

**Debating the Future of the English Uplands: An Analysis of Competing
Policy Agendas Involved in Rural Change**

Kathryn Elizabeth Arblaster

Centre for Environmental Policy, Imperial College London

MPhil thesis

Declaration of Own Work

I declare that this thesis “Debating the Future of the English Uplands: An Analysis of Competing Policy Agendas Involved in Rural Change” is entirely my own work and that where any material could be construed as the work of others, it is fully cited and referenced, and/or with appropriate acknowledgement given.

Abstract

The uplands of England are highly valued landscapes and have been powerfully shaped by agricultural practices over the centuries. Different agricultural policy discourses have impacted on the way upland farmland has been managed with both positive and negative environmental consequences.

Currently, new debates are emerging about land use in the uplands, sparked by the increased interest in issues such as climate change, food security and the provision of public benefits. This thesis considered how the future of the English uplands is currently being framed at a time when these competing policy agendas are emerging.

Through literature review and stakeholder interviews a number of findings have arisen. It appears that whilst food security is likely to influence upland debates to some extent, the role of climate change is likely to have a far greater influence on upland land use decisions. A key aspect that is likely to be developed is the role of the uplands in carbon and water management.

This thesis drew upon different scenarios for the future of the upland and asked which are the most likely or desirable in the light of changing policy interests. There appear to be a number of possible futures for the uplands depending on how relevant policies evolve. The most desired future among stakeholders is one in which the uplands become viewed as 'Environmentally Favoured Areas', with an emphasis on the ecosystem services they provide. A clear need is highlighted for further research into how to value and provide for such services.

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Abbreviations

The following abbreviations are used in this thesis:

CAP	Common Agricultural Policy
CLA	Country and Land Business Association
CPRE	Campaign for the Protection of Rural England
CRC	Commission for Rural Communities
Defra	Department of Food and Rural Affairs (England)
EFRA	Environment, Food and Rural Affairs Committee
ELS	Entry Level Stewardship
EU	European Union
FAO	Food and Agricultural Organisation of the United Nations
GHG	Greenhouse Gases
HFA	Hill Farm Allowance
HLCA	Hill Livestock Compensatory Allowance
HLS	Higher Level Stewardship
LFA	Less Favoured Areas
NFU	National Farmers' Union
OECD	Organisation for Economic Cooperation and Development
PSA	Public Service Agreement
RDPE	Rural Development Programme for England
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SCaMP	Sustainable Catchment Management Programme
SSSI	Sites of Special Scientific Interest
Uplands ELS	Uplands Entry Level Stewardship
WFD	Water Framework Directive

1 Introduction

1.1 Changing nature of upland debates

There is currently much debate in policy and research circles about the future of the English uplands. As with all forms of agriculture, since the start of the Common Agricultural Policy (CAP) a number of discourses have arisen concerning the nature of agriculture in Europe and the objectives of agricultural policy. Within these discourses, the value of extensive agriculture, particularly that found in the uplands, has been framed in different ways in terms, for example, of its values, role in food production and the public goods associated with it. The productivist discourse, prominent particularly in the 'productivist policy era' of the 1950-1980s, views extensive agriculture as marginal, with a focus on its economic unviability (Potter, 2002). The post-productivist discourse, originating in the 1980s, argues that extensive agriculture has a central role in agricultural policy objectives because of its importance in public benefits provision (Evans et al., 2002; Marsden, 2003; Wilson, 2007).

Currently, new opinions appear to be emerging concerning land use, including debates on the role of agriculture in food security and climate change issues. This thesis considers how the English uplands and their future are currently being framed at a time when these competing policy agendas are emerging.

Discussions about the future of the English upland landscapes and the way people value them are not a new phenomenon; indeed ever since the National Parks were created in the early 20th Century there has been debate about how the uplands should be managed. In the late 1970s and early 1980s different scenarios for upland futures were being debated including maintaining the status quo or increasing the diversity of the landscape through a 'man made' wilderness (Tranter, 1978; MacEwan & MacEwan, 1982). Discussions surrounding upland futures are particularly relevant today given a new set of issues that are influencing debates, namely food security, climate change and the provision of public benefits from agriculture.

The nature of these debates impacts on how the uplands are viewed. The overall aim of this thesis is to unpick the different policy agendas and consider how they impact on perceptions and ideas of the role of agriculture in the uplands. It will be considered that each of these issues may be 'pulling'

agriculture in different directions. A focus on food security, for example, may lead to a different view of the use of the uplands than an emphasis on public demand for landscape and biodiversity.

To understand the influence of new debates about land use in the uplands, it is important to consider the evolution of upland policy and the values that have been placed upon the uplands in the past. The uplands can be viewed from opposing perspectives: as marginal farming areas which are economically unviable when seen through a productivist lens; or as important areas for public benefits provision through agricultural land management.

1.2 Overview of the English Uplands

The English uplands are found in the north and south-west of England above the upper limits of enclosed farmland. They contain species of wet and dry heath, and rough grassland, as well as associated wildlife (Defra, 2006b)(see Annex 1 for maps). Upland landscapes are a function of climate, topography, geology, soils and human activity. The upland landscapes have been shaped by centuries of agricultural practices with management of herbivores producing the grassland, heathland, mire and enclosure that are today associated with upland landscapes (Condliffe, 2009). Agricultural features such as dry-stone walls, stone barns and extensive areas of moorland are some of the main characteristics valued in the uplands and considered part of England's natural heritage (NFU, 2005). In policy terms, the English uplands are essentially defined in terms of the Less Favoured Areas (LFA) designation (see Section 1.3.1), accounting for 1.55 million hectares, 17% of England's agricultural land (Franks et al., 2008) (see Annex 1 for LFA designation maps). In the UK, LFAs are subdivided into Severely Disadvantaged Areas (SDA) and Disadvantaged Areas (DA). SDA and DA land is classed as inherently suitable for extensive livestock production but not for the production of crops and whose agricultural production is either severely restricted (SDA) or restricted (DA) by soil, relief, aspect and or climate. These definitions are provided by Defra¹ and are provided in full in Annex 2.

Traditional hill farming is typically a combination of grazing cattle and extensive sheep farming as this suits the harsh environmental conditions experienced in upland areas. In England, 40% of beef cows and 45% of breeding sheep are found in the LFA (ADAS, 2003). Sheep are 'gathered' from the fells at different times of the year, driven down to the farm at the valley bottom and installed on by and intake land until they are returned to the hills (Burton et al., 2005). Within the LFA, the traditional hill sheep farms produce lambs either finished on-farm or sold for fattening in the

¹ <http://www.defra.gov.uk/rural/uplands/land-classification.htm> (Date Accessed 25th August 2009)

lowlands and draft hill ewes to provide cross-bred breeding stock for lowland flocks. The suckler beef herds in the LFA produce weaned calves for finishing in the lowlands although a significant number of farms do finish their own calves (Silcock et al., 2005). Dairying is also well represented with an estimated quarter of the milk market supplied by dairy farms within the LFA of England and Wales (Defra, 2002). Other forms of management occur such as grouse moor management which is also important in shaping the landscape and in contributing to the local economy.

1.2.1 A Bleak Future?

The hill farming industry is facing a number of problems, including falling incomes, an ageing demographic structure and farmland abandonment (Schwarz & Burton, 2005). The number of hill farmers has been falling steadily, for example there were 12,741 in 1990 but only 10,738 in 1997 (House of Commons, 1998). Between 1992-2002, there was a reduction of nearly two million sheep and lambs in the LFA (IEEP et al., 2004). Defra's 'Farmer's Voice Survey' 2005 found an intended nine percent decline in suckler cow numbers over the period to 2010, with the largest expected decline in upland areas of the North West (Defra, 2006a). The profitability of upland cattle and sheep has decreased significantly over the past decade and hill farm incomes are relatively low and decreasing as shown by Table 1.

Table 1 Farm Business Income² of grazing livestock farms in the LFA

	2003/04	2004/05	2005/06	2006/07	2007/08
Grazing Livestock (LFA)	£17,400	£16,200	£15,800	£10,500	£10,400

Source: (Defra, 2008b)

The Foot and Mouth disease outbreak of 2001 compounded the problems for hill farmers. In the seven months that the disease lasted, 6.5 million animals were slaughtered with the economic loss in rural areas estimated at between £2.2-£2.5 billion. Much of this was related to decreased spending on tourism in these areas (Donaldson et al., 2006).

The decline in hill farming has been compounded by a significant reduction in the agricultural labour force. The main cause of this is an increased migration of young people out of agriculture resulting in fewer successors to take over the farms. However, there is limited opportunity for finding

² Farm Business Income is the sum of total output from agriculture, the total output from agri-environment schemes, the total output from diversification, the single payment, profit on sale of fixed assets minus expenditure (Defra, 2008b)

alternative income sources in these areas due to their remoteness. Thus unemployment levels are considerably higher than in many other parts of England (Defra, 2003a). There is also a lack of access to services in the uplands compared to the rest of England. Between 2000 and 2008, access to many services declined with the largest falls being access to petrol stations and GP surgeries. In the English LFAs, 7% more households are now more than 4km from petrol stations or a GP surgery compared to the year 2000 (CRC, 2009). There is somewhat of a paradox in this situation as it is the remoteness and under-developed character of the uplands that make them so attractive to visitors but which also make livelihoods in the uplands hard to come by. At the same time there is a strong migration into rural areas, a trend known as 'counter urbanisation', as people move out of the cities to live in rural areas and commute into work (Hubacek et al., 2009). The migration into rural areas can bring benefits for the rural economy with new rural enterprises being created by in-migrants.

However, it also puts pressure on the rural housing market, particularly pricing the young rural population out of the market and increasing the drive to move out of the countryside. The upland farming communities are experiencing an ageing of the population. School leavers and those in their early twenties tend to move away from rural areas to urban areas and those of, or near, retirement age move in the opposite direction, with a net ageing effect. As such, rural areas contain fewer people between the age of 20-34 but more above 60 than in England as a whole (CRC, 2009). The greatest rate of increase in the population of the English LFAs has been in the 60-64 age group which has increased by 28% between 2001 and 2007 (CRC, 2009). This ageing population could mean that there are fewer successors to take over farms when the current hill farmers retire, possibly leading to farm abandonment. Clearly this has implications for the management of the upland environment as well as the rural communities.

The decline of the upland farming community is an issue of growing concern due to the public benefits that hill farming provides, such as landscape, biodiversity and ecosystem services as summarised in Section 2.3.4. This decline is partly linked to the history of policy support as outlined below, as well as to other drivers which are discussed in Chapter 4.

1.3 Upland Agriculture: History of Support

1.3.1 Encouraging Production

During the productivist policy era after the Second World War (see Chapter 2), hill farming policy was geared towards keeping farmers on the hills and helping them to increase productivity. A subsidy per ewe was introduced in 1940 and a payment on hill cows in 1943 (Winter et al., 1998). The Hill Farming Act of 1946 made provision for grants at a rate of 50% for the rehabilitation and improvement of 'hill farming land' defined as 'mountain, hill and heath land which is suitable for use for the maintenance of sheep of a hardy kind'. These improvements included applications of lime, basic slag and fertilisers and land drainage. The Act also made provision for subsidies for hill sheep and hill cattle, and for the regulation of heather and grass burning in England and Wales (Condliffe, 2009). By the 1960s, headage payments, together with a wide range of grants designed to increase productivity and efficiency of hill farms, were an important element of hill farm incomes (Winter et al., 1998).

For the uplands, increased production meant large increases in livestock numbers, particularly sheep, and improvements in animal breeds, health and birth rates. Sheep numbers rose dramatically from 1980 with the launch of the EEC's sheepmeat regime. The moorland areas of the UK, and of England and Wales in particular, saw the highest rise in sheep numbers as in-bye land was improved and cross-bred ewes were produced for sale to lowland farms (Condliffe, 2009).

Another policy support geared specifically towards hill farmers is the Less Favoured Areas (LFA) measure introduced by the European Community in 1975 via Directive 75/268. This established a framework for support of 'mountain and hill farming in certain Less Favoured Areas' (CEC, 1975; Condliffe, 2009). The Directive defined certain areas of hill or mountain farming as being less favoured due to natural physical handicap, such as altitude, slope, fertility or "low productivity of the environment". In these areas farmers received a compensation payment according to the severity of their locality's handicap (Fulton, 1999).

England has 1.8 million hectares of agricultural land in the LFA, distributed over 23,000 holdings and making up 17% of all English agricultural land (ADAS, 2003; Defra, 2006c). The English uplands are defined by the LFA designation. For payment purposes, the English LFA are split into four classifications according to the level of severity of their permanent natural handicap (Defra, 2003b; Franks et al., 2008):

- Land within moorland line (45% of LFA area)
- Common land outside moorland line
- Disadvantaged Areas (DA) (33% of LFA area)
- Severely Disadvantaged Areas (SDA) (67% of LFA area)

(See Annex 1 and Annex 2 for maps and definitions)

The initial support for the English LFA came in the form of the Hill Livestock Compensatory Allowance (HLCA) from 1976 to 2001 whereby farmers were paid a headage payment based on numbers of livestock to compensate them for the difficulty of their farming circumstances. HLCA payments acted as a direct stimulus to farmers to increase their levels of stocking in the uplands (Winter et al., 1998). The HLCA was a CAP Pillar One subsidy with the aim of supporting and encouraging production of upland cattle and sheep (Defra, 2003b).

In 1989, a new EU regulation was introduced to harmonize sheepmeat policy with the introduction of the Sheep Annual Premium Scheme. This was both an extension of the UK principle of direct payments already in place in the LFAs through the HLCA, and a precedent for the wider application of direct payments introduced as part of the 1992 reforms (Winter et al., 1998). By the end of the 1980s, agricultural production in the LFAs was at its peak. There was a thriving agricultural industry making significant contribution to rural economies (Condliffe, 2009).

1.3.2 Land Access Issues

At the end of the Second World War, at the same time that increased agricultural production was a high policy concern, there was also strong pressure to provide open access to the countryside and to conserve the landscapes of Britain. The movement for the protection of the most beautiful scenery in England and Wales began in the 1800s in the Lake District, epitomised by Wordsworth:

“persons of pure taste...deem the district a sort of national property, in which every man has a right and interest who has an eye to perceive and a heart to enjoy.” (Wordsworth, 1977)

In the 1930s, organisations such as the Council for the Preservation of Rural England (CPRE), Friends of the Lake District and the Rambler’s Association lobbied for the improvement of facilities for countryside recreation and the establishment of national parks. After the Second World War, the demand for a ‘better Britain’ made this politically possible and the National Parks and Access to the Countryside Act was passed in 1947 (MacEwan & MacEwan, 1982). This provided the foundation for the creation of National Parks and Areas of Outstanding Natural Beauty in England and Wales. Public

Rights of Way were formalised and some improvements made in access to the countryside. It also enabled the establishment of the Nature Conservancy, the role of which was to establish National Nature Reserves. The Conservancy was also charged with establishing a network of Sites of Special Scientific Interest (SSSIs) on areas of significant interest for their flora, fauna, physiological or geological features (Condliffe, 2009).

Over the next forty years policies for protecting the countryside, its wildlife, landscape, historical and cultural value continued to develop. However this was not without tension. From 1968-2001 responsibility for nature conservation and agriculture were separated with the Department of the Environment having responsibility for the former and the Ministry of Agriculture, Fisheries and Food (MAFF) having responsibility for the latter. This gave rise to long running tensions between the two departments since MAFF had almost exclusive access to the money, tools and farmers on whose land the environmental interests and concerns lay (Condliffe, 2009).

1.3.3 Growing Awareness of Environmental Concerns

By the late 1980s it was becoming clear that the success of policies to increase production was having adverse environmental impacts on the uplands due to overgrazing and fertiliser application. In 1990, the Nature Conservancy Council reported that, of the estimated 4,571km² of heather moorland recorded in 1940, 812km² had changed to upland grasses, 50km² to improved grassland and crops, and 180km² to forest plantation. Grants for liming and fertilisers as well as the EEC sheepmeat regime were blamed for the loss of heather moorland (Felton & Marsden, 1990).

This led MAFF to explore ways of discouraging high sheep and cattle numbers by manipulating the government funded Hill Livestock Compensatory Allowance (HLCA) scheme. In 1992, overgrazing cross compliance was introduced on the HLCA with subsidies reduced if animals were destroying the semi-natural vegetation. This particularly applied to moorland where, five years previously, financial incentives were available to convert it to grassland. Within the 1992 reforms, individual producer quotas for the ewe premium and suckler cow premium were introduced in order to reduce upland livestock numbers (Winter et al., 1998). In 1994 the European Community also applied environmental cross compliance on its headage based payments. (Condliffe, 2009).

The Agenda 2000 CAP reform led to the replacement of the HLCA in March 2001 with the Hill Farm Allowance (HFA), under Pillar Two of the CAP through the new Rural Development Programme for England (Defra, 2003b). The scheme included supplementary payments for more environmentally based practices, such as lower stocking densities and organic certification (Condliffe, 2009). Defra's

aim for these changes was to, *“reconnect farmers to their markets, reduce damaging environmental impacts and reduce bureaucracy”* (Defra, 2005).

The HFA represented a move away from headage payments to area-based payment whereby upland sheep and suckler cow farmers now receive support for providing public benefits rather than simply for production. This reflects the UK Government’s change of view on merely subsidising farming for food production (Defra & HM Treasury, 2005). This change to hill farming support means that farmers have less incentive to overstock the hills. Consequently there should be less environmental degradation from overgrazing. From 2008, farms in the Disadvantaged Areas (DA) do not receive the HFA, such that upland support is completely focused on the Severely Disadvantaged Areas (SDA). This is because land in the DA is generally higher grade agricultural land, more accessible and with more options to maximise the potential of the land (Franks et al., 2008). The current HFA provides around £27 million a year for area-based payments to breeding sheep and suckler cow farms of over 10 hectares in SDAs.

Today hill farmers in England remain highly dependent on CAP subsidies with an average of 27% and 15% of their total revenue from farming coming from the Single Payment and agri-environment schemes respectively (Franks et al., 2008).

1.3.4 Future Funding for Hill Farmers

The rationale for supporting hill farming in the uplands has gradually moved away from a focus on food production. Defra recognises that:

“The English uplands are internationally recognised for their biodiversity and as a highly valued part of our natural heritage. They deliver significant ecosystem services including recreation, climate change mitigation and adaptation, food and livestock production, water quality and flood mitigation. Upland farmers and land managers have played a crucial role in this” (Defra, 2009d).

Thus the government has committed to rewarding them for the delivery of environmental and landscape benefits not provided by the market.

The HFA was extended under the 2007-2013 Rural Development Programme for England (RDPE) and will continue until 2010. The aims of the HFA under the RDPE are to continue to:

- Recognise the difficulties that farmers face in these regions and the vital role they play in delivering the landscape and environmental benefits for England's uplands.
- Help to preserve the farmed upland environment by ensuring that land in the Severely Disadvantaged Areas is managed in a sustainable way.
- Contribute to the maintenance of the social fabric in upland communities through support for continued agricultural land use (Defra, 2009a).

Thus the role of the uplands in food production appears to have been removed from the government's policy agenda for the uplands.

From 2010, the HFA will be replaced by a new agri-environment scheme, Uplands Entry Level Stewardship (Uplands ELS). The Uplands ELS is a new strand to the entry level Environmental Stewardship Scheme. Farmers will be able to enter an Uplands ELS agreement from 1 July 2010. The objective of the change to the Uplands ELS is to move away from the compensatory nature of the HFA and towards a more targeted scheme. This will better reward farmers for maintaining and improving the upland landscape and environment, since the HFA is not directly linked to the delivery of public benefits (Defra, 2009d).

Defra believe Uplands ELS will maintain and improve the biodiversity, natural resources, landscape and historical values of the uplands, and contribute to climate change mitigation and adaptation (Defra, 2009a):

"Hill farmers are vital custodians of the upland countryside and play a crucial role in the delivery of environmental and landscape benefits. Uplands ELS will reward them for the delivery of these environmental and landscape benefits by rewarding existing good practice as well as encouraging positive change" (Defra, 2009d).

Farmers will have to meet a points threshold based on the size of their farm and type of land to qualify for funding. Farmers will obtain points by meeting a series of requirements and selecting from a menu of land management options (Defra, 2009a).

The Uplands ELS marks a substantial shift in English hill farming policy as upland farmers will no longer be supported through the LFA measure, since the Uplands ELS is an agri-environment scheme. The extent to which the Uplands ELS is anticipated to support the provision of public benefits in the uplands is explored in later chapters of this thesis.

1.4 Looking to the Future

With the continued reform of the CAP and the end of the HFA, the future of the English uplands is a growing priority within research and policy debates. Because agriculture has shaped the highly valued upland landscapes, the government and many stakeholders believe that the continuation of extensive livestock breeding is crucial to maintaining the environment of the uplands and their social communities (ADAS, 2003; Burton et al., 2005; Defra, 2006c). Hilary Benn, the Secretary of State for Environment, Food and Rural Affairs stated that:

“The uplands are absolutely fundamental to the English countryside. So much of our history, our art, our literature and our sense of identity are tied up in these glorious landscapes, and it is right that we should ensure that farmers are rewarded for looking after them” (Defra, 2008c).

Similarly, Dr Helen Phillips, Chief Executive of Natural England believes:

“Our uplands are inspirational places and also provide vital environmental services such as improved water quality, flood prevention and carbon capture. Farmers and land managers in the uplands are at the forefront of this crucial work and this new strand of ELS (Uplands ELS) enables us to recognise their crucial environmental role while supporting their businesses” (Defra, 2008c).

There is currently much debate about how upland farmers should be supported in the future, how the land should be managed to maintain valued landscape features and exactly what the future holds for both the environment and rural communities of the uplands. It is argued by many, particularly the upland farming community, that continued public support is essential to maintain a viable population in the uplands in order to sustain the wildlife and landscape (IEEP et al., 2004; Burton et al., 2005; NFU, 2005). However it can also be argued that the changes taking place in the uplands are inevitable, that the uplands have never been static, and that alternative ways of managing the upland countryside must now be found outside of traditional hill farming (ADAS, 2003). One option for which there is some support is ‘re-wilding’ the uplands: removing grazing and allowing “*natural processes*” to take over (Tayler, 2006). This is arguably the most radical alternative future on offer and would most likely result in a dramatic change in the upland landscapes, such as Scenario A discussed in Chapter 6. However, this appears to still be an essentially marginal debate.

This is a key time for debating the future of the uplands as evidenced by the fact that the Commission for Rural Communities (CRC) is currently conducting an inquiry into the future for England's upland communities and is due to report their findings in Autumn 2009 (CRC, 2008). Moreover, the introduction of the new Uplands ELS has increased the focus on the future of the uplands. These issues are discussed in further detail in Chapter 4.

The evolution of upland policy has been affected by the changing nature of agricultural policy overall. The influence of various policy discourses are considered in the next chapter. Additionally, Chapter 2 considers the implications that new discourses surrounding climate change, food security and ecosystem services may have on the uplands in the future.

1.5 Objectives and Thesis Structure

This thesis draws on a study completed by the author three years ago which looked at different scenarios for the future of the uplands (Arblaster, 2006). The thesis asks whether the scenarios formulated then are still relevant in light of changing policy interests in food security, climate change, and public benefits. It also considers whether new scenarios are being proposed. An initial review of the literature and preliminary contact with relevant individuals, made it clear that food security, climate change and public benefits are influencing debates about rural land use. The aim was therefore to investigate the extent to which these debates are being played out in the English uplands.

Specific objectives of the thesis include:

- To review the influence of past policy agendas on the English uplands;
- To explore how new issues such as climate change and food security are influencing debate about the future of the English uplands;
- To explore scenarios for the future of the uplands and whether new scenarios are arising.

These objectives were achieved through a literature review and obtaining expert opinion through semi-structured interviews. The results of these findings are presented in subsequent chapters. Chapter 1 provides an overview of the English uplands and the evolution of hill farming policy. Chapter 2 introduces the prominent agricultural policy discourses and their impact on upland agriculture. Chapter 3 outlines the methodology used in this research. Chapter 4 discusses the drivers of change in the uplands; Chapter 5 explores the influence of new policy agendas such as climate change and food security on the future of the uplands; and Chapter 6 looks in more detail at scenarios for the future of the uplands.

2 The Uplands and Changing Agricultural Policy Agendas

2.1 Introduction

One of the major debates surrounding agricultural policy is the continuing justification of public expenditure in this economic sector. Since the start of the CAP, a number of arguments have been used to justify farm support and these have tended to be split between productivist viewpoints and the concept of the multifunctionality of agriculture. Within the latter debate there is an increasing awareness of the public goods provided by certain types of agriculture, particularly those associated with extensive farming systems, such as those found in upland areas, and whether such systems should be supported for their public goods provision (For example, Baldock et al., 1993; RSPB, 2007).

A common theory is that agriculture has undergone a transition from a productivist to a post-productivist policy era (Wilson, 2007) and may now be re-entering a productivist mindset. These different policy concepts have had a marked impact on Europe's agricultural policy and have impacted on the way in which upland farms are regarded and supported. This chapter discusses the dominant policy discourses and explores the place of upland agriculture within these different framings.

2.2 The Post-War Productivist Era

At the end of the Second World War, concern among western European countries about national food security led to the introduction of national policies encouraging the maximisation of food production to ensure national self-sufficiency (Wilson, 2007). This focus on food security and production is seen as the dawning of a 'productivist' policy era in European agriculture whereby agricultural output and productivity were the key objectives of policy (Potter, 2002).

When the Common Agricultural Policy was formalised by the six founding members³ of the European Economic Community in the Treaty of Rome in 1957, its objectives embodied this productivist mindset⁴:

³ Belgium, France, Italy, Luxembourg, the Netherlands, West Germany

⁴ From Article 39 of the Treaty of Rome (EEC, 1957)

- To increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production in particular labour;
- Thus to ensure a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture;
- To stabilise markets;
- To assure the availability of supplies;
- To ensure that supplies reach consumers at reasonable prices.

Productivist policy objectives to increase production of agricultural commodities were closely linked to strong financial state and European Union (EU) support. Intervention was through farm subsidies, price guarantees, protectionist and interventionist policies that kept prices for agricultural products artificially inflated (Wilson, 2007). The influence of these productivist policies have been considered so powerful that some commentators have described a 'productivist countryside', shaped by the commodity regimes of the CAP and linked to intensive systems of agricultural production (Potter, 2002). France was one of the forerunners of productivist agriculture due to the role of agriculture and peasantry within its society and culture, with French agriculture hailed as the nation's 'petrole vert' (Hoggart et al., 1995). In supporting farming incomes through blanket price support and payments linked to production, policy makers accelerated the intensification of agricultural production and mechanisation to improve efficiency (Potter, 2002). Under this policy, farmers began to abandon traditional mixed farming systems in favour of more productive monoculture systems where climatic and agronomic conditions allowed.

Within the productivist ideology, agriculture has a hegemonic position in rural society, with farmers being viewed as the best protectors of the countryside (Clope & Goodwin, 1992). Wilson (2007) describes one of the key characteristics of the productivist period as being the occurrence of a corporatist relationship between agriculture ministries and the farm lobby with the agricultural policy community being tight-knit and extremely influential. In the UK, the National Farmers' Union (NFU) exemplified this characteristic, having high political significance and a strong partnership with the government. In this partnership the NFU represented the interests of the farming community in policy making and helping to ensure the support of the farming community in the implementation of agreed policies (Marsden et al., 1993). This partnership identified national interest within arguments ranging from food security to the balance of payments; it portrayed a productivist image of farming

as an expansive, efficient, modern and technologically advanced industry. Farmers were portrayed as competitive and independently-minded entrepreneurs (Marsden et al., 1993).

In the British uplands, grassy and shrubby heaths provided a major focus for the efforts of agricultural scientists striving to increase grassland productivity in the post-War years. New technologies to improve grassland productivity along with the ewe premia and LFA headage payments paid to hill farmers greatly increased the productivity of the uplands (Baldock et al., 1993; Winter et al., 1998). The number of sheep in the UK increased from about 8 million in the 1860s to 22 million in the 1940s, to just under 44 million in 1993 (Sansom, 1999). This reflects a similar trend across the EU, with the number of sheep in the EU more than doubling from 1979-1999. In the UK, almost 70% of the total flock of sheep (43 million in 1999) graze on the LFAs (Sansom, 1999).

Not only did sheep numbers increase, but there were also changes in the way in which they were managed. The uplands were more traditionally cattle rearing areas and it was only about 150 years ago that sheep became common. Stock numbers used to be limited by the amount of fodder that could be grown on the holding. After 1945, however, the use of inorganic fertilisers led to an increase in productivity, whilst improved transportation made it cheaper and easier to bring feedstuffs into previously remote upland areas. Both these changes made it possible for farmers to increase their numbers of livestock (Sansom, 1999).

2.2.1 The Uplands: Marginal Agricultural Systems Under Threat?

Despite the drivers to increase levels of production in the uplands, under the productivist regime upland farmers were unable to achieve production levels or efficiency as high as lowland farmers. This was due to the environmental conditions of the area, for example, high altitude, poor soil fertility, or the small size of their farm and lack of capital. Such farmers are therefore considered marginal under this productivist model since they are unlikely to be economically viable and unable to produce efficiently.

Despite lacking productive capacity, there was an early desire amongst European policymakers to keep such farmers on the land in order to prevent land abandonment and degradation of rural communities. As part of the UK's accession to the European Community, the UK pressed for an additional support mechanism for hill farmers. This concept was accepted and led in 1975 to Directive 75/268, the 'LFA Directive' (see Chapter 1). The instigation of this Directive highlights that even within a period when production was the key goal of agriculture; policymakers also saw the important role of farms in maintaining rural communities and preventing land abandonment.

Ironically, it was the perceived social and economic importance of small family farms which served as the rationale for supporting agriculture via a policy of prices kept high enough to enable even small, inefficient family farms to remain in production. Such flat-rate price support had the effect of incentivising production as those farmers who produced the most received the most support (Fulton, 1999). This situation has been described as the 'uplands paradox'. This refers to the detrimental effect that the measures taken to exploit the resources of the uplands have on the whole had on the conservation of human and natural resources (MacEwan & MacEwan, 1982). Under the productivist policy era, farms that could not significantly increase their efficiency and production, such as those in the uplands, became marginalised, as Potter highlights:

A high price policy was ultimately self-defeating...because eventually a point would be reached when the budgetary strain of having to remove huge food surpluses from the internal market in order to support prices would necessitate a drastic cut in price support, wiping out the very family farms the policy was supposed to protect (Potter, 1998 p16)

Given the prevalence of small, family farms, the measures taken to intensify upland farmland thus tended on the whole to drive a cycle of decline, leading to depopulation and deterioration of the social and economic life of the uplands (MacEwan & MacEwan, 1982). MacEwan and MacEwan state

that the high level of public and private investment in the post-War years were not generally made with the aim of breaking out of this cycle, but rather to satisfy urban needs and to achieve a number of goals associated with resource exploitation. The hill farm subsidies, for example, in the form of headage payments, had the primary aim of increasing output and profitability per farmer. This was done by reducing the number of hill farms, farmers and farm workers, so creating fewer but larger more productive units. The result in Cumbria was that the proportion of farms under 100 acres fell from 74% of the total in 1951 to 53% in 1971 and the number of farm workers declined by 47% in the 1960s (MacEwan & MacEwan, 1982).

2.3 From Productivism to Post-Productivism

From the 1980s onwards, there was an increasing awareness of the cycle of decline described by MacEwan & MacEwan and recognition of the harmful effects that productivist policies were having on the natural environment. This was not just the case in the English uplands, but across Europe. As such the CAP began to experience a 'crisis' with an increased call from stakeholders for the need for reform. This was triggered by a number of drivers that were undermining the productivist model of agriculture including negative environmental impacts, trade issues and production surpluses.

2.3.1 Environmental Impacts of Productivism

In the 1970s and 1980s there was a growing awareness of the negative impacts of agriculture on the environment, particularly caused by intensive management practices. A number of studies appeared demonstrating problems such as water pollution, wetland drainage and habitat destruction (For example, Potts, 1986). An 'impacts model' whereby agriculture was seen to be in opposition to the environment began to grow in popularity, particularly in the northern Member States, for example, the Netherlands, France and Germany. As a result of this change of view, a number of EU Directives and Regulations were introduced in order to control agricultural pollution (Potter, 2002).

Although characterised by generally lower productive capacity than the lowlands, the uplands were not spared from the environmental pressure of intensification from increased sheep numbers causing overgrazing and associated biodiversity declines. By the 1970s and early 1980s there was growing concern over the loss of rough grazing due to drainage, fertilizing, ploughing and re-seeding. Between 1947 and 1980, 20% of heather moorland in England and Wales was lost, with heavy grazing by sheep accounting for 67% of the total change in moorland cover. Over a 10 year period, (1979-1989) researchers found that an increase in ewe numbers of about 40% was associated with a similar reduction in the area of heather in cases where heather cover was greater than 50%, for example on the upland moorlands (Winter et al., 1998).

This environmental concern posed a challenge to the productivist way of thinking as highly intensive agricultural production was shown to be harmful to the environment. During the 1980s, a number of studies also began to highlight the positive environmental impacts of certain types of low intensity agriculture and the need to gear the CAP towards supporting farming that is associated with high biodiversity and landscape values, ('High Nature Value' farming) rather than towards intensive agriculture (Baldock, 1989; Curtis & Bignal, 1991; Bignal & McCracken, 1992; Baldock et al., 1993; Beaufoy et al., 1994; McCracken et al., 1995; Bignal & McCracken, 1996).

"Forms of agriculture which are of greatest importance for nature conservation...are traditional, low-intensity forms of land management, making limited use of agrochemicals, livestock feed etc. and often producing relatively low yields. The majority is in decline and likely to contract further, with farmland either being abandoned or converted into more intensive forms of management" (Baldock, 1989 p46).

Such farms are considered marginal under a productivist model as they have low commodity output and tend to be economically unviable. However it has been demonstrated that this type of extensive land management has important roles in supporting the provision of public benefits such as biodiversity and landscape values. Upland farms have a strong place within the concept of High Nature Value farming as they are extensive farming systems and are often considered marginal but are important providers of public benefits. The concept of High Nature Value farming at first struggled to gain acceptance within the environmental and policy community given the strong focus on the negative impacts of farming on the countryside exemplified by Shoard's 'Theft of the countryside' (Shoard, 1980). However increased publicity of the concept by its proponents have led it to becoming well established as a key issue (Beaufoy, 2008).

2.3.2 The Dawn of Post-Productivism

The growing awareness of the environmental damage caused by productivist farming policies as well as other drivers such as trade issues and production surpluses, has led to agricultural policies from the 1980s onwards moving away from productivism. Instead there began a 'post-productivist' era which placed a greater emphasis on the multiple functions and services provided through agriculture. This is encapsulated in the concept of 'agricultural multifunctionality' (Evans et al., 2002; Marsden, 2003; Wilson, 2007).

The concept of post-productivism implies a policy shift from encouraging food production to the delivery of environmental and consumer benefits. In terms of policy, post-productivism is characterised by the orientation away from a productivist model of agricultural development. Post-

productivism implies a shift, *“from encouragement of food and farm production to one that also attempts to deliver other environmental and consumer-based benefits”* (Marsden, 1995). Post-productivist discourses began to permeate policy documents from the mid-1980s onwards. This was true of both EU and national documents on the future of agriculture and rural society, for example:

“Policies should promote rural development which sustains the quality and amenity of Europe's rural landscapes (natural resources, biodiversity and cultural identity)”(CEC, 1996 p2).

Such discourses particularly emphasise notions of extensification, environmental protection and withdrawal of state support (Wilson, 2007). The importance of non-agricultural activities is seen as a critical component of post-productivism and includes environmental conservation as a key element (Marsden, 2003).

The gradual reforms of the CAP from the 1980s onwards starting with the introduction of milk quotas and set-aside policies aimed at reducing production in the dairy and arable sectors, demonstrate a move towards post-productivism. In 1985 the concept of ‘paid stewardship’ became integrated into the CAP with the agri-environment regulation 2078/92. This regulation established the principle that farmers could be paid to manage the countryside and extensify production. Fulton (1999) observes that it legitimised the pursuit of non-productivist policy objectives within the framework of the CAP. As Lowe and Whitby observe:

“(the CAP) would now seem to be in the process of what may prove to be a long drawn out transformation from being essentially an agri-food policy to more of a rural environment and rural development policy” (Lowe & Whitby, 1997).

The combination of internal European and international criticism of the CAP led to the three major reforms of 1992, 1999 and 2003. These have been viewed as evidence of a shift towards post-productivism (Wilson, 2007). The 1992 MacSharry reforms reduced the level of intervention prices of various products and introduced agri-environment schemes. The Agenda 2000 reform of 1999 shifted the emphasis of the CAP further away from production based support towards direct income payments and introduced a two pillar structure, with the second pillar focused on rural development measures. A comprehensive rural development policy was designed including elements such as environmentally friendly agriculture, food safety and animal welfare (Dehousse & Timmerman, 2008). The mid-term review in 2003 continued these reforms, introducing decoupling to remove the link between direct payments and production through the introduction of the Single Payment

Scheme; cross compliance making farmers adhere to environmental, animal and plant health and welfare requirements in order to receive direct payments; and modulation to transfer a certain percentage of funds from direct payments to the rural development measures in Pillar Two of the CAP (Dehousse & Timmerman, 2008).

2.3.3 Multifunctional Agriculture

Within the post-productivist discourse, there is a strong focus on the notion of the multifunctional nature of agriculture. Whilst this concept dates back to the beginnings of the CAP with roots in social welfare justification for state assistance (Potter & Tilzey, 2005), it has been used much more in recent years to emphasise the non-commodity outputs of agriculture and to debate the need to use public money to support their provision. The multifunctional nature of European agriculture has been identified as one of its essential and most valued characteristics (Brunstad et al., 1995; OECD, 2001).

The multifunctionality concept is at the heart of the European Model of Agriculture which was adopted by the Agriculture Council in 1997 (12509/97) and states that farming delivers other services alongside food production such as viable rural societies, regional development, traditional rural landscapes, biodiversity, environmental protection, animal welfare and food safety. The EU uses the concept of multifunctionality to justify high levels of agricultural support, particularly in terms of the World Trade Organisation (WTO) negotiations (Brunstad et al., 2005). In its formal Agenda 2000 proposals for CAP reform the European Commission commented that:

The fundamental difference between the European model and that of our major competitors lies in the multifunctional nature of Europe's agriculture and the part it plays in the economy and the environment, in society and in preserving the landscape, whence the need to maintain farming throughout Europe and to safeguard farmer's incomes (CEC, 1998 p8)

There are a number of definitions of multifunctional agriculture and it is a heavily constructed concept that brings with it a whole series of assumptions about the role of farming and the case for continued public support. In its broadest sense, multifunctionality implies a way of farming that serves multiple functions whilst reducing the emphasis on food and fibre production (Wilson, 2007). Taken literally, agriculture's 'multiple functions' arise because of the jointness of production of commodities and non-commodities by the agricultural sector. How commodities are produced impacts on what non-commodities are produced, for example, farm management practices

influence water quality, landscape and biodiversity. The Organisation for Economic Cooperation and Development (OECD) refers to multifunctionality as:

“The fact that an economic activity may have multiple outputs and, by virtue of this, may contribute to several societal objectives at once. Multifunctionality is thus an activity oriented concept that refers to specific properties of the production process and its multiple outputs” (OECD, 2001 p6).

Wilson (2007) depicts a multifunctionality spectrum, with productivism and non-productivism at either end. Multifunctionality is seen as the antithesis of monofunctionality which is closely associated with the extreme productivist end of the multifunctionality spectrum. Here agriculture is seen to serve relatively ‘narrow’ functions of food and fibre production. Wilson’s view is that almost any agricultural/rural action will contain elements of both productivism and non-productivism.

The post-productivist discourse places much emphasis on the non-commodity outputs of agriculture that are joined to the production of commodity outputs and considered to produce positive externalities that are not captured by the market (Gerowitt et al., 2003; Brunstad et al., 2005). Examples include landscape provision, prevention of depopulation of rural areas, biodiversity and water quality. These are often referred to as ‘public goods’. If current production of food contributes to the provision of a public good, such as landscape, this is equivalent to saying that food production gives external benefits (Brunstad et al., 1995). Because of this focus on the environmental aspects associated with the multifunctionality of agriculture, as well as other public goods, that are jointly produced by agriculture and external to the market, it is argued that farmers need to be incentivised to ensure their ongoing provision (Hediger & Lehman, 2003). This is of particular relevance to the uplands since farming in these areas can be an important provider of public goods. This implies that appropriate policy options must be defined to encourage farmers to adopt or maintain farming practices that underpin the provision of public goods (Cooper et al., 2008).

This idea runs through EU LFA and agri-environment policy in that certain farming systems generate food and environmental goods as joint products. Thus these systems of farming need to be maintained if the semi-natural habitats created and managed by their farm management practices are to be sustained. Here, multifunctionality is merely another way to describe these long established forms of joint production, encapsulating the idea that a biodiverse countryside is one largely occupied and managed by farmers (Potter & Burney, 2002). It is those areas where generally

low-intensive and traditional forms of agriculture are practised, such as the uplands, that are considered to be valuable to society since they produce public goods.

The argument of 'public money for public goods' follows the Provider Gets Principle (PGP) which involves the government identifying an 'appropriate' level of supply for rural public goods and then directing public funds at the providers of these goods according to the marginal opportunity costs of supply. For example, lost profits to a farmer from not draining a wetland. The PGP is found in the EU's agri-environment schemes where payment rates are offered to farmers who will voluntarily agree to meet a number of carefully specified environmental objectives (Hanley et al., 1998).

Despite the existence of precise definitions of public goods as non-excludable and non-rival (Holcombe, 1997), not all advocates of providing public money to support the provision of public goods adhere to these strict definitions. Others take a more inclusive approach to the definition of public goods, incorporating externalities that do not actually fit into the strict public goods definition (Cooper et al., 2008). For example, in their vision for the CAP, Birdlife International (2008), define public goods as *"goods which we all benefit from, such as clean water, healthy ecosystems, wildlife, thriving rural communities and beautiful landscapes"* and for the rest of the document refer to these as *"public benefits"*. Similarly, the National Trust (2009b) refer to the *"public benefits"* of hill farming as including clean drinking water and ability to help control flooding which it could argued do not necessarily adhere to the strict public goods definition. For this reason the term 'public benefits' is used to describe such externalities in this thesis.

2.3.4 The Uplands: Key Providers of Public Benefits

The uplands have a key place in a post-productivist discourse due to their high value in terms of the public benefits associated with them. The key value areas are: recreation, landscape, biodiversity and other ecosystem service provision such as water quality and supply, and peat carbon storage and sequestration.

Since the Romantic movement in the 1800s, the uplands have been valued as treasured landscapes and attract millions of tourists every year. The Lake District alone receives 12 million visitors per year (Lake District National Park Authority, 2005). Tourism not only provides much needed revenue to the local economy, but demonstrates how important the uplands are to the public. People value the landscapes for their beauty and tranquillity. Numerous quotes can be found throughout recent history in awe of the uplands: Trevelyan (1926) described the Northumberland moors as a place where, *"both heaven and earth are seen...it is the land of far horizons."* The uplands have also been

described as, “*landscape on a grand scale, something unusual in our crowded island; it fills the senses and feeds the imagination*” (Hopkins, 1997). Visitors consistently cite the quality of the landscape, the relative remoteness and undeveloped character as the main reasons to visit the uplands (NFU, 2005). Upland characteristics which are considered part of the country’s national heritage require a lot of skill and labour to maintain. It is estimated that of the 56,000 km of dry-stone walls in Yorkshire (50% of England’s total), approximately 60% require some form of active management which is presently carried out by hill farmers (NFU, 2005).

The uplands are valued for their biodiversity, with a number of protected plant and animal species found in these habitats. The habitats and landscapes of the uplands are very fragile. Hence they are of national and international environmental importance. This has been recognised by a number of land designations. For instance, 40% of the uplands are in National Parks, with seven National Parks in the uplands. There are eight Special Protection Areas (SPA), 46 National Nature Reserves, nine Environmentally Sensitive Areas, nine Areas of Outstanding Natural Beauty (19% of upland land), 815 Sites of Special Scientific Interest (SSSIs) (40% of upland land), and 54 Special Areas of Conservation in the English uplands (Defra, 2006c; Condliffe, 2009). An important attribute of upland moorland is blanket bog, one of the world’s rarest habitats which supports a wide number of species. The UK supports 10-15% of the entire global blanket bog resource.

There is considerable evidence of the importance of sheep and cattle grazing in the maintenance of upland habitats. IEEP et al. (2004) reported that without grazing or other management practices such as burning, “*all but the wettest blanket bog*” would, below the tree line, naturally succeed to trees. This would therefore dramatically change the character of upland landscapes.

However, it is also recognised that grazing can have negative ecological impacts if carried out at levels that are too high or low. Overgrazing destroys important grass and heath species, leads to a reduction in biodiversity and exacerbates problems of soil and rock erosion as well as increasing water run-off which can lead to flooding problems. Changes in agricultural practices such as a decline in traditional shepherding, increased over-wintering, supplementary feeding and improved technology all potentially contribute to overgrazing (ADAS, 2003; IEEP et al., 2004). On the other hand, undergrazing encourages the growth of invasive plant species, like bracken. These cause additional problems. They are poisonous to livestock, make shepherding difficult and act as a reservoir of sheep ticks. Bracken invasion outcompetes upland plant communities regarded as desirable by conservationists and tourists alike, particularly heather moorland. The associated

animal communities are also detrimentally affected leading to an overall loss of important biodiversity (Burton et al., 2005). Bracken is difficult to walk through and may have carcinogenic properties. This makes it undesirable as a dominant plant community by the millions of people who recreate in the uplands (Alonso-Arnelot & Avendano, 2002).

Another important public benefit provided by the uplands is carbon storage. The UK peat soils contain more than 50% of the UK's soil carbon and the majority of this is found in the uplands. These stores are predominantly in the uplands (Orr et al., 2008). Over the Holocene, these peatlands have accumulated carbon at an average rate of 0.96 M tonnes C/yr, making them a potential sink of atmospheric carbon as well as an important store (Worrall & Evans, 2009). The carbon store in the upland peat is, however, under threat from a number of drivers that could lead to these ecosystems becoming a net source of atmospheric carbon.

A major threat comes from drainage of peatlands. This is a common land management technique in England. It has been estimated that 1.5 million of the UK's 2.9 million hectares of peat has already been drained (Worrall & Evans, 2009). When peat is drained, it dries, erodes and oxidises, releasing carbon. Dry peat can also burn, releasing large amounts of carbon dioxide (Howard et al., 2006). The peat carbon store can also be adversely affected by afforestation and grazing. With the onset of climate change and the anticipated increased drought frequency and changes to rainfall, there is further risk of the peatlands becoming a net source of carbon. Thus raising concerns that a shift from carbon sink to source may constitute a positive feedback to global warming by increasing terrestrial carbon release (Orr et al., 2008). It is estimated that the peatlands in England and Wales could absorb around 400,000 t of C/yr if in pristine condition. Yet they could emit up to 381,000 t of C/yr if damaged by overgrazing, excessive burning or drainage (Worrall et al., 2003).

The uplands are also a major source of the country's potable water, providing 70% of the UK's water resource. This means that any changes to their land management could have serious consequences for water catchment. Both water quality and quantity are affected by upland land management. For example, high density grazing can modify the soil structure and vegetation cover in ways that increase the rate and volume of runoff (Orr et al., 2008). Upland hydrology is also likely to be affected by climate change. Increased snow runoff as winters become warmer in northern Europe could lead to flooding downstream. It is therefore widely acknowledged that the management of land in the uplands has a significant impact on ecosystem services, landscape quality and other public benefits such as biodiversity: hence the concern about their future.

2.3.5 The Less Favoured Areas Debate

In terms of policy specific to the uplands, the objectives of the Less Favoured Areas measure evolved to reflect the move away from a focus on productivism with the introduction of Rural Development Regulation 1257/1999. In its original formulation, the European Community's rationale for offering aid to support its LFAs was primarily social with the aim of preserving the farming population in these areas, maintaining cultural landscapes and preventing land abandonment (Dax, 2005). There was no direct environmental objective as a reply by the Commission to a European parliamentary question demonstrates, *"Directive 75/268 may not be used to encourage conservation per se, but is to be used for the encouragement of farming which, in turn, will have a positive effect on the conservation of the countryside"* (Quoted in Lobley et al., 2006 p2).

As the CAP was reformed and focus was taken off food production, the LFA objectives evolved. Agenda 2000 saw the LFA objectives reframed with the payments no longer considered a production subsidy and the scheme was moved under the new Rural Development Regulation (1257/1999). The Regulation stated that compensatory support for the LFA should be used to:

- Ensure continued agricultural land use and thereby contribute to the maintenance of a viable rural community;
- Maintain the rural community and the countryside;
- Promote sustainable farming systems which in particular take account of environmental protection requirements (EC, 1999).

The last objective was entirely new, placing more emphasis on the role played by hill farmers in providing environmental benefits. This reflected the emerging recognition of the negative environmental impacts of intensive production and an awareness of the biodiversity and landscape values of low intensity farming systems (IEEP, 2006). Commenting on these objectives, the UK Task Force for the Hills (MAFF, 2001 p10) concluded:

"These three objectives are closely intertwined: the maintenance and restoration of an attractive uplands landscape, of wildlife habitats and of biodiversity is dependent upon a sustainable level of agricultural impact. Managing and protecting the countryside is itself dependent upon the maintenance of a sufficiently and appropriately skilled labour force working for a financially viable agricultural industry in the uplands. The substantial tourism economy in the LFAs depends to a large extent on the agricultural land management practices which sustain the landscape and wildlife which visitors come to see."

Thus the objectives recognise the importance of farming for maintaining the countryside environment. The new provisions also changed the payments from a headage basis to payments based on hectares of eligible land. This reflected the general move away from supporting production to maintaining the production of public benefits and was in part to prevent payments being an incentive for stocking too heavily. It also helped to ensure that the LFA support could be viewed as decoupled from production and classed as “green box⁵” under the World Trade Organisation (WTO) agreements (Lobley et al., 2006).

The new rural development policy for 2007-13 also involves a significant evolution of the LFA scheme. Within the new strategic approach adopted to enhance the policy’s contribution to the overarching EU objectives for rural development, the LFA measure has become part of Axis 2 of Pillar Two of the CAP. This aims at improving the environment and the countryside through sustainable land management (DG Agriculture, 2009). Article 36(a) of the Rural Development Regulation stipulates that the measure should target the sustainable use of agricultural land.

Whilst over the past thirty years the policy debate surrounding the LFAs has evolved to take account of the impact of farming on the environment, the core justifications for public support for hill farming that were enshrined in the original legislation, remain largely in place (IEEP et al., 2004). There remains an explicit commitment to the continuation of farming as the principal means by which countryside conservation should be achieved (Lobley et al., 2006).

The changing rationale for LFA aid can be said to have been more marked in England than elsewhere in the EU. In their consultation document on the future uplands reward structure in England, which led to the development of the new Uplands Entry Level Scheme (outlined in Chapter 1), Defra stated that such a scheme would be used to deliver a wide range of public benefits and to refocus support to strengthen the link between public expenditure and securing public benefits (Defra, 2006c). The document stresses the importance of public benefits and places no great emphasis on the social aspects of hill farming (Lobley et al., 2006).

The recent House of Lords review of the LFA scheme found that there are competing interpretations of the purpose of supporting farmers in the LFAs (House of Lords, 2009). The European Commission and the UK government regard the maintenance of farming activity in some disadvantaged areas as instrumental to the delivery of certain environmental and landscape benefits. They justify public aid

⁵ Agriculture related subsidies that fit in the WTO’s green box are policies that are not restricted by the trade agreement because they are not considered trade distorting.

accordingly. However, the UK government believes that farmers should not be paid for economic disadvantage alone, but for the benefits that they deliver. The Royal Society for the Protection of Birds (RSPB) suggested that the LFA scheme has a unique role to play in supporting the kind of extensive, livestock-based farming systems that produce a range of environmental public benefits. The English National Parks Authorities Association highlighted the importance of continued land management for the uplands landscape, whose value to the tourism business should not be underestimated. By contrast, the farming unions view the LFA scheme as a means to support farming activity in disadvantaged areas in return for socio-economic, as well as environmental, benefits to rural communities and the wider public (House of Lords, 2009).

2.3.6 Truly Post-Production?

Whilst there is evidence that agricultural policy has shifted towards post-productivism and a focus on multifunctionality, it is clear that the productivist legacy is still impacting on European agriculture. Farmers who manage land in an intensive way are in receipt of the Single Farm Payment (SFP). At the same time marginal farms, such as those in the uplands, have remained marginal. Birdlife International state that:

“78% of the total CAP budget goes to the Single Farm Payment (which is only) linked to basic environmental and welfare standards...These standards have not, however, been implemented effectively in most Member States and they fail to provide protection for farmland habitats and landscape features. Furthermore, the SFP is predominantly paid on an historical basis, with most, therefore, paid to intensive farmers, disadvantaging those who have historically practised extensive, more environmentally friendly forms of agriculture” (Birdlife International, 2008 p6).

Grant (2007) postulates that we now have the situation of a dual model of agriculture. In the most internationally competitive areas highly productive and intensive farming continues. In the more marginal and peripheral areas, such as the uplands, there is more importance placed on preserving traditional landscapes, ecotourism, biodiversity and high value-added, high quality niche products, such as specialist cheeses. Similarly, Potter & Tilzey (2005) conclude that European policymakers appear to be pursuing an increasingly bimodal rural policy that implicitly accepts the reality of productivist agricultural spaces on the one hand while attempting to map out an alternative ‘consumption countryside’ on the other. Whilst CAP reform has been geared to some extent to supporting less intensive farming through decoupling and the Rural Development Regulation, it is questionable as to whether agricultural policy fully fits into a post-productivist model. In recent years conservationists, farming advisory groups and other actors have highlighted the need for

better targeting of CAP expenditure to those farms that produce public goods and are still extremely marginal, such as those in the uplands (RSPB, 2007; Birdlife International et al., 2008; Wildlife and Countryside Link, 2008).

2.4 Emerging Discourses

In addition to the question of whether agricultural policy fully fits the post-productivist model, there is also an argument that a return to productivist thinking is occurring as well as new discourses surrounding the politics of land use. It is hypothesised that these new discourses are arising as people become increasingly concerned about issues such as food security and climate change which in turn are influencing debates on land use and the rationale for agricultural support. In his oral evidence to the UK Parliament Environment, Food and Rural Affairs Committee's (EFRA) inquiry into food security issues, Professor Tim Lang of Food Policy at City University commented that we face a number of fundamental issues, *"some of which are old, the soil and the water issues, and some of which are new, climate change, globalisation, the change in world food supply systems"* (House of Commons, 2008). At the same time, there still appears to be a continuing emphasis on the importance of public benefits provision from agriculture, with much discussion about how best to support this provision and who should provide it. It is important to explore these new debates as they are likely to have a key impact on the future of the uplands.

2.4.1 Food Security

In the last couple of years, there has been an increased discussion of the need to secure global food security. In 2008 the Food and Agriculture Organisation of the United Nations (FAO) estimated that global food production needs to rise by 50% by 2030, and to double by 2050, to meet the demand of a rising world population and the eating habits of the growing middle classes in emerging economies (FAO, 2008). Such trends have prompted discussion in the UK about the need to increase production and ensure national food security. Sir Don Curry, Chair of the UK Sustainable Farming and Food Strategy Delivery Group, stated that the, *"debate around... 'food security' is gathering momentum. There is a real concern, which I support, that we need to return to a strong production base in Britain in the light of global trends which strongly indicate that pressure on land use is going to be critical"* (Defra, 2008a p3). Concerns about food security were particularly prevalent in 2008 when global food, feed and oil prices rocketed. During 2009 these fell back to fairly normal levels. However, it is predicted that prices will still remain at higher average levels than in the past due to the increasing demand for food and feed around the world as well as the fast growing demand for feedstock to fuel the biofuel sector (OECD-FAO, 2008). It is thus likely that concerns about food security will remain on

the agenda for many years to come and may lead to a refocusing on productivist agricultural policies.

Recently within EU agricultural policy there have been signs that food security has been influential in driving policy. The European Agriculture Council adopted the Commission's proposal to abolish compulsory set aside for the autumn of 2007 and spring of 2008 sowings in response to the tightening cereals market. At the same time a proposed suspension of import duties on cereals was approved by the Agriculture Council (Dehousse & Timmerman, 2008).

There have also been a plethora of meetings, reports and press releases focused on the issue of food security which highlight its growing importance in policy circles, including:

- FAO high level conference on 'Food security: the challenges of climate change and bioenergy' June 2008.
- Defra discussion paper 'Ensuring the UK's food security in a changing world' July 2008.
- Chatham House report 'The feeding of the nine billion – global food security for the 21st Century' 2009.
- Hilary Benn, Secretary of State for the Environment and Rural Affairs established a council of food policy advisers in October 2008 to provide advice on a wide range of food policy issues.
- Meeting of the European Committees and national parliaments; MEPs and MPs met in Brussels on 3-4th November 2008 to debate 'the future of European agriculture and its role in the world'. A key element of this discussion was European agriculture's global food security role.
- Seminar: 'Can Britain feed itself: Should Britain feed itself?' Oct 2008, James Martin Institute
- In a speech at the Oxford farming conference, 2009, Hilary Benn quoted food security "as one of the greatest challenges we face (...) in the years ahead. It must be our priority".
- Birdlife International report, April 2009 "Food security, climate change and biodiversity: the role of European agriculture in a changing world".
- Meeting of G8 agriculture ministers in Italy in April 2009 yielded new commitments to guaranteeing global food security (AgraEurope, 2009).
- Westminster Food and Nutrition Forum keynote seminar "Food security", 8th July 2009.

Another indication that food security is high on the political agenda is the launch of a House of Commons Environment, Food and Rural Affairs Committee (EFRA) inquiry into 'Securing food supplies up to 2050: the challenges for the UK'. The inquiry was launched in December 2008 after the June 2008 FAO summit on World Food Security announced that world food supplies would have to increase by 50% by 2030 and to double by 2050. EFRA is interested in how well the UK is equipped to play its part in meeting this challenge. The inquiry is currently in the process of writing a report based on oral and written evidence collected from stakeholders (EFRA, 2009).

It is clear that food security has once again emerged as a major issue influencing debates on land use and agricultural policy. Such re-emergence could mean that there will be a resurgence of support for increased production in agriculture with a focus on increasing intensification. Under such a food security policy stance, the multifunctional aspects of agriculture such as the provision of biodiversity, landscape and other public goods may be viewed with less importance. It is thus likely to be in conflict with post-productivist ideas that support the provision of public benefits. This could pose a threat to upland farms if agricultural policy becomes refocused on increasing production rather than supporting those farms that produce non-commodity benefits, albeit with lower agricultural production. The likelihood of this happening and the possible role for upland farmers in increased production will be explored in Chapter 5 of this thesis.

2.4.2 Climate Change/Energy

Although climate change has been a growing challenge in policy circles for some time, an awareness of both the threats and opportunities of climate change have gradually been increasing recently. This is evidenced by the UK Climate Change Act of 2008, the world's first long term framework for tackling climate change, and the formation of the UK Department for Energy and Climate Change in October 2008. The importance of climate change to agriculture is also increasing in awareness. A collaboration of organisations including the NFU, the Country Land and Business Association (CLA), the Agriculture and Horticultural Research Forum, Agricultural Industries Confederation, Forum for the Future and Defra, have set up the 'Farming Futures' website to help farmers prepare for climate change and to act as a site for idea exchange⁶. This issue has initiated new areas of debate about how to manage the land to both mitigate and adapt to climate change, in particular focusing on: flooding; how to conserve biodiversity when the changing climate is changing species composition; and whether to use land for renewable energy production such as biofuels and wind farms. Climate change issues are also linked to those of food security as the changing climate may affect where crops can be grown. There are likely to be more droughts, flooding and storm events that will

⁶ <http://www.farmingfutures.org.uk/>

negatively affect agricultural production, thus contributing to the problem of supplying food to a growing world population.

Linked to issues of climate change is the increasing emphasis on the use of alternative energy source to fossil fuels. Rising petroleum prices, concerns about energy supply security and the debate concerning global warming and greenhouse gas (GHG) emissions have given an enormous boost to the production of biofuels. Biofuels are portrayed by some as the ultimate solution for soaring energy prices, obtaining larger energy security and reducing GHG emissions. This has invoked a debate about 'food versus fuel'. The central issue in this debate is whether it is wise to burden agriculture with our energy supply as well as our food supply, because the consequent rising price levels of agricultural commodities pose both an opportunity and a threat. There also remain serious questions about the production efficiency and sustainability of biofuels (Dehousse & Timmerman, 2008). Thus the biofuels debate is yet another issue in the main debate about how to manage agricultural land. Other forms of renewable energy may also impact on agricultural land use. Wind farms may have particular relevance for the uplands as these are likely to be key spots where wind farms are developed due to their relative remoteness and windy climate. This is already causing debates about the potential impact to the landscape and biodiversity. On the other hand, it can be argued that such industry may be a key source of income for struggling hill farmers. This debate is discussed further in Chapter 5.

2.4.3 Continued Focus on Public Benefits and Sustainability

Whilst climate change and food security are influencing agricultural policy debates, there remains a focus on public benefits provided by agriculture and the need to work towards a more sustainable agriculture. There have been a number of events, speeches and publications that provide evidence of this continued emphasis on public benefits, as highlighted in Box 1. The vision documents listed in Box 1 focus on building a justification for future EU policy intervention in agriculture on the basis of the provision of public benefits. For example, Birdlife International state that *"the principle of public money for public goods should be at the core of the CAP's successor"* (Birdlife International, 2008).

The UK government has demonstrated a commitment to supporting public benefits and the provision of ecosystem services across government policy. As will be discussed in Chapter 4, the government implemented a new Natural Environmental Public Service Agreement in 2008 which sought to look towards integrated land management with an ecosystem approach (Defra, 2008d). The government's vision for the future of the CAP looks to a sustainable model of European agriculture whereby taxpayers' money is only used for producing societal benefits that the market

cannot deliver. They would like to see a CAP with much more emphasis and support given to maintaining the environment and promoting sustainable rural development, particularly in the more environmentally sensitive regions of the EU, such as the uplands (Defra & HM Treasury, 2005).

Box 1 Recent Conferences and Vision documents emphasising the importance of public benefits from agriculture

Conferences

WWF France European Conference on Sustainable Agriculture, 14th October 2008 – attended by NGOs, farming representatives, European Commission and Member State agricultural ministry officials.

UK Land Use Policy Group & German Federal Agency for Nature Conservation conference, *“Future policies for rural Europe 2013 & beyond – delivering sustainable rural land management in a changing Europe”*, 19-20 September 2007, Brussels.

Birdlife International Conference, *“The CAP & the Budget Review – visions for the future”*, December 11th 2008, Czech Republic – focus on sustainability of agriculture.

Estonian Agricultural Research Centre conference, *“Using evaluation to enhance the rural development value of agri-environment measures”*, Pärnu, Estonia, 17-19th June, 2008 – focus on high nature value farming.

Vision documents on the future of the CAP that emphasise the importance of supporting the provision of public benefits

Birdlife International (2008) *“New Challenges, New CAP”*.

Wildlife and Countryside Link (2008) *“Beyond the Pillars: Wildlife and Countryside Link’s policy perspective on the future of the CAP”*.

Land Use Policy Group (2009) *“Securing our common future through environmentally sustainable land management: The LUPG vision for the future of the CAP post-2013”*.

The Netherlands Ministry of Agriculture, Nature and Food Quality (2008) *“European Agricultural Policy 2020: The Dutch Outlook”*.

Swedish Society for Nature Conservation, Church of Sweden and Federation of Swedish Farmers (2006) *“Agricultural Policy and International Solidarity”*.

2.5 Conclusion

The three issues of food security, climate change and public benefits from agriculture all have the potential to influence debates on agricultural land use and the direction that future agricultural and specifically uplands policy will take. They are happening on an EU-wide scale and beginning to influence policy. This was exemplified in the recent Health Check of the CAP in November 2008 which included the need for Member States to place an increased emphasis on reinforcing rural development programmes in the fields of climate change, renewable energy, water management and biodiversity using money from the increased rate of modulation (CEC, 2008). The uplands are likely to be key areas where these debates are played out since they are so highly valued for their public benefits. Yet they are also important in terms of considering climate change mitigation and adaptation. In addition they could be affected by food security policies. Chris Brown, Head of Sustainable and Ethical Sourcing at ASDA sums up these debates:

“There is the dilemma...of competing needs for land, that for food production, that for land use, and that for biodiversity, which we have not addressed as an industry or a nation, where is the debate? How will the competing aims of development, biodiversity, productivity and climate change be reconciled?” (House of Commons, 2008)

This chapter shows that hill farming in the uplands has been greatly influenced by the changing nature of agricultural policy discourses. The productivist era led to increased production at the cost of the environment; whereas more recently, policies have attempted to halt this damage. There is debate as to whether a post-productivist era has really been achieved however, and it appears clear that there will be an increased drive towards re-entering a productivist era given recent concerns about food security.

We are clearly at an important time in agricultural policy, with issues such as climate change and food security likely to cause profound change in future years. Additionally, uncertainty over future CAP reform, changes to upland support and other drivers of change such as changing demographics mean that the future of the English uplands is far from clear. It is thus imperative to explore the current discourses about land use in the uplands; to consider how policy agendas of climate change, food security and public benefits are influencing opinions on what the uplands are for, what their future could be and where support can be targeted. In doing this a number of possible futures for the uplands may be inferred depending on where and how policy will be targeted.

In recent years, there have been a number of studies, both academic and more policy-related which utilise scenarios to envisage possible upland futures and decide which is the most desirable and/or likely route that upland policy may develop. The main types of scenarios drawn upon in these studies serve as a platform from which to investigate what key players in the uplands debates envisage for the future of the uplands. With the new policy agendas of climate change, food security and public benefits, it is vital to consider which of these scenarios are most desired by particular stakeholders. This will be explored further in Chapter 6.

3 Methodology

The aim of this thesis is to explore the different policy agendas involved in debates about the future of the English uplands and to describe possible futures for the English uplands. This has been achieved through a review of the relevant literature combined with interviews with individuals involved in the upland futures debate. The literature review analysed both academic texts and grey literature relevant to the topic. The findings of the literature review and interviews have been combined and analysed in order to explore the research questions of this thesis.

3.1 Semi-Structured Interviews

A major component of this thesis has been the collation of opinions on the future of the uplands via semi-structured interview. Semi-structured interviews are used to encourage an interviewee to talk about a particular issue or a range of topics. They are particularly useful as a research method for accessing individuals' attitudes and values as has been done in this research. The interactive nature of their practice means that interviewing is a highly flexible but somewhat unpredictable form of social research (Byrne, 2004). Open-ended and flexible questions are likely to obtain a more considered response than closed questions and therefore provide better access to people's experiences, opinions, values, aspirations, attitudes and feelings (May, 2005). One of the reasons why semi-structured interviewing is a particularly suitable method for accessing complex issues such as values and understanding is that it is not only a flexible method, but it can allow interviewees to speak in their own voice and their own language (Byrne, 2004).

The interviews in this research were conducted in a semi-structured manner, which meant that a degree of predetermined order was imposed on each interview. However, flexibility was allowed in the way questions were asked by the interviewer. If the interviewee did not answer the precise question, but the information being given was still relevant then the interviewee was encouraged to continue. This method of interviewing gave the interviewee the opportunity to raise issues that were unexpected but relevant to the thesis. The questions were drawn up prior to the interviews, however the interviewer was free to probe beyond the answers and thus enter into dialogue with the interviewee.

A number of themes were explored through these interviews (see Annex 3 for the interview questions):

- The drivers of change in the uplands.
- The influence of climate change and food security in debates about the future of the uplands including:
 - The role of the uplands in climate change mitigation and adaptation;
 - The role of uplands in increased food production;
 - Conflicts between using the uplands for carbon storage/increased food production and other public benefits;
 - The threats and opportunities of climate change/food security to the uplands.
- Opinions on scenarios for the future of the uplands.
- The desire for change.

The interviews in this research were primarily intended to explore the beliefs and attitudes of the individuals being interviewed and/or their associated organisations. However, they were also useful in some cases for obtaining more factual information and for explanations of more complex issues, such as the mechanisms of carbon storage in the uplands. The interviewees also suggested different avenues to explore, pointed to areas of research that are relevant to this work, and suggested other people to contact.

The selection of the interviewees was based on their close involvement with the debate surrounding the future of the uplands. Potential candidates were identified as a result of the literature review, mainly from the grey literature. A 'snowballing' process was also used whereby interviewees were asked who else they considered important in the context of work on upland policy research. In this way a number of interviewees were identified. An email requesting an interview was sent to each of the individuals and this was followed up by additional emails or telephone calls where necessary. The majority of the interviews were between 45 minutes to one hour in duration. A request to record the interview was made at the beginning of each interview. Even when a recording was made, the interview observations and details from the interview experience were written up as an additional source of information.

In all cases, an interview schedule was drawn up prior to the interview. Whilst standardised across the interviews, some questions were added or removed to fit with the interviewees' line of work. The questions were designed to be easily comprehensible and to elicit the necessary information in order to achieve the objectives of this thesis. To this end, a number of prompts were made so that

the focus of each response remained relevant. Care was taken to ensure no hidden assumptions and implicit value judgements were made in the questions. The questions were laid out in such a way as to progress logically through the themes. If the interviewees had already addressed a question in an earlier answer, this question was left out. At the start of each interview a structured question asking the respondent about the current work they, and their organisation, are doing in relation to the uplands was used to ease the respondent into the interview whilst providing important contextual information.

As a semi-structured approach was taken, the interviews did not generate material that was readily quantifiable. Instead the interview recordings were transcribed and analysed using a software package to pick out key themes between the responses and to enable the analysis of the information. The software package WEFT QDA was used to analyse the interview transcripts. This is an open source qualitative analysis software program with a number of standard computer assisted qualitative data analysis (CAQDAS) features. Each of the interview transcripts were entered into the program and were initially grouped under the theme of each interview question. This mean that it was easy to peruse each other interviewees answers for a particular question. A second round of grouping was carried out by grouping the interviewee quotes using keywords within in each interview question. The themes and keywords used in the data analysis are summarised in Table 2. For example, for the question “is climate change a threat or an opportunity for the uplands?”, all the answers were first grouped under this question and then analysed for all the statements that agreed with climate change being a threat and all the statements where it is seen as an opportunity. It was then possible to compare the different opinions between the interviewees. Interview codes have been used to cite each interviewee when they are quoted within the text. The codes are displayed in Table 3. After each quote the interviewee codes is written in parenthesis. For example quotes from Aletta Bonn are displayed as (101).

3.1.1 Interview Specifics

A total of ten interviews were carried out. The interviewees were chosen based on their involvement in both upland policy issues and work directly on the ground in the uplands. They come from a mixture of occupations and included academics, policy advisors, government officials and farming organisation representatives. **Table 3** provides a description of each of the interviewees in terms of their professions and involvement in the uplands. The interviews were conducted between March and May 2009. Whilst it was considered more advantageous to carry out face-to-face interviews, this was not possible in the case of Reed’s interview which was conducted over the telephone. All the interviews were recorded on a digital recorder and later transcribed for analysis. The face-to-face

interviews were either conducted at the interviewees' place of work in private rooms or in a suitably quiet, undisturbed and mutually convenient location chosen by the interviewer. The structure of the interview was explained at the beginning of the meeting and there was opportunity for queries regarding the aim of the thesis. Each interviewee was asked if they would like to remain anonymous in this thesis. However all interviewees were willing to have their identities revealed.

Table 2 Themes and key words used in analysis of the transcripts

Initial grouping – question theme	Second grouping - keywords
Drivers of change in the uplands	Climate change Food Security Policy Demographics Economics Public benefits Ecosystem services
Justification of support for upland farmers	Landscape Communities Business Alternatives Will it change in future Provision of public benefits
Uplands ELS	Positives/Negatives
Climate change	Threat Opportunity Carbon sequestration Policy driver Payment for provision
Food security	Threat Opportunity Increasing Productivity vs. public goods
Turning point in upland policy	What direction Up or down policy agenda
Opinions on scenarios	Scenario A/B/C/D Most likely/Least likely Most desirable/Least desirable
Would you like to see change	Communities Role of farmers Public benefits Policy Income foregone

Table 3 Description of Interviewees

Interviewee	Interview Code	Job Title/Role	Location	Involvement in the uplands
Dr Aletta Bonn	101	Research Manager for Moors for the Future Partnership in the Peak District National Park	Edale, Derbyshire	Carries out research for Moors for the Future Partnership to develop expertise about how to protect and provide a vehicle for sustainable management of moorlands into the future.
Claire Collyer	102	Conservation Adviser, Country Land & Business Association	London	Work on uplands is centered around conservation and agri-environment schemes. Worked with Defra and Natural England on the design of the Uplands ELS
Ian Condliffe	103	Independent Land Manager & Agri-environment consultant	North Yorkshire	The UK independent LFA technical adviser to the European Commissions. For many years was the national technical adviser to Defra for environmental and agricultural upland policy and research.
Katherine Hearn	104	Adviser on Nature Conservation, National Trust	Peterborough	Involved in policy work in uplands, primarily to do with National Trust land in uplands in terms of landscape and nature conservation and ecosystem services.
Robert Helliwell	105	Member of NFU LFA forum, farmer in Peak District	Edale, Derbyshire	Recommended to me by Aletta Bonn as he is both an upland farmer and involved

		uplands		with upland policy work through the NFU
Marian Jenner	106	Uplands & Commons Policy Team member, Defra	London	Responsible for policy work on uplands funding, namely the replacement of the HFA with the Uplands ELS. Also works on the EU LFA designation and involved in the 2009 LFA review.
Mark Long	107	Academic researcher on future of the uplands, University of Cumbria	Penrith	Researching viable upland futures and the valuation of public benefits in the uplands
Dr Mark Reed	108	Senior Lecturer, Aberdeen Centre for Environmental Sustainability and Centre for Planning & Environmental Management, School of Geosciences, University of Aberdeen and member of the Sustainable Uplands research group.	Aberdeen	Involved in research projects involving the uplands including RELU project Sustainable Uplands which aims to combine local knowledge and natural and social science research to anticipate, monitor and sustainably manage rural change in UK uplands
Tom Oliver	109	Head of Rural Policy, Campaign for the Protection of Rural England (CPRE).	London	Wrote CPRE's response to the CRC uplands consultation. Involved with Defra on the development of Uplands ELS. Involved in

				encouraging greater interest in new ways of harnessing upland farmers, their skills and communities
Pat Thompson	110	Uplands Conservation Officer, Royal Society for the Protection of Birds (RSPB).	Newcastle	Involved in developing the RSPB's vision for the future of the uplands. Involved in the management of the RSPB's upland nature reserves.

3.2 Scenarios for the Future of the Uplands

Part of the interviews involved asking for opinions on four scenarios for the future of the English uplands. These scenarios are drawn from a review of nine studies assessing scenarios for the future of the uplands by Arblaster (2006), later published in Arblaster et al. (2009). This review found that despite following very different methodological approaches, the majority of scenarios developed in these studies fall into four key groups; grouped according to varying levels of support for farmers and varying support for a pro-environmental agenda. The four scenarios are listed in Box 2. The scenario studies reviewed by Arblaster (2006) are listed in Annex 4 and the conclusions of the various studies in terms of which scenarios are considered most/least desirable and most/least likely can be found in Annex 5.

Box 2 Summary of the four types of scenarios described by Arblaster (2006) and Arblaster et al. (2009)

Scenario A: Withdrawal of agricultural management and re-wilding

In such a scenario, land is most likely to be abandoned on the poorest, highest and most remote land. Without alternative support, re-wilding scenarios suggest that, as the amount of land entered into agri-environmental agreements declines, farms go out of business and land is abandoned. Under this scenario farmland may be replaced by conservation management and/or reforestation, whether through planting or natural regeneration.

Scenario B: Significantly reduced levels of hill farming supported by diversification

In this scenario it is assumed that reduced levels of hill farming are supported by a range of alternative enterprises which would boost off-farm income. These may include: tourism, recreation and leisure activities; direct marketing and processing of local produce; alternative crops; or other new business ventures. The associated fall in demand for agricultural inputs and services such as feed, fertilisers, vets and auction marts would be offset to some extent by demands for alternative inputs and services associated with new enterprises and land use. Studies differ over the extent to which revenue from diversification would lead to a reduction in the number of farms and livestock in the uplands.

Scenario C: Continued levels of hill farming supported by pre-reform CAP style subsidies

This scenario assumes that it would be possible to halt the existing trend towards declining upland farms. It assumes that the area of land used for hill farming and entered into agri-environmental agreements will remain largely unchanged from current levels; with minimal shifts towards alternative land uses, such as forestry. Diversification into tourism and recreation would continue at current levels, with limited levels of direct marketing and processing, and the majority of farm incomes would come from agricultural production. This scenario represents the status quo.

Scenario D: Reduced levels of hill farming based on compliance with environmental measures

Despite a reduction in hill farm production, this scenario would contribute to local, regional and global ecosystem goods and services, including a comprehensive approach to the minimization of diffuse pollution from agriculture and an emphasis on the multifunctionality of upland landscapes. There would be some amalgamation into larger farms, although a limited number of family farms would also remain viable. It is further assumed that large tracts of land (concentrated in the highest and most remote areas) could cease to be grazed or managed in any way for agriculture, where afforestation and management for nature conservation may occur. The demand for agricultural inputs and services would decline, offset to an extent by demand for new goods and services to support diversification.

The original work for the above scenario study was carried out in 2006 (Arblaster, 2006). Three years on, the policy environment has changed to some extent with an increased focus on food security, the rise of climate change up the policy agenda and an increased focus on the uplands due to various national inquiries (see Chapters 4 and 5). In addition there have been changes to upland funding through the upcoming introduction of the Uplands ELS. There is, therefore, a need to assess whether these scenarios are still relevant, which are considered the most likely, and whether other scenarios are needed to capture the possible futures for the English uplands.

To this end, the semi-structured interviews carried out in this research asked the interviewees for their opinions on the four types of scenarios in terms of which they thought to be the most/least likely, which they most/least desired and whether they thought additional scenarios were required. After a pilot interview, it was decided to change the wording of a number of the scenarios to better help the interviewees to understand their meaning and to reflect their description more accurately. The revised scenarios presented to the interviewees were as follows:

Scenario A: Withdrawal of agricultural management and re-wilding

Scenario B: Significantly reduced levels of hill farming accompanied by diversification

Scenario C: Continued levels of hill farming supported by CAP subsidies (the status quo)

Scenario D: Reduced levels of hill farming, remaining hill farms to receive support based on compliance with environmental measures.

Each of the interviewees was sent a description of the scenarios in advance of the interview to ensure they understood them and to give them time to consider their responses.

One of the interviewees highlighted a common problem with scenario studies in that they place probabilities on particular scenarios which at the end of the day are only a probability and could be wrong. Hence the danger that it can lead people to invest in preparing for a particular scenario which then does not come about. Whilst recognising this problem, the use of a scenario based approach does allow us to prepare for a wide range of different futures. Clearly the wider the range of scenarios one prepares for the more likely one is to be resilient against, *“whatever the future throws at you”* (108).

3.2.1 What Are Scenarios?

Discussions about the future and the decisions that should be made to bring about a particular situation often involve the use of scenarios. Scenarios have been described in the literature as, *“coherent, internally consistent and plausible descriptions of possible future states of the world”* (Berkhout et al., 2001). They are, *“archetypal descriptions of alternative images of the future, created from mental maps or models that reflect different perspectives on past, present and future development”* (Rotmans et al., 2000 p810).

Scenario planning was first developed by Herbert Kahn as a way to overcome problems of accurately forecasting future events (Peterson et al., 2003). Scenarios are useful because they identify that you cannot predict the future, they do not consist of predictions, rather of various descriptions of what a future situation *could* be like as well as the driving forces, events and actions that would lead to this situation (Rotmans et al., 2000; Morris et al., 2005). Scenarios enable us to see how changes can unfold to produce a future situation (Chermack, 2004). They are a tool for discussing alternative futures and making decisions about changing policy to bring about the desired future situation. Indeed, they enable people to think about the practical outcomes of policy decisions and enable ideas to be illustrated clearly. Using scenarios to envisage the future is a way of challenging assumptions that people might have about the subject being discussed.

Large differences exist in the methods used to build and test scenarios; however, most scenario exercises involve identifying and assessing the central issue or problem (for example, the future of upland landscapes), identifying key plausible alternatives and developing these into actual scenarios. These scenarios are then assessed and used to screen current policy or make policy recommendations (Peterson et al., 2003). Generally three to four scenarios are used since two scenarios do not encompass enough possibility for different situations, whilst more than four may make choosing between them too complicated and time-consuming.

Scenarios are common in the discussion of upland futures because they enable a range of different policy situations to be explored to determine what the social, environmental and/or economic consequences of each of these could have on the uplands in the future. An advantage of using scenarios for looking at the uplands is that the problems of being too predictive, and which predictions are most valid, are avoided.

Nevertheless, there are a number of crucial deficiencies in most scenario exercises. Scenarios run the risk of lacking transparency. They may fail to make explicit the key assumptions and underlying judgements made to create them which can seriously affect people's opinions on them. Scenarios can often lack data and fail to take into account the considerable bio-geographic and environmental variations across the country (Silcock et al., 2005; Morris et al., 2005).

3.3 Methodological Discussion

Whilst every effort has been made in the course of this research to be as thorough as possible and to utilise a wide range of literature and expert opinions, there are limitations to the methodology. The interviewees represented a good sample of interested parties in English upland futures, however, the research would have benefited from a greater number of people being interviewed. It would be interesting to talk directly to farmers and other upland land managers to compare their perspectives to those of the other upland stakeholders. Additionally, the opinions of individuals working in water companies may have added to the discussion about the future payment for provision of ecosystem services in the uplands. None of this was possible within the time frame of this research.

Whilst this research was being carried out, the Commission for Rural Communities (CRC) was also conducting a similar inquiry into the future of the uplands. This focused more on the future of upland communities, rather than the impacts of climate change and food security. On the positive side, most of the interviewees had been involved in the CRC inquiry in some way and so the issues that were discussed with them were fresh in their minds from responding to the inquiry. The disadvantage of this is that because the interviewees have already been discussing upland future issues with other people and submitting responses to the CRC inquiry, their responses may have been simply a regurgitation of their submissions to the inquiry rather than challenging them to consider new issues. Every attempt was made to avoid this by designing the interview questions to explore different issues to the CRC inquiry.

4 Drivers of Change in the English Uplands

4.1 Introduction

In order to investigate possible outlooks for the future of the English uplands, it is important to consider what factors are driving change in the uplands. Analysis of the interviews and relevant literature has led these drivers to be categorised into the following main groups: policy, demographic, economic, societal demand for public benefits, climate change, food security and consumer demands.

Whilst a number of these drivers have been unfurling over a number of years and even decades, the interviewees acknowledged that in recent years new drivers have emerged bringing about change, or are predicted to bring about future change in the uplands. These drivers have arisen because of the transition from policy based on production to more focus on the multifunctional aspects of hill farming and the recent changes brought by CAP reform. An important change that is explored in this chapter is the increasing impact on land use debates of issues such as ecosystem services, especially carbon and water; and climate change.

4.2 Climate Change and Food Security as Drivers of Change

Both climate change and food security are considered to be important drivers of change, especially in terms of future uplands policy. These two issues are likely to bring about a large degree of change in the uplands in coming years. As such, their role in debates about uplands land use is discussed in more detail in Chapter 5.

Climate change was cited as an important driver of change in the uplands by the majority of interviewees. This is a relatively recent driver as awareness is gradually setting in of the consequences of climate change to agriculture and the fact that land management is a key response to climate change. *“It’s the realisation that climate change is actual and real and that land management is very very key in our response to that”* (107).

Climate change is predicted to have an impact on the viability of agriculture and forestry, leading to new land uses, for example, *“crop production isn’t very common in the uplands but it might be viable, you might also have more biofuel production for example with short coppice rotation, small hydro and wind farms* (101). The possibility of increased renewable energy production in the uplands

raises the question of how this will impact on soils and biodiversity, *“especially on deep peat, there is a concern that wind farms might have a net negative carbon balance”* (101).

Climate change is predicted to bring warmer summers and wetter winters which will impact on water supply and quality with a predicted decrease in the latter. Bonn stated that, *“since the 1970s we are already seeing more erosion and higher Dissolved Organic Carbon (DOC) content”* (101). Wetter winters are likely to cause more erosion in the upland soils as well as heavier storm events leading to more flooding. This will be important for inhabitants of both the uplands and the surrounding areas. On the other hand, warmer summers could increase the fire risk, particularly on heather moors, leading to a loss of biodiversity and greater release of carbon from peat. Better growing conditions under warmer summers could also increase this fire risk by building up a fuel supply of vegetation (RSPB, 2007; CLA, 2009; pers. comm. Bonn, 2009). The impact of climate change on upland land use debates is explored in more detail in Chapter 5.

4.2.1 Food Security

Only one interviewee cited food security as a driver of change in the uplands (110). Although, when asked, most of the other interviewees agreed that food security is influencing debates about the future of the uplands (101, 102, 107, 108). This is a key point as the interviewees regard food security as influencing the debate, but they do not necessarily have any evidence that it is currently driving change. Thompson predicts that the pressure to increase production in the lowlands may, *“bump into what’s happening in the uplands”* because the farming community do not always discriminate between what they do in the uplands and what they do in the lowlands: *“you will meet upland farmers who will talk about wheat prices and this influences wider thinking about what they might do in the future with many of them basing their decisions of whether to go into agri-environment schemes on commodity prices and grain prices”* (110). The issue of food security and land use in the uplands is discussed in more detail in Chapter 5.

4.3 Policy Drivers

The shift in emphasis from productivism to post-productivism in the late 1990s and early 2000s and the changes this, along with other drivers, (see Chapter 2) brought appears to be a key driver of change in the uplands: *“there’s been a change in policies away from increasing productivity to more on delivering public benefits like maintaining the environment”* (106). Thompson believes that policy has had a much greater influence on discussions about the uplands in the last 10 years. Whereas previously, *“people were more asking questions about the state of the uplands and why the uplands*

were to some extent special and policy tended to have much less of an influence...it's now actually a real active player" (110).

In particular, the introduction of decoupling and the Single Payment, with the move from headage to area-based payments, is considered by the majority of interviewees as an important driver of change in the uplands. Condliffe sees it as, *"an agricultural revolution"* that is impacting on farmers' decisions. Condliffe believes the reality of the Single Payment is only just starting to dawn on many of the farmers: *"it's only just starting to bite; as the transition payments come in, the farmers are having to examine their businesses"* (103).

In terms of the effect of the Single Payment on upland land management, a number of the interviewees expect it to cause livestock reductions in the uplands since farmers no longer get paid based on the number of cattle or sheep they own (103; 108). Hearn stated that, *"in theory there is now less prerogative for a farmer to have thousands of sheep and to go for quality rather than quantity"* (104). Similarly Thompson says that, *"farmers are telling us that they are destocking in some areas, some are changing their agricultural business in abandoning the moor, intensifying on the enclosed land"* (110). A number of literature sources support this view and highlight the income reduction that hill farmers will experience due to the CAP reform. A National Trust analysis on the impact of CAP reform on the uplands predicted a substantial reduction in income from direct payments by the year 2012, compared to 2005 levels (National Trust, 2005). This is particularly the case for small farms which receive relatively less support than large ones since the Single Payment is paid under an area basis. Those farms with relatively high numbers of livestock will find that their income per hectare under the Single Payment is significantly less than their past income under the historic headage-based payment system (National Trust, 2005). Condliffe stated that the reduction in livestock on the moorlands, caused by the Single Payment scheme and agri-environment schemes could lead to a change in the landscape due to undergrazing, since, *"it's just not economic to keep livestock on moorlands"* (103). A report for Defra on the potential environmental impacts of the 2003 CAP reform, particularly decoupling and the introduction of the Single Payment, also predicted that there would be reductions in livestock numbers. This would involve a risk of undergrazing leading to a possible loss of landscape character and biodiversity. However, the report also predicts environmental benefits, such as reducing habitat destruction from overgrazing and improved soil quality (Silcock et al., 2003).

A number of the interviewees and literature sources point to the fact that suckler cow numbers in the uplands have been particularly affected by the CAP reform, with their numbers falling dramatically and much more steeply than sheep (Silcock et al., 2003; pers. comm. Collyer, 2009). The loss of suckler cows leads to greater difficulties in achieving environmentally sensitive cattle-based grazing, has effects on habitats and is said to be causing scrub encroachment (Silcock et al., 2003). The move away from suckler cows to sheep farming by upland farmers can be explained by the better gross margins for sheep, greater opportunity to improve sheep performance relative to cattle, lower labour requirements/cost and reduced exposure to market pressures for sheep compared to suckler cows (Clothier, 2006).

Yet there in fact appears to be some debate as to whether any real change in livestock numbers has occurred due to decoupling and the move to area based payments. Hearn stated that, *"in my anecdotal experience, I don't see a great amount of change yet"* (104). She thinks that it is only in areas where uptake of higher level agri-environment schemes is high that there is any change in sheep numbers, otherwise, *"there are still absolutely huge numbers of sheep in the uplands"*. However she believes that the effects of the single payment will soon *"kick in"* and this will lead to livestock reductions.

Alongside EU policy reform, a key domestic policy change that will impact on upland land management is the replacement by Defra of the Hill Farm Allowance with the Uplands ELS under the agri-environment measure that will come into effect in 2010 (see Chapter 1). Collyer describes this as a move away from the, *"socio-economic payments through Europe for Less Favoured Areas and instead moving to an environmental reward delivery system"* (102). Collyer sees this as the biggest change in policy that will influence the uplands in coming years. In moving from the HFA to the Uplands ELS, the separate element of upland support has been completely moved under the agri-environment measure. This will change the way that the uplands are viewed under the policy framework. Collyer views Defra as a bit, *"ahead of the game"* with regards to this decision (102). Jenner highlights that this change in policy and the introduction of the Uplands ELS was driven by the UK's vision for agriculture. The aims of which are to move towards providing public money for the provision of public benefits and in particular towards delivering environmental and landscape benefits. *"That's the main thing driving us at the moment"* and is what made Defra decide that they wanted to link uplands funding more explicitly to environmental benefits through the Uplands ELS (106). Bonn sees the introduction of the Uplands ELS as an indication that agri-environment policy is now becoming more focused on environmental management than production which will have

repercussions on how the land is managed (101). Similarly, Reed regards this change as pointing to the fact that we are at a stage where policymakers are increasingly recognising the importance of the uplands in terms of the provision of ecosystem services and recreation (108). Chapter 6 explores opinions on the Uplands ELS in further detail.

The EU's Water Framework Directive (WFD) (2000/60/EC) was also cited by the interviewees as being a long-term policy driver of change in the uplands (101; 110). The purpose of the Directive is to establish a framework for the protection of surface, coastal and groundwaters in order to prevent further deterioration. This will protect and enhance the status of aquatic ecosystems and those ecosystems that directly depend on the aquatic ecosystem⁷. This is to be achieved through Member States implementing river basin management plans. These integrate existing EU measures to protect the water environment and identify human pressures that cause a failure of the river basin to be in 'good status'. A programme of measures must be put in place to remove these pressures. In terms of the impact of this Directive on the uplands, all requirements of the WFD apply to headwaters and tributaries in catchments of greater than 10km² and lakes that are greater than 0.5km². Or those of any size that are of 'conservation significance' such as those in SSSIs. This means that many upland river and lakes fall under the Directive and therefore must achieve 'good status' or 'any standards or objectives' for Natura 2000 sites that they are in (Uttley, 2003). The WFD requirements could potentially change upland land management. For example: erosion needs to be controlled to prevent diffuse sediment pollution; there could be a drive to lime upland areas because of the need to tackle acidification or there may be more drive towards improving hydrological retention to prevent damaging floods (Uttley, 2003). Since agri-environment schemes have very few measures for water quality, Uttley (2003) predicts that the WFD could drive new schemes with a broad range of measures including: soil conservation planning; nutrient planning; riparian habitat creation; and waste management measures which would affect upland land management.

A short-term policy driver for change is the fact that since 2004, the government have a Public Service Agreement target that 95% of all SSSIs must be in 'favourable' or 'recovering' condition by 2010. When this was introduced, the uplands were in a worse condition than any other large block of habitat type so, *"getting uplands into good condition has been a massive area of work for all major land owners"* (104). In April 2009, 88.4% of England's SSSIs were meeting the PSA target with 44.19% in favourable condition and 44.2% unfavourable but recovering⁸. This shows an increase in

⁷ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, 22.12.2000, OJ L327

⁸ Data from Natural England website: www.sssi.naturalengland.org.uk (date accessed: 25/05/2009)

condition from 65% in 2004. In terms of the uplands, the proportion of SSSIs in upland areas in favourable condition has increased from 20% in 2004 to 80% in 2009. However Hearn pointed out that this statistic is slightly skewed as 'favourable' includes any site that has the right management in place to lead the site to favourable condition (104).

4.4 Demographics

A key long-term driver of change in the uplands is changes to the demographics, a long-lasting trend which looks set to continue. Hill farmers are an ageing population. Between 1990 and 2005, the average age of farmers in the LFA rose from 55 years to 58 years old (RSPB, 2007). The largest proportion by age group (29%) of cattle and sheep farm holders in the English LFA are now aged over 65 years and over. This has increased slightly over 15 years (Hubacek et al., 2009). As farmers retire, there is a problem with a lack of successors to take over the farm. This reflects the growing trend of young rural dwellers moving out of the rural communities and into the cities. Here there are better job prospects and a higher standard of living. At the same time, there has been an increased trend towards people moving into the upland towns and villages, either to retire or to commute into work in the urban areas (101). This influx of commuters has caused the population in rural areas to rise eight times as fast as the population in urban areas over the last 30 years, by 5.5% as opposed to 0.7% in towns (Hubacek et al., 2009).

There are other consequences of this population movement. As commuters move into the rural areas, they raise the price of properties making it harder for those already living there to move within their communities. Consequently farmers' children may be forced to move out of the rural community as they cannot afford housing in the area. Collyer highlighted this problem:

"one of the big things our CLA members are reporting is that people might want to stay within their communities, but they just can't afford to do so...whether it be new families setting up or whether it be those wanting to retire on farms, not wanting to leave their community, there's just not the scale of affordable housing" (102).

The impact of house price rises is to make accommodation expensive for those living in rural areas and either working directly in the agricultural industry or in support industries, thus creating financial problems for local rural people (Burton et al., 2005). As well as limiting the ability of farmers' children to remain in the rural community, the high house prices also make it difficult for farmers to hire workers or fund accommodation for them (Burton et al., 2005).

Upland farming in England often involves groups of farmers sharing common grazings in a system of communal land management that has existed for centuries. This communal management is said to be supported by strong systems of 'social capital' (Burton et al., 2005) which is defined as, "*those features of a social organisation such as trust, norms and networks, that can improve the efficiency of society by facilitating coordinated actions*" (Putnam 1993, quoted in Burton et al., 2005 p. 5). Strong social capital is a key characteristic of traditional upland communities and is essential for effective uplands livestock and farm management. Where sheep in the upland areas are gathered via the process of hefting⁹, it is essential that it is done on a collective basis to ensure that sheep are not scattered onto neighbouring hefts in the process. Cooperation between farmers is also required to ensure that all sheep are treated for disease at the same time, as sheep remaining on the hill can act as a vector for reinfection (Schwarz & Burton, 2005). These jobs are labour intensive and require the combined effort of a farming community with experience of the area, making high levels of social capital between members of common grazing land essential (Schwarz & Burton, 2005). Other management practices that require cooperation between farmers include silage making, shearing and dipping; as well as community activities such as involvement in breed associations, local shows, auction markets and borrowing machinery (CPRE, 2009). The decrease in the number of local people living in the area has the effect of decreasing levels of social capital and farmers' opportunities to provide for a local market outside of the main tourist season (Burton et al., 2005).

The changing demographics have been cited as a worry for the upland communities as they, "*weaken the social capital*" (108) and lead to a loss of, "*community cohesion*" (102), resulting in fractured and ageing farming communities. Whilst the influx of commuters may be viewed as a way of regenerating upland communities, there is also the risk of conflict between the incomers and the locals, further fragmenting the community. If the next generation of farmers cannot afford to live in the rural community, or have little incentive to stay because of lack of services, the problem arises of a lack of farm successors. In the future this will drive up the average age of farmers, increase the chance of farms being sold and land management being abandoned. The loss of farms may lead to a sense of loss of community spirit, leading to a further decline of social capital in the region, increasing financial and managerial problems. For example, splitting up farms and the reduced numbers of farms will make managing the uplands more difficult for the remaining farmers (Burton et al., 2005).

⁹ Hefts are defined as unfenced areas of open land grazed by one farmer and maintained through employing the hefting instinct of certain varieties of sheep which is patterned by the mother. This involves the sheep learning the geographical boundaries of their grazing range and limiting their movements to within the area they were raised (Schwarz & Burton, 2005)

With the effects of the introduction of the Single Payment and the Uplands ELS starting to manifest, it was widely agreed by the interviewees that there will be an acceleration in change of farm ownerships in the coming years (101; 103; 105; 107; 108; 109). Farmers are likely to retire earlier, and although there will be farm succession, there will be a shift in ownership with more farms being abandoned. The high average age of farmers can increase the likelihood of them being more resistant to change and more likely to retire from farming completely rather than change their management techniques. Condliffe points to the introduction of electronic ID tagging for sheep that will come in late 2009 which may cause hill farmers to give up farming: *"it's a big one that people are only just cottoning on to that this is going to be so cumbersome and complicated, if you're a farmer in your mid-60s you won't bother"* (103).

It is not just farming communities who are affected by changing demographics, but the whole rural community. CPRE specifically highlight the decline of local services in upland communities, including the loss of banks, post offices and local shops. They lay the blame for this on the demographic changes, most importantly the issue of lack of affordable housing (CPRE, 2009). The CLA also describe a *"spiral of decline"* as the younger generation are lured or forced away from upland areas due to the lack of economic opportunity, affordable housing and basic services:

"As some young families move, so the school has insufficient pupils to remain open, so dissuading the remainder from staying or new families to arrive. As the school closes, so the village traffic diminishes as does the trade in the village shop and pub, which disappear as well" (CLA, 2009).

4.5 Economic Drivers

Associated with the changes to demographics and a factor in the lack of farm successors, is the problem of poor economics in hill farming. A recent study into hill farm economics in the south-west of England found that the average hill farm there made a farm business income of £9,207 in 2006/07. When the value of the farm family's labour input was included (nearly £20,000), there was a loss in farm corporate income of £10,583 per farm (Turner et al., 2008). *"That's a really big pressure on the uplands in terms of the economies at the moment"* (102). Collyer points out that, *"it's costing more to shear sheep than farmers get for the wool which is a ridiculous state of affairs"*. A lot of farms are finding they are having to send family members off the farm to work elsewhere. Even this is problematic as the jobs are a long way from the hill farm unit and expenditure on fuel increases costs and can, *"impact on whether the farm can actually survive"* (102). Long agrees: *"in the hills there is a crisis, people are bumping along the bottom from year to year, they are not*

making any money, not able to invest” (107). Research carried out by the National Trust has shown that unless there is a dramatic change in farming in the uplands, by 2012 most farms will be making a loss. In the worst cases this shows farms with a negative net farm income of more than £10,000 (National Trust, 2009b).

Such poor economic conditions impact on the social capital of hill farm communities since they are so dependent on one another that when one farmer goes out of business, it puts great pressure on the neighbouring farms and decreases their chances of survival. *“I visited a dairy farmer in Cumbria and he said if his neighbour goes out of business he’ll have to give it up because the milk truck will no longer come. He’ll have to pay for that and he won’t be able to afford to do it”* (102). Whilst the Single Payment has given people the opportunity to downscale, since they no longer get paid based on the number of livestock, this has put pressure on neighbouring farms. This is particularly the case with hefted flocks. If one farmer removes his flock, the rest of the heft will spread out to take over the new areas. That makes animal welfare checks much more costly in terms of the farmer’s time since it takes longer to gather the herd and bring them down off the hills (102).

Long believes that hill farms are on the edge of a precipice and that it will not take long before major structural change occurs in the uplands. The result will be widespread amalgamation of farm holdings, a lot of people retiring and, *“the whole social fabric starting to look completely different”* (107).

4.6 Public Benefits/Ecosystem Services Drivers

In Chapter 2 it was stated that in recent years there has been an increased focus, within both the policy and stakeholder communities, on the importance of the public benefits that agriculture produces and that this may have implications for land management decisions in the uplands. It is clear from talking to the interviewees and analysis of relevant literature that this is indeed the case. In their summary note on the inquiry into the future for England’s upland communities, the Commission for Rural Communities (CRC) state that the growing interest and concern for the uplands in recent years has been largely driven by the increasing public benefits agenda (CRC, 2008).

The historic emphasis on the public benefits that the uplands provide was centred on the aesthetics of upland landscapes and the biodiversity that thrives there. There was a clear consensus amongst interviewees that in recent years, there appears to have been a shift in emphasis with ecosystem services framing discussions much more: *“there is more awareness of the multiple uses of the*

uplands and that the land can be used for things other than agriculture” (101). Long agrees with the occurrence of this shift, “it acknowledges outputs that were barely recognised when I did my MSc in the mid-90s” (107). This ecosystem services approach is being taken up by the Agencies, government departments and NGOs alike: “the Environment Agency have an upland policy which stresses ecosystem services, the RSPB and Defra are doing a lot of work on ecosystem services, Natural England, all the statutory bodies we work with are now stressing these” (104). The importance of the uplands for carbon storage, water quality and supply is now being strongly emphasised and much more so than in the past. Bonn reflected this, stating that they have, “really risen in debates” (101). Long believes that the focus on the range of ecosystem services is, “contributing to the justification for public intervention, valuing the fact that these communities are providing something way beyond simply a bit of food and fibre” (107). With this emphasis on multiple outputs from the uplands comes questions, “on the issue of who should manage the land and what for: conservation, recreation, water, agriculture, forestry?” (101).

Collyer also agreed that land use debates have changed, with a much greater emphasis now on the environmental side of the uplands and much less emphasis on the harmful nature of agriculture:

“if you went back before the Single Payment came in, it was very much ‘the habitat’s being wrecked, being overgrazed, there’s too much burning, peat’s being eroded’ and now it’s coming full circle to focusing on the fact that there’s not enough stock, there’s undergrazing, scrub encroachment and recognition of the need for active management” (102).

Thus, there has been a change from focusing on the negative impacts of hill farming, to the need for active management to be maintained in order to produce public benefits from the uplands.

Further evidence of an increased emphasis on ecosystem services is the government’s new Natural Environment Public Service Agreement (PSA) target. This PSA covers the period April 2008 to March 2011 and sets out the government’s vision to:

“secure a diverse, healthy and resilient natural environment, which provides the basis for everyone’s wellbeing, health and prosperity now and in the future; and where the value of the services being provided by the natural environment are reflected in decision making”(Defra, 2008d).

This has the potential to drive change in the uplands as it spreads right across government policy and seeks to look towards integrated land management with an ecosystem approach (101). Progress towards this target will be measured by changes to water quality, biodiversity, air quality and land management which could all have implications for how the uplands are managed.

Alongside the recognition of the need to gear management in the uplands towards public benefits provision, there appears to have been a reduced emphasis on supporting farming for farming's sake. Hearn believes that until recently the perceived wisdom was that farming is good for the landscape and to be without it would be disastrous. But now, *"thanks to the RSPB and their fantastic vision document, thanks to Natural England and their incipient vision, everyone is saying that it's not necessarily the case. Yes we do want farming in the uplands, but we want more tree cover, we want better water quality"* (104). Thus the debate has widened to focus more on how different ecosystem services can be delivered as opposed to only focusing on how to keep farmers in the uplands. The National Trust also emphasises this point:

"the future of hill farming...is set for a radical shake up in the next decade as we move to an era where farming, water, wildlife, carbon and landscapes in the hills could become the norm" (National Trust, 2009a).

Hearn debates as to whether the new focus on ecosystem services, particularly water and carbon is *"actually producing any change on the ground yet"*. She thinks changes are, *"probably not quantifiable yet"* (104). However, she believes that *"it's in the mindsets"*. Her expectation is that changes will be made in land management decisions and policy in the near future. Similarly, Oliver stated that although he sees an interest in carbon, water and other ecosystem services, as new issues that could drive policy, he does not think that this has caused much change as yet, *"it is so much at a drawing board stage. There's no real sign of the government saying let's reform the CAP towards giving all the money towards carbon farming etc."* (109).

The importance of the uplands for water supply and water quality appears to be a new issue that has only recently begun to be emphasised but which was brought up by all the interviewees as a potential key driver of change in the future. The uplands gather more than 70% of our drinking water. The quality of this is affected by the impacts of grazing on soils, water movement and erosion. These have led to levels of Dissolved Organic Matter and Dissolved Organic Carbon in upland waters almost doubling since the late 1980s (RSPB, 2007). Condliffe stated that water companies are beginning to realise the importance that land management has on water quality and

supply. In the future, *“they may get more interested in land management for water conservation especially if in the long term in the lowlands you get less water, they’ll want to harvest and maintain water supplies in the uplands”* (103). This could entail the water companies paying farmers to manage the land. Or, *“I could envisage large estates, if some millionaire in the credit crunch who’s feeling the pinch, puts his estate up for sale, it could be a water company that buys it”*. Water companies are, *“coming to the point where their treatment plants for removing water colouration are at the limit of what they can do”* (103). So they are becoming more and more aware of the ways in which land management can affect water quality. The Water Framework Directive and international agreements on water quality have also increased the awareness of this issue (107).

The role of upland peatlands in carbon storage and their potential to sequester carbon has likewise been given a lot more emphasis in the past couple of years. *“There’s been a change from the extreme of us supporting drainage of peat areas and now we’re trying to completely reverse that back”* (106). It is estimated that peatlands in England and Wales could absorb 41,000 tonnes of carbon per year if in pristine condition, but release 381,000 tonnes of carbon per year if damaged by practices such as excessive burning, drainage and overgrazing (RSPB, 2007). In their response to the CRC inquiry into the future for the communities of the English uplands, CPRE emphasised the importance of the uplands for carbon storage. They stated that the restoration and enhancement of the 55% of the English peatlands that are currently in a degraded condition could save around 400,000 tonnes of carbon per year. This would be equivalent to the GHG emissions from 1.1 billion car miles (CPRE, 2009). Chapter 5 explores the increasing interest in upland water and carbon management in further detail.

Drawing on discussions about the importance of ecosystem services from agriculture is a growing dialogue among organisations such as Natural England, the Wildlife Trusts, RSPB and CPRE about the idea of having a contiguous landscape, large enough to cope with climate change and to increase the resilience of semi-natural habitats:

“There are quite large tracts of the Pennines, North Yorkshire Moors and Yorkshire Dales which are relatively uninterfered with in terms of soil quality and biodiversity in comparison to lowland areas” (109).

Therefore from a genetic diversity, resilience and landscape integrity perspective they are interesting. This interest has led to the establishment of a steering group on landscape scale conservation by the Wildlife and Countryside Link organisation, consisting of representatives from

the Grassland Trust, the Woodland Trust, Froglife, Wildlife and Wetlands Trust, the Bat Conservation Trust, Friends of the Earth, the Wildlife Trusts and CPRE. This group is trying to develop a remit as to what landscape conservation is and how it relates to ecosystem services. The uplands would play an important part in any future conservation development (109).

In opposition to the view that the ecosystem services approach is driving change, Oliver believes that there has not actually been any real change. The reason why is due to pressure on the agricultural budget. Although public interest in the uplands is high, there is no more money coming into the uplands and the majority of CAP support goes to lowland farmers. *“Although there’s an understanding of the need for the potential of the uplands to provide public benefits, there is a downward pressure on the budget. There’s reform in the air about reducing regulation, reducing interference and encouraging the farmer to stand on his own two feet”* (109). Oliver senses that any intervention to help hill farmers could come in the form of encouraging wind farms or money for sports such as motorbike, 4-wheel drive racing. *“People who’ve got money are prepared to pay for access to do these things without much interest in what’s going on in the farm”*, leaving him with concerns about the environmental and landscape consequences.

4.7 Consumer Drivers

Another driver of change is the impact that consumers have on determining what the upland farms produce and what land is used for. Issues of rights to access the uplands have been debated since the early 1900s. However, because of the large leisure market in the uplands, the general public have a large amount of power over what they want from the countryside in terms of recreation. Long believes this is completely different compared to 15-20 years ago (107). A relatively new driver is the demand from the public for local meat and produce that they can trace back to a particular region or farm. The National Trust runs local schemes which encourage as many hill farm tenants as possible in an area to add value to their products by local marketing, farm shops, or mail order supply. This policy has driven some of the Trust's sheep farms to produce lambs that are good for those markets and to help the farms to become more viable (104).

4.8 Increased Participation

Bonn recognises that debates about land use in the uplands have become far more participatory in recent years, in contrast to the top down nature of land use policy in the past. She points to the evolution of many new partnerships, not just between science and policy but also between business and policy. A clear example of this are that water companies are becoming increasingly interested in upland catchment management and restoration (101). She sees that now there is a much stronger focus on including stakeholders in participatory decision making. Under the Water Framework Directive, river basin management plans must be drawn up and stakeholders are involved in this at the catchment scale. Thompson also stated that a range of players are now, *"much more actively involved in the debate about land use in the uplands because people are thinking of the linkage between the upland landscapes and what they potentially or actually do deliver for the people that live downstream of them"* (110).

Bonn pointed to the importance of considering the scale at which services accrue and the increasing drive to involve ground-level stakeholders. Climate change or biodiversity can be considered national benefits. She recognised that there needs to be national level policy and support for how the land should be managed to provide these benefits, but through functioning stakeholder partnerships on the ground (101). The Moors for the Future partnership is an example of this happening in practice. The partnership was formed because of a recognition by the key players of the degradation problems in the Peak District and is made up of the Peak District National Park, National Trust, Environment Agency, three water companies, Natural England, the RSPB and the

Moorland Association. All these bodies have come together to consider land management with the key focus on restoring degraded areas (101). There is also a upland hydrology group led by the Environment Agency which also has key stakeholders including land managers (101).

4.9 Conclusion

This chapter highlights the fact that there are a number of drivers that are causing change in the uplands, in terms of how the land is managed, how upland rural communities are structured and what direction upland policy is taking. A number of these drivers have been causing change in the uplands over a long period. For example, policy drivers have continuously impacted on the way that farmers manage the land and in particular the numbers of livestock that they keep on the hills. Policy has always prompted change in the uplands, and the recent CAP reform has brought, and is still bringing about changes, particularly decreasing livestock numbers, especially of suckler cows which has knock-on effects to the landscape and biodiversity. Recent policy changes, such as the introduction of the Uplands ELS will also impact on farmers' land management decisions.

One of the most influential changes is that of demographics and declining social capital. The trends of increasing age of farmers and loss of farm successors appears to be one of the greatest challenges to the maintenance of a viable upland farming community. If such trends continue, it is extremely uncertain how hill farming communities will continue to survive in the future. This poses a threat to both the rural communities of the uplands as well as the landscape values, biodiversity and other ecosystem services that depend on hill farm management for their provision.

Whilst the landscape, access and biodiversity benefits of the uplands have long been recognised, it is only recently that the uplands have begun to be framed in terms of the range of ecosystem services that they provide. In particular, the interviews showed how important the role of water and carbon are becoming in discussions about how the uplands should be managed. This new emphasis could potentially provide a solution to the question of how to support hill farming and increase the economic situation for hill farmers. Through this approach the trend of declining numbers of farmers may be halted and with it an improvement in the social capital of hill farming. In the future, new policy measures may be put in place to provide for the provision of these services. Thus the perceived role of farming in the uplands will likely undergo a change. The influence of the issues of climate change, food security and ecosystem services on the future of the uplands will be further expanded in the next chapter.

5 The Influence of Climate Change and Food Security on the Future of the Uplands

5.1 Introduction

A major component of the interviews was to ascertain the extent to which new policy agendas such as climate change and food security are influencing debates about land use in the uplands and to explore whether there are any other new issues that are influencing debates. This chapter explores opinions on these matters, considers areas of consensus, and those where there is disagreement, between key individuals in terms of the influence of both climate change and food security on the future of the uplands.

5.2 The Role of Climate Change and Food Security in Upland Debates

The majority of the interviewees agreed that climate change and food security are indeed influencing debates about land use in the uplands (101, 102, 105, 106, 107, 108, 110). Thompson stated that in RSPB meetings, *“with the NFU, with Defra, with other statutory, they’re talking about these things so absolutely”* (110). Long concurred: *“definitely, we’ve got these targets within Cumbria, we’ve got carbon reduction targets and a big part of that relates to how we manage our peatlands”* (107).

Both Reed and Collyer, however, questioned whether climate change is a particularly new issue: *“it depends what you class as new...in terms of climate change the CLA has been running with climate change since the late 90s. We’ve been quite positive on the fact that it is happening and things need to be done”* (102). To this end the CLA developed Carbon Accounting for Land Managers (CALM), a calculator that any land manager can access to work out carbon fluxes within their own system¹⁰. Reed believes that both climate change and food security are *“ancient issues”*. However, in terms of their influence on the policy debate, both are relatively new and growing in importance, *“if you look across government at the new planning act 2008 or whenever there’s a new act, climate change is being mainstreamed across government policy as something that needs to be considered”* (108). Collyer agrees that even though climate change has, *“been around there for a while”*, as the science improves and we know more about what can be done to mitigate and adapt to it, and are beginning to see the actual effects of climate change, *“it’s becoming more relevant”* (102).

¹⁰ Available at <http://www.calm.cla.org.uk/>

Food security is seen as a much more recent issue: *"Yes it's pretty new, going from the food mountains we had a few years ago and being taught all through school about how farmers were producing too much, it's quite strange now to hear ministers and others talking about food security. And even for Hilary Benn to announce at the Oxford Farming Conference this year that he's aware it's a real problem and one that will need addressing"* (102). Reed senses that because commodity prices have eased somewhat over the last six months, *"there's a little bit of scepticism in terms of maybe it was just a blip"*. At the same time, he believes, *"it can only go one way"* when, *"we've got a growing population that are growing in wealth particularly in China and India and we've got climate change reducing the area of productive land and those areas which are inundated are often the most productive areas for agriculture"*. Taking these three factors together, Reed believes that there can only be increasing food shortages in the future and, *"it should be a major priority, it's the same order of magnitude as climate change in terms of the threat to human well being and life"* (108).

Unlike the majority of the interviewees, Hearn and Oliver are more sceptical about the influence of these issues on debates about the uplands. Although Hearn agrees, *"climate change is immensely important in the uplands and there's been a lot of research to show what's going to happen"*, she, *"can't see that climate change has actually caused us to do anything differently in the uplands yet. Yes it's terribly important but it's not being involved in conversations in a practical way"*. There is much talk about making the uplands more resilient and conserving peatlands and reducing peatland drainage, but she, *"can't see that in the general upland environment it's actually caused us to do anything different"*. Hearn also disagrees that food security is influencing debates in the uplands since, *"we still import so much of our food"* (104). Similarly, Oliver stated that climate change and food security are not influencing debates to a great extent: *"they ought to more. The problem is the lack of link between the latest wisdom and what's likely to happen in the next five years"* (109).

Climate change and food security are clearly a focus for debate and are likely to impact on land use change in the uplands in coming years. However, there is uncertainty as to the extent to which they will actually make a concrete difference.

5.3 Climate change and the English uplands

5.3.1 A Threat or Opportunity?

If climate change is having an influence on debates about the future of the uplands, it is important to consider whether it is being viewed as a threat or an opportunity for the uplands among stakeholders. In the future, the UK climate is projected to have wetter, milder winters, hotter drier summers and a greater frequency of extreme precipitation events in all seasons which will no doubt impact on the upland environment. Indeed, changes are already being observed in the uplands with, for example, mean winter rainfall and river flows increasing in western parts of the British uplands since the 1960s (Orr et al., 2008). Upland biodiversity may be particularly sensitive to climate change due to the marginal nature of many species' habitats. As the climate warms, lowland species are likely to move northward and upslope. Some of the hill and mountain top species will have their habitat severely squeezed and may become extinct (Shaw & Soane, 2007).

Many of the interviewees view climate change as both a threat and an opportunity for the uplands (101, 107, 109, 110). This has been described as a *"two-edged sword"* by Thompson. Climate change is seen as an opportunity for tourism to increase, helping upland economies as more people may, *"seek out the uplands"* as they may come to represent, *"some of the places where we want to live in the future"* (101; 110). Climate change is also seen as an opportunity in relation to ecosystem services as it may spur on initiatives to develop new ways of safeguarding these services. Collyer and Bonn see it as a chance for environmental markets to develop and to also look for how, *"we can take out regulatory services which are currently not mediated through markets and whether we can find new markets or finance incentives to do that"* (101). Long sees it as an opportunity from a policy and public engagement angle as people in the uplands begin to respond to climate change and become more engaged in policy issues.

On the other hand, the impact on the upland species and habitats, as well as the farming conditions clearly marks climate change out as threat. Long commented on the predicted increase in rainfall: *"it's pretty damn wet as it is and that makes working the land difficult"*. Oliver summed up the threat to biodiversity at higher altitudes as derived from warmer temperatures which will alter species composition; drier summers which will make blanket peat less viable; and extreme weather events that will tend to increase erosion in vulnerable places (109). Bonn believes that we need to think more about how to increase the resilience of managing change and be safeguarded against such extreme events.

"We need to accept that we can't hold the status quo, for example, we may need to accept that some northern species are going to go and maybe we can manage northern slopes for northern species but we can also work on new species and new land uses and look at how we can integrate them" (101).

Thompson agreed that we have to face up to the fact that, *"we're probably going to lose some species that we hold special. We have to accept that even managing some of the habitats to the best of our ability means that we still lose some of these species"*. Thompson believes we need to understand much more about the mechanisms that might drive these contractions and extinctions (110).

An important factor in discussions about the influence of climate change in the uplands is that of increased renewable energy sources. Long strongly argues this is a threat: *"at the moment, wind farms in Cumbria are a real problem because they are seen as a threat to the landscape which is our golden goose. Yet they are supposedly a response to climate change. However, there is pretty convincing evidence that building wind farms on peat is a complete no no if you're trying to reduce carbon emissions, because the infrastructure that goes in and the drainage that enables you to build the windfarm releases more carbon than the windfarm will ever offset"* (107). Oliver regards climate change as a further aesthetic threat because it could be a place to put, *"lots of infrastructure"* such as wind farms. Oliver is concerned that the uplands will become even more of a focus for potential wind farm development because, *"it's always helpful from a wind farm developer's point of view to look for places where there aren't people, particularly from the noise point of view"*. He sees a risk that remote upland areas will become, *"dumping grounds; rather in the way that in the old days eastern ends of cities became the place where all the industry was. In a renewable future, the remote places will be where all the industry is and that's a pretty depressing prospect if it's to be universal"* (109). In contrast Collyer sees renewable energy as much more of a positive opportunity for the uplands believing that renewable energy is, *"going to become more relevant"*. She regards the uplands as having a lot to offer in this respect in terms of biomass creation, biodigestion, wind farms and hydroelectricity (102). Table 4 summarises the threats and opportunities of climate change to the uplands as identified by the interviewees.

Table 4 Threats and Opportunities of Climate Change in the Uplands

Opportunities	Threats
Tourism	Negative impact on upland species and habitats
Desired place to live	Altered species composition
More focus on provision of ecosystem services especially carbon management	Extreme weather events leading to soil erosion
Development of environmental markets	Renewable energy - threat to peat soils - aesthetic threat
Public engagement in the upland communities	
Renewable energy	

5.3.2 Taking Over Debates About the Future of the Uplands?

There is general consensus that climate change is an important issue in upland futures debates, but substantially varying opinions as to whether it is taking over these debates or not. On the one hand, Bonn believes that the importance of climate change cannot be overemphasised and that it should be taking over debates, *“there is no justification to wait”* as, *“one should not underestimate the impacts of climate change”*. Bonn believes, however, that at the government level, climate change debates are too much focused on carbon capture storage and not on land based management, *“the Stern review says that land managers could contribute towards 10% of saving carbon. I think these should actually be taken by the horns to do that”* (101). Thompson perceives that climate change may be beginning to take over the debate but that there is no tangible evidence that, *“it’s actually changing what people do in response to our understanding of what climate change might mean”*. So although it is, *“taking a lot of airtime”*, and engaging people at a variety of different levels through dialogue, *“we’re not actually seeing that carry through to people thinking OK these are the things we need to do to make these habitats more resilient, these are the things we have to do to give us more connectivity between upland landscapes”* (110). Long believes climate change could become the most important policy driver in terms of the uplands, but *“it depends how the discussion develops”*. *I think that when people have the luxury of taking a slightly longer term view then climate change is something they will focus on and they’ll see the uplands as a critical element in adapting to that”*. Difficulties are likely, however, when people lose interest in the long-term view, as for example in economic crises, such as the UK is currently experiencing (107).

On the other hand, Collyer doesn’t believe that climate change is taking over debates per se, *“it’s one factor”* and that environmental issues in general are tending to take over upland debates, *“climate change is part and parcel of it, but it’s not the main overriding driver”* (102).

5.3.3 Role of Uplands in Carbon Storage and Sequestration

One of the major issues that was highlighted by the interviewees in relation to climate change and the uplands was the role of the uplands in carbon storage and sequestration (101; 102; 103; 104; 107; 109; 110). Peatland and upland soils contain at least 50% of the soil carbon in Britain. Historically these soils have been regarded as carbon sinks but there is growing concern about a possible long term transition to a carbon source, driven by a combination of climate change, over grazing, fire and land drainage (Orr et al., 2008). As Bonn stated, *“the uplands are the most important area for carbon storage. If we don’t safeguard these carbon stores we could actually enhance the carbon output of the UK because 40-50% of the soil carbon is stored in 8% of the land mass”* (101). Although blanket peat is a huge carbon store and has the potential to sequester further carbon, many of these peatlands have become bare and degraded due to footpath erosion, wildfires, atmospheric pollution and overgrazing which have prevented natural regeneration. On the moorland plateaus, continued surface erosion and low water tables impair proper functioning of the blanket bogs, leading to habitat and carbon loss (Moors for the Future, 2008). For example, in the Peak District National Park, over 9km² of moorlands were mapped as bare peat and a further 22km² as degraded moorlands in 2000 (Moors for the Future, 2008).

In order to restore peat to its optimum condition for carbon storage, a number of techniques can be used. Bare peat can be restored by applying lime and fertiliser to improve the soil condition for grasses to germinate and then a grass and heather seed mix can be applied. These plants initially stabilise the bare ground by forming a root mat and then other plant species can be moved in once the peat has established. This method alone, not including gully blocking, is very expensive. In the Peak District a three year bare peat restoration project costs £11,000/ha (Moors for the Future, 2008). Heather moorland can be regenerated by using treatments to control and remove bracken and *Molinia* followed by reseedling techniques. Another mechanism for restoring peatland is gully blocking. The natural creation of gullies in blanket peat causes erosion, drainage of the moors and leads to the peat drying out which causes accelerated decomposition of the peat and subsequent release of greenhouse gases as well as discolouration of local water sources through dissolved organic carbon. Blocking these channels can aid the long-term recovery of peatlands (Moors for the Future, 2005). To this end, the National Trust and English Nature use dams of heather, bracken, wood, stone and plastic to block gullies on their sites. During such procedures, it is important that livestock is kept off the regenerating peat to allow the dwarf shrubs to regenerate naturally (Moors for the Future, 2008).

Thompson, Hearn and Condliffe see this aspect of the uplands as the most influential policy driver in the uplands:

“At the moment it’s the most influential driver...it’s come from nowhere, it’s firmly on the agenda now, we’re looking in the next 10 years at probably having carbon storage and sequestration targets” (110).

“if you look at where our carbon is, it’s in our organic soil and most of our organic soils are in the uplands, so that’s where our stores are, everybody realises that, Defra, Natural England, so that might be a very, very important thing” (104).

Jenner pointed to how the role of the uplands in carbon storage has *“driven policy in the uplands for aspects of agri-environment, it’s driven a lot of focus of Higher Level Stewardship (HLS) agreements in the uplands”*. Carbon storage is one of the reasons Defra are maintaining their agri-environment overgrazing measures, *“we want to maintain sustainable grazing levels so that they’re not leading to degradation of the peat” (106)*. Oliver believes it would be wise if carbon became the most important policy driver in the uplands, *“the overwhelming value of blanket peat and carbon sequestration is actually of huge benefit and a far more effective way of securing carbon than almost any other biological process”*. He also highlighted the difficulty of pointing to a landscape in the uplands and saying, *“that’s a high public achievement”* because it is hard to see what has happened. *“You can’t see that the drains aren’t running anymore and the peat is getting deeper each year”*, and therefore it may be hard to gain public and political support for this management (109).

In contrast, Collyer does not see carbon storage as the most important policy driver in the uplands but believes that it is definitely coming up the agenda and that there is a lot more attention being paid to it. However, *“people just need to work out the science behind how to get the peat to re-establish itself and how you can restore the peat moors within the finances available. One of the biggest constraints that Natural England finds is it’s really costly to restore a lot of the moors where the peat is. Yet you have to restore it for it to be able to start sequestering the carbon and not releasing it” (102)*. Collyer sees this as an opportunity for private markets to develop which pay for management of peatland for carbon storage and sequestration, in other words, pay for ‘carbon farming’. This is explored in further detail in Chapters 6 and 7.

Thompson is concerned that because the role of the uplands in carbon storage is becoming the most influential policy driver, biodiversity, *“which has had a period of glory for the last 10 years”* is in danger of, *“falling off the map”*. However Thompson does not think that managing for carbon

necessarily has to be a threat to biodiversity. The RSPB own and manage almost 29,000 hectares of blanket bog which is, *“incredibly important for biodiversity”*. They are interested in determining if the kind of management, *“that we’re putting in place to manage and restore these habitats, principally blocking up those awful drains and taking trees off bogs, well we know it’s good for biodiversity, but is it actually good for the carbon store, is it good for water quality and provisioning, does it impact on flood water?”*. In conducting this research, the RSPB are trying to determine the impact of their conservation management on a range of other goods and services. Some have interpreted this as the RSPB becoming the Royal Society for the protection of ecosystem services. The RSPB claims, *“we’re not, we remain firmly committed to biodiversity, but we’re trying to understand the consequences of managing for biodiversity and its associated impacts or benefits on things like carbon storage and sequestration and I think that has the potential to be a good thing”* (110). This highlights how influential issues such as carbon and water management are becoming since an organisation such as the RSPB, which has traditionally focused on bird biodiversity, is being to alter their approach due the increased understanding and awareness of these issues.

There was general consensus among the interviewees that the importance of the role of the uplands in carbon storage and sequestration should be recognised by paying for its provision. *“I think markets need to be developed for that kind of service...subsidy is a dirty word, people hate subsidy they resent it, but payment for something that the market will not reward is a different matter”* (107). Collyer agrees that upland land managers should be paid for such a role, otherwise, *“how else do you get those moors managed and make sure that they are sequestering carbon?”* (102). Bonn would like to see a carbon offsetting scheme put in place in the uplands, but highlights that at the moment the science is lacking because, *“we don’t have a five year data set in order to incorporate the uplands into the Kyoto Protocol”* (101). At the moment there is only a two and a half year record of carbon emissions from peat restoration projects, and, *“if we can’t quantify the effects on the total carbon budget, including methane, we cannot have a scheme”*. Similarly Hearn agrees that, *“the carbon thing is tricky because you can’t go out there and measure it without digging a hole, taking your sample back, drying it and weighing it, it’s difficult to think of a way of assessing good management for carbon storage or good management for reducing the GHG from waste”* (104). Long believes that if the science can be worked out to show that, *“a particular form of management achieves a particular outcome in terms of carbon balances, then the role of the state is to finance that. Because the consequences of not addressing climate change are huge”* (107).

Reed has been making the arguments for payments for land management for carbon since 2002. At first uptake of this idea was slow. Then, *“three or four years ago, it got to the point that if you go to any conference that focuses on the uplands, someone at some point will mention this idea and it’s just the perceived wisdom that everyone knows it’s an option”* (108). This highlights the rising awareness of the role of the uplands in carbon sequestration/storage and suggests that this will grow in relevance in terms of future policies and upland land management.

There was consensus among the interviewees that payment for carbon storage and sequestration in the uplands should not occur through the Uplands ELS. For example, Collyer stated that, *“the Uplands ELS is limited by what it can pay, at the moment it’s £62-64 a hectare when you include Entry Level Stewardship as well. That’s just not going to scratch the surface on restoring those moors”*. Collyer believes Higher Level agri-environment scheme (HLS) grants are better placed for this because they are a lot more site specific and, *“if you’re going to restore the moors it has to be site specific”*. But again there is a limited budget that has to spread across all Defra’s priorities in England. Similarly Jenner stated that Defra, *“looked quite seriously at what we could do in terms of grip blocking of blanket bogs and that requires very site specific advice and more is suitable for HLS rather than Uplands ELS”* (106).

5.4 Water Quality and Supply

As mentioned in Chapter 4, the importance of the uplands in water supply and quality is becoming an influential issue in debates about the future of the uplands. Bonn regards water supply, quality and flood mitigation as just as strong policy drivers as carbon storage in the uplands. *“Water quality issues are severe and water companies are spending up to £20 million per year on water treatment. We have rising water colour issues and that’s a reason why water companies also invest millions of pounds in restoration”* (101). Condliffe also highlighted the importance of water in terms of influencing land management in the uplands and can see a, *“water and carbon scenario where land is not agriculturally managed”*, with watersheds being taken out of agricultural production. With this, however, comes the worry that lack of grazing on the land will increase the risk of fire: *“it’s not a case of if it will burn, it’s just when”*. A hot summer fire can cause damage hydrologically as well as releasing carbon from the peat (103). Oliver also envisages that payment for upland water will partly come through encouraging water companies to create partnerships with upland land managers to prevent flooding and release water in long hot summers. Also through the introduction of farming into carbon trading schemes (109).

An example of this already happening in practice is the water company United Utilities' Sustainable Catchment Management Programme (SCaMP). Working alongside Natural England on the multi-million pound project, the aim is to 'breathe new life' into more than 4,200 hectares of moorland in Greater Manchester and the Peak District. By working in partnership with Natural England, the water company is looking to achieve a balance between protecting and enhancing the environment and safeguarding water supplies. The programme aims to restore these upland areas to their natural hydrological condition, via drain blocking, resulting in improvements to water quality, regeneration of species such as Sphagnum and reinstatement of valuable habitats such as upland heath and blanket bog. The advantage for the water company is that if the hydrological condition of the uplands is improved, then they will not need to spend as much money cleaning and purifying the water. Funding for the new management approaches comes from both agri-environment programmes and United Utilities who work with farmers, land managers, local authorities and government to influence the management of water catchment areas (Rollett et al., 2008). This will enable them to deliver improved water quality and protect some of the UK's most important heather uplands, people and wildlife. This is evidence of a water company recognising the importance of upland land management to downstream water quality and supply:

"Water treatment starts on the catchments - the gathering grounds for our reservoirs. If we get it right here, it means we don't need to keep adding more, expensive engineering solutions at our treatment works." (United Utilities, 2007)

Hearn believes that paying for particular land management is a good idea, but not just for one specific service: *"it would be fantastic if public money could be diversified to better management for water, better management for soil condition, as well as management for biodiversity and for farming support"* in a much more targeted manner than present policy. In terms of paying for land management for water, the government has already got catchment sensitive farming schemes which reward farmers for good soil management. Farmers are encouraged not to apply too much fertiliser and manage their water courses well. Hearn suggested that, *"if the payments were better and across the board, rather than just in particularly sensitive catchment, then they could sort that tomorrow in theory"*. In this way paying for land management for better water would be feasible, such as, *"paying farmers to not have so many stock and paying them to have better management of their waste and not to generate so much slurry, and all the rest of it would definitely be do-able"* (104).

5.5 Food Security

5.5.1 Threat or Opportunity?

Like climate change, there is an important question to consider whether the increased focus on food security will be a threat or an opportunity for the uplands. Opinions differed between the interviewees on this matter. For some, food security is seen as an opportunity for the uplands in that it will increase markets for high quality, sustainable meat:

“You’ve got a whole set of benefits and advantages that weren’t recognised before the food security discussion was started. For example, extensive livestock systems are a low input production system, negligible energy goes into producing the livestock, it’s producing low fat, high quality meat and it’s sustainable, so it’s much easier to defend now” (107).

Similarly Thompson stated that awareness is increasing about the nutritional benefits of extensively reared livestock and its potential to be more “carbon friendly” than intensive livestock. Yet there are currently not real markets available for this rather, *“the people that are successful at producing extensively reared livestock in an upland context are doing so on the back of their own ambition and drive, we’re not seeing the niche markets develop”*. Thompson blames this on the fact that consumers have been, *“fed a diet of 40 years of buying your food as cheap as you can get it and that’s wholly unhelpful to the people who are trying to produce these livestock” (110).*

Collyer sees the focus on food security as a potential opportunity for the uplands in terms of their role in creating sheep stock which is then finished on lowland farms. As the global demand for meat rises, this role will become increasingly important (102). Thompson believes that discussions about food security are incredibly helpful because they beg other questions about, *“food waste, overconsumption and population growth as a whole”*. He believes that there are a lot of issues that need to be debated including the question of whether we actually are going to try to feed the rest of the world. Are we going to have less trade and eat completely different things? (110). Jenner sees food security as a potential opportunity if it moves towards farmers getting a fair price for their product because it’s being valued better (106).

There is a perceived threat from food security that it could lead to overgrazing and over production in the uplands (and across the country). Although she thinks, *“the land is still always going to have restrictions on it that’s going to limit production”*, Jenner warns that food security issues could

threaten Defra's public benefit objectives if they lead to overproduction and overgrazing, *"where we were before"* (106). Bonn is concerned that because the lowlands are more productive for food production, this might displace some of the biofuel planting to the uplands. This could have negative consequences for upland biodiversity and landscape values. Long pointed out that it all depends on how food security is defined and understood: *"my interpretation of food security is being able to meet a good proportion of your needs from within your own resources and that is globally equitable...the agricultural industry interpret food security to mean home production, their immediate response is we've got to produce more and in the uplands trying to produce more is a recipe for disaster"* (107).

Thompson believes that an increased focus on food security will not necessarily lead to the environmental damage of the post-war productivist period; *"we've gone through one period of trying to produce lots of food from the uplands, principally from sheep, and I'd like to think we've learnt some of the lessons from that in terms of having a better understanding of how productive or unproductive these soils are and what they can support"* (110). Similarly, Hilary Benn (Secretary of State for Environment, Food and Rural Affairs) has questioned targets for food production: *"how would you set them and how would you make sure you achieved them? By going back to the subsidies, intervention, destruction of the hedgerows and upland beat bogs of the past? I don't think many people would want to do that"* (Defra, 2009c). The perception is thus that food security will not now prompt overproduction to the degree of the post-War years.

5.5.2 Role for Uplands in Food Security?

A number of the interviewees believe that there is a role for the uplands in providing increased food security (101; 102; 105; 106; 107; 110). Collyer stated that without farmers producing food, the public benefits from farming will be lost, *"at the end of the day to deliver the public benefits you need active systems and if the way the land owner or the tenant can look after the land is through having a sustainable business then we have to support that side of it"* (102). Long believes that the contribution that the uplands make to the national diet could be greater. He sees a need for better marketing of upland food, *"there's not a very good link between what actually comes off the hill farms and what's required in the retail market"*. Long points to the county of Cumbria as an example of where regionally sourced food is very important through tourist outlets and retail butchers. Because of this he does not think that uplands food production should, *"be out of the discussion"* and that there needs to be more focus on food quality rather than quantity (107). Similarly, Helliwell believes, *"the role of upland farms in the food chain is well established and with some work can continue to play its part"* (105).

Thompson also sees a role for the uplands in food production, *"I think that the role for those upland landscapes in producing food, some food in the future is still a given"*, but that the scale and the quality has to be determined. Thompson believes that without a role for food production in the uplands people may not be prepared to manage these landscapes in the future. Although debates may be turning towards farmers' roles as a landscape manager, the culture among farmers is that they want to farm. They are farmers and want to produce, *"that's going to take quite a long time to change and I see no reason why extensively reared high quality food production shouldn't be a part of that basket of what these places are about"* (110).

Jenner also believes that the uplands should not be kept out of debates about increasing food production, *"if they can have a role in terms of food production, I don't see any reason for excluding them"*. But she stresses that, *"we are not talking about food production at any cost, it's sustainable food production and there needs to be an open debate about this"*. Jenner believes there is a growing realisation, even among the "green" organisations that farmers do, *"something other than produce environmental benefits, they actually are running businesses and they need to survive in order to continue delivering the environmental benefits"*. She believes that if farmers become more profitable it gives them greater scope to also deliver the environmental benefits that are desired (106).

On the other hand, Condliffe does not see a role for the uplands in food security as the actual food output from the uplands is very low. The main product being cross-bred ewes which are bred with meat producing rams in the lowlands to produce the lambs for meat. He pointed out that, *"they tried increasing output in the second world war ploughing up meadows, growing oats, barley, the problem is you can grow it but the wet summers and autumns make it very difficult to harvest or even to plant it, so in terms of food security I don't rate the uplands as having much potential"* (103). Collyer also noted that the uplands, *"won't be able to solve the problem of food security because their production isn't that great, that's why they were called less favoured originally"* (102). Similarly, Oliver does not see a role for the uplands in food security and in increasing food productivity. Although he acknowledges that there may be areas that are undergrazed and that need more cattle and sheep to prevent bracken encroachment, but he does not see this as being driven by production, *"it's a happy by-product of the virtue of having the land managed"* (109).

Oliver hypothesises that the important point about food security and the uplands is that, *“if there’s going to be a strategic shift it’s to get more out of upland farming which is not to do with food”*. Theoretically this could offer opportunities for lowland farmers to rise to the food security challenge *“more aggressively”*. However, Oliver recognises this is controversial, *“the idea that by having more curlews on the uplands you could get rid of the yellowhammers in the lowlands does not sound like a good idea to me”*. Oliver thinks that it could work the other way in that innovation and biotechnology in lowland farming will mean there is less pressure to improve upland farm production in ways that are antagonistic to multifunctionality. *“What’s clear is that what’s needed is a much broader range of things happening in the uplands which detaches it from levels of production in the lowlands”* (109). In a similar vein Tim Lang giving oral evidence to EFRA’s food security inquiry stated that there are two approaches: *“Blitzkrieg your land and put the biodiversity into the fringes. The other is getting the biodiversity into the food and eat it....the second is specifically an issue about multifunctionality. The pressure on land is immense already but is going to get more immense. We have got to combine food production with fibre production, with fuel production, with retention of amenity, carbon sequestration and water sequestration”* (House of Commons, 2008). There is clearly a strong desire among upland stakeholders that any refocus on food production in the uplands should not be detrimental to ecosystem service provision.

Hearn believes (and has discussed this with Defra) that land capability tests should be applied to every upland block before introducing any new farming system, *“so if we’ve got really good organic soil or the area is important for water harvesting, water holding capacity and so forth, if those ecosystem services are mapped as important for that area then that shouldn’t be where we are getting our food from. That should be where we are looking after our carbon and our water because 70% of our water comes from the uplands* (104). In the areas where there are less organic soils, or the climate is slightly more benign and there are not so many pressures, then that is where food production should perhaps be increased, possibly including arable farmland. At the moment such land capability tests do not exist and the, *“only land capability system we’ve got is the old fashioned one developed in 1984 by the soil survey and that hasn’t got any future climate scenario built into it”* (104). Hearn is worried that this lack of data risks entering *“willy nilly into food food food without taking that very cautious approach”*. In the severely disadvantaged areas, increased productivity won’t arise but Hearn is concerned about the lower parts such as the Solway fringes of the Lake District and the edges of the Howardian moors, *“all these places where the land is capable of producing more, those are the areas where we must be really careful*. Bonn also believes that good spatial planning is needed and we need to be able to quantify a map of service provision, including

production services. Then use an informed approach to see which areas can be key contributors to ecosystem services, which land management promotes this and other areas where this may be detrimental to other services. *"I think if there would be a more joined up approach and not planning in individual sectors, but a more integrated approach you can actually tackle this"*. Presently Moors for the Future are conducting a project for Defra on peat ecosystem services, due to be completed in November 2009. *"We're trying to map the different services and see where the conflicts are, where there are synergies and where there are tradeoffs"* (101).

5.5.3 Policy Geared Away from Public Benefits Towards Food Production?

If there is to be increased focus on food security (and this looks evident from the discussion in Chapter 2) then there is a question of whether policy will be more focused on increased food production at the cost of moving away from the public benefits from agriculture.

Oliver worries that a focus on food production could move attention away from multifunctionality of the uplands and stressed that CPRE would be firmly opposed to a productivist view of the uplands as opposed to a multifunctional one (109). CPRE anticipate a, *"future dominated by production-led thinking"* and believe that, *"there is a serious risk that a solely production and target led approach could lead to a level of environmental degradation through intensification last seen in the 1980s"* (House of Commons, 2009b).

In contrast, Collyer does not believe there is a risk of policy being geared away from public benefits to increasing productivity. *"We've learnt some pretty hard lessons since the CAP was introduced and seeing the effect it has had on the hedgerows, the drainage and other things, we've learnt a lot and so environment and food production have to be viewed as one issue"* (102). Birdlife International, PAN and EEB have stated a similar belief:

"what tends to get overlooked is that most measures currently deployed to boost yields deplete the very resource base on which agriculture depends...the only realistic way to ensure long term food security and to avoid a real crisis is to ensure that agriculture's resource base of soil, water and biodiversity is effectively protected" (Birdlife International et al., 2008).

There does seem to be more emphasis from government on the need for sustainable food production than simply producing food at all costs which happened in the productivist post-War era. In his speech at the 2009 Oxford Farming Conference, Hilary Benn emphasised that whilst food security is an issue that must be addressed, it must not be at the cost to the environment:

“It is productive, efficient farming. It is about the higher-yielding seeds, better irrigation and more sustainable use of fertilisers...we must ensure that we do not destroy our ability to feed ourselves tomorrow. It’s not about either environmental sustainability or production. It has to be both” (Defra, 2009b).

Similarly, giving evidence for EFRA, Kate Bailey from Chatham House stated that:

“the focus has to be about how do we make agriculture for food both productive and sustainable and that no longer can those two paths be separate and that they need to be joined together in policy objectives” (House of Commons, 2009d).

The CLA see food and environmental security as one policy rather than separate policies, *“we don’t think you can have one at the exclusion of the other because if you did, our natural resources only last so long before they say no more and you’re not doing anyone any favours by exploiting them”* (102). Natural England have likewise stated that they, *“believe food security and environmental security are both essential: they are often highly interdependent and should be addressed together”* (House of Commons, 2009a). The CLA have proposed that the CAP become Europe’s Food and Environmental Security Policy:

“such a policy can steer Europe’s land management sector to achieve efficient, competitive, profitable primary food production whilst at the same time showing how intensive, precision, land management can deliver food security and higher standards of biodiversity delivery and reduced pollution” (House of Commons, 2009c).

5.6 Conclusion

It is clear that both climate change and food security are influencing debates about the future of the uplands, although climate change may be having more of an impact given the increasingly strong emphasis on the role of the uplands in carbon storage and sequestration. Whilst being a threat to upland habitats and landscapes, climate change may result in greater focus on the services provided by the uplands, and thus could be viewed as an opportunity for the upland communities. It is evident that the importance of the uplands in water provision is also becoming a key issue that is influencing debates as well as driving change in land management. The increased focus on water provision and carbon management is likely to influence future policy and lead to changes in management practices in the uplands which will be discussed in the next chapter.

Whilst the interviewees recognise the importance of food security, they appeared to prioritise the impacts of climate change over food security. This is likely due to the fact that they perceive that climate change will have more of an impact on the uplands than any drive to increase food production.

With the increased emphasis on ecosystem services comes the question of whether the role of farmers will change from that of food producers to producers of ecosystem services. However, it appears clear from the interviews that the role of upland farms in food production is likely to remain important with more focus being given to quality food production rather than quantity. There appears to be a desire among stakeholders that any increased focus on food production should not be to the detriment of the public benefits the uplands provide. There seems to be some indication that the government agrees with this approach and this may influence the direction of future uplands policy. The next chapter considers how such issues may be affecting the likelihood of particular policy scenarios arising in the coming years.

6 Opinions on the Future of the English Uplands

6.1 Introduction

Given that climate change and food security do appear to be having an influence on debates about the uplands and that there remains a continued focus on the public benefits that the uplands provide, it is interesting to ask what possible futures are in store for the uplands and what policy changes may be needed. This chapter looks at the position of the uplands in the policy agenda, assesses scenarios for the future of the uplands and looks at what changes are desired among stakeholders.

6.2 Uplands Moving Up or Down the Policy Agenda?

One way of investigating the future of the uplands is to consider their place in the policy agenda and whether they are likely to move up or down the agenda in the coming years. Many of the interviewees expressed a belief that the uplands are currently high on the policy agenda, for example:

“they have been up on the policy agenda for at least five years” (104).

“they have more of a voice than they had in the 1990s with a lot more energy being put into upland issues” (107).

The year 2009 has been described as a *“hot year”* (101) for the uplands due to the progression of inquiries into the future of the uplands being run by the Commission for Rural Communities, Natural England and Scottish Natural Heritage as well as a number of Rural Economy and Land Use Programme (RELU)¹¹ projects on upland issues. The Environment Agency is funding research on the implications of climate change for upland environments and carbon storage. Natural England is scoping the valuation of upland ecosystem services and producing an Upland Ecosystems Service Atlas. There has also been a lot of focus on the uplands from the European Commission in terms of the ongoing LFA reclassification process as well as a UK House of Lords inquiry into the LFA measure; and from Defra in relation to the changes to the hill farm support system. Reed sees these major initiatives as evidence that the uplands are, *“at a pivotal stage in policy”* and are significantly climbing the policy agenda, but that we will have to wait and see what the consequences of these different initiatives will be for policy (108). Bonn believes that the various partnerships (see Section

¹¹ www.relu.ac.uk

4.8) that work on upland issues are responsible for the uplands being high on the policy agenda by raising awareness among policymakers (101).

One of the reasons that the uplands are seen to have risen up the agenda is the increasing awareness of the need to manage the uplands for multiple environmental and social benefits and that, *“the uplands are the crucial carbon stores, they provide 70% of the drinking water, they are among the most popular tourism destinations and they are one of our last remaining tracts of semi-natural areas”* (101). Hearn believes the uplands will stay high on the policy agenda while there is, *“this immense interest in carbon accounting and trading and better water management”*. She believes water companies are being, *“fantastically influential”* as they are beginning to try to persuade OFWAT, the UK water regulator, that better water management throughout the uplands on land that they do not own will save water consumers a lot of money (104). The increased interest in the uplands thus appears to have been driven by the conservation lobby as well as increased debate about the alternative energy and carbon markets. There appears to be a changing perception of the uplands away from being seen as ‘less favoured areas’ to the *“acknowledgement that the uplands are unique and uniquely placed to provide some very valuable benefits”* (107). Thompson also believes that the level of interest in the uplands can be sustained for the next five to six years and from this will emerge a better awareness among society of what, *“these places are about and what they deliver for us”*. Currently there is a *“high level of antipathy and ignorance about rural issues”* (110). In a recent children’s survey, 40% of the interviewees have never visited the countryside (Sigman, 2008). There is a need to increase the public’s awareness of the services that the uplands provide in order to ensure their support. Thompson believes that the *“gateways”* for enhancing such understanding are the national parks, *“because they are the gateway to millions of people that come to these places”*.

In contrast, Condliffe believes the uplands will move down the policy agenda over the next couple of years since, *“they’ve had their flurry with Uplands ELS”*. There is no longer a specific LFA scheme in England as all support for hill farmers will come through the agri-environment measure from 2010 with the introduction of the Uplands ELS. *“They are not supporting farmers for being in the uplands, they are going to give some money for doing environmental benefit”* (103). There is also uncertainty as to what will happen with farm support once the current rural development programme ends in 2013.

Although the uplands are being viewed as more and more important from a carbon point of view, there is some scepticism as to whether this will have any actual impact as it would require a lot of work to introduce carbon credits and to encourage land managers to participate. Oliver is doubtful that this will happen soon, *“carbon trading is a problem anyway at the moment so the idea of making it a more intelligent and ambitious thing looks less likely”*. However he does theorise that, *“suddenly everyone might get fed up with the carbon price being so low and the carbon credits being awash everywhere and think we’re going to make a serious attempt to shift 20% of the Single Payment up to looking after peat”* (109). Condliffe believes the only way the uplands will rise up the policy agenda is if there is a severe drought and water shortage which would turn the focus towards the uplands. Since it is predicted that climate change will cause water shortages in the lowlands there may be a, *“greater push”* for water gathering in the uplands and to make more efficient use of uplands water with the possibility of farmers charging for water on their land. However Condliffe does not see anything so *“dramatic”* happening for a while (103).

6.3 Upland Futures Scenarios

The four classes of scenarios outlined in Box 2 were presented to the interviewees to gather opinions on which of these scenarios are perceived to be the most or least likely and the most or least desired. These opinions were compared to those of previous scenario studies (see Annex 4 & 5) reviewed by Arblaster (2006) to ascertain whether these scenarios are still relevant today or whether new scenarios are arising that better describe the likely future of the uplands (see Chapter 3). From looking at the scenario studies and talking to the interviewees, it is clear that there is a very lively debate within the current policy community about the future of the uplands as well as a fair amount of knowledge about the different possibilities for the future. The opinions of the interviewees on the four scenarios are summarised in Table 5.

It should be noted that because of different situations across the upland areas in England, two of the interviewees chose to answer the scenario questions based on the upland area that they are most familiar with. Therefore Bonn’s answers refer only to the Peak District uplands and Long’s to the Cumbrian uplands. It should also be noted that not all interviewees responded to both questions of whether the scenario was likely or desired as can be seen by the gaps in Table 5. This was either because the interviewees did not have an opinion on the matter or only focused on one aspect of the question. Reed did not express any opinions on the four scenarios as explained in Section 6.3.3 and Helliwell was not asked to evaluate the scenarios due to time constraints on his interview.

The fact that each interviewee found more than one scenario likely, for example, *“I can’t decide between Scenario C and D”* (103), highlights the point that different scenarios are likely to occur across the uplands. There is clearly uncertainty as to the future for the uplands and which scenario will be the most accurate. However as Thompson noted, *“what is interesting is how those scenarios might come into play in different parts of the country”* (110). The scenarios are listed in terms of their perceived desirability by the interviewees

6.3.1 The Desired Scenarios – Environmental Measures or the Status Quo

Scenario D - Reduced Levels of Hill Farming, Remaining Hill Farms Receive Support Based on Compliance with Environmental Measures

All of the interviewees regarded this as a desirable scenario as it would bring more focus on the public benefits provided by hill farming and, *“move money up the hill”* (109). It was deemed to be fairly likely to occur given the current emphasis on ecosystem services within government. Thompson can foresee a situation along the lines of Scenario D happening on a very specific targeted area basis, *“perhaps thinking about peat soils and carbon sequestration”* (110). The reduction of hill farming in this scenario was supported because it is caused by an emphasis on public benefit provision, rather than being due to land abandonment. *“It’s managed reduction and managed intensification where there’s undergrazing, rather than there just being less hill farming altogether”* (109).

Whilst Long agrees with this scenario and supports public investment in the uplands, *“because it’s sticking a finger in the hole, it’s stopping the whole thing haemorrhaging”*. He believes that any real lasting change to the uplands will come from within the uplands communities themselves, *“we’ve got some much more innovative things on the way which are going to be derived from within the communities”* (107).

Although supporting this scenario, Collyer was the only interviewee to say that it may be unlikely as she perceives that there will not be any, *“great change”* in CAP payments towards more money shifting towards Pillar Two nor a significant merger of Pillar One and Two. Although England has moved towards environmental measures through agri-environment schemes, the downside to this is they are based on income foregone as outlined in Section 6.4.

Jenner supports a mixture of Scenario C and D, *“because she’s not sure that we will see reduced levels of hill farming”*, but she does see the second part of Scenario D as being more desirable with more focus on environmental farming systems (106).

Of all the scenarios, Scenario D created the most discussion about how the uplands are currently supported as well as the intricate details of the scenario. This may be due to the fact that the scenario is the most desired of the four and so the interviewees were keen to discuss its implications for implementation through policy.

Condliffe believes that this scenario should not be so much about compliance with environmental measures as providing incentives, *“compliance and regulation only works if it’s sensible and you’re just on the edge of sensible now. Bad regulation costs more than incentives”*. Condliffe believes that there has to be another way of paying this incentive, but he is unsure what that is: *“if you can’t get EU money it’s got to be from state funds but I haven’t got my head round how much extra you could pay farmers for the environmental goods and services that isn’t seen as unfair competition”* (103). Thus new ways of paying for the delivery of environmental services may need to be explored.

One debate within this scenario is to what extent the mandatory baseline, translated in concrete policy terms into EU national legislation and mandatory GAEC standards, can be raised, *“can you make this cross compliance, minimum level of regulation, come further up when you’ve got another minimum entry level agri-environment scheme, broad and shallow, which people will tell you isn’t delivering anything?”* (110). Thus there is some debate as to whether to move the cross compliance baseline up so that a higher level of environmental standard would fall solely within this broad base of cross compliance, *“so you must manage your land in a particular way to be eligible for the Single Payment”*. Thompson sees this debate as challenging, *“because people are then going to try and squeeze water provisioning, water quality, soil protection, biodiversity into this”*. This could be too much for land managers, meaning they opt out of the Single Payment, *“and then they are completely out of the system”* (110).

The RSPB have concerns that the designation of land for different levels of support means that areas of the uplands are not eligible for support but are important in terms of peat and biodiversity: *“we are increasingly aware that in an upland context, sometimes the enclosed land managed for hay and pasture isn’t designated and that has huge populations of curlew, lapwing, red shank, snipe”* and so is not eligible for agri-environment support (110). Thus they have concerns that directing all the support towards the targeted areas could threaten those areas that are not designated.

This scenario was also found to be the most desirable by the majority of scenario studies reviewed by Arblaster (2006).

Scenario B – Significantly Reduced Levels of Hill Farming Accompanied by Diversification

The majority of interviewees regarded Scenario B as being both desirable and likely to happen (101; 102; 104; 107; 109; 110). Diversification is regarded as positive as it increases farmers' resilience to change and market shocks, *"for example enabling them to adapt to climate change and productivity change"* (101). A number believe that this scenario is already occurring as a consequence of current policy: *"we're seeing agri-environment very much driving the delivery of stock reductions, biodiversity benefits etc."* (110). In the Peak District, Bonn believes there is a good opportunity for farmers to diversify into tourism and marketing different produce such as candle making, arts and crafts and ice cream (101).

It appears, however, that opportunities for further diversification may be limited; there is the belief that, *"the opportunities have largely been filled"* (102) and, *"the market may be satisfied now"* (101). Many hill farms, being in very remote locations, are not close to markets and Collyer pondered, *"how do you diversify in that situation? It's not as if you've got loads of people walking past that you can set up a tea shop for"* (102). Hearn agreed:

"From a National Trust view, a lot of our farm tenants say they have already done as much diversification as they can. They've got B&Bs, they do contract work off their farms, loads of part time holdings, partners working off the farm, small scale IT enterprises in villages, lots and lots of diversification already" (104).

Similarly, although Jenner believes that *"diversification is great"*, she sees it as being very difficult in the uplands and has limited opportunities: *"there's only so many teashops and B&Bs that you can have in each valley and there's not much else they can do"* (106). In terms of the situation in Cumbria, Long differs in this opinion stating that there are opportunities for diversification, *"that we are only just starting to realise"*. Long was adamant that, *"diversification means a lot more than just bed and breakfast...whether it's people coming to do courses or however it happens to express itself"* (107).

Collyer believes that there will be increased opportunities for diversification if environmental markets begin to develop and, *"particularly if the climate change debate at the very least comes in, there'll be more opportunities"* (102). Hearn also mentioned that the only way for increased diversification is if, *"the whole subsidy system changes to pay farmers for water management or carbon management then they might diversify more"* (104). Long noted that in Cumbria there are discussions emerging looking back to the days of *"romantic poets"* when the Lake District was

viewed as *“a cradle for creativity”*; some farmers are beginning to argue the case that Cumbria has a *“real future”* as a home for creative and artistic industries because it is so *“beautiful and exciting”* (107).

It will depend on the type of diversification as to which stakeholder would view this scenario as beneficial for the uplands. For example, *“if diversification means diversity of biological activity, conservation, uplands rewetting, blanket peat, that kind of thing then that would be good. But if you mean by diversification, wind farms, quad bikes, paintballing, quarrying then this is very unattractive, although quite likely”* (109). Oliver sees the latter situation as particularly likely in the absence of any alternative and thus for CPRE it is, *“really important to get the juice flowing on the more intelligent things to avoid the default position of exploitation of the upland landscapes”*. This is a critical point about the scenario as it is not just about whether diversification will occur, but what form it will take. Some diversification options are clearly related to environmental benefits, whereas others are environmentally detrimental. Thus support for this scenario and the effects it will have will depend on the form that diversification will take

In this scenario there is also an issue of how significantly hill farming would be reduced and where it will happen, *“because there will be places where it matters more, places where it matters less, places where it will be more beneficial”* (109). Thus looking at this scenario in a, *“site by site, case by case”* approach is important.

In the scenario studies reviewed by Arblaster (2006), diversification was also regarded as a desirable scenario but only on the assumption that it would lead to a lower impact on farm and livestock numbers than other scenarios. The scenario was mainly deemed desirable from a social perspective with few perceived environmental or economic benefits compared to others (Arblaster et al., 2009). In contrast, the interviewees here view this scenario as potentially economically beneficial for hill farmers since it can provide an extra source of income. Additionally, diversification options may in the future involve deriving farm income from managing the land for carbon or water. This could make this scenario more environmentally beneficial in the future.

6.3.2 The Undesired Scenarios - Withdrawal of Agricultural Management or Diversification

Scenario A –Withdrawal of Agricultural Management and Re-Wilding

Scenario A was regarded as highly undesirable by all but one of the interviewees (see Table 5). This consensus appears to be due to the fact that the interviewees value the uplands for the public benefits they provide and that they regard this scenario as having negative consequences for their ongoing provision. For example:

“We (the CLA) wouldn’t want to see it at this time because we believe rewilding does not fit with what we see the uplands being. Large areas of the uplands are national parks with lots of access. If you let everything go back to nature without any sort of management, you lose a lot of the fragile habitats we’ve got, such as heathlands and moorlands. It is very difficult to re-create this once it’s lost” (102).

Thompson highlighted that the RSPB is often perceived as being in support of such a scenario. However he clarified that this is not in fact the organisation’s official viewpoint. At the moment the RSPB would be concerned about losing grazing animals from the upland landscapes because of the, *“impact that would have on some of our most special biodiversity. It would look different, it would support an array of biodiversity but we would lose much of what is internationally important” (110).* Thompson is concerned that the livestock reductions that are happening as a result of changes to the single payment are happening by default, rather than by design:

“If somebody had said “right we want to reduce livestock numbers here, here and here, what do we do to make that happen?”, then you’d have thought OK that’s credible. We’ve thought it through and decided we don’t want livestock here because it’s a water provisioning area, one could rationalise the arguments. But that isn’t what’s happening. It’s happened completely by accident. They said “let’s change the CAP, let’s take payment away from headage to area and put it back in the pot on a historical basis, crazy, crazy, crazy way of doing things” (110).

Oliver sees rewilding as having, *“very limited usefulness”* because there are few places where it would make an enormous difference in comparison with, *“more careful management”*. Oliver quoted a report by the Council for National Parks produced in 2001 which demonstrated that there are only two places in the whole of England where rewilding was, *“remotely sensible”*, one in Northumbria, one in the Pennines, *“those were the only places where rewilding would be at a scale remotely like the wild qualities of North America or Africa.”* Oliver believes that encouraging a

greater diversity of semi-natural vegetation through management changes is important, *“but that’s not rewilding, rewilding is excluding human influence”*. For Oliver, sensitive management or multifunctional management of the uplands is far more interesting than any notion of rewilding (109).

Condliffe sees this scenario as undesirable since, *“reversing the agricultural process rarely brings what you started with, we’ve been reversing the agricultural processes with Environmental Stewardship Agreements for 20 odd years and we’re still nowhere near where we were”* (103). Defra shares this view:

“what we are concerned about is if the land stops being managed. If it really does become abandoned and we see undergrazing on moorland, particularly on common land with people starting to take stock off the commons and then once they’ve done that they might not be grazing any more on the common” (106).

To this end, under the Uplands ELS Defra have included an additional supplement for commons agreements of £5/ha/year to, *“recognise the extra costs of people having to manage the land together”*. Jenner does not see Scenario A as fitting in with Defra’s current objectives in the uplands, although she can see that in limited areas there might be a role for abandonment, *“in spots that can add to the mosaic and also provide a role in terms of linking up areas of biodiversity to climate change adaptation”*. However, this is not regarded as a scenario that Defra would want across the board or indeed that would be likely to happen, *“because there’s still a demand for farming in the uplands”* (106).

This scenario was regarded as the least likely to occur by all the interviewees. Long believes in England it is, *“largely unattainable and inappropriate given the pressures that there are on land”* (107). Bonn does not see this as a likely scenario for the Peak District as, *“it is so well connected to urban areas and there are other forms of employment so I think farming can go on.”* She has discussed this with stakeholders in the Peak District who agree there is sufficient interest in recreation and strong private interest from businesses such as water companies. *“Although I would favour some less intensive management for conservation I don’t think abandonment or rewilding is a good scenario in the Peak District”* (101). Hearn agrees with this, stating that although rewilding and withdrawal of agricultural management is always being cited as a threat she has seen, *“absolutely no impact of that whatsoever yet, I’m waiting”* (104).

In contrast, Condliffe sees a possibility of this scenario occurring because of the sensitivity of communal farming if the numbers of farmers in the uplands continues to decrease. *“If you’ve got a valley and at the head of the valley you’ve got three farms, one goes out of business, you haven’t got a critical mass to gather the sheep and so all three go out of business”* (103). Thus the uplands could reach a point where there is no longer this critical mass and by default farm abandonment could occur as there are not sufficient numbers of farmers for each individual farmer to be able to manage the land as discussed in Chapter 4.

Hearn was the only interviewee for whom this scenario was seen as desirable but only if the land was still under some form of management for conservation, rather than completely abandoning the land:

“it would be excellent for biodiversity because one could replace agricultural management with a few managed extensive cattle or pony or occasionally sheep and manage them purely for conservation. The amount of grazing that would be necessary is really small so I think we could do very well without any agriculture and it would be absolutely excellent for water quality and soil management in the uplands” (104).

However, Hearn believes this scenario is extremely unlikely to occur because of the strong cultural driver in maintaining farming, particularly in the National Parks and National Trust: *“it would be too unpopular with the National Parks and the big landowners, but from a nature conservation point of view it would be absolutely wonderful”* (104).

The opinions on this scenario are similar to those found by Arblaster’s (2006) analysis of upland future scenario studies which found Scenario A to be the least desired and least likely scenario.

Scenario C – Continued Levels of Hill Farming Supported by CAP Subsidies (The Status Quo)

All of the interviewees who expressed an opinion on the desirability of this scenario see it as undesirable. However the majority do view it as likely, *“there will be continued levels of support through CAP subsidies”* (102). Indeed Oliver regards it as more likely than people sometimes think because, *“it is very difficult to change”* the established set-up (109).

This scenario may actually be fairly unrealistic as levels of hill farming may not stay the same under the current policy framework:

“The Single Payment is rapidly decreasing for hill farmers at a rate faster than for others because of the weird scale we’ve got and because about 50% or more of their income comes from subsidies. That could drive people out of production” (102).

So whilst the levels of support may remain the same, Collyer predicts that farm numbers will decrease. Similarly, Oliver regards the status quo as, *“not much of a status quo”*, but rather a, *“process of decline”*, to achieve the status quo would mean, *“moving money up the hill”* (102).

Bonn believes the status quo, *“needs to change”* and that current agri-environment schemes are not having a, *“massive effect”* on the environment. Hearn also sees this scenario as undesirable because the current support system is, *“not achieving anything at the moment”* in environmental terms. She regards the agri-environment schemes as not being embedded at a high enough level and not yet being employed properly or checked. She believes that, *“one of the proofs of the pudding will be when SSSI condition is truly re-evaluated. So say for the sake of argument in 2000 20% of SSSIs were in favourable condition, in 2010 we say 80% are in favourable or unfavourable recovering, if in 2010 we look at that 80%, did they actually recover with the management that was employed?”*. Hearn believes this question will answer whether Scenario C is beneficial but strongly expects that SSSIs will not recover under the current system. For example, *“from a water quality point of view, every major lake and tarn in the Lake District has declining water quality”*. To reverse this, Hearn believes that Scenario A is needed or perhaps B, *“but the levels of wild fish population in the rivers is catastrophic, the water situation is very bad”* (104). Condliffe believes that Defra does not want to support Scenario C, but Scenario D which, *“doesn’t close the gap; you can only close the gap with agricultural subsidy unless you find a different way of costing for environmental measures we are not putting price on, there’s a non-market price for the view”* (103). Against these criticisms of the current support scheme, Thompson points out that, *“without the current levels of agri-environment support going into many hill farming areas, there simply would not be hill farmers in many of those landscapes, agri-environment makes up 60-70% of the total budget sometimes”* (110).

Two of the scenario studies reviewed by Arblaster (2006) found this scenario the most probable: Bioscene (Bioscene, 2006; Soliva et al., 2008) and IEEP et al (IEEP et al., 2004), however none of the studies found this a desirable scenario, similar to the interviewees in this study.

Table 5 Summary of opinions on Scenarios A-D

Scenario A - Withdrawal of agricultural management and re-wilding				
	Desired	Undesired	Likely	Unlikely
Aletta Bonn (Peak District)		X		X
Claire Collyer		X	-	-
Ian Condliffe		X	Possibly, not widespread	
Katherine Hearn	X			X
Marian Jenner		X		X
Mark Long (Lake District)	-	-		X
Tom Oliver		X		X
Mark Reed	-	-	-	-
Pat Thompson		X	-	-

Scenario B – Significantly reduced levels of hill farming accompanied by diversification				
	Desired	Undesired	Likely	Unlikely
Aletta Bonn (Peak District)	X		X	
Claire Collyer	X		X	
Ian Condliffe		X		X
Katherine Hearn	X		X	
Marian Jenner	X			X
Mark Long (Lake District)	-	-	X	
Tom Oliver	Dependent on type of diversification		X	
Mark Reed	-	-	-	-
Pat Thompson	-	-	X	

Scenario C – Continued levels of hill farming supported by CAP subsidies				
	Desired	Undesired	Likely	Unlikely
Aletta Bonn (Peak District)		X		X
Claire Collyer	-	-	X	
Ian Condliffe	-	-	X	
Katherine Hearn		X	-	-
Marian Jenner		X	X	
Mark Long (Lake District)		X		X
Tom Oliver	-	-	X	
Mark Reed	-	-	-	-
Pat Thompson	-	-	-	-
Scenario D – Reduced levels of hill farming, remaining hill farmers receive support based on compliance with environmental measures				
	Desired	Undesired	Likely	Unlikely
Aletta Bonn (Peak District)	X		X	
Claire Collyer	X		X	
Ian Condliffe	X		-	-
Katherine Hearn	X		X	
Marian Jenner	X		X	
Mark Long (Lake District)	X		-	-
Tom Oliver	-	-	-	-
Mark Reed	-	-	-	-
Pat Thompson	X		X	

6.3.3 New Scenarios

It appears that three years on, the scenarios outlined by Arblaster (2006) do still hold as beneficial scenarios for considering upland futures. There was agreement between the interviewees in this study and the conclusions of each scenario study reviewed in Arblaster (2006). Scenario A (land abandonment) was regarded as the least desirable and Scenario D (improved environmental delivery) the most desirable. This suggests that the policy environment has not changed to a great extent in the past three years and that the value of the uplands for public benefits remains a key driver of policy. It appears, however that there is now even more focus on the value of the uplands for water and carbon storage. This is likely to drive any policy scenario in the future. In the course of the interviews a number of other upland future scenarios were suggested by the interviewees. These new scenarios emphasise the growing influence of climate change, the increasing interest in payment for ecosystem services and the need to strengthen upland communities.

Wooded Uplands

Under this scenario, there would be increased afforestation in the uplands which Hearn considers a possibility, *“because there is quite a big driver for us being more self-sufficient in timber and we’re not at the moment”* (104). Coniferisation of the uplands has been, *“rubbed”* because it is harmful to biodiversity and regarded as bad for the landscape. Presently conifers are being removed from the uplands in favour of open land. However, Hearn believes there is a need for more woods of native species that do not harm the environment. At the moment there is little afforestation happening in the uplands and particularly the National Parks, because, *“of the perceived change in the environment, people like open land”*. However, the *“imperatives for more woodland are enormous, not just for energy reasons, but also as a way of slowing down flood water, stopping flash flooding”* (104). There would need to be a discussion about where such woodland would go, which soils would be best and which slopes and species should be used. It would also be necessary to integrate climate change impacts into this scenario.

Energy Platforms

In future years the role of the uplands for energy generation may become increasingly important with increased installations of wind farms and hydroelectricity plants. Hearn regards this as an excellent use of the uplands although it may cause environmental problems. It is likely that there would be a large amount of antipathy to such a scenario, *“from a nature conservation point of view there’s a big worry. For example, with water mills harvesting fast-running streams, because the uplands are so important for mosses and liverworts and the globally important sites for them on a British level are all found in wild rivers and spray zones of rivers”* (104). Oliver sees this scenario as the default position for the future of the uplands unless the economy of hill farming is improved. *“There’s clearly an attractive route which thinks of the uplands as launch platforms for energy”*. He nevertheless pointed to the huge negative consequences of this for landscape, tourism and culture (109).

Getting the Hills to Work

Under this scenario, attention would be paid to getting the hills to “work”. Currently, some areas of the uplands are *“working well”*, particularly grouse management, with lots of money coming in and providing employment as well as environmental benefit. There may be a future scenario whereby more attention is paid to getting all aspects of upland communities to “work”. More emphasis would be placed on environmental markets and making sure that there are proper markets for the products of hill farms and other upland communities (102).

Changing communities

Under this scenario the traditional structure of the farming community in the uplands would change with different types of people coming into farming. *“I think you are going to see lifestyle farmers coming in, not necessarily wealthy people, but some quite interesting experiments whereby groups of families live on farms in a communal subsistence manner”* (107). Long believes there is evidence that this scenario is beginning to happen:

“Socially we are at an interesting time because we’ve come right through the 20th Century and we’re at a point where there’s an identifiable movement of people who are seeking a simpler life. Seeking to disengage to an extent away from supermarkets etc.”
(107).

Under this scenario there may be more focus on the provision of ecosystem services by farming and less reliance on agricultural subsidies due to family members providing income from alternative employment.

Cooperating Communities

Similar to the “changing communities” scenario, the scenario predicts a situation where the different members of the upland community would form a more active partnership, working together and supporting each other.

“What is going to become abundantly clear is that they have more in common than in points of difference and under the spotlight of needing to justify every penny, which is going to be the nature of public investment over the next 30 years because there isn’t any money, I think that there’s going to be a maturation and a new unity among people for whom this is important, following on the back of the realisation that if we don’t start cooperating much more than we have we’re not going to get anything” (107).

The Big Movers

Oliver regards the future for the uplands as being in terms of “*five or six big movers*” which will each have a different level of influence: the end of Pillar One; significant weakening of planning restrictions; carbon trading for peatlands; significant expansion of natural resource management funding; relocation of Pillar Two “*up the hill*” (109). Depending on the level of influence of each of these movers and the different combinations they are applied in will produce a number of scenarios. This scenario could encompass all of the ones suggested above with various policy agendas operating at the same time in the uplands, but to different degrees or in different areas.

Outside the Box

In contrast to the other interviewees, Reed did not agree with the four scenarios proposed and chose not to comment on their likelihood or desirability. He regards the scenarios as being too narrow and believes that we should prepare for two broad types of scenario: on the one hand we need to prepare for extensification of upland management, potential abandonment and rewilding driven by a range of different drivers such as decline in subsidies, potential for disease; loss of farmers; and on the other a wide range of scenarios which lead to an intensification of land use in the uplands, increasing cattle, increased density of sheep, increasing extension of arable agriculture, biofuels in upland valleys etc. These would be driven by a wide range of drivers including concerns over food security. Within these two broad categories Reed believes we need to think as broadly as possible and not be constrained by them. “*I don’t want this to be a box that people think in*”. He stressed the need to consider the different ways in which various futures could unfold. Reed disagrees with traditional methods of scenario development that tend to, “*think inside boxes*”. In order to use scenario based techniques to their full advantage he believes one should think out of

the box, *“to lift out the unexpected, surprise scenarios and be prepared for a wider range of possible outcomes so as to be prepared for the future”* (108).

6.4 The Need for Change

The interviewees all had opinions on the need to change policy as well as opinions about the uplands in order to ensure a sustainable future for upland communities. The suggested changes can be summarised under the headings communities, public benefits, current policy and the role of farmers.

6.4.1 Communities

One area of change that is believed to be needed is to enable upland communities to, *“survive in their own right”* with less reliance on public support. This would involve profitable businesses and young people having the opportunity to go into whatever area they want: tourism, agriculture, grouse management (102). Oliver pointed to the problem that upland communities are relatively marginal: *“there aren’t many people, they don’t vote much and they don’t often talk about both rural and environmental issues, it’s one or the other. If there’s a lack of grip amongst the people who theoretically are on the receiving end, they will not get what they would have got had they joined forces effectively”* (109). Collyer believes it is vital that the community aspect of the uplands is maintained, *“because it’s very important if you’re living in remote areas you need to depend on those around you to deal with things in a crisis. It’s a ridiculous state of affairs of hill farmers earning £9,000 a year and that all coming from support, if you said that to somebody in London they’d look at you like you were crazy, especially the hours farmers work to earn that”* (102). Oliver would like to see upland communities setting the agenda more with a more coherent common voice about what they want, *“because at the moment they are such a minority of people that they don’t really have much force”*. Oliver suggested the need for a much greater harnessing of motivation from lobbying groups of all kinds which he does not see as currently happening. However Oliver notes that the risk with a localised agenda is that they, *“become very good shop windows for any developer passing through”*. There needs to be a recognition by upland communities of their multifunctional role and then, *“very zealously pursuing that multifunctional agenda rather than sitting there waiting for cash or going to the nearest developer and saying do what you like as long as you give me the money”* (109). The RSPB hold a similar view, stating in their response to the CRC uplands inquiry that the, *“future of the uplands depends on developing a better case for the uplands; a case that highlights the value of the uplands to society as a whole”* (RSPB, 2009).

A possible way to ensure a better “working uplands” is to have a government Minister dedicated to the uplands:

“Is it time for an uplands minister, someone who is in charge in the uplands, who’s setting the pace and direction? There’s a series of land uses and businesses operating in an ad hoc way doing what they think is best for them. If we can argue more effectively and efficiently why these places matter and what they deliver for society as a whole, then that won’t be good enough anymore. It won’t be good enough to set these places at the whim of particular land owners or managers who fancy doing something different this year for example” (110).

6.4.2 Public Benefits

Fitting in with the fact that Scenario D is the most favoured scenario, the most important change that all the interviewees believe should occur in the uplands is a greater focus on the public benefits and ecosystem services provided from the uplands, and the need to adequately pay for this provision. Condliffe believes that, *“Joe Public is happy for their money to go to upland farmers rather than to the barley barons”*. Thus we need to turn, *“the whole thing on its head”* and begin to look at the Less Favoured Areas as being ‘Environmentally Advantaged Areas’ (103). Money would be moved to support the farmers in the uplands who are making a loss but providing services, rather than going to the cereal growers making a profit even without support. Collyer and Thompson agree: *“the uplands should not be looked at as less favoured in agricultural production because they are very positive in the other things they deliver”* (102); *“they are our most favoured areas”* (110). Similarly, Oliver would like to see *“a shift in money up the hill”* with a clear focus on management of the uplands being something which delivers multifunctionality rather than being detrimental (109). Oliver, Hearn, Bonn, Thompson, Collyer and Jenner all want the uplands to be better recognised for their role in flood protection, water retention and quality, carbon, biodiversity and soil condition with public money being channelled to support the provision of these goods and services and the creation of new markets for these services. Alongside this, there is a desire for the upland communities themselves to become more aware of these roles and, *“find a new sense of purpose”* (109). As well as increasing the awareness of lowland society about the benefits the uplands provide, rather than them being viewed as, *“remote places where nothing happens”* (109). Thompson believes a *“new deal”* needs to be negotiated between land managers and the role they play for society as a whole in, *“delivering, securing, and looking after this basket of public benefits and services”*. Clearly identifying what their role is and then making sure they are adequately rewarded for that (110).

The interviewees made a number of suggestions for how to target payments effectively at the public benefits provided by the uplands. One way would be to improve the current agri-environment schemes, making them more effective in producing environmental benefits. Bonn suggested maintaining the agri-environment schemes at their current level but introducing an element of competition for the schemes to ensure farmers are implementing the measures effectively (101).

CPRE want to see the CAP evolve into a new policy that delivers sustainable land management: a European Sustainable Land Management Policy. This policy would reward farmers for the full range of environmental public benefits that are produced through farming activity, while also being compatible with sufficient provision of high quality food and renewable energy (House of Commons, 2009b). Similarly, the CLA look towards a food and environmental security policy, a major element of which would be schemes to pay farmers and other land managers to supply the ecosystem services for which markets cannot be arranged (House of Commons, 2009c). This new policy would involve an increase in budget compared to the current CAP: *“we (the CLA) contend that spending less than 1% of total EU public expenditure or less than 0.5% of EU GDP on a policy whose fundamental purpose...is for achieving food and environmental security is not self-evidently barmy”* (House of Commons, 2009c).

Another way to pay for provision of ecosystem services would be through an entry fee at the National Parks, *“given that in the National Parks we’ve got 50 million visits each year in one National Park with 1000s of people visiting them”* (104). Fees for car parking in the National Parks could also be used. Funding could also be directed to ecosystem services provision through building on the government’s existing catchment sensitive farming schemes as suggested in Chapter 5. These would reward farmers for good soil management, including appropriate fertiliser application and watercourse management. *“If the payments were better and across the board, then they could sort that tomorrow in theory. So managing better water would be do-able”* (104). As would paying farmers not to have too many stock, and paying them to manage their waste better and not have too much slurry.

Focusing on water, a connection is beginning to be made between high quality water provisioning and the people that manage the landscapes. So a future can be envisaged where the water companies pay farmers to carry out certain management practices in order to ensure improved water quality delivery. Water companies derive considerable profit from water that they have captured from land that is managed by someone else. As such they, *“would be very quick to explain*

the connection between the condition of the water they get and what they have to invest to treat that water" (110). Consequently the water companies are becoming aware of the need to change the way the land is managed to ensure better water quality is delivered to cost them less to provide it to their customers.

Paying for management of peatlands in order to maintain the carbon store and encourage carbon sequestration is greatly supported by the interviewees. However, there are problems of how to measure the carbon accurately. This includes questions of how to measure the value of the carbon you are retaining and questions of what would happen if it was managed differently (104; 109). Oliver, however, suggests that a crude first stage with carbon trading in the peatlands would be to have an acreage basis in terms of re-wetting, talking about water tables and acreage of blanket peat soils. This could be a first step to take whilst research is being carried out to develop a more accurate procedure. For carbon management of peatlands to occur, training land managers would be critical. Bonn has found in her work on peat restoration that many farmers do not have the skills for drain blocking or revegetation but, *"if we could have training, more people could enter and thus diversify and that would be great"* (101).

Other ways of enhancing the farm business include diversification and labelling of food for environmental and quality standards. *"I was told by a farmer here that his campsite makes 50% of his income although 80% of his work is on the farm and only 20% on the campsite but he makes most of his money through that"* (101). Similarly, Collyer emphasised the role of markets for upland products, such as new markets being created for selling upland products such as wool for insulation and clothing. *"There's no point keeping sheep for sheep's sake but if you could also maximise the products from them as well it would be a way forward"* (102). Collyer still sees a place for public funding in the uplands as the extent to which markets exist for these products is limited. *"I think that if people want particular goods and services delivered, if they want to be able to walk in the countryside, to know their water's filtered properly, you need proper land management and the only way you're going to get that is by offering farmers some support as well"* (102).

6.4.3 Current Policy – The Problem of Income Foregone

Agri-environment programmes currently reward land managers for income foregone or for costs incurred as a result of environmentally beneficial agricultural management. This formula is needed to comply with WTO Green Box regulations, but fails to recognise the value of the environmental benefits delivered. This means that at present there is typically no link between the provision of environmental services and the subsequent level of payment. In addition, payments based on

income foregone make it easier to compensate farmers for desisting from damaging practices than for maintaining positive management (Rollett et al., 2008). A number of interviewees cited this approach as a problem for the uplands (101; 102; 103). Bonn is concerned that the payments do not necessarily take into account the full income foregone as they are only calculated on production services. Whereas she suggests they should take into account income foregone for the management of other ecosystem services as well, *“so that environmental stewardship could be enhanced”* (101). Collyer and Condliffe also noted that the payments available to hill farmers are limited to only paying for those aspects of farm management that incur a loss of income, as opposed to paying for that which is already there, such as peatland. Since hill farmers are making a loss Condliffe further wondered, *“how do you work out payments when there is no income foregone and these farms are making a loss?”* (103). As income foregone is based on a national scale it does not take into effect the higher costs that farmers experience in the uplands nor the fact that income is so low anyway. *“Even if you were to say let’s just do it on the uplands area, how much does it cost to deliver that particular feature, you’re still not getting a real feel for it’s worth”* (102). Payments based on previous income rather than on public benefits may result in a concentration of payments in intensively farmed areas where income foregone is highest. This means that any system based on income foregone can be argued to have limited suitability for economically marginal systems such as many areas of the English uplands (Rollett et al., 2008).

6.4.4 Role of Farmers

Another aspect of change that is desired in the uplands is the perceived role of farmers. Hearn would like farmers to be paid as land managers, rather than as hill farmers, for the services that society wants the uplands to provide such as landscape, nature conservation, water, carbon and recreation. Hearn pointed out that farmers, conservationists and access providers often have very different ideas of what the uplands farmer’s roles are: *“farmers have got this thing about not being park keepers, they want to be farmers”*. However, Hearn thinks that as this generation of hill farmers retire they could be replaced by people, *“who could be good stock managers but also manage things like water levels and provide better access etc.”*. Hearn believes farmers’ mentalities need to change and, *“if they want to live in these places, they should be paid for welcoming visitors or providing teas or a little shop that sells over-trousers”* (104). The problem is that many farmers say they are farming only to provide production services and so not all farmers might be amenable towards being an environmental steward. Rather, *“it’s a balancing act of how to combine production with other service management and we may need to see a change in farming”* (101).

6.5 The Rationale for Hill Farm Support

The route that future hill farm support will take depends on the rationale for providing this support. Since all the interviewees consider Scenarios D to be desirable and are in favour of supporting hill farmers in terms of the public benefits they provide it is interesting to discuss in further detail how they view the rationale for hill farm support. Bonn noted that hill farming without any subsidies will make a loss in profit because the farm expenditures are higher than any income derived from farming products. On the one hand the soils are less productive and on the other, people value the landscapes which are maintained by the hill farmers and the ecosystem services they provide. Bonn rightly believes that these would not exist without subsidies (101). Collyer also sees the rationale for support from a public benefits point of view:

“we (the CLA) don’t think that you can necessarily justify support for support’s sake. If something’s not surviving then you have to keep thinking to yourself, ‘OK what do we need to do to either make it more sustainable so they can survive?’ Or look at why we want to make them survive in the first place” (102).

From the CLA’s point of view the need for the survival of hill farmers is very much to do with the environmental goods and services that are being delivered such as clean water, habitat, landscape and access. The RSPB similarly adhere to the mantra of, *“public money for public goods”*, as Thompson explained: *“we don’t think that mutton, lamb, beef is a public good in itself, it’s food and food has a place in the market”* and do not support hill farming for hill farming’s sake. However they do recognise the importance of agricultural land management in supporting the provisions of public benefits and the need for public money to support this (110). Condliffe agrees *“I don’t mind my taxpayers’ money going to the uplands for both landscape maintenance and the cultural communities that hill farmers are part of” (103).*

Another justification for hill farm support draws from the economic consequences of not supporting hill farming. *“A lot of people would drop out altogether which could have a lot of negative consequences and could impact on the desirability of the uplands as places to go on holiday or to invest in” (107).* Long noted that the tourist economy in Cumbria generates £1.2 billion annually while the HFA subsidy is about £3.5 million. *“So if you think that the raw resource of the tourist economy is the landscape, investment of £3.5 million to sustain that is pretty good value”.* Long also points to the environmental justification that, *“you have a population of dedicated people who are like an army of land managers”* with intimate knowledge of livestock and breeding, how to sustain life in very hostile places, physical skills such as dry stone walling. As Long notes, replacing these

farmers with *“civil servants or ranchers”* would be a lot more costly than the current situation. Thus Long believes in working with what we have got, *“and move forward, rather than engaging in a radical revolution of what it is”* (107). Oliver also pointed to the fact that, *“no-one else is going to be anywhere near as good, no-one is capable of running the uplands on behalf of everybody in the lowlands”*. Oliver sees it as an advantage to recognise all the social capital in the upland communities such as their ability to be fairly resilient, alongside the fact that they provide ecosystem services and cultural heritage. *“No-one else is in the position to do it better and in fact no-one else is in the position to do it at all”* (109).

6.6 The Uplands ELS: A Step Forward?

Since payment for the provision of ecosystem services is a key desire of the interviewees and Scenario D is regarded as the most desirable among the interviewees and the literature, it is important to consider whether the new policy to support hill farmers through the Uplands ELS is moving towards this agenda. A number of the interviewees do see it as a positive move which begins to emphasise the uplands as being ‘Environmentally Favoured Areas’ rather than Less Favoured (102; 103; 104; 109; 110). Collyer believes the Uplands ELS will bring environmental benefits and is pleased to see a cattle grazing supplement as this recognises the importance of cattle grazing which is rapidly being lost (102). Hearn recognises the particular benefits of the Uplands ELS through the inclusion of soil management plans and nutrient management elements (104). Condcliffe disagreed with this view stating that, *“what the Uplands ELS is asking people to do is environmentally very benign, it’s been watered down to make it easier for farmers to join”* (103). Hearn noted that such schemes are only useful if they are properly implemented and policed.

Thompson sees the move to Uplands ELS as positive since it is a tool that is, *“ostensibly aimed at delivering public benefits”*. He believes one has to be realistic and say that it is only going to be able to deliver a small amount but nevertheless it is a step in the right direction.

“The pragmatism is saying that if we really have got from a place that was all about money going to underpin the delivery of production in areas where it’s unproductive to do so, to a position where we’re saying we recognise the delivery of public benefits by farmers and paying them for it, then it’s a start” (110).

Oliver agrees, saying that CPRE did not want the Uplands ELS to be too demanding in terms of environmental objectives in order to make it relatively easy for farmers to enter into and to encourage farmers to apply for it (109).

Yet there is some concern that the Uplands ELS will be too challenging for farmers to get into. Collyer is concerned that the HFA makes up a significant proportion of hill farm incomes and, *“for it to disappear overnight could severely threaten the viability of many businesses and the communities linked to it”*. The change in hill farm support is seen as demanding, *“quite a mindset change for farmers”*, and more difficult for an ageing population (102). The focus will now be more on being rewarded for delivering environmental services, rather than food production, and there may not be enough money available to inspire people to put the effort in to change their management. Condliffe is also concerned that some farmers will find the Uplands ELS too complicated and will not have the time to put the effort into applying (103). There is a danger some will miss out as they will lose the HFA and will not get any money through Uplands ELS. There is a further issue that those farmers who have been most committed to moving down the public benefits route will be penalised under the Uplands ELS and they will find it hard to acquire sufficient points to join the scheme. If they are already in HLS, they will have covered a lot of the things that the Uplands ELS pays for and they are not able to get paid for doing this twice, *“so they are facing losing the HFA and not being able to get Uplands ELS”* (107).

Reed is concerned that there is a variable evidence base for the options under the Uplands ELS and that there has not been enough research into the consequences of implementing the new management options. *“There’s a danger with these kind of schemes that what you’re actually doing is facilitating a landscape scale experiment to see if this will work or not. History tells us that some of those experiments such as digging drainage ditches in uplands go catastrophically wrong”* (108). Thus we should not necessarily be taking such risks without a *“water tight”* evidence base.

6.7 Conclusion

There is much uncertainty surrounding the future of the English uplands as shown by the fact that a number of scenarios are being posed and different conclusions are being drawn about their effects. It does seem clear, however, that the majority of interviewees disapprove of a future situation involving a major decline in hill farming since this could have both negative socio-economic and environmental consequences. There seems to be a broad consensus on the need to emphasise the role of the uplands in the delivery of ecosystem services and public benefits. Clearly there is a need to begin to investigate ways of better supporting this delivery through public and private funding, with a greater emphasis placed on the concept of public money for public goods. Despite commenting on the scenarios, Oliver noted that overall he is uncertain that any major change will actually happen in the future and pointed to the problem of trying to find, *“a common cause*

between biodiversity and landscape, similarly upland communities tend to find it difficult to find common cause between social fabric and environmental roles” (109). Thus in order to progress to a situation where the delivery of ecosystem services from the uplands is strongly supported, the different elements of the uplands will need to be united in order to pursue this goal.

Whilst the scenarios proposed by Arblaster (2006) appear still to be relevant today, there is evidence to suggest that we should not be constrained by looking solely at these four scenarios. Rather, we should also begin to consider the new scenarios that are arising in light of recent discussions about the role of the uplands in climate change, particularly in terms of carbon and water management.

7 Discussion

7.1 The Future of the Uplands

This thesis has explored the nature of debates about current land use in the uplands and considered how new issues are influencing debates about the future. Past policy agendas have clearly had a marked influence on the uplands from productivist policies leading to overstocking and associated environmental problems to more recent policies leading to a reduction in livestock and a decline in hill farm numbers.

Using the findings of this research it is possible to project into the future and explore what is likely to happen in the English uplands over the next 20 years. This time span was chosen since scenario studies often give a 20-year forecast. The issues of climate change, food security and the provision of ecosystem services will all play a part in driving change in these areas.

The uplands have been found to be high on the policy agenda at the present time due to a number of inquiries into their future and an increased focus on their role in the provision of ecosystem services. In the next twenty years the uplands may still be high on the policy agenda if the interest in the uplands for carbon storage and water management continues to grow. This increased interest in ecosystem service delivery may well lead the uplands to being viewed no longer as 'less favoured areas' but as favoured in terms of the environmental benefits that they provide.

7.1.1 Climate Change

A major component of this thesis has been the consideration of whether issues such as climate change and food security will influence what happens to the uplands in future years. It seems clear that climate change is influencing land use debates with stakeholders aware of both the threats and the opportunities that climate change may bring. It is likely that in the next twenty years, the upland habitats will increasingly be threatened by climate change impacts leading to a change in species composition. At the same time there is a growing awareness of the importance of the uplands regarding climate change mitigation and adaptation, particularly in terms of carbon management of peatlands and flood prevention and control. Climate change may act as a driver to spur initiatives that investigate ways of better supporting ecosystem service provision, particularly water and carbon management.

With the increased emphasis on climate change, there is also potential for the uplands to be considered areas for increased afforestation or as “energy platforms” for renewable energy generation; these are two of the new scenarios proposed in Chapter 6. Under such scenarios, the uplands would undergo a large change in terms of their landscape, with either more trees, or more land being used for renewable energy, such as wind farms. For some this is regarded as the default position for the uplands if support is not put into managing the land for ecosystem service provision. These scenarios may be detrimental to the upland landscapes and biodiversity. Yet such uses of the uplands may be necessary in a future of decreased reliance on fossil fuels for energy. Clearly there is likely to be an increased debate in this area in the future.

In terms of the impact of climate change on agricultural policy, Cooper and Arblaster (2007) note that at the present time, climate change has entered the “*lexicon*” of the CAP, but has made relatively little impact on the policy measures it contains. The principal focus has been on incentives for growing energy crops. There has been little attention given to climate change mitigation by carbon sequestration or delivering adaptation as priorities for agricultural policy. In Pillar Two of the CAP, for example, there are no dedicated measures for responding to climate change (Cooper & Arblaster, 2007). It is likely that as climate change continues to take over debates about land use, there will be more political pressure to integrate climate change measures into the CAP when the current programming period ends in 2013. In the meantime, any new initiatives to drive climate change mitigation and adaptation through agriculture will come from partnerships between farmers, private companies and NGOs as exemplified by the SCaMP water project described in Chapter 5.

7.1.2 Food Security

Despite a growing emphasis on food security in recent years, there appears to be little consensus among the interviewees that this will actually impact on the uplands in any way. It appears likely that the uplands will remain largely unaffected by any drive to increase food production as they are being increasingly recognised for their public benefits. The emphasis will continue to be placed on the ecosystem services and public benefits that the uplands deliver. However, the role of food production in the uplands will undoubtedly remain important, with a need to better market high quality upland products.

Any market driven increase in production and a move to intensify land is more likely to occur in the lowlands than the uplands, given the less favourable growing conditions of the uplands. This may lead to a bifurcation in agricultural land use, between areas of intensive land use in the most

agronomically favourable areas and other areas, such as the uplands, where land management is geared more towards the provision of ecosystem services.

Whilst food security concerns may drive a return to productivist agricultural policies, this is likely to be accompanied by a consideration of how to make any such policies sustainable. It seems unlikely that future policy will be geared towards food production at the cost of public benefits as there is increased emphasis from both the government and influential NGO lobby groups that public benefits provision and food production in the uplands are intrinsically linked. This may lead to farmers being viewed more as providers of public benefits and ecosystem services rather than solely food producers. However, it is likely that the farming community themselves will continue to view food production as an important element of the hill farming occupation.

7.1.3 Keeping the Hill Farm Community Alive

The uplands are clearly experiencing socio-economic decline and this looks set to continue unless radical changes occur. There is a decline in services, hill farm profitability, an ageing population, lack of successors and loss of social capital. Changes to demographics are likely to continue and exacerbate the problems of an ageing farming population and lack of successors as the younger generation continue to move away from rural areas. This is the result of a lack of services and affordable housing in the uplands and the attractions of an urban lifestyle. The changing demographics are a concern for upland communities as they weaken social capital and lead to a loss of community cohesion.

This is a key dilemma for the future of the uplands. There is much uncertainty, reflected here in the feedback from the interviewees, over where the future hill farmers are going to come from. If progress is not made in encouraging young farmers to remain in rural areas and take over the family business, then in coming years there may be a major shortage of hill farmers. This could lead to a situation similar to that outlined by Scenario A (abandonment) which has proved extremely undesirable among stakeholders interviewed here. Long suggested that there will be an increased movement of 'new' farmers into the uplands; people looking for a more 'down to earth' lifestyle. However, unless training is provided for such incomers, the traditional skills of upland farming, such as the communal management of hefts, are likely to be lost. Once such livestock husbandry skills are lost they will be very hard to get back. This will further increase the risk of farm abandonment and resulting loss of public benefits.

If the uplands are to break out of their cycle of socio-economic decline, there needs to be a renewal of the upland communities that sees proper markets established for the products of the uplands.

Indeed, it will be imperative for upland communities to work together to support each other. This is encapsulated in the “cooperating communities” and “getting the hills to work” scenarios introduced in Chapter 6. It may be that inquiries such as that currently being carried out by the Commission for Rural Communities may highlight some of these issues and bring attention to the need to look for solutions in order to help upland communities to survive. There needs to be initiatives put in place to encourage young farmers to remain and to provide training for incoming farmers. Without more energy geared towards these solutions, the uplands in the next twenty years are likely to feature even more fragmented communities and further decline in hill farms as farmers retire without successors.

One way of enhancing hill farm businesses is through increased diversification and Scenario B (increased diversification) was viewed as both likely and desirable by the interviewees. It appears that the potential for more farmers to turn to ‘traditional’ routes of diversification, such as B&Bs and farm shops, may be limited. However, there is clearly a huge potential for diversification in terms of managing the land towards the provision of a particular ecosystem service, such as water or carbon. If this avenue is exploited, it could offer a potential solution to the question of how to improve the economic situation of hill farming. This may, therefore, be a step towards halting the decline of upland farming communities, whilst simultaneously providing environmental benefits.

7.1.4 Ecosystem Services as a Way Forward

The growing interest in the uplands in terms of their role in providing ecosystem services, particularly carbon storage, sequestration, water quality and supply is a key issue that has emerged from this research. During the next twenty years it is reasonable to assume that this focus on ecosystem services will continue to increase and prompt more practical applications to optimise the use of the uplands in this way. The ecosystem service concept can provide a useful tool to help understand and communicate the importance and relevance of ecosystems to people. Better understanding and transparency of the nature, extent and value of upland ecosystem service provision, and the number of stakeholders affected, can support informed decision making by natural resource managers, politicians, and the public (Bonn et al., 2009).

This increased focus on ecosystem services seems likely due to a number of policy drivers such as the requirements of the Water Framework Directive, the government’s PSA target that 95% of all SSSIs must be in ‘favourable’ or ‘recovering’ condition by 2010, and the Natural Environment PSA target which looks towards utilising an ecosystem approach to integrated land management. The role of the uplands in ecosystem services is also rising in importance in the minds of stakeholders

who work in upland policy and land management. Water companies in particular are becoming more aware of the importance of upland land management to the condition of their water and many stakeholders are beginning to consider the role of the uplands in carbon management. The increased focus on ecosystem services is emphasised by the fact that Scenario D (improved environmental delivery) is viewed both as the most desirable among the interviewees and a likely outcome. Under this scenario, support for hill farming could be targeted better at environmental outcomes and include targets for carbon management and water management. Reed noted that if you took a purely valuation based approach to the upland services, the provision of water in the uplands dwarfs any other economic use of the uplands by a couple of orders of magnitude, *“so if we are going to manage for anything we should be managing for a continuing supply of clean water from the uplands”* (108).

If this focus on ecosystem services does continue, then in the next twenty years we can expect to see ‘a shift in money up the hill’ with markets being created to pay for the provision of ecosystem services as suggested by the interview analysis in Chapter 6. Examples of this approach are likely to include:

- Water companies paying farmers to carry out certain management practices in order to ensure improved water quality;
- Paying for management of peatlands in order to maintain the carbon store and encourage carbon sequestration;
- The evolution of ‘carbon farming’ with the integration of carbon trading into the uplands.

Such an approach will require the support of both the government, relevant NGOs and the hill farming community themselves. Whilst there is a new focus on water and carbon in the uplands, the importance of the uplands for access, landscape and biodiversity remain high. This is unlikely to change in the future. This will raise questions of exactly which public benefits the land should be managed for.

7.1.4.1 Supporting the Provision of Ecosystem Services

If there is to be an increased emphasis on the importance of the uplands for the provision of ecosystem services, then it is likely that there will be more focus on initiatives to support this provision. Recently, ‘payments for ecosystem services’ (PES) has emerged as a policy solution for realigning private and social benefits resulting from decisions related to the environment. The PES approach involves paying individuals or communities to undertake actions that increase the levels of

desired environmental services (Rollett et al., 2008). There are numerous examples of PES approaches being put in place across the world which can be used to inform the development of such approaches in the uplands. New avenues for upland conservation may arise if beneficiaries of upland ecosystem services are willing to pay for land management that benefits them. These may include: carbon off-setting schemes which encourage upland restoration; tourists may be willing to pay for the maintenance of the countryside, for example through a tax on tourist accommodation which is used to support sustainable land management; consumers may choose to buy sustainably produced upland products promoted through local environment marketing initiatives (Bonn et al., 2009).

A good example that is already in place in the uplands of the Peak District is that of the collaboration between the water company United Utilities and the RSPB through the Sustainable Catchment Management Programme as described in Chapter 5. Here changes in land management practices are the mechanism through which the reward scheme is based since it is hard to reward land managers directly for the improvement of water services. A further example of an incentive scheme that recognises that farming can significantly affect water quality comes from the 'Vittel' catchment in France. Here the Vittel bottled water supplier has recognised the risk of nitrates and pesticides from agriculture to their mineral water. As a result, Vittel initiated a four-year research programme to determine the most effective way to run a proposed incentive programme for farmers. The incentive package involved paying farmers a subsidy, paying for new equipment and providing advice. By 2004 all 26 farms in the area had adopted the new farming system (Perrot-Maitre, 2006). The strength of the system is that the link between the environmental service and management practices was determined scientifically. In addition, a baseline was established and recommendations for management practices were based on four years of modelling and on-farm testing (Rollett et al., 2008). This could be a good system to adapt for application in the English uplands.

In terms of carbon storage and sequestration in peatlands, producers are only likely to adopt new management practices if they are found to be economically feasible. Thus incentive schemes need to be designed so that carbon storage and/or sequestration practices are directly or indirectly rewarded at the appropriate level. This is challenging because it is not always easy to measure the amount of carbon in the soil and so establishing a baseline is difficult. Bonn highlighted the problem of the lack of proper evidence about land based management to mitigate and adapt to climate change. The evidence is lacking about how to increase carbon storage and sequestration. Moreover, there is uncertainty about how we can adapt land management towards decreasing the risk of

natural hazards such as wild fire and flood risk. There is no, *“hard and fast evidence yet out there on how to manage the landscapes”* (101).

If baselines could be successfully measured then it is possible that land managers could be paid depending on how much soil carbon levels have increased or how much soil carbon has been retained (Rollett et al., 2008). Rollet et al. propose that carbon sequestration should be an explicit goal of agri-environment schemes in peatlands. They state that the agri-environment programme should focus on management practices that result in re-wetting of peat areas, the establishment of appropriate vegetation and minimal or withdrawal of any production focussed activities. Therefore, the farmer’s main role would be farming for carbon storage or sequestration, rather than food production.

7.2 Further Research Needs

If paying for the provision of ecosystem services is to become a functional element of upland land management policy, there is a need to better understand the provision and distribution of ecosystem services across the uplands. It will also be necessary to quantify the biophysical parameters; value this in monetary and non-monetary terms and then use this information to inform decision making (101). There needs to be research conducted not just on the natural science side, but also in terms of socio-ecological systems. For example, looking at how people can adapt to change and manage the different risks such as wild fire, and floods, and what management can be done to adapt to this. Bonn suggested that one way to further research into upland issues would be to set up an upland research platform which could be under Defra’s Environmental Change Programme (101). This would provide the opportunity for people of different disciplines to come together, and share ideas and knowledge to enhance the understanding of upland issues.

It is currently hard to accurately assess the cost of funding any provision of ecosystem services or public benefits through agricultural policy due to the limited availability of data on environmental services from agriculture. There is therefore a need to determine the cost and value of environmental services that could be delivered through agricultural policy such as agri-environment schemes, both to farmers and to society (Rollett et al., 2008). Before markets for carbon can be established in the uplands, there needs to be a lot more research into how to measure carbon in the soil; how land management impacts on the release and sequestration carbon; and the potential conflicts between managing the land for carbon and other public benefits such as biodiversity. As Hearn and Bonn suggested, there is a need to map service provision and have an informed approach

as to which upland areas should be key contributors to ecosystem services and which should be used for other purposes, such as food production. At the same time, more research is needed into the impact of any changes to land management that policies for mitigating or adapting to climate change could have on the provision of other ecosystem services. For example, there may be conflicts between biodiversity goals and carbon storage goals.

There is also a need to increase the awareness of the public about the benefits that the uplands provide. Not just in terms of biodiversity and landscape, but also how they impact on the livelihoods of downstream users through impacting water quality and supply. Also how they play a role in flood prevention. By increasing the awareness of the public to these benefits, it is more likely that the uplands will be supported in the future.

The new scenarios suggested in Chapter 6 need to be further explored and developed along the lines of those reviewed by Arblaster (2006). In order to assess the impacts, likelihood and desirability of these new scenarios, it is necessary to present them to upland stakeholders and gain their opinions. Indeed it is critical that the land managers themselves are not forgotten and are fully included in discussions about upland futures and consulted about the possible impacts of any policy changes to their lifestyles.

7.3 Conclusion

The original aim of this thesis was to explore different policy agendas involved in debates about the future of the uplands and describe possible future scenarios for uplands agriculture. This thesis has shown that whilst the food security policy agenda is likely to influence debates to some extent, the role of the climate change agenda is likely to have a far greater influence on upland land use decisions. The need to increase carbon stores and decrease carbon release as well as improving the water supply will likely be a major driver of future upland land use management.

This thesis has concluded that there are a number of possible futures for the uplands depending on how policies that affect the uplands evolve. The most desired future for the uplands among stakeholders, appears to be one in which they are viewed as 'favoured' areas rather than less favoured. Clearly there is a need for further research into the beneficial services that the uplands can provide. It is imperative that the perception of the uplands changes towards being key providers of public benefits. Without more emphasis placed on their importance, the hill farm communities

will continue to decline with resulting land abandonment. This would lead to a situation where the nation only discovers the true value of the hill farmers to the uplands once they are gone.

The Uplands ELS represents a move by government to direct hill farm support more towards public benefits and away from support for farming's sake. It appears likely that the UK government will continue to push for this means of justifying farm support as exemplified in their vision for the future of the CAP (Defra & HM Treasury, 2005). Without major changes to the CAP, however, there is a limit to the extent that UK agricultural policy can be changed. The change in hill farm support with the start of the Uplands ELS will impact upon land management in the uplands and whilst it is perceived as being a move towards support for public benefits, the environmental consequences remain unclear.

Running through this thesis has been a strong implication that there are a few key players that promise to be highly influential in determining the future of the uplands. These big players are likely to decide much of what happens and include the water companies, large landowners such as the National Trust, and influential NGOs, such as the RSPB. Such organisations have either a strong public voice or the financial strength to drive through changes in the uplands in the future. Meanwhile, the farm lobby will continue to call for support to keep farmers on the hills. How such key players use their hand in coming years will determine what the future holds for hill farming communities and the public benefits they provide.

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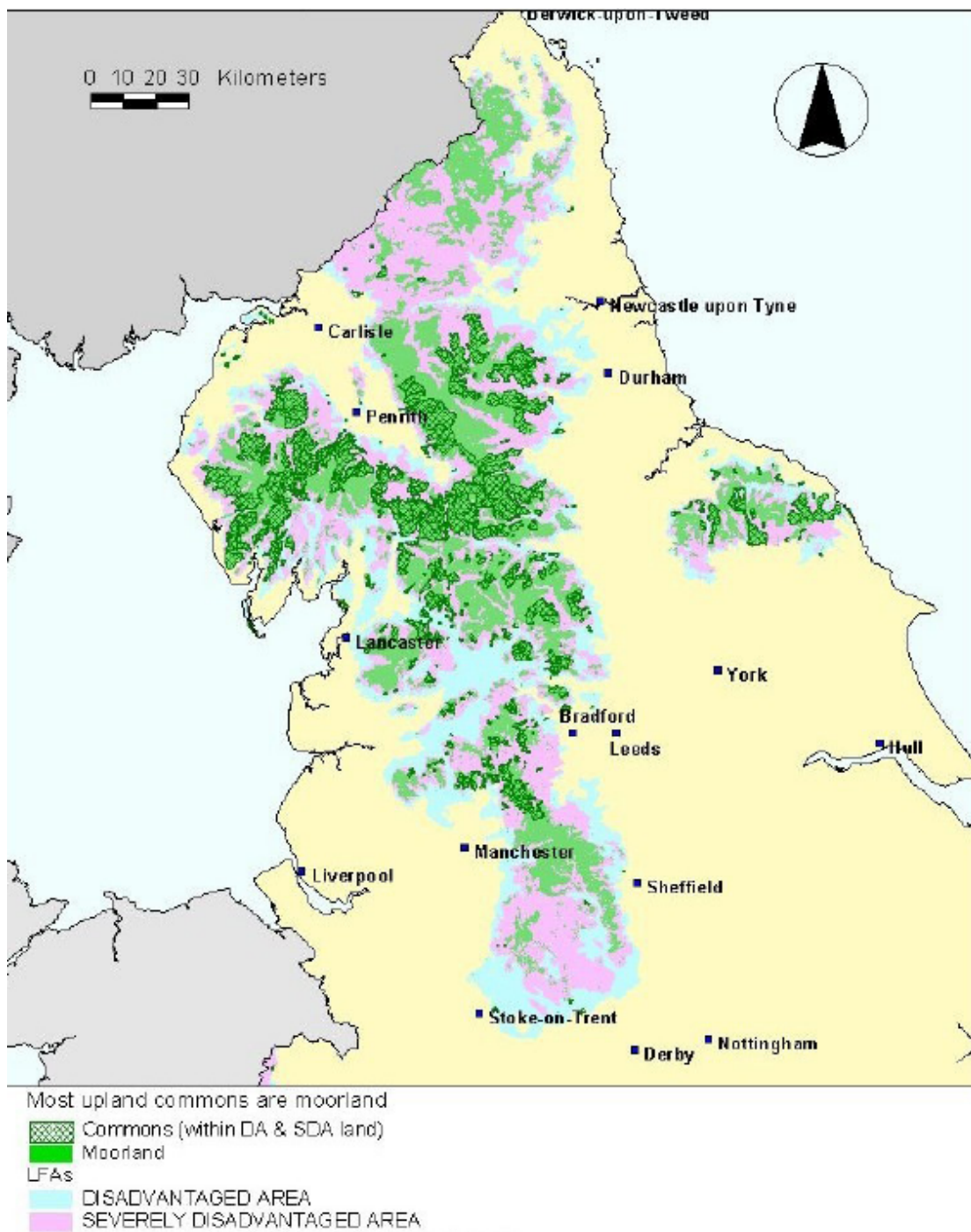
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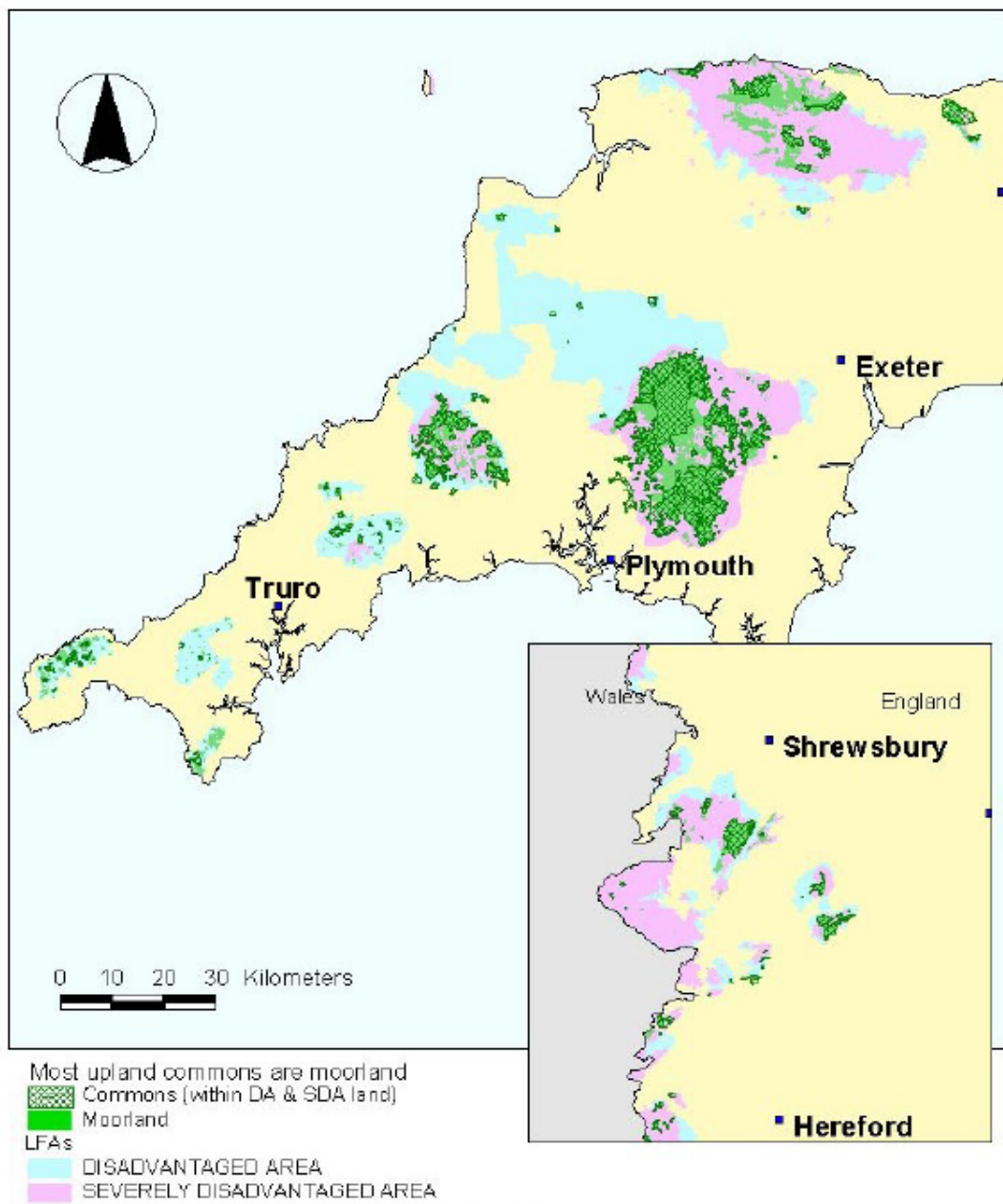
Annex 1 Maps of the English Uplands Designations

Map 1: LFAs by Land Category, North England



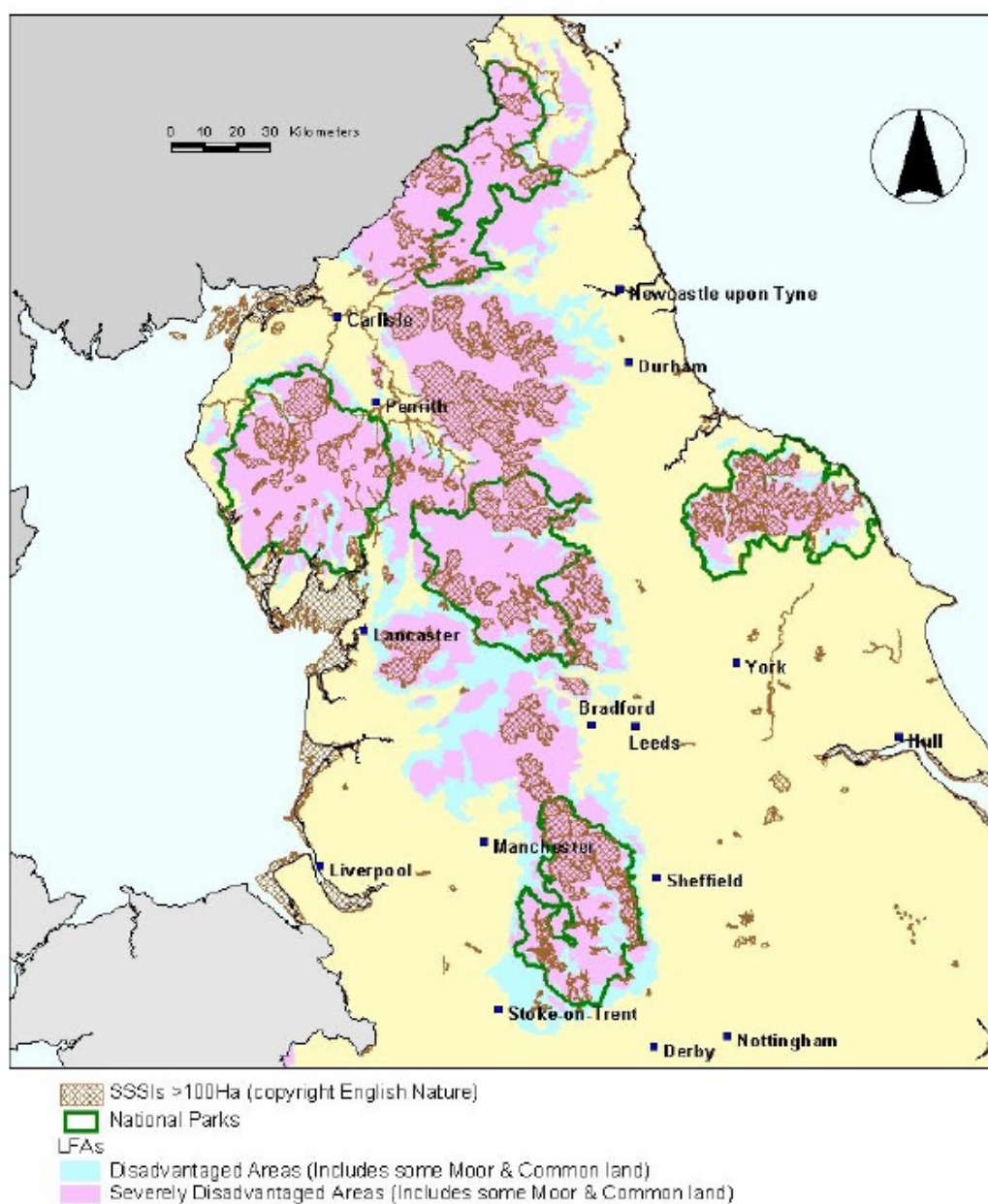
Source: Defra (2006) Uplands reward structure. Consultation Document. London, Defra.

Map 2: LFAs by Land Category, South-West England



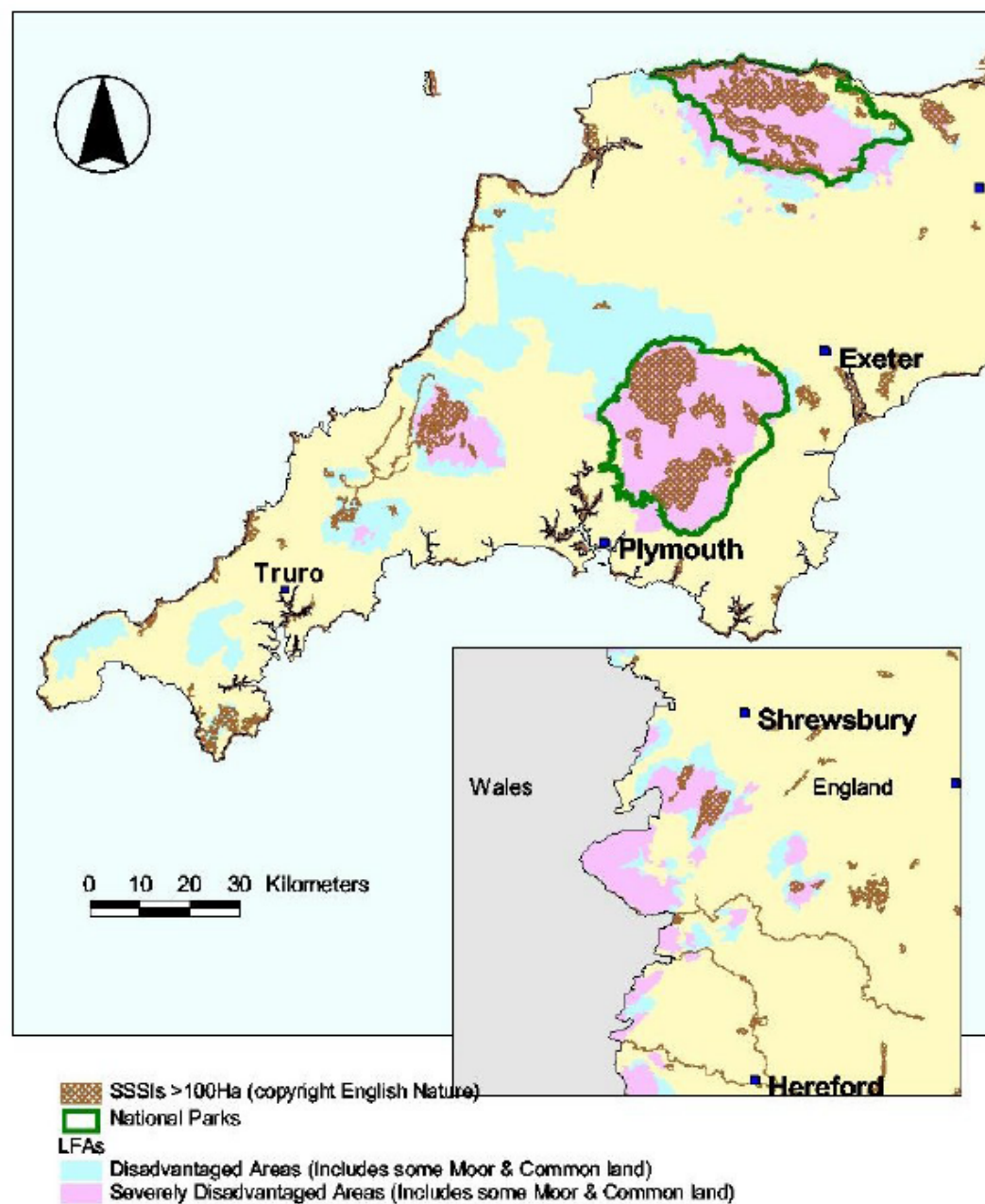
Source: Defra (2006) Uplands reward structure. Consultation Document. London, Defra.

MAP 3: LFAs by Environmental Designation, North England



Source: Defra (2006) Uplands reward structure. Consultation Document. London, Defra.

Map 4: LFAs by Environmental Designation, South-West England



Source: Defra (2006) Uplands reward structure. Consultation Document. London, Defra.

Annex 2 Upland Statutory Definitions

These are the official upland statutory definitions provided by Defra and are available at <http://www.defra.gov.uk/rural/uplands/land-classification.htm> (Date Accessed 25th August 2009)

Less Favoured Areas (LFA):

- Land which is situated in and are included in the list of less favoured farming areas adopted by the Council for the Commission of the European Communities under Article 2 of Council Directive No. 75/268/EEC on mountain and hill farming in less favoured areas,
- In the UK, LFAs are subdivided into Severely Disadvantaged Area (SDA) and Disadvantaged Area (DA).

Severely Disadvantaged land (SDA):

- Land which is, in the opinion of the appropriate Minister, inherently suitable for extensive livestock production but not for the production of crops in quantity materially greater than that necessary to feed such livestock as are capable of being maintained on such land, and,
- Whose agricultural production is, in the opinion of the appropriate Minister, severely restricted in its range by, or by a combination of soil, relief, aspect or climate, or
- Land situated in the Isles of Scilly.

Disadvantaged land (DA):

- Which is, in the opinion of the appropriate Minister, inherently suitable for extensive livestock production but not for the production of crops in quantity materially greater than that necessary to feed such livestock as being capable of being maintained on such land, and
- Whole agricultural production is, in the opinion of the appropriate Minister, restricted in its range by, or by any combination of, soil, relief, aspect or climate.

Moorland Line of England

The Moorland line of England was drawn in 1992 as a means for establishing eligibility of farmers within the LFA for the Moorland (Livestock Extensification) Regulations 1995 (S.I. 1995 No. 904). Moorland is defined in terms of the vegetation present, which must be predominantly semi-natural upland vegetation, or predominantly of rock outcrops and semi-natural vegetation, used primarily for rough grazing. Moorland includes both open moors and enclosed land on the margins of uplands.

Annex 3 Interview Questions

The following questions were used in the interviews. There was some variation in the order of questions between interviews as described in Chapter 3.

1. It would be useful to hear briefly about your current work in the uplands
2. What issues do you consider to be driving change in the uplands?
 - a. How far do you think we are going through a substantial change in terms of influences on upland policy and effects on the uplands?
3. Do you think debates about land use in the uplands have changed in recent years or have always been about the same issues?
4. What are your views on justifying support for upland farmers? / What is the rationale for supporting upland farmers?
 - a. Do you believe hill farmers are necessary for the provision of public benefits in the uplands?
 - b. If so, should public money be used to support public goods provision?
 - c. Are there other more market orientated alternatives?
5. Do you have any opinion on the recent changes to hill farm support – i.e. the change to the uplands entry level scheme in 2010? Do you think this is a better way of paying farmers for the services they provide? Would you rather some other way?

At present, there is a lot of focus on climate change and food security, I'd like to take these two issues and look at how they are affecting debates/opinions on the uplands and their future

6. Firstly, do you agree that climate change and food security are two quite recent new issues that are influencing debates about the future of the uplands?

Climate change:

7. Is climate change taking over debates/conversations about the future of the uplands?

8. Do you view climate change as a threat or an opportunity for the English uplands?
9. Is the role of the uplands in climate change mitigation such as through carbon sequestration in peat becoming the most important public benefit of the uplands?
10. Could this become the most influential policy driver?
11. Should the importance of the uplands in climate change mitigation be recognised in policy by paying for its provision?

Food security:

12. Do you see the focus on food security as a threat or an opportunity for the uplands?
13. Is there a role for the uplands in providing increased food security? Or should the uplands be kept out of these debates?
14. Is there any sense that policy may begin to be geared towards increasing productivity (perhaps in other areas) at the cost of focussing on supporting other public goods provided in the uplands?
15. Would you expect to find different opinions on these matters to your own?

The future

16. Do you have a sense of a turning point in upland policy at this time? In what direction do you think it is going? Do you think the uplands will be moved further up or down the policy agenda in the future as issues such as climate change/food security become more prevalent?
17. In terms of the scenarios presented on the next page, do you think these scenarios are realistic? Which do you see as being most likely? Which would you least like to see? Do you think other scenarios are needed to better represent possible upland futures?

18. Do you think that the justification for supporting hill farmers will change over the coming years?
19. Do you think the way people view the uplands will change?
20. Would you like to see policy change in any way?

Annex 4 Overview of upland scenario studies reviewed by Arblaster (2006)

Project Title	Reference	Scenario Time Span	Description
Consultation on the Future Uplands Reward Structure	Defra, 2006	2007-2013	Scenarios focused on options for future structure of the Uplands Reward Scheme
Economic valuation of environmental impacts in the SDAs	Efttec, 2006	2007-2013	Scenarios focussed on different economic effects of changes in SDA environmental characteristics arising from changes in Less Favoured Area support in England and Wales
Assessment of CAP reform and other key policies on upland farms and land use implications in SDAs and DAs in England	Cumulus Consultants, 2005	2007-2013	Designed to supplement Efttec (2006) by assessing how a variety of policy scenarios might affect upland areas in England and Wales, and develop consultation options for Defra
An assessment of the impacts of hill farming in England on the economic, environment and social sustainability of the uplands and more widely	IEEP et al., 2004	Not specified	Used scenarios to evaluate the implications of different future hill farming activities in England and Wales
Scanning Agricultural Futures in England and Wales and Implications for the Future	Morris et al., 2005; Morris., 2006	2005-2030	Developed scenarios for arable and pastoral agriculture to explore possible environmental impacts and policy interventions that could promote more sustainable future agriculture in England and Wales
Bioscene	Soliva et al., 2008	2005-2030	Used scenarios to evaluate effects of agricultural restructuring on biodiversity conservation in mountain areas of Europe, in order to enhance EU agri-environmental and rural development policy and implementation
Preservation and Change in the Upland Landscape: the Public Benefits of Grazing Management	Bullock & Kay, 1997	Not specified	Evaluated Scottish public preferences for future landscapes based on willingness to pay for the subsidies that create them

Source: Modified from Arblaster et al. (2009) and Arblaster (2006)

Full references for the above scenario studies:

Defra (2006) *Uplands reward structure*. Rural Development Programme for England: 2007-2013. Consultation Document. London, Defra

Eftec (2006) *Economic valuation of environmental impacts in the Severely Disadvantaged Areas*. Final report for Defra. London, Economics for the Environment Consultancy Ltd.

Cumulus Consultants (2005) *Assessment of CAP reform and other key policies on upland farms and land use implications in SDAs and DAs in England*. Final report for Defra. Gloucestershire, Cumulus Countryside & Rural Consultants.

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Morris, J., Audsley, E., Wright, I.A., McLeod, J., Pearn, K., Angus, A. and Rickard, S. (2005) *Agricultural futures and implications for the environment*. Defra research project IS0209, Cranfield University.

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Bullock, C. and Kay, J. (1997) Preservation and change in the upland landscape: the public benefits of grazing management. *Journal of Environmental Planning and Management*, 40, 315-34.