a low carbon economy is challenging for society it could create opportunities for the uplands. For example, the uplands could be central to the continuing development of the renewable energy industry and the millions of tonnes of carbon stored in

peat could unlock novel funding mechanisms, linked to renewable energy developments to sustain and enhance active peat formation in the future.

Wind energy has a major role in meeting renewable energy targets and the uplands have a key role in this emerging industry. Technical Advice Note 8 (2005) on Renewable Energy takes a spatial planning approach by selecting the best areas for wind energy development (Strategic Search Areas –SSA) where there is a general presumption in favour of wind farms. These SSAs are all in upland areas and the development of wind farms in these areas is key to Wales meeting its renewable energy targets. Whilst acknowledging that biodiversity resources of substantive value exist within the Strategic Search Areas, RSPB Cymru is strongly supportive of renewable energy and supported the TAN 8 approach, viewing it as the most rational and defensible means of deploying onshore windfarm development to its most sustainable locations on a Wales-wide basis. Not all land within SSAs will be suitable for onshore windfarm development, but provided wind farms are built in the right location, avoid damage to deep peat and other sensitive wildlife sites; wind farms and wildlife can co-exist.

RSPB Cymru views the advent of TAN 8 and onshore windfarm development in Wales as a major opportunity for a "win win" scenario in terms of both attaining Wales' renewable energy targets and grasping opportunities to manage the uplands for biodiversity at a landscape scale, and welcomes references in TAN 8 to that effect. We regard TAN 8 as a once in a generation opportunity to draw down developer contributions to promote this high-level objective in a strategic manner, and for this reason we are advocating a strategic masterplanning approach which we have piloted in Conwy nad Denbighshire, called the Statement of Environmental Masterplanning Principles. (SEMP). This provides a strategic framework for habitat management proposals throughout the Clocaenog Forest SSA, clarifies the concept of "Environmental Community Benefit" and allows Environmental Community Benefit to be applied in a planned way at an SSA-wide scale. We offer this to WAG as a simple but robust means of addressing biodiversity declines in the uplands, and with the 2010 date for the halting of Biodiversity resources fast approaching, we feel that this should be pursued across all of the SSAs, and also in any situation in the uplands where there is development pressure.

Other renewable energy sources also are key in the uplands for example small-scale hydro and wood fuel energy. There is considerable potential for the expanding biomass sector to deliver additional benefits alongside reductions in greenhouse gas emissions and increases in energy security. For example, local markets for products from sustainably managed woodlands could help to make such management economically viable and deliver real benefits for woodland biodiversity.

Soil conservation is an important factor in upland conservation. It is difficult to predict how climate change may affect soils in Wales and their continuing capacity to store carbon at recent historical levels; however, erosion from extreme storm events and drying from reduced summer rainfall are expected to increase, reducing the capacity of soil to store carbon.

As mentioned above, soils in Wales are estimated to contain 410 mega tonnes (Mt) of carbon. Organic (peat) and organo-mineral soils cover 23% of Wales' land surface and contain an estimated 196Mt of carbon. These are the most important soils for carbon conservation and a large proportion of the area covered by them (typically by blanket bog) is designated as SAC or SSSI. There is clearly a high coincidence between carbon conservation and nature

conservation. Much of the area of organic soils in upland Wales is also designated as common land.

The understanding of the net carbon budget from landscapes is relatively poor, even without taking into account changing land management or climate change. A key constraint in identifying the most appropriate future management for carbon is a lack of understanding of the production, cycling and fate of methane from peatlands.

Without advances in this area and a better understanding of other losses of carbon from the uplands as Dissolved Organic Carbon or Particulate Organic Carbon, it may not be possible properly to assess the impact of changes in land-use or management (e.g. blanket bog restoration, afforestation) on carbon budgets

A range of research activities is currently underway at RSPB Lake Vyrnwy Reserve, some of which will further our understanding of the processes underlying greenhouse gas fluxes and other forms of carbon loss from the uplands. The impact of land management and climate change upon these processes is a key component of these research projects.

Initial results from the work at RSPB Lake Vyrnwy suggest that in the short term, the restoration of drained blanket bog (e.g. through blocking drains) results in a flush of methane emissions. Further work is now required to determine if increased methane emissions are indeed short-term and if they are offset by enhanced uptake and storage of carbon as CO<sub>2</sub>. The findings also need to be considered in the context of not blocking the drains. Other changes in land-use and management may also be important. For example, peat-forming vegetation may sequester more/less carbon from the atmosphere under different grazing regimes. Grazing levels that damage the surface vegetation, resulting in creation of bare soil, may increase direct loss of peat (through action of wind and rain) and/or drying out of peat.

Whilst we believe the evidence is lacking at present to identify the most appropriate management of the uplands purely from a carbon reduction perspective, we do believe that through managing the uplands so that the key habitats are in good condition, the potential for delivery of carbon, biodiversity, water quality and other ecosystem goods and services would be maximised.

We also believe that although the knowledge, experience and expertise to manage for these wider gains may currently exist, resources for their delivery are currently insufficient. The Welsh Assembly Government should prioritise this issue, create a specific climate change budget to fund this type of work, and help deliver the One Wales emission reduction target.

Climate change will drive developments in land use policy, and the uplands are uniquely placed to contribute, as:

- A home for special wildlife
- A store (and potential sink) of carbon in peat and other soils
- A sponge to retain rainwater and release it slowly; delivering consistent and safe water supplied to other areas
- An environment that delivers high quality products through sustainable land management practices.

One important role for WAG is to help biodiversity successfully adapt to a changing climate. This includes building resilience for designated sites, habitats and species. Where these have been damaged by past management practices they are less likely to cope with the new

stresses of climate change. Therefore bringing our designated sites, habitats and species populations into favourable condition is an urgent priority. Creating new areas of habitat and habitat networks are a complimentary adaptation response and new resources are needed for this work.

It is important to recognise uncertainty in the extent and nature of the climate changes and the biological response. Risk management approaches should be adopted which allow us to respond quickly with no and low regret actions and which put in place monitoring and research to reduce uncertainty. Research programmes that predict likely changes in distribution such as MONARCH<sup>22</sup> are helpful but need to be interpreted carefully.

### **What are the roles of farming and forestry in the future of the uplands?**

Agriculture and forestry are the predominant land-uses in the Welsh uplands. Large parts of the uplands are unenclosed upland grazing land, much of it common land. This open hill land is mainly unimproved and includes large areas of designated land (SSSIs/SACs/SPAs). Forestry in the uplands is dominated by coniferous plantations but there are large areas of deciduous native woodlands of significant biodiversity value.

Low-intensity livestock systems that are typical of the Welsh uplands, using lower levels of chemical fertiliser, pesticides, herbicides and veterinary drugs, permit the survival of rich insect communities and a significant group of plants intolerant of high nutrient levels. Low intensity systems can also be associated with 'traditional' management practices, such as the late harvesting of meadows and arable crops or seasonal movement of livestock, which can create favourable conditions for wildlife.

Extensive grazing, ideally mixed grazing, is important in maintaining upland pastures in a state that benefits upland birds and other wildlife. Grazing livestock are essential in maintaining the open, uneven vegetation structure that benefits numerous invertebrates, birds and other wildlife. Cattle eat the coarser plant species helping to improve the utilisation of more marginal land and their less selective grazing habit tends to maintain the diversity of unimproved grasslands more effectively. Cattle are also generally better able to cope with wet ground conditions than sheep and their greater trampling weight is more likely to create the small patches of bare ground that offer re-germination opportunities for plants and benefit several invertebrates and birds. There has been a long-term decline in cattle numbers in the uplands, to the detriment of habitat condition.

In addition to the role of low intensity livestock grazing in habitat management, extensive management also contributes to the delivery of 'ecosystem services' such as nutrient cycling, water provisioning and storage, soil protection and carbon storage.

The role of agriculture and forestry in the future of the uplands can be summarised as follows:

- The protection and maintenance of habitats and species
- The protection of key land, soil and water resources needed for food production and functioning ecosystems e.g. nutrient recycling, soil protection, clean water

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<sup>22</sup>Modelling Natural Resource Responses to Climate Change, see: <http://www.eci.ox.ac.uk/research/biodiversity/monarch.php>

- The provision of ecosystem services such as water provisioning and storage in wetlands, carbon sequestration and storage in agricultural soils
- The maintenance of valued cultural and historic landscapes
- Provision of amenities for public access, recreation and enjoyment
- The maintenance of rural culture (including traditional land management skills)

In the context of the uplands, there is particular interest in the role, for example, of peatland soils in storing carbon to mitigate against climate change or managing habitats to store water and prevent flooding in downstream urban areas or improve water quality.

### **What role does common land have in the future of the uplands?**

Common land is important as an agricultural, environmental, recreational and cultural resource. Large areas of the Welsh uplands are common land and the grazing of commons is crucial to the commercial viability of many farms in the uplands.

Common land is extremely valuable for wildlife due to the land tenure system helping to protect many commons from the level of agricultural intensification experienced on non common land. They are rarely ploughed, re-seeded or treated with inorganic fertilisers and as a result, many commons are designated as Sites of Special Scientific Interest (SSSI) though many are currently in poor ecological condition. Upland Special Areas of Conservation (SACs) cover approximately 91,500ha and upland SSSIs roughly 151,000ha. These represent 4.4 % and 7.1 % of the land cover of Wales<sup>23</sup>.

#### The Commons Act 2006

In 2006, the Commons Act, England and Wales (the Act) should have heralded a new era for common land management in Wales. The Act allows for updating and improving the registers and for commoners to form Commons Council and to take on statutory powers to improve commons management and enforce their decisions.

However, RSPB Cymru is disappointed by the delay in implementation of Part 2 of the Act on commons management. Implementation would enable Welsh Ministers to establish commons councils who would manage agricultural activities and agree on rights of common land. Until Part 2 of the Act is brought into Welsh regulation, there is no mechanism for commoners holding rights to reach a mutual decision and be able to sign up to an agri-environment agreement.

Welsh commons stakeholders were at the forefront in calling for the Act due to previous governance problems, such as:

- Stock welfare issues e.g. not all commoners worming at the same time or some turning out entire rams or stallions.
- Environmental problems such as overgrazing, and inappropriate burning regimes.
- Access problems such as illegal fencing, leading to environmental damage through agricultural intensification and blocking of public access.

The Welsh Government has committed in its Environment strategy to get 95% SSSIs into favourable condition by 2015, and by 2026 to have all sites (including SSSIs) in favourable

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<sup>23</sup> [CCW, Upland framework](#)

condition. Without a mechanism for commoners to reach agreement and achieve cooperative action on common land, it is unlikely that these targets can be met. The Welsh Assembly Government has also stressed the importance of cooperation and participation in agri-environment schemes in the new strategy for farming, *Farming, Food & Countryside, Building a secure Future*<sup>21</sup>. Cooperative action on a large scale should be a priority if we are to manage our water, carbon and biodiversity effectively. Without the mechanism for commoners to work together and enter into agri-environment agreements, it is hard to see how this can be achieved.

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