An assessment of the impacts of hill farming in England on the economic, environmental and social sustainability of the uplands and more widely

Executive Summary

A study for Defra
by the Institute for European Environmental Policy, Land Use Consultants and GHK Consulting
February 2004
EXECUTIVE SUMMARY

Justification for public support for hill farming in England is made increasingly on the grounds that it: makes a significant contribution to the maintenance of the upland environment (wildlife and landscapes); helps to maintain the social fabric in relatively remote rural areas; and, contributes to the economy, both directly through livestock production and indirectly by maintaining the assets on which other economic activities such as tourism depend. Representatives of the farming industry also highlight the role of hill farming in maintaining a stratified sheep industry and producing beef calves for finishing in the lowlands.

Understanding the nature, extent and magnitude of the contribution made by hill farming to the economy, environment and social fabric of rural areas is critical to determining the direction of future policy for upland areas. But society’s views about the various contributions made by hill farming, and estimates of it, vary considerably. In May 2003, The Department for Environment, Food and Rural Affairs contracted a consortium of the Institute for European Environmental Policy (IEEP), Land Use Consultants (LUC) and GHK Consulting to undertake research into the impacts of hill farming. The purpose of this research was to take a critical and objective look at these views and estimates and to try to assess and quantify, as accurately as possible, the contributions made by hill farming to the economic, the environmental and social sustainability of the uplands and more widely. As well as drawing on a wide range of existing literature and studies, this research included four case studies located in the South West Lake District, the North York Moors, the Dark Peak and the Dartmoor Fringe. The case study areas were selected by the research team and a Defra Steering Group. Each case study area represented different characteristics of the diverse agricultural economies and environments of the hills in England and was generally linked with a market town that gave it an economic and social integrity.

The findings of this research are contained in three separate Volumes: Volume I is the main report summarising the findings of the various stages of the research and drawing conclusions; Volume II presents, in full, the findings of a comprehensive literature review and consultation exercise and, Volume III presents the four case studies in full. The key findings and conclusions of this report are summarised as follows:

Economic impacts and sustainability

In national terms, the direct economic benefits of hill farming in terms of agricultural employment and output appear to be in decline in the English LFA, as in agriculture elsewhere. However, regionally and locally, employment and economic activity associated with hill farming can be significant. Hill farming also benefits the wider rural economy through purchases of inputs and the distribution, marketing and processing of outputs. Hill farming has also had traditional links with farming in lowland areas with breeding stock in the uplands producing animals for finishing in the lowlands. These links however appear to be less established than they once were and several studies have suggested that hill farms are now more dependent on lowland livestock farms than vice-versa.
The justification for public support for hill farming in agricultural terms appears weak although is arguably strengthened when the multiplier effect of agriculture is considered. Overall however, the level of public expenditure required to maintain a relatively small number of jobs and produce primary products appears disproportionately large to the benefits accrued.

In terms of other economic activity in the LFA many areas, especially those designated as National Parks, are popular tourist destinations. The economic value of tourism to these areas is well demonstrated although expenditure patterns and the economic benefits that flow from tourism vary with time of year and from area to area depending on the nature of tourism. It is also worth noting that many tourism jobs are seasonal, part-time or low paid, often in combination, in line with the requirements of and the services provided by the tourism industry. Although tourism is an important economic activity in many parts of the LFA, the exact nature of the relationship between hill farming and tourism is not well understood. It is difficult therefore, based on current knowledge, to justify public support for hill farming on the grounds that without it, tourism activity and the economic benefits it brings, would decline. What we can say however is that declines in tourism activity in many parts of the uplands, possibly in response to changes in hill farming, would have far-reaching economic consequences in these areas and beyond. The continuation of tourism activity therefore appears to be fundamental to the future sustainability of many parts of the LFA.

A better understanding of what tourists value in upland areas needs to be developed through visitor surveys and further research. If it can be demonstrated that what visitors’ value are the outputs of hill farming then public support for hill farming - on the grounds that such outputs would otherwise be underprovided in its absence – may be justified. A better understanding of visitor preferences may also lead to market opportunities for farmers and other businesses in the hills and uplands. Other activities in the LFA, such as grouse shooting, woodland and forest management, horse riding and livery, on-farm food processing and retailing, can be economically significant but are often not dependent on hill farming activity.

**Social impacts and sustainability**

This research found a variety of evidence of the nature and extent of the social impacts of hill farming in relation to the local community, the maintenance of the local infrastructure and the provision of local services. Farming and farmers continue to play a central role in the cultural identity of hill farming areas. But as hill farming has come under increasing economic pressures, farm incomes have fallen and farm labour has reduced, the positive contribution made by hill farmers and their families to the communities in which they live appears to have declined, although not disappeared. There is still evidence of many individuals playing an active social role and taking on responsibilities such as Parish Councillors. As hill farmers diversify their activities, stimulate the local economy and create local employment opportunities, they can also be seen to contribute to maintaining rural communities, which in turn stimulates demand for local services. There are however conflicts within upland areas between ‘locals’ and ‘incomers’ and differing views as to who makes the greater contribution to social sustainability.
The role of women was highlighted by this research. Many farmers’ wives work off-farm to supplement the household income and help keep the business afloat. They are also increasingly active in farm business decisions and key drivers behind farm diversification. As a result, women appear to be more socially active than their male counterparts and better networked in the local community. This strengthening role of women must be seen as a positive influence in a changing world and on the future sustainability of hill farming.

The case studies provide evidence of a range of social problems within upland areas. These range from health problems such as stress, depression and physical injury to the lack of affordable housing for young people and poor public services such as transport, healthcare and education. Some of these problems are specific to hill farmers, especially health problems arising from financial worries, the physical nature of the work and the poor housing conditions in which some families live. But many others are symptomatic of much wider social issues affecting rural communities more generally and some problems are specific to other social groups such as single mothers and women.

**Environmental impacts and sustainability**

Thousands of years of agricultural occupation, and livestock grazing in particular, have shaped the upland landscape and created the diversity of habitats and wildlife found there. Without grazing, scrub and trees would, over a period of time, establish themselves creating a very different natural environment. The agriculturally managed upland environment is one of landscape, biodiversity, natural resource, archaeological and cultural value as emphasized by the high degree of overlap between environmental designations and the LFA. Hill farming has an intrinsic relationship with the environment with both, positive and negative, environmental impacts. Other activities such as grouse moor management also have both positive and negative environmental impacts.

The need for the continued presence of hill farming activities to maintain the upland environment is largely recognized and accepted by both environmentalists and farmers alike. However, the manner in which hill farming activities take place is the subject of considerable debate and research over the past twenty years or more. The shift towards more intensive and less environmentally benign farming practices has had, and continues to have, major negative impacts on wildlife, landscapes and the cultural heritage of the uplands. There are also growing signs of problems arising from a decline in hill farming and reductions in grazing levels leading to undergrazing in some areas. Some stakeholders argue the benefits of other land uses such as woodland or even managed abandonment in some locations. On the question of abandonment, there is little evidence that this is a significant risk in the uplands and demand for land remains strong in most areas.

Dealing with the environmental impacts associated with hill farming requires a range of policy responses such as regulations, cross compliance, incentives and advice. Considerable attention has been focused in this and other research on agri-environment schemes such as ESAs and Countryside Stewardship as a means of securing and rewarding the positive environmental impacts of hill farming. Such schemes have largely proved popular with farmers who see them as a source of
income although numerous criticisms of schemes were presented to us during the case study phase of this research.

**Policy intervention and policy tools**

The main economic rationale for public support for hill farming appears to be to ensure the provision of public goods that would otherwise be under provided. The continuation of hill farming appears critical, in particular, to maintaining and enhancing the environmental quality of the uplands. This environmental quality is important in its own right, for example in terms of soil, air and water resources. It also appears to underpin a range of economic activity, particularly tourism, which provides jobs and benefits to the local economy and more widely. As stated earlier however, the links between hill farming and other economic activities are not always clearly understood. Hill farming is also strongly associated with the cultural identity of upland areas; the presence of hill farming communities provides some degree of stability and continuity in an otherwise changing society and they are seen as part of the cultural heritage.

The argument for public support for hill farming based on its agricultural output is weak; basic commodities of beef, milk and lamb can be produced on farm more cheaply and efficiently elsewhere. Hill farming needs to look to what it can produce in ways that may not be achievable elsewhere or which match specific consumer needs. This research shows that many hill farmers are already attempting to orientate themselves closer to the market but it also highlights the many difficulties and obstacles that such farmers face in trying to do so. Lack of capital investment, an ageing population, few new entrants to farming, insufficient business support and advice, a lack of innovative ideas are just a few of such obstacles. It is in these areas that public support to help hill farming adapt and evolve seems both justified and essential if the sustainability of the uplands is to be ensured.

This research points to a number of policy tools and measures that have been used to support hill farming from direct agricultural subsidies to agri-environment schemes and grant funding under the England Rural Development Plan. Hill farm incomes remain heavily dependent on public subsidy although increasingly off-farm income and agri-environment scheme payments are making a greater contribution. In line with EU and national policy, increasingly greater emphasis is being given to payments for public goods and helping farmers adapt to changing circumstances and less to basic commodity support. However, the financial balance between the two is still weighted firmly in favour of the latter. Further work is needed to identify a full list of policy tools, gather information on their application, budgets, administration, uptake and determine their impacts. This would enable policy-makers to determine the overall cost-effectiveness of different policy tools in securing the sustainability of the uplands.

**CAP reform**

This research has attempted to identify and explain the economic, social and environmental impacts of hill farming as they currently exist. But hill farming, like all agricultural sectors, is likely to undergo significant change in future as a result of the 2003 CAP reforms. The CAP reforms will, undoubtedly, have a significant effect on the scale and nature of the impacts of hill farming over the coming years. An initial
assessment of the implications of the CAP reforms for hill farming would be a useful accompaniment to this study to help guide future policy development and secure the future sustainability of the uplands. It will also be critical to monitor the impacts of the reforms on hill farming, and farming more generally, in order to be able to address problems and capitalise on opportunities as they arise.
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The direct economic benefits of hill farming are in decline in the English LFA, as in agriculture elsewhere but, regionally and locally, employment and economic activity associated with hill farming can be significant. Hill farming also benefits the wider rural economy through purchases of inputs and the distribution, marketing and processing of outputs. Tourism is an important economic activity in the uplands and while there is some evidence of visitors being attracted to the uplands for their landscape and cultural value, the links between hill farming and tourism are not always clear. Other activities in the LFA, such as grouse shooting, woodland and forest management, horse riding and livery, on-farm food processing and retailing, can be economically significant but are often not dependent on hill farming activity.

Farming and farmers are part of the cultural identity of upland areas and continue to play a central, but declining role, in community activities. There are however conflicts within upland areas between ‘locals’ and ‘incomers’ and differing views as to who makes the greater contribution to social sustainability. The positive role of farming women was highlighted by this research. The case studies provide evidence of a range of social problems within upland areas but while some of these are peculiar to hill farming many others are symptomatic of much wider social issues affecting rural communities more generally or are specific to other social groups.

Hill farming has an intrinsic relationship with the environment with both, positive and negative, environmental impacts. Other activities such as grouse moor management also have both positive and negative environmental impacts. The need for the continued presence of hill farming activities to maintain the upland environment is largely recognized and accepted by both environmentalists and farmers alike. However, the shift towards more intensive and less environmentally benign farming practices has had, and continues to have, major negative impacts on wildlife, landscapes and the cultural heritage of the uplands. There are also growing signs of problems arising from a decline in hill farming and reductions in grazing levels leading to undergrazing in some areas. Some stakeholders argue the benefits of other land uses such as woodland or even managed abandonment in some locations.

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Main report

Volume I
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by the Institute for European Environmental Policy, Land Use Consultants and GHK Consulting
February 2004
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This research was commissioned by the Rural and Resource Economics Division of the Department for Environment, Food and Rural Affairs. The research was undertaken jointly by the Institute for European Environmental Policy, Land Use Consultants and GHK Consulting during 2003. The research team comprised (for IEEP) Vicki Swales, Rosy Eaton and Vanesa Castan Broto; (for Land Use Consultants) Robert Deane, Bernie Warmington and Sally Parker and for GHK Consulting, Matthew Rayment. All have contributed in substantial ways to the research and to the final three Volumes of the report.

The research team would like to acknowledge the help given by many people and organisations throughout this work. Particular thanks are due to: staff at Defra in the Rural and Resource Economics Division and to staff at the Rural Development Service, Leeds; the organisations which responded to our requests for information and, especially to the many farmers and other individuals in the case study areas who gave their valuable time to talk to us. Without the help and support of these and many others the research could not have been completed.
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<td>AONB</td>
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1 INTRODUCTION

1.1 Background to research

In May 2003, the Department for Environment, Food and Rural Affairs contracted a consortium of the Institute for European Environmental Policy (IEEP), Land Use Consultants (LUC) and GHK Consulting to, ‘…identify, explain and, as far as possible, quantify the impacts of hill farming in England on the economic, social and environmental sustainability of the uplands and more widely.’

This is Volume I - the main report - presenting the results of the research including Stage 1 (literature review and consultation exercise), Stage 2 (4 case studies in hill farming areas) and conclusions. Volume II consists of the comprehensive literature review and summary of consultation responses while Volume III presents the 4 case studies in full.

For the purposes of this study, hill farming is taken to mean that farming activity – primarily beef and sheep production and dairying - which takes place in the Less Favoured Areas (LFA), as designated according to Directive 75/268 on ‘Mountain and hill farming and farming in less favoured areas’. The genesis of the Directive lay in a recognition that agricultural production in these areas was at a disadvantage compared to other farming areas due to factors such as climate, topography, altitude and remoteness. Under the rules of the Directive, Member States were required to identify both Severely Disadvantaged Areas (SDA) and Disadvantaged Areas (DA) and allowed to provide payments in compensation for the handicaps faced by farmers. The Directive also had an implicit social function, with the objective of maintaining viable populations in such rural areas. The assumption was that if farming ceased in these areas there would be an outward migration of people and the risk of land abandonment.

Over the past 30 years the policy debate surrounding LFAs has evolved to take account of other factors such as the impact of farming on the environment but the core justifications for public support for hill farming, enshrined in the original legislation, remain largely in place. Today, justification for public support for hill farming in England is made increasingly on the grounds that it: makes a significant contribution to the maintenance of the upland environment (wildlife and landscapes); helps to maintain the social fabric in relatively remote rural areas; and, contributes to the economy, both directly through livestock production and indirectly by maintaining the assets on which other economic activities such as tourism depend. Representatives of the farming industry also highlight the role of hill farming in maintaining a stratified sheep industry and producing beef calves for finishing in the lowlands.

Understanding the nature, extent and magnitude of the contribution made by hill farming to the economy, environment and social fabric of rural areas is critical to determining the direction of future policy for upland areas. But society’s views about the various contributions made by hill farming, and estimates of it, vary considerably. The purpose of the research was to take a critical and objective look at these views and estimates and to try to assess and quantify, as accurately as possible, the contributions made by hill farming to the economy, the environment and society. This research also assessed, through a series of case studies, how these contributions would be affected if changes took place in the nature and scale of hill farming.
In terms of the economy, the research explored both the direct and indirect impacts of hill farming. Direct impacts are related to the values of agricultural inputs and outputs associated with hill farming systems and levels of employment. Links with farming in lowland areas are considered. Indirect impacts are related to the extent to which the value of other economic activities such as tourism, leisure and recreation are influenced by or depend on hill farming activity. For example, local economies may be boosted by the presence of visitors who are attracted to hill farming areas by the landscapes and wildlife maintained by traditional farming systems.

The environmental impacts of hill farming are related to activities such as grazing by cattle and sheep, grassland and moorland management and the maintenance of landscape features. There is evidence, for example, of the importance to biodiversity of maintaining extensive grazing regimes and of the landscape benefits of activities such as moorland management and dry stone walling. Equally, there is evidence of over and under grazing and a decline in traditional forms of management such as shepherding that have led to the loss of wildlife and a deterioration of habitats and landscapes. Changes in land management practices have also been linked to increased soil erosion, run-off of rainfall and incidences of flooding and water contamination on lower lying areas. This research assesses and quantifies those impacts wherever possible.

The social contribution of hill farming was also explored by the research. As in all rural areas, the social fabric of upland areas has undergone significant change in recent years. While the number of farmers and farm workers is in decline nationally, farming often remains significant in many areas, especially in more remote upland areas where in-migration has occurred less and employment opportunities are limited. The research sought to identify the interactions between hill farmers and the local community of which they are part and the services and infrastructure they rely on or help to provide.

The findings of the research are relevant to future policy debates about the need for, and the justification of, public support for hill farming.

1.2 Objectives and research methods

The objectives of this research were as follows:

a) To assess the nature and extent of the positive and negative environmental impacts of current hill farming practices in relation to landscape, recreation, wildlife, flood management and diffuse pollution;

b) To assess the nature and extent of the social impacts of hill farming in relation to the local community, the maintenance of the local infrastructure and the provision of local services;

c) To determine how any identified environmental and/or social impacts vary with the scale and intensity of agricultural activity;

d) To determine any indirect economic effects associated with traditional hill farming and assess how important they are, particularly in relation to the tourism sector in upland areas;
e) To identify the linkages between hill farming and the rest of the agricultural economy, in particular the lowland livestock sector, and determine their significance;

f) To determine the strength of evidence relating to the risk of widespread land abandonment in the uplands and assess what the impacts of abandonment or other alternative land uses would be on a) to e) above;

g) To assess the justification for policy intervention to improve the economic, environmental and social sustainability of livestock farming in the hills, suggest policy tools for intervention and state how the cost effectiveness of such tools could be assessed;

In order to meet these objectives, the research consortium proposed a 2 stage project, as follows:

1.2.1 Stage 1

This Stage consisted of 4 main activities:

1) Gathering together data to help identify existing trends in hill farming areas and to describe the characteristics of upland areas in terms of farming;

2) A literature review to gather together published and unpublished material relating to the objectives a) to f);

3) Stakeholder consultation to elicit views and information in relation to objectives a) to f);

4) Critical analysis of the gathered information to provide an objective assessment of the value of hill farming and to identify issues to be explored through the Second Stage of the project.

The findings from these activities are presented in this report. The full literature review and summaries of consultation responses are published separately as Volume II.

1.2.2 Stage 2

This Stage consisted of identifying 4 case study areas and investigating the economic, social and environmental impacts of hill farming in those areas. The purpose of the case studies was:

1) To explore further the links between hill farming and the environment, communities and economy of upland areas focusing on particular locations and examples. This helped to test, as well as illustrate, the findings of Stage 1, and examine how these linkages vary between areas;

2) To examine the environmental, social and economic implications of different scenarios involving changes in the level and nature of hill farming activity, including if hill farming were to decline substantially or cease to exist.

In each case study area, information was gathered in relation to objectives a) to f). For example, evidence was sought of the links between hill farming and tourism in the selected areas and of the environmental impacts of hill farming. Interviews with farmers and other key
stakeholders were conducted to determine their views on a range of issues. The case studies also looked at 3 scenarios about future patterns or trends in hill farming and asked stakeholders for their views on them. The scenarios used are outlined below. In defining the scenarios, we did not make any assumptions about policy interventions that would be required to bring them about.

1.2.2.1 Scenario 1 – maintain production

This scenario assumes a continuation of existing patterns of production in hill farming areas. Beef (suckler cows), sheep and dairy enterprises remain dominant. Some 40% of beef cows and 45% of breeding ewes are found in the LFA and a quarter of the milk market is supplied by dairy farms within the LFA. This scenario recognizes that the trend in terms of the number of LFA farms and the number of livestock is one of a steady decline and that the total labour force declined by 2.1% between 1991 and 2000. But this scenario assumes that these trends are halted or even reversed in some areas of the LFA. It is also assumed that the area of land used by hill farming enterprises remains largely unchanged from current levels with little or no land coming out of production. There is some alternative land use e.g. for forestry, nature conservation or recreational use but the majority of land remains in traditional agricultural production. The demand for inputs such as feed and fertilisers is commensurate with minor changes in output and demand for services such as vets, hauliers and auction marts continues. It is assumed that the area of land entered into agri-environment agreements remains at current levels (approximately 32% of the LFA for ESAs and Countryside Stewardship combined). Current levels of organic farming continue. Patterns of diversification remain similar with emphasis on tourism and recreation e.g. B&Bs, camping barns, tea shops and walking trails but agricultural production remains the main income source for the farm. Part-time and hobby farming is likely to increase, following current trends, in those areas close to centres of population and where alternative employment opportunities exist. Marketing and processing of produce, selling through outlets such as farm shops and farmers markets or wider initiatives such as Fellbred lamb, is an option for a limited number of farmers. The average age of hill farmers is likely to carry on increasing, with consequent changes in the social structure of hill farming communities.

1.2.2.2 Scenario 2 – a reduction in hill farming

This scenario assumes a significant reduction in traditional hill farming activity (beef, sheep and dairy production) with a decline in the number of farms, farmers and workers and the overall number of livestock. It assumes there could be up to 50% fewer farms but the average size of those remaining would increase suggesting some farm amalgamation. However, it is also assumed that large tracts of land could cease to be grazed or completely abandoned for agricultural purposes. Production could become concentrated in the DA of the LFA with most abandonment occurring in the high fells and more remote parts of the SDA. In these more remote upland areas, few alternative land uses would take the place of hill farming although some afforestation and the management of land for nature conservation purposes could occur where this is advantageous. The demand for inputs such as feed and fertilisers and for services such as vets, hauliers and auction marts would fall commensurately with significant reductions in output of livestock. There will be some demand for new or alternative inputs or services where land use change or new business enterprises occur. It is assumed that the area of land entered into agri-environment agreements will fall as the number of farms decreases and land is abandoned. Some farms could continue to diversify where there are market opportunities and off-farm income be sought. Part-time or hobby farming could increase in those areas close to centres of population and where there are alternative employment
opportunities. Marketing and processing of produce, selling through outlets such as farm shops and farmers markets or wider initiatives such as Fellbred lamb, will continue to be an option for a limited number of farmers. The traditional hill farming family is assumed to decline significantly under this scenario and new social influences may be apparent in some of the less remote parts of the LFA.

1.2.2.3 Scenario 3 – diversification of hill farming

This scenario assumes a continuation of hill farming activity but supported by alternative enterprises and with much greater reliance on alternative sources of income, including off-farm income. Some decrease in the numbers of farms, farmers and workers and livestock is anticipated but to a much lesser degree than under scenario 2. Little or no land is abandoned but the range of alternative land uses is assumed to increase. Forestry, woodland management, wind farms and management of land for nature conservation and recreational purposes are all possible options. It is assumed that the area of land entered into agri-environment agreements will increase significantly (up to 70-80% of the LFA). The demand for inputs such as feed and fertilisers and for services such as vets, hauliers and auction marts would fall commensurately with some reductions in output of livestock but demand for other inputs and services is likely to increase as a result of diversification. Greater emphasis on tourism, recreation and leisure activities, marketing and processing of produce, alternative crops or other products and new business ventures will create new demand for inputs and services not traditionally associated with hill farming. An increase in the number of part-time farmers, hobby farmers and new entrants to the land market is assumed, especially in areas close to centres of population and alternative employment opportunities. The contribution of off-farm income (income earned from activities unrelated to the farm holding in any way) to total household income is assumed to be greater than that under either scenario 1 or 2. Change in the structure of rural communities is anticipated under this scenario with a decline in the role of traditional farming families but new economic enterprises and land uses are expected to bring new social influences.

The research was concluded by drawing together the findings of Stage 1 and Stage 2 and considering the justification for policy interventions to improve the environmental, social and economic sustainability of livestock farming in the hills. Policy tools for intervention were considered along with their relative cost effectiveness and a number of recommendations made about the future policy options for hill farming.
2 FARMING IN LESS FAVOURED AREAS IN ENGLAND

2.1 Introduction

This section describes the English Less Favoured Areas (LFAs) and provides an overview of current farming activity in these areas, as background to further discussion about the contribution made by hill farming. It begins with a description of the LFA designation itself and other associated designations. There is a considerable degree of overlap between LFAs and other designations such as National Parks, Environmentally Sensitive Areas (ESAs) and Objective 2 areas, and these are identified where possible. Information is given on the number of farms, farm size, farm type and farm labour including trends over the last 10 years. The predominant farming enterprises in the LFA are described, including how they operate, what they produce and what happens to that produce. The section is completed with some regional LFA profiles.

2.1.1 The LFA designation

Some 2,213,691 hectares (ha) of England have been designated as Less Favoured Areas. Some 586,654 ha of this are classified as Disadvantaged Area (DA) and 1,627,037 ha are classified as Severely Disadvantaged Area (SDA) - see Map 1 below.

Large areas of the South West, West Midlands, North West, North East and Yorkshire and Humber regions have been designated as LFAs. There are no LFAs in the Eastern or South East regions. There are considerable regional differences between the LFA areas and the regions in which they occur. A short description of each region containing LFAs is given below.

2.1.2 Other designations

The LFAs have a very high level of environmental designations – see Table 1, Maps 2-4 and Table 2.
Table 1: Environmental Designations: England and LFA comparison

<table>
<thead>
<tr>
<th>Designation</th>
<th>Total area in England (ha)</th>
<th>Coverage of England (%)</th>
<th>Area within LFAs (ha)</th>
<th>Coverage of LFAs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSSI</td>
<td>1,046,000</td>
<td>8.0</td>
<td>451,430</td>
<td>20.4</td>
</tr>
<tr>
<td>SAC</td>
<td>656,000</td>
<td>5.0</td>
<td>358,085</td>
<td>16.2</td>
</tr>
<tr>
<td>SPA</td>
<td>510,000</td>
<td>3.9</td>
<td>274,704</td>
<td>12.4</td>
</tr>
<tr>
<td>NNR</td>
<td>81,000</td>
<td>0.6</td>
<td>19,868</td>
<td>0.9</td>
</tr>
<tr>
<td>National Park</td>
<td>993,000</td>
<td>7.6</td>
<td>895,956</td>
<td>40.5</td>
</tr>
<tr>
<td>AONB</td>
<td>2,039,000</td>
<td>15.6</td>
<td>431,013</td>
<td>19.5</td>
</tr>
<tr>
<td>Common land</td>
<td>360,000</td>
<td>2.7</td>
<td>296,119</td>
<td>13.4</td>
</tr>
</tbody>
</table>

*National data as at 1999, MAFF 2000, rounded up to nearest 1000, LFA data from Rural Development Service, GI Unit, 2002

Key: SSSI = Site of Special Scientific Interest; SAC = Special Area of Conservation; SPA = Special Protection Area; NNR = National Nature Reserve; AONB = Area of Outstanding Natural Beauty

For each designation the percentage of land covered is much higher for LFAs than for England as a whole. The most notable difference between national coverage and LFA coverage is for National Parks and Common land. In 1999 there were 8 National Parks covering a total area of 993,757 ha (7.6 per cent of the land area of England). All but one of the National Parks (the Broads) are in upland areas and overlap to a very considerable degree with LFAs; 895,956 ha of the National Parks are within LFA areas. The majority of Common land is found within the LFAs, 296,119 of the approximately 360,000 ha of Common land in England.
Map 1: Less Favoured Areas

Source: MAFF (2000)
<table>
<thead>
<tr>
<th>Designation</th>
<th>Number of Designations</th>
<th>Disadvantaged (ha)</th>
<th>Severely Disadvantaged (ha)</th>
<th>Total in LFA (ha)</th>
<th>% of LFA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmentally Sensitive Areas</td>
<td>9</td>
<td>28,901</td>
<td>429,846</td>
<td>458,747</td>
<td>20.7%</td>
</tr>
<tr>
<td>National Parks</td>
<td>7</td>
<td>81,906</td>
<td>814,050</td>
<td>895,956</td>
<td>40.5%</td>
</tr>
<tr>
<td>Areas of Outstanding Natural Beauty</td>
<td>12</td>
<td>87,246</td>
<td>343,767</td>
<td>431,013</td>
<td>19.5%</td>
</tr>
<tr>
<td>Moorland Line</td>
<td>-</td>
<td>8,705</td>
<td>790,266</td>
<td>798,971</td>
<td>36.1%</td>
</tr>
<tr>
<td>Objective 1</td>
<td>-</td>
<td>75,083</td>
<td>42,145</td>
<td>117,228</td>
<td>5.3%</td>
</tr>
<tr>
<td>Objective 2</td>
<td>-</td>
<td>329,233</td>
<td>1,283,311</td>
<td>1,612,544</td>
<td>72.8%</td>
</tr>
<tr>
<td>Objective 5 N/A</td>
<td>-</td>
<td>367,339</td>
<td>1,179,999</td>
<td>1,547,338</td>
<td>69.9%</td>
</tr>
<tr>
<td>CC Character Areas</td>
<td>43</td>
<td>586,654</td>
<td>1,627,037</td>
<td>2,213,691</td>
<td>100.0%</td>
</tr>
<tr>
<td>EN Natural Areas</td>
<td>43</td>
<td>586,654</td>
<td>1,627,037</td>
<td>2,213,691</td>
<td>100.0%</td>
</tr>
<tr>
<td>Common Land</td>
<td>1,042</td>
<td>4,582</td>
<td>291,537</td>
<td>296,119</td>
<td>13.4%</td>
</tr>
<tr>
<td>National Nature Reserves</td>
<td>**44</td>
<td>2,367</td>
<td>17,501</td>
<td>19,868</td>
<td>0.9%</td>
</tr>
<tr>
<td>Special Areas of Conservation</td>
<td>57</td>
<td>5,673</td>
<td>352,412</td>
<td>358,085</td>
<td>16.2%</td>
</tr>
<tr>
<td>Special Protection Areas</td>
<td>11</td>
<td>851</td>
<td>273,853</td>
<td>274,704</td>
<td>12.4%</td>
</tr>
<tr>
<td>Sites of Special Scientific Interest</td>
<td>**839</td>
<td>12,897</td>
<td>438,533</td>
<td>451,430</td>
<td>20.4%</td>
</tr>
<tr>
<td>Ramsar Sites</td>
<td>9</td>
<td>903</td>
<td>11,487</td>
<td>12,390</td>
<td>0.6%</td>
</tr>
<tr>
<td>Ancient Woodland</td>
<td>3,408</td>
<td>17,014</td>
<td>26,480</td>
<td>43,494</td>
<td>2.0%</td>
</tr>
<tr>
<td>ESA Agreement Holdings 2001</td>
<td>*5,391</td>
<td>37,131</td>
<td>356,780</td>
<td>393,911</td>
<td>17.8%</td>
</tr>
</tbody>
</table>

Whole area of woodland included if point falls within LFA. *holdings with overlap area >=0.5ha  **overlap area >=0.5ha and >=0.1% of designation

Data collated by RDS, GI unit, January 2002. Edited June 2003. Objective 1,2 & 5b information is the copyright ODPM and is illustrative rather than definitive. Data on NNRs, SAs, SPAs, SSSIs, Ramsar Sites, CC Character Areas, EN Natural Areas and Ancient Woodlands used with permission of English Nature.
2.2 LFA Farming Statistics

The following data have been provided by Defra from the June agricultural and horticultural census. Some discrepancies in figures occur due to changes in the way data were collected over the ten year period, particularly relating to minor holdings not being included in the 1992 and 1996 figures.

2.2.1 Land use

Table 3 shows the trends in land use (by area) for the period 1992 – 2002, broken down by DA and SDA boundaries.

**TABLE 3: LAND USE IN THE LFA ( hectares )**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DA</td>
<td>SDA</td>
<td>DA</td>
<td>SDA</td>
</tr>
<tr>
<td>Grassland &lt; 5 yrs</td>
<td>39,794</td>
<td>57,918</td>
<td>33,231</td>
<td>45,018</td>
</tr>
<tr>
<td>Grassland &gt; 5 yrs</td>
<td>239,104</td>
<td>460,012</td>
<td>215,294</td>
<td>436,466</td>
</tr>
<tr>
<td>Rough grazing</td>
<td>23,993</td>
<td>461,073</td>
<td>21,481</td>
<td>412,124</td>
</tr>
<tr>
<td>Set-aside</td>
<td>1,187</td>
<td>1,342</td>
<td>2,446</td>
<td>5,167</td>
</tr>
<tr>
<td>Woodland On farms</td>
<td>8,459</td>
<td>17,181</td>
<td>8,112</td>
<td>16,893</td>
</tr>
<tr>
<td>Other land</td>
<td>3,704</td>
<td>4,960</td>
<td>3,626</td>
<td>6,668</td>
</tr>
<tr>
<td>Total crops and bare fallow</td>
<td>26,220</td>
<td>5,4921</td>
<td>22,963</td>
<td>51,076</td>
</tr>
</tbody>
</table>
2.2.2 Farm type

The dominant farm type in the English LFA is cattle and sheep farms (46% of total), followed by other farm types (36% of total), then dairy farms (10% of total). Cereal and general cropping farms represent the smallest number of farms (1% of total).

| Table 4: Farm type in the LFAs 1992–2002 (numbers of farms) |
|------------------|--------|--------|--------|--------|--------|
|                  | DA     | SDA    | DA     | SDA    | DA     | SDA    | DA     | SDA    |
| Cereals          | 103    | 244    | 108    | 193    | 80     | 194    | 106    | 145    |
| General Cropping | 30     | 44     | 44     | 61     | 25     | 54     | 25     | 32     |
| Horticulture     | 70     | 117    | 117    | 104    | 104    | 227    | 157    | 236    |
| Pigs & Poultry   | 146    | 229    | 229    | 168    | 185    | 343    | 257    | 412    |
| Dairy            | 2,336  | 1,563  | 1,563  | 1,287  | 1,488  | 1,124  | 1,473  | 1,189  |
| Cattle & Sheep   | 3,353  | 7,996  | 7,996  | 7,026  | 2,760  | 7,600  | 3,389  | 8,374  |
| Mixed            | 269    | 333    | 333    | 313    | 218    | 370    | 248    | 340    |
| Other Types      | 980    | 1,647  | 1,647  | 1,627  | 1,688  | 4,076  | 3,148  | 6,043  |
| All Types        | 7,287  | 12,173 | 12,173 | 10,779 | 6,548  | 13,988 | 8,803  | 16,771 |

2.2.3 Livestock Numbers

Table 5 shows the number of livestock for the period 1992–2002, divided by DA and SDA land. The figures show a gradual decline in all livestock numbers over this period with, for example, a reduction in the number of sheep and lambs of 1,729,463 over the 10 year period.
TABLE 5: LIVESTOCK NUMBERS IN THE LFA 1992 – 2002 (‘000s)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DA</td>
<td>SDA</td>
<td>DA</td>
<td>SDA</td>
</tr>
<tr>
<td>Dairy cows</td>
<td>149.13</td>
<td>103.03</td>
<td>129.90</td>
<td>91.54</td>
</tr>
<tr>
<td>Beef cows</td>
<td>51.82</td>
<td>196.74</td>
<td>52.29</td>
<td>186.89</td>
</tr>
<tr>
<td>Total sheep/</td>
<td>1,626.77</td>
<td>6,315.51</td>
<td>1,409.47</td>
<td>5,667.41</td>
</tr>
<tr>
<td>lambs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.2.4 Holding Size

Tables 6 and 7 show the frequency distribution of holding size first by number of holdings and then by area of holdings.

TABLE 6: DISTRIBUTION OF HOLDINGS BY HOLDING SIZE (NUMBER OF HOLDINGS)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0&lt;5</td>
<td>DA</td>
<td>SDA</td>
<td>DA</td>
<td>SDA</td>
</tr>
<tr>
<td></td>
<td>500</td>
<td>775</td>
<td>373</td>
<td>670</td>
</tr>
<tr>
<td>5&lt;20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,980</td>
<td>3,224</td>
<td>1,814</td>
<td>2,859</td>
</tr>
<tr>
<td>20&lt;50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2,337</td>
<td>2,940</td>
<td>1,968</td>
<td>2,533</td>
</tr>
<tr>
<td>50&lt;100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1,691</td>
<td>2,455</td>
<td>1,447</td>
<td>2,151</td>
</tr>
<tr>
<td>100 and over</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>779</td>
<td>2,779</td>
<td>733</td>
<td>2,566</td>
</tr>
<tr>
<td>Total</td>
<td>7,287</td>
<td>12,173</td>
<td>6,335</td>
<td>10,779</td>
</tr>
</tbody>
</table>

Currently, by number of holdings, those in the 5-20 ha category dominate in both the DA and SDA. Since 1992, there have been significant increases in the number of holdings in the 0-5 ha category and smaller increases in both the 5-20 ha and over 100 ha categories for both DA and SDA. Farms in the 20-50 ha and 50-100 ha categories have declined in the DA and SDA since 1992.
Table 7: Distribution of area of holding size (hectares)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0&lt;5</td>
<td>1,357</td>
<td>2,268</td>
<td>923</td>
<td>1,635</td>
<td>2,718</td>
<td>6,449</td>
</tr>
<tr>
<td>5&lt;20</td>
<td>23,256</td>
<td>36,548</td>
<td>21,300</td>
<td>32,587</td>
<td>17,001</td>
<td>35,112</td>
</tr>
<tr>
<td>20&lt;50</td>
<td>78,353</td>
<td>98,379</td>
<td>66,452</td>
<td>84,602</td>
<td>51,170</td>
<td>75,923</td>
</tr>
<tr>
<td>50&lt;100</td>
<td>117,764</td>
<td>176,891</td>
<td>101,209</td>
<td>155,160</td>
<td>85,213</td>
<td>142,947</td>
</tr>
<tr>
<td>&gt; 100</td>
<td>121,729</td>
<td>743,321</td>
<td>117,268</td>
<td>699,428</td>
<td>120,590</td>
<td>721,024</td>
</tr>
<tr>
<td>Total</td>
<td>342,459</td>
<td>1,057,408</td>
<td>307,152</td>
<td>973,411</td>
<td>276,692</td>
<td>981,454</td>
</tr>
</tbody>
</table>

By area, farms in the over 100 ha category dominated in both the DA (44% of DA) and SDA (76% of SDA) in 2002.

2.2.5 Farm labour

Table 8 shows the numbers of farmers (whole and part-time) in the LFA and the total number of farmers and workers for the period 1992 – 2002.

Table 8: Farm labour in the LFA 1992 - 2002

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers full time</td>
<td>4,855</td>
<td>7,648</td>
<td>4,249</td>
<td>6,911</td>
<td>5,235</td>
<td>9,954</td>
</tr>
<tr>
<td>Farmers part-time</td>
<td>1,490</td>
<td>2,606</td>
<td>1,406</td>
<td>2,472</td>
<td>4,239</td>
<td>9,243</td>
</tr>
<tr>
<td>Total farmers and workers</td>
<td>16,196</td>
<td>26,769</td>
<td>14,140</td>
<td>23,946</td>
<td>12,419</td>
<td>25,387</td>
</tr>
</tbody>
</table>

NB: From 2000 categories change so that Farmers full time and Farmers part-time also include spouses, other farmers, partners and directors in the totals
2.3 Farming enterprises

2.3.1 Beef production in the LFA

In England, 40 per cent of beef cows are in the LFA, usually farmed alongside more predominant sheep enterprises. Beef production in the LFA primarily consists of suckler cow production – breeding cattle producing calves that are weaned (usually at around 6-9 months of age) and sold to lowland farms for finishing. However, a significant number of farms now finish their own calves.

According to the National Beef Association historically, large numbers of cows ranging on the high hill land were used as the basis for a stratified breeding system in which they were bred with a maternal bull (one with easy calving and above average milk producing characteristics) to produce a specialist cross-bred heifer that could be used on lower altitude farms (still likely to be LFA) as a thrifty and durable suckler cow. The male progeny were invariably kept on the farm they were bred on and either reared for two years and then finished for the beef market or sold as two year olds to farms lower down the hill where feeding to slaughter condition was easier. This stratified breeding system has broken down since the 1950s and traditional breeds declined in number.

2.3.2 Sheep production in the LFA

The National Sheep Association provided information on sheep production in the LFA as follows:

‘The base of the UK sheep industry starts in the SDA in the hills where native hardy breeds of sheep are pure bred. After three or four crops of lambs, the breeding ewes move down to the DA and mate to the Blue faced Leicester rams to produce the prolific crossbred mule ewes for lowland farms where they are mated with Suffolk/Texel and similar type rams for prime lamb production. Each movement from SDA to DA to lowland farm is transacted through the auction mart system. Ram purchases are also transacted through the auction marts. This unique UK system of breeding ewes being produced in the upland areas, allows the lowlands to produce the maximum amount of prime lamb. The surplus male lambs produced in the uplands are mostly sold through local auction marts for lowland finishing or, if sufficient finish is achieved in the uplands, to slaughterers.’

Figure 1 below shows this stratified industry diagrammatically.

The profitability of LFA cattle and sheep farms has declined significantly over the past decade. Average net farm income for LFA cattle and sheep farms in England declined to £4,836 in 2001/2 (35% of the level of the mid 1990s) and cash income to £13,689 compared to average subsidies of £26,900.

2.3.3 Dairy farming in the LFA

Dairy farming is the largest single sector of agriculture in the UK, representing about 22% of UK agricultural production by value. There are approximately 30,000 dairy farmers in the UK and the main milk producing regions are Cumbria, Cheshire and Devon in England. Around 25 per cent of milk produced in England and Wales comes
from the LFA. In 2002, there were 1,473 dairy farms in the English DA and 1,189 dairy farms in the SDA. The general trend within the UK dairy industry in recent years has been towards fewer, larger dairy farms with increasing herd sizes dominated by Friesan/Holstein cows. Dairy farms in the LFA tend to be smaller than the UK average but have adopted similar farming practices to non-LFA farms, improving grassland management and seeking to increase milk yields.

There are 130 approved milk purchasers in the UK. These are mostly milk groups (mainly farmers' co-operatives), which sell milk, delivered to them by their members, on to dairy processors. However, many processors also purchase milk direct from farmers. When the milk market was de-regulated in 1994 over two thirds of farmers joined milk groups. However, this proportion has declined in recent years. The five largest purchasers are First Milk, Dairy Farmers of Great Britain, Milk Link, Dairy Crest, United Dairy Farmers. Given the remote nature of some LFA dairy farms, costs and feasibility of milk collection present particular problems often not faced by their non-LFA counterparts.

There are over 100 dairy processors in England and Wales. These range from small local dairies and specialist cheesemakers processing less than 1 million litres of milk a year to large national and international companies producing a variety of milk products and supplying supermarkets with liquid milk in addition to providing a doorstep delivery service.
2.4 Regional LFA Profiles

The information to compile the following regional profiles was obtained from a range of sources including: Regional Rural Development Plans (Defra), Agricultural Census Statistics (Defra), Farm Business Survey Statistics (Defra) and The State of the Countryside 2000 and 2002 (Countryside Agency).

2.4.1 The North East

The North East includes the counties of Northumberland and Durham and unitary authorities of Tyne and Wear and Cleveland. This region has the highest percentage of land designated as LFA. The region covers an area of 8,592 km² with 4,557 km² or 53 per cent defined as either SDA (3,783 km²) or DA (773 km²). The land cover of the region is characterised by a high proportion of semi-natural habitats and relatively low proportion of arable and horticultural land. By way of other designations the

Definitions: A wether is a castrated male lamb; a draft ewe is an older ewe still suitable for breeding; a cull ewe is an older ewe no longer suitable for breeding; and a gimmer is a ewe between one (first shearing) and two (second shearing) years old.

After: ADAS (2002)
Northumberland Coast and North Pennines AONBs cover 1,465 km² (17 per cent of the region), The Northumberland National Park covers 1,112 km² (13 per cent of the region) and part of the Pennine Dales ESA falls within the region. Agricultural land use in the North East comprises 580 thousand hectares. There is a low proportion of arable and horticultural land (16.1%) and high proportions of improved grassland (32.3%) and semi-natural habitat (34.6%). By area, the main farm type is cattle and sheep (LFA) farms which occupy 43% of the area. Broadleaved and coniferous woodland cover in the North East (11.2 per cent) is above the England average (9.5 per cent) while urban areas (5.8 per cent) are below the England average (10.7 per cent).

With regard to semi-natural habitats 10.2 per cent of the region is covered with dwarf shrub heather but there is a relatively small amount of ancient woodland (12,445 hectares). The region contains 18 per cent of the national resource of blanket bog. Around 20 per cent of the national resource of heather moorland/acid grassland mosaics, with extensive areas of rush pasture and acid grassland are present in 5 upland character areas to the west of the region. There are also isolated areas of montane heath at high altitude in the North Pennines and Cheviot.

Woodlands in the region are generally of a small size, occur in most character areas, and include a number of Biodiversity Action Plan (BAP) habitats - upland oak woodland/upland mixed ash woodland along river valleys in the uplands. Major issues affecting oak and ash woodland are the lack of management, cessation of traditional management, sheep grazing, lack of regeneration, invasion of non-native species, coniferisation and Dutch elm disease.

The majority of the upland areas are of national and even international environmental importance. As well as their intrinsic environmental value and importance, the exceptional natural and cultural assets of the region offer economic and social benefits, particularly in terms of recreation and leisure. Alongside these aspects of environmental quality, there are pockets of economic decline and social exclusion, particularly in those rural communities formerly supported by mining and heavy industry.

Major issues affecting semi-natural upland habitats in the region include supplementary feeding, recreational pressures, under grazing and the trend to move away from cattle towards sheep. Hay meadows have also been affected by the shift from hay to silage and agricultural improvement through reseeding and fertilisers.

Since 1990 the number of LFA cattle and sheep farms has reduced by 15 per cent to 1,539, whilst lowland cattle and sheep farms have increased in number to 722, a 51 per cent increase. Dairy farms have reduced in number from 430 to 242. Areas of temporary grass, rough grazing and crops & fallow have reduced by 33 per cent, 14 per cent and 9.3 per cent respectively. Increases in permanent grass (12 per cent), set-aside (800 per cent) and other land (60 per cent) have occurred. Very little land has been lost from agriculture in this region.
2.4.2 North West

The North West includes the counties of Cumbria, Lancashire, Greater Manchester, Merseyside and Cheshire and covers an area of 14,165 km² of which 80 per cent is rural. The majority of Cumbria and parts of Lancashire are designated as LFA, most of this classified as severely disadvantaged (SDA), with significant areas of common land. By way of other designations the North West has three AONBs covering 1,570 square kilometres (11.1 per cent of the region), three National Parks - The Lake District (largest NP in England), Peak District and Yorkshire Dales - covering 2,607 square kilometres (18.4 per cent of the region) and the Lake District, North Peak, South West Peak and Pennine Dales ESAs.

Some 17.8 per cent of land in the North West is covered by semi-natural habitat, 17.8 per cent is urban and 8.3 per cent woodland. Some 2,435 km² (17 per cent) of the Region is Green Belt. Agricultural land use comprises 880 thousand hectares. The main uses are permanent grassland (52 per cent) and rough grazing (21 per cent). Sheep farming dominates North Lancashire and Cumbria and over the region as a whole livestock farms are the more prevalent with dairy farms making up 18.4 per cent of the holdings by number, LFA cattle & sheep farms 17.2 per cent and lowland cattle and sheep farms 16.8 per cent. By area, the main farm types comprise cattle and sheep (LFA) followed by dairy farms and mixed. There are a total of 19,343 holdings in the region with an average size of 46 hectares.

With regard to semi-natural habitats there are extensive areas of heather moorland on the upland fells of Cumbria, the North and South Pennines, the Forest of Bowland and some areas in the South-West Peak. The Region’s upland heathland habitat is highly degraded, with only scattered fragments in favourable condition. Upland wet, rushy pasture, occurring on moorland fringes, particularly in the Pennines, is a priority BAP habitat and is important for supporting upland bird populations. The species-rich calcareous grasslands with variable quantities of blue moor grass that occur on outcrops of limestone in the Cumbrian Fells and Dales are unique plant communities of international importance that feature rare plants and a great diversity of butterflies.

The North West has the largest length of drystone walling in the country, predominantly in the Less Favoured Areas, constructed from local stone. Walling in the Region is estimated at over 24,000 kilometres, of which some 8,467 kilometres is in poor condition. Agri-environment schemes have restored 274 kilometres since 1986. Hedgerows are also extremely important, being most common away from the Severely Disadvantaged Areas (SDA). A significant proportion of the Region’s hedgerows have been degraded either through neglect or inappropriate management. Agri-environment schemes have restored 1,303 kilometres since 1986. Upland and lowland river systems are prominent landscape features and there are several canals cross the Region. Natural Lakes are a very important part of the landscape of the Cumbria Fells and Dales.

There has been a decrease in the area categorised as agriculture land since 1990 of around 30,000 hectares (3 per cent). This decrease is broken down into a decrease in permanent and temporary grassland of 38,000 hectares offset by a 10,000 hectare increase in set-aside. The remaining land has gone into non-agricultural land use. Since 1990 there has been a big decrease in the number of dairy farms (32 per cent to 3,566) and also a decrease in the number of horticultural farms. There have been only
small changes elsewhere, apart from in the “other” category where the number has increased from 3,036 to 5,803. Since 1990, there has been a marginal increase in the number of holdings (from 18,603) and a corresponding drop in average size (from 49 hectares) with a 14 per cent fall in the total agricultural labour force since 1990.

2.4.3 South West

The South West region includes the counties of Cornwall, Devon, Somerset, Wiltshire, Dorset, Gloucestershire, Isles of Scilly and unitary authorities and covers 23,829 km² (15 per cent of England). Much of the upland areas of the Region is designated as LFA, including Bodmin Moor, Dartmoor and Exmoor, with significant areas of common land. By way of other designations there are 12 AONBs and parts of 2 others extending to 7,121 km² (30 per cent of Region), twice the proportion of AONBs in England as a whole. There are two National Parks, Dartmoor and Exmoor, covering 1,647 km² (7 per cent of Region) with a small part of New Forest extending into the Region and undergoing designation. There are also 7 ESAs in the Region including Somerset Levels and Moors, Dartmoor, Exmoor and West Penwith.

Agricultural land use comprises 1.77 million hectares. The main uses are permanent and temporary grassland (58 per cent) and crops and fallow (27 per cent). By area, the main farm types comprise dairy, followed by cattle and sheep (lowland), cereals and mixed. There is a concentration of organic production in the area. In 1997, 2.3 per cent of the area was in organic production and since then this proportion is likely to have increased. The region has accounted for over 40 per cent of national enquiries to the Organic Conversion Information Service. Some 11.6 per cent of the area is semi-natural grassland, heathland, water and rock habitats and 10.2 per cent of urban land. Some 2,550 km² (12.5 per cent) of the region is woodland, of which 9 per cent is broadleaved and mixed. Landscape boundaries such as hedges, banks and fences are more prevalent than in rest of England but traditional and characteristic hedges, banks and walls are in decline.

There has been a decrease in the area categorised as agriculture land since 1990 of around 60,000 hectares (3 per cent). This decrease is broken down into a decrease in permanent and temporary grassland of 133,000 hectares offset by a 55,000 hectare increase in set-aside and a 17,000 hectare increase in woodland. The remaining land has gone into non-agricultural land use. Since 1990 there has been a big decrease in the number of dairy farms (37 per cent to 5,227) and also a decrease in the number of cattle and sheep (LFA) farms. There have been increases in the number of other farm types with the largest increase by number in the “other” category (from 6,394 to 13,010).

2.4.4 West Midlands

The West Midlands includes the counties of Herefordshire, Shropshire, Staffordshire, Worcestershire and Warwickshire and covers 13,000 km², 80 per cent of which is rural. LFAs cover 11 per cent of the Region, 65,217 ha DA and 79,712 ha SDA which cover most of the upland areas in the north-east of Staffordshire and the western fringes of Herefordshire and Shropshire. By way of other designations the West Midlands had 4 AONBs, the Shropshire Hills, the Malvern Hills, Cannock Chase and the Wye Valley, covering 1,224 km² (9.4 per cent) of the region, sections of 2 National Parks, South-west part of the Peak District National Park and the eastern
edge of the Brecon Beacons National Park, covering 199 km\(^2\) (1.5 per cent) of the region. There are 55,700 ha of ESAs: Clun; Shropshire Hills; South West Peak and part of Cotswold Hills.

Agricultural land use comprises 930 thousand hectares. The main uses are crops and fallow (39 per cent) and permanent grassland (39 per cent). There are a total of 21,550 holdings in the region with an average size of 43 hectares. LFA farms in the West Midlands are small in size relative to other regions in England.

Land cover of the region includes 10.5 per cent broadleaved and coniferous woodland, 8.8 per cent semi-natural grassland, heathland, water and rock habitats and 10.7 per cent urban. The upland areas of the region are the White Peak, South West Peak, Oswestry Uplands, Clun and North West Herefordshire Hills, Shropshire Hills, Black Mountains and Golden Valley. Habitats include mosaics of upland heath and grassland, mires, flush, acid grassland, bracken, rock scree, mines and spoil.

There are a number of problems arising from the agricultural use of the uplands, including overgrazing, undergrazing, inappropriate supplementary feeding, insensitive burning, fragmentation of moorland, bracken and scrub encroachment of moors and commons and arable cultivation at increasing altitude.

Since 1990, there has been an increase in the number of holdings (from 19,223) and a corresponding drop in average size (from 50 hectares). During this time there has also been a big decrease in the number of dairy farms (32 per cent to 3,381) and also a decrease in the number of general cropping farms. It is likely that the changes in crop farm type are impacted by the relative profitability of enterprises, rather than changes in farming systems. There has been a decrease of around 40,000 hectares in the area categorised as agriculture land since 1990 (4 per cent). This decrease is broken down into a decrease in permanent and temporary grassland of 77,000 hectares, offset by an increase in set-aside of 41,000ha. The remainder has gone into non-agricultural use such as private amenity, conservation and development.

### 2.4.5 Yorkshire and Humber

The Yorkshire and Humber region includes the counties of Humberside, North Yorkshire, South Yorkshire and West Yorkshire and covers 15,411 km\(^2\). Much of the Yorkshire Dales National Park, Pennine region and the North York Moors National Park are designated as Less Favoured Area (LFA). By way of other designations the Region includes: Howardian Hills, Nidderdale and parts of the Lincolnshire Wolds and Forest of Bowland AONBs, covering 921 km\(^2\) (6 per cent of the region); 3 National Parks (North York Moors, Yorkshire Dales and Peak District) covering 21 per cent of the region; and, the Pennine Dales and the North Peak ESAs. A higher proportion of the Region is covered by National Parks than any other region of England.

Compared with England as a whole, the Region has a lower proportion of arable and horticultural land and a higher proportion of semi-natural habitat. Arable and horticulture cover 30 per cent of Region, improved grassland 30 per cent, broadleaved and coniferous woodland 9.2 per cent, semi-natural habitat 19.9 per cent and urban 10.8 per cent.
There is a large area of heather moorland in the upland areas of the region. One of the most striking features of the region is its highly polarised character as, while 21 per cent of the land area is a designated National Park, there are extensive areas of degraded landscape in need of substantial rejuvenation following the impact of intensive farming (e.g. Vale of Pickering) and/or industrial activity (e.g. coalfield areas).

The uplands of the Pennine hills and North York Moors National Park contain extensive areas of internationally important upland heathland (28 per cent of England's total) calcareous grassland (20 per cent of the UK's total), limestone pavement, blanket bog and smaller remnants of ancient woodland and hay meadows. The Craven uplands hold over half the British resource of limestone pavement and also an important area of upland calcareous grassland. Over 75 per cent of these habitats are covered by forms of agri-environment agreement. Of the 610 ha of good quality upland hay meadows in England, many are in North Yorkshire. Huge losses occurred earlier this century due to fertiliser use and ploughing. Other priority habitats of the uplands include areas of oak and ash woodland and fen wetlands. The environmental value of much of the land has been severely affected by decades of over-intensive management (e.g. increased sheep grazing, land drainage and fertiliser use). In the North York Moors National Park, undergrazing and losses of land to ploughing and forestry have had a major impact.

Of the estimated 56,000 kms of stone walls within the region, (50 per cent of England's total) approximately 60 per cent requires some active management. Of this, an estimated 5 per cent is being either restored or maintained within environmental schemes.

There has been a marginal decrease in the area categorised as agriculture land since 1990 of around 10,000 hectares (1 per cent). The area under crops and fallow has decreased by 60,000 ha, but this is largely offset by an increase in set-aside of 56,000 ha. The remaining land has gone into non-agricultural use such as private amenity, conservation and development.

By number of holdings, there is a good mix of sizes, although those with less than 5ha do stand out with 30 per cent of the holdings. Since 1990, there have been big increases in the number of holdings under 5 hectares (from 3,080 to 5,627) and also an increase (26 per cent) in the number of holdings over 100 hectares. The largest decrease has been in the 20-50 hectare category.
3 FINDINGS OF STAGE 1 LITERATURE REVIEW AND INFORMATION SEARCH

3.1 Introduction

This section of the report presents the findings of the literature review and the request for views and information from key organisations and individuals, undertaken in Stage 1 of this research. It also draws on responses to Question 1 of Defra’s Hill Farm Allowance consultation paper (1 April 2003). Based on these sources of information, this section of the report aims to give an objective assessment of the economic, environmental and social impacts of hill farming on the sustainability of the uplands and more widely.

The literature review is included in full as a separate Volume II, but is not included in this main report due to its length. However, we recommend that it is read in full to gain a more comprehensive understanding of the considerable body of work that exists on issues relating to this research. To aid cross referencing, numbers in section 3.3 below refer to numbered references given in the full literature review. Issues arising from the research team’s request for views and information, a list of those organisations and individuals that responded and summaries of responses to Question 1 of Defra’s HFA consultation can also be found in Volume II.

This section is structured according to the objectives a) – g) of the research brief, as referred to in Section 1 of this report.

3.2 Overview of stage 1 research

A considerable body of literature exists relating to economic, environmental and social aspects of hill farming. We sought out literature that refers specifically and directly to the impacts of hill farming but also reviewed other relevant literature, for example, surveys of visitors to upland areas and economic evaluations of the tourism industry. By far the greatest body of literature that we were able to find (both current and back-dated) related to the environmental impacts of hill farming. A considerable amount of recent literature on economic evaluations also exists; some of this is from studies undertaken in Scotland and Wales but was included for its relevance. The most significant gap in the literature, as we expected, was that on social issues pertaining to hill farming or farming more generally. We sought to close this gap wherever possible by sourcing other information but suggest it is one area that is worthy of further investigation.

The robustness of the literature was variable. Some studies are more than 20 years old and the findings were treated with caution in terms of drawing conclusions about current circumstances. However, they were included where they served to give an historical perspective to an issue or where more recent studies could not be found. As noted above, some studies were undertaken in countries other than England but were included in the review where relevant. Care was taken in terms of reading across from these studies to conditions and circumstances in England. Some of the studies were focused on specific areas within the English LFA and care was taken not to assume that findings were relevant to the LFA more widely. Generally though, we sought to
review literature that provided the most robust assessment of the impacts of hill farming and have emphasised where findings should be treated with caution.

The outbreak of Foot and Mouth Disease (FMD) in 2001 spawned a number of studies and reports into its impact. We reviewed a number of these for relevant information, for example, data on the value of tourism to the upland economy. However, we also treated this literature with some caution as FMD was an extreme event and many of the impacts felt were as a result of the cessation of livestock farming in some areas and the total exclusion of visitors from large tracts of the countryside. In this respect, FMD was something of an abnormal scenario for conditions in the uplands.

During the course of our work, we received many comments and views from organisations and individuals that were presented as fact but were largely unsubstantiated to us by way of tangible evidence. However, it is interesting to note that many of these views and comments could be substantiated or validated when cross-referenced with the literature from formal studies and research. In other words, evidence could be found for many of the perceptions and beliefs that people hold – often with great strength of feeling - about the economic, environmental and social aspects of hill farming. We have therefore been careful to try to represent in this report, the wide range of views we received and point to evidence for them where possible. When commenting on such views we refer to ‘respondents’ meaning those who responded to our request for views and information or to the Defra Hill Farming Allowance (HFA) consultation.

The strength of feeling on many of the issues raised by our research is worthy of comment. One respondent welcomed the objective approach to understanding the issues in hand but said, ‘We would stress the importance of the need to involve emotional aspects simply because to exclude them would ignore the ‘heart’ which has been pivotal to the structure of rural areas for centuries.’ We have taken this comment on board and while striving to be as objective as possible have not ignored the emotional aspects that form part of current debate about the future of the uplands. The FMD outbreak served to bring this debate – and many of the issues involved - to public attention. However, this debate has been one of long-standing with similar views expressed during the work of the Hills Task Force (November 2000-January 2001). The authors’ own experiences also confirm that many of the debates surrounding hill farming have been on-going for many years and especially prevalent during the 1980s and 1990s. The longevity of the debate on the future of the uplands and the strength of views associated with it suggest that a measured, objective approach to understanding and, where possible, quantifying the contribution of hill farming is both necessary and timely.

3.3 Findings of Stage 1 research

a) The nature and extent of the positive and negative environmental impacts of current hill farming practices in relation to landscape, recreation, wildlife, flood management and diffuse pollution.

A considerable amount of literature exists and views have been expressed describing the nature of the environmental impacts of current hill farming practices, particularly the impacts of grazing practices. In contrast, relatively little data appears to be
available to determine the extent of these impacts or to quantify them other than, for example, figures for damage to or loss of SSSIs as a result of overgrazing.

Influences on the landscape, both positive and negative, arise from several different aspects of hill farming. Hill farming is regarded as contributing to landscape maintenance and improvement through habitat maintenance and maintenance of traditional landscape features such as hedge and dry stone wall field boundaries and traditional farm buildings. Hill farming can also have negative effects on the landscape through creation of farm tracks, the use of all-terrain vehicles, habitat deterioration and soil erosion arising from heavy grazing pressure. Two respondents highlighted negative landscape impacts from an increase in fencing and one respondent commented that although stiles and gates are often in place, fences are a psychological barrier to access to the hills. Particular attention has also been drawn to the important historic nature of field boundaries and archaeological features in the upland landscape. These have persisted under relatively low-intensity management and have become a significant resource contributing to both amenity value and to the public perception of the hills and uplands as a special place. Agricultural land improvement is cited as the single most destructive and most widespread threat to upland archaeological sites. Ploughing, in particular, is a serious threat to upland archaeology just as it is to that in the lowlands. In the North York Moors 15 per cent of known sites have been totally ploughed out and a further 10 per cent have been ploughed within the last decade. It has been argued that archaeological destruction is most likely to occur at the moorland edge, especially in areas adjacent to improved land. Land improvement along the main river valleys that dissect upland areas has fragmented the area of moorland. Farming in particular, but also quarrying, mineral extraction and other works impact on upland archaeology.

There is considerable evidence on the importance of livestock grazing in maintaining open upland habitats. Without grazing or other practices such as burning, all but the wettest blanket bog would, below the tree line, naturally succeed to trees. Different levels of and approaches to livestock grazing achieve differing agricultural, nature conservation or landscape objectives, but grazing at appropriate levels can have many ecological and environmental benefits. The uplands of England represent an important habitat for a number of rare birds, of both national and international importance, and livestock grazing can have significant effects on it, both positive and negative. Much of the research looking at this interaction is helpful in that it provides valuable information, not only on bird populations, but also on habitat structure and floral and invertebrate population size and diversity. Mixed livestock grazing systems are generally considered as most beneficial to biodiversity leading to greater diversity of plants and animals than single type livestock systems. A number of studies on cattle and sheep grazing show that both can have both positive and negative impacts on the environment. There is considerable evidence in the literature and a strong conviction, particularly amongst a number of dedicated specialists, that cattle grazing, in particular, can be beneficial to upland habitats. Comments from several respondents highlighted concerns about the decline in cattle numbers in the uplands and the negative impacts of this on upland habitats and wildlife.

Both overgrazing and undergrazing are cited as having negative effects on upland biodiversity and landscapes. During the 1980s and 1990s in the UK a significant amount of research was carried out and a large volume of literature produced into the
occurrence and impact of overgrazing in the British uplands. The significance of overgrazing is demonstrated by the data on loss and damage to SSSIs, with agricultural activities accounting for 88 per cent (by area) of reported cases in 1997/98 and continued overgrazing of upland heath and grassland being responsible for 99 per cent of the area damaged by agriculture. Overgrazing is particularly prevalent on common land. In England and Wales there are over 8,600 commons, covering more than 550,000 ha (3 per cent of England’s total land area is common land). Commons are particularly important in Cumbria, which holds 30 per cent of England’s common land and makes up 25 per cent of SSSIs and 55 per cent of SACs and SPAs in the area.

Defra has argued that there are a number of reasons for the majority of overgrazing occurring on dwarf shrub heath on common land:

- dwarf shrub heath is the most extensive type of semi-natural vegetation in England and occurs mainly in the uplands;
- managing grazing levels on commons is inherently difficult because of the shared nature of the grazing unit;
- dwarf shrub heath is slow growing and therefore susceptible to damage;
- damage or deterioration in dwarf shrub heath is easily recognised;

Defra figures published in 2003 show that 85 per cent of overgrazing complaints are concerning land that lies within the moorland line of the LFAs. Some 64 per cent of complaints are concerning dwarf shrub heath as a habitat type and 76 per cent are concerning common land. Changes in agricultural practice such as a decline in traditional activities of shepherding, increase in over-wintering, supplementary feeding and mechanisation are frequently cited as being linked to the problem of overgrazing. One respondent representing shooting interests stated that moorland owners have acted to limit pressures of overgrazing and supplementary feeding in some areas by enforcing stocking densities and buying out grazing rights. A number of farming respondents believe that undergrazing is becoming a more significant problem than overgrazing and that this situation is likely to be exacerbated by the recent CAP reforms.

A body of work exists examining issues of soil erosion, water pollution and flooding. Removal of vegetation, erosion of soil and rock and the consequential increased runoff of water is cited as a widespread problem in the British uplands. Intensive grazing pressure was found to be a significant part, but not the only cause, of the erosion problem. Other factors include the creation of bare soils by fire, bracken control and forestry. The climate and recreational use of the uplands are also cited as causes of erosion. The presence of grazing animals on bare soil exacerbates the problem of erosion and retards the return of vegetation. Long-term data sets on this issue are lacking. The Environment Agency identifies a number of problems in the uplands including: soil loss or compaction reducing soil productivity; soil erosion in fields and on banks of watercourses; poaching of land and increased nutrient run-off. These lead to: increased animal welfare costs; overwidening of rivers and siltation of fish spawning gravels; eutrophication of downstream waters; and, increased run-off of rainfall exacerbating downstream flooding. Poor management of
sheep dip leads to direct discharges and leaching of pesticides into watercourses and groundwater with impacts on aquatic invertebrates. A 1996 study estimated the cost of water related pollution incidents in the uplands at £2 million per year and the total cost of erosion in the uplands and lowlands as £23 million to £50 million per year.

Several other issues can be drawn from the literature review and comments received. The first is in relation to woodland in the uplands. While the maintenance of open moorland landscapes by grazing is generally seen as advantageous, it can also prevent the regeneration of native upland woodlands in areas where this is deemed desirable and hence can be seen as a negative impact. The second issue relates to bracken invasion which is seen as a large scale problem in the uplands. Bracken invasion is not a product solely of hill farming but it is influenced and possibly encouraged by sheep grazing under certain conditions. While bracken is widely perceived to be a negative phenomenon in the uplands as an aggressive coloniser, there is also evidence presented in the literature to suggest that bracken can be of great benefit to certain upland species. So whilst this is not a direct environmental impact of hill-farming it is an important interaction that is currently of some concern. A third issue of relevance to both sheep grazing and bracken in the uplands of England is the presence of ticks and their carriage of Lyme disease and louping ill. The literature suggests that sheep grazing and the thick mats of vegetation that can sometimes be produced encourages ticks. Lymes disease is a considerable health concern for the human population and louping ill can cause considerable financial loss in grouse.

b) The nature and extent of the social impacts of hill farming in relation to the local community, the maintenance of the local infrastructure and the provision of local services.

There appears to be a distinct lack of literature describing the nature of and quantifying the extent of the social impacts of hill farming, particularly the contributions made to the local community, infrastructure and services. There are however some relevant studies and comments by a number of respondents were helpful in adding to or confirming the findings of such work. More literature exists describing the attitudes of farmers themselves to hill farming and their current circumstances and this is included as it sheds light on community interactions.

The majority of work focusing on the importance of the farming community in sustaining rural communities, social structure and rural ‘culture’ is general in its approach and there is little substantial literature exploring the role specifically of hill-farming in this context. One recent study found that farming families appear to continue to play an important but limited civic role in the broader community, even whilst the farming community is in difficulty. Community involvement was a constant feature of those who took part in the survey although these commitments were restricted to a narrow range of organisations and roles. Most common was being a school governor, usually of the village primary school their children attended, followed by membership of the NFU committee, or of a farmers’ organisation such as CLA or the Young Farmers. A number of respondents referred to other roles such as church wardens or members of local councils and also commented that local events such as shows and carnivals often rely heavily on input from the farming community. A number of National Park Authorities identified farmers as members. The North York Moors Land Management Initiative showed distinct differences between communities with one village where the local community group contained no farmers.
and another that was dominated by farmers, highlighting the danger of making generalisations about the level of farmer involvement in community activities.

One respondent pointed to other people such as foresters, gamekeepers and water company employees as providing contributions and services to the local community. In contrast, another respondent said that people who work in hill farming areas but do not necessarily live there, such as foresters, may make less of a contribution to rural social life than permanent residents such as farmers. Similar feelings were expressed about people who owned second homes in hill farming areas or lived there permanently but commuted to work in towns and cities. It was felt that such people were much more likely to make a limited contribution to community life, make use of services where they worked and seek much of their entertainment there. A 1984 Countryside Commission consultation exercise, although now somewhat dated, appears to support such views. Many of those interviewed regarded their dependence on towns 10 to 20 miles away as a threat to the identity and future of their own local community; the rising costs and difficulties of travel often causing people to leave villages for the towns. Even in those areas where commuters with families are settling, long-standing residents see the newcomers as being more orientated towards the towns for education, services and social life. The survey also identified the closure of village schools in the uplands, often as a consequence of a decline in population and the local economy, as a matter of considerable concern. A study undertaken in North Staffordshire for the RSPB in 2000 held focus groups with a range of stakeholders including young farmers, parish councils and a women’s group. The latter stated that, while incomers can undermine community life, equally there were cases of incomers invigorating communities. The literature is limited on this issue of community life and there is little conclusive evidence to support the view that hill farmers make more of a contribution to the social aspects of rural life than other residents, although this is a view that is strongly held by some rural dwellers.

A number of respondents highlighted the skills retained within farming families such as stock management, the management of features such as walls and barns and the ability to handle machinery. Such skills are often employed in various ways beyond the farm gate. For example, tasks such as clearing snow from roads in winter, maintaining grass verges, mountain rescue and fire fighting were referred to as often being undertaken by members of the farming community. There is no evidence to suggest that such tasks would not be undertaken without farmers but there may be associated benefits if they are, such as cost or speed of response.

Several studies have attempted to identify the circumstances under which hill farmers currently live. A 1991 PhD study of the status and future of hill farming in the Lake District was prompted by the lack of sociological studies on upland England. The thesis considers the historical and socio-cultural context to land use change and the decline of agriculture and an active working population in the Lake District. A more recent study of farms in the Hatherleigh to Holsworthy area in Devon focused on the economic and social well being of these farms. Although there were no cases of extreme poverty, the study found many cases of significant personal and economic hardship. Many were reluctant to admit to ‘going without’ (for example skipping meals or turning off the heating) although others did point out delaying household expenditure for the sake of the farm business and readjusting their material needs. Most of the families interviewed were described as being deeply embedded within the
locality, possessing high levels of local cultural capital and existing within dense networks of family and social association. However, many had withdrawn from social contact as part of a strategy of working longer, harder hours on the farm in order to survive. This was seen in the decline in formal civic participation, reductions in other activities that involve getting off the farm, lack of knowledge of non-farming neighbours and generally increased isolation. The author argued that such isolation could also have negative effects on the farm business due to a reduction in knowledge sharing with other farmers and reduced cooperation. The farmers noted ‘regret’ at no longer being so actively involved in their community. A study in the Lake District undertaken 11 years earlier identified similar issues of isolation and linked it to the reduction in the agricultural labourforce and the decline in communal activities such as sheep dippings and clippings, hay-time and shepherds ‘meets’ (ie the meeting of farmers at certain times of year to return stray sheep to their owners). These studies, more than others, offer the most valuable insight into the community interactions of hill farmers discussed earlier. These studies appear to suggest that, in response to economic pressures, many hill farmers and their families are less active within their local communities than they once were.

In the Devon study, religion was found to play an important part in the lives of the majority of those interviewed with high levels of church attendance (higher among women) and with ministers being the person most likely to be called upon for advice, after families and friends. Some 62 per cent of the farmers had no post-16 education – a fall of 13 per cent from a previous survey. In the Lake District, the dearth of both educational and agricultural qualifications was compounded by a lack of alternative work experience, with only 20 per cent of the sample stating that they had worked in other occupations, mostly manual work. Some 88 per cent of the sample was from farming backgrounds, many of which went back through generations. Some 76 per cent had been born and raised within twenty miles of their present homes and 18 per cent were from further than twenty miles away but still from within Cumbria. Only 6 per cent were from beyond the boundaries of the county.

An informal system of bartering and exchange of labour was found to exist among the farmers in the Devon study. A round of gifts and obligations was apparently forming a complex social economy that did not involve money. The author suggested that such a system would degenerate with a decline in the number of small farmers in the area.

The same study found that peer pressure and social pressure had been put on those, in the upland Devon study area, that were considering not restocking after FMD. Some who had left farming have been the object of verbal abuse and it is suggested in the report that the general cultural tenor that ‘real men farm’ can hinder change and make it an uncomfortable process.

Another study suggested that LFAs, whilst being agriculturally disadvantaged, are comparatively advantaged in many respects: they have the opportunity to gain from relatively scarce landscape and environmental qualities, and the social and cultural dimension of their farming communities. Some evidence suggests that these characteristics are mutually interdependent, and that a relatively dense network of small farms is helpful in maintaining the quality of the natural environment. The opportunity exists of incorporating shared social values into characteristics of the products of LFAs, not simply of agriculture, but also in diversified tourism and other cultural products.
In the majority of literature that included interviews with farmers and touched on the subject of job satisfaction the responses were similar: that there was a high level of job satisfaction in hill farming but that the economic returns were very low and the future of the industry uncertain.

Little could be found in the literature review of the role of women in farming and their contribution to the social and cultural life of hill farming areas. At meetings organised by the Hills Task Force and during farm visits, women were well represented and vocal in highlighting issues concerning hill farming. Farmers’ wives were often the most active within the partnership in terms of off-farm working and in instigating farm diversification projects. One or two examples were given of women running business ventures – both on and off farm – that in terms of income generation exceeded the income of the main farming enterprise and were critical to the survival of the farming operation. A representative of Cumbria Farm Business Link commented that women were often more active in their local community and better networked than their husbands who were largely focused on the farm business. The social dynamics and interactions of women in the context of hill farming and the social contributions they make, deserves to be better understood.

c) The effect of scale and intensity of agricultural activity on identified environmental and/or social impacts.

It is quite clear that much of the environmental value of the hills and uplands is the result of active management and, in particular, the presence of grazing livestock. Shepherding, heather burning, bracken control and the maintenance of dry stone walls, field barns and other buildings all contribute to the wildlife, landscape and cultural value of the LFA. Cattle and sheep grazing, especially in mixed systems, have positive impacts on biodiversity and help to maintain open landscapes. Many respondents emphasise the importance of the continuation of hill farming to the environmental quality of the hills and uplands. Many of the environmental problems identified in the literature and by respondents appear to be a product of hill farming per se but of the scale and intensity of management activities and the level of grazing pressure. Factors frequently cited include:

- A lack of shepherding which results in overgrazing of some areas of moorland and undergrazing of others;
- Overwintering of livestock;
- Supplementary feeding, particularly static feeding sites;
- A lack of, or inappropriate, heather burning;
- Improvement of pasture including drainage, ploughing and re-seeding;
- Grazing levels above the carrying capacity of vegetation and changes in the balance between cattle and sheep;
- A reduction in the maintenance of landscape features such as hedges, dry stone walls and traditional farm buildings due to declines in labour;
• An increase in new agricultural facilities such as farm tracks, roads and buildings;
• Farm amalgamations leading to changes in management practices.

The picture is clearly a complex one and the environmental impacts of hill farming can be crudely linked to ‘too much’, ‘too little’ or the ‘wrong kind’ of certain activities or practices. What is also clear is that impacts associated with the scale and intensity of agricultural activity vary depending on what aspect of environmental quality is being considered. Grazing levels that create the necessary ecological conditions for one species to thrive may well result in conditions that cause the decline of another. For example, vegetation height is a critical factor in the nesting and feeding requirements of many bird species and certain grazing levels will often favour one species over another. Short swards provide attractive feeding sites for birds such as starlings, magpies, jackdaws, rooks and crows but are unlikely to favour birds such as lapwings. The environmental impacts - both positive and negative - associated with agricultural activity are therefore clearly influenced by the scale and intensity of those activities and are highly variable. It is fair to say however, that the weight of literature and views of respondents identify a wide range of negative environmental impacts linked to agricultural improvement and an increase in the intensity of hill farming activities. The positive impacts of hill farming are largely discussed in the context of less intensive or ‘traditional’ hill farming systems. There appears to be a greater public willingness to pay for ‘conserved’ landscapes than current landscapes (see discussion at d) below).

A small number of studies have sought to look at the factors influencing environmental change. One study suggests that the extent of landscape and ecological change in the Lake District has largely been caused by economic pressures exerted on the hill farming sector and not due to the diversity of values held by farmers. In this study, it is argued that the physical deterioration of landscapes in the Lake District is attributable to the numerical decline of the agricultural workforce and that the management of cultural landscapes depend upon the continuity of traditional farming practices, many of which now have been superseded by modern methods. It also argues that with the erosion of farm incomes, maintenance work (which is imperative for the conservation of the cultural landscape) is often abandoned in order to concentrate on more profitable tasks. This tends to support the findings of a much earlier study undertaken in the 1970s that states, ‘Only those who can afford to ignore … economic exigencies feel capable of exercising the choice to maintain a more traditional agricultural landscape.’

It is less clear what the effect of scale and intensity of agricultural activity is on the social impacts of hill farming given the paucity of sociological studies in upland areas. However, the social studies referred to earlier hint at some links between the intensity of agricultural activity and the social impacts of hill farming, in terms of farmers themselves and the local community. The Lake District study suggested the isolation of farmers has been increased by the general reduction of the agricultural workforce. At busy times in the farming calendar mutual aid was once prevalent: as with the ‘boon ploughings’, communal sheep dippings and clippings, hay-timing and shepherds’ ‘meets’, all of which afforded opportunities for social interaction. Mechanisation has superseded these practices and along with the numerical decline in the farming population, farmers have withdrawn further into the confines of their
work. The study states that this social marginalisation is also reflected in the wider community and their degree of involvement in other organisations. 80 per cent of the Lakeland sample did not belong to any locally based organisations at all (excluded here are national organisations such as the National Farmers Union). The remainder by and large belonged to ones that were intrinsic to the locale; for example fox hunt and hound trail committees, local agricultural show committees and agricultural discussion groups. The study also noted that the social isolation of farmers when linked to growing financial hardships has resulted in an increase in the number of suicides, though farmers as an occupational group have always had a comparatively high suicide rate. Increasing loneliness and financial crisis are, according to the study, often ‘masked by idyllic perceptions of rural life’.

d) To determine any indirect economic effects associated with traditional hill farming and assess how important they are, particularly in relation to the tourism sector in upland areas.

d.1 Tourism

The literature indicates that tourism represents a major economic activity in hill farming areas. Almost all respondents also pointed to tourism as an important economic activity associated with hill farming. Much of the tourism activity in the English uplands is concentrated in National Parks, most of which are predominantly hill farming areas. Council for National Parks data suggests that parks in England and Wales receive a total of 92.5 million visitor days per year, with almost 90% of these in upland areas. Various estimates exist of tourism related expenditure and of employment figures. Many of the available figures do not relate specifically to hill farming areas but to England as whole and a number of studies have been undertaken in Scotland and Wales.

Figures available show tourism to be both a significant income generator and employer in hill farming areas. For example, the National Trust has commissioned a series of reports investigating links between tourism and the environment. The South West study estimated that 12.6 million holiday trips per year – 78% of the total – are motivated by conserved landscapes – coast, moors, woods, villages and rural attractions. These were estimated to attract holiday spending of £2.4 billion and support 97,000 jobs in the region – 43% of total tourism employment. 16% of people interviewed in the survey had walked on the moors during their visit, compared to 72% who partook in general “sightseeing in the countryside”. The survey did not collect information about the links between land use and tourism. The Wales study estimated that tourism spending associated with environment-motivated trips totalled £821 million in 1999, supporting an estimated 23,600 jobs. This includes estimated expenditure by visitors to “open hills and moors” as well as a range of other environmental features. “Open hills and moors” were found to be the prime motivating factor for around 6% of countryside day visits in Wales – less than more general features such as “landscape and scenery” and a range of non environmental factors – and 2% of all holiday visits to Wales. Again, the study indicated that general landscape factors were an important consideration for visitors to Wales, but gave few indications of the implications of the management of upland areas for the tourism industry. Visitor surveys in the Lake District carried out by the Park Authority identify landscape value and the ability to experience the uplands e.g. through walking, as major attractions for visitors. They estimate 48% of employment
within the Park to be associated with tourism compared to 1% for agriculture and fishing. Hill farming therefore appears to play an important role in shaping the landscapes enjoyed by visitors to the uplands. However, while there is clear evidence that visitors to the uplands are attracted by landscape and environmental features, there is very little evidence about visitors’ preferences between different land management systems. In particular, while hill farming landscapes such as the Lake District are undoubtedly popular with visitors, it is unclear whether changes in land use (e.g. afforestation) would be more or less popular. One respondent stated that wooded areas in the south of the North York Moors received significant numbers of visitors where facilities are provided, in much the same way that the moorland and dales farmland of this area attracts visitors. One Scottish study suggests that public awareness of the role of human intervention in maintaining the open landscapes they associate with the uplands is low. A survey of 1500 visitors to the Lake District by the National Trust provided a little more insight into the links between tourism and management of the upland environment. 91% of respondents agreed (strongly or slightly) that farmers should be paid to live and work in the Lake District, while 89% agreed that “well cared-for fields” added to the enjoyment and appeal of the area. 83% agreed that, without the work of the National Trust, the Lake District would not be as appealing or attractive as it is. Responses to the statement that more woodland would improve the landscape were divided: 39% agreed strongly or slightly, while 41% disagreed strongly or slightly. 55% of respondents had undertaken low level walks of 2-8 miles, with 28% identifying this as their main activity, while 22% had completed longer walks or hill walks, with 9% identifying this as their main activity. Although 62% considered “mountains and hills” as a factor in their decision to visit Cumbria, only 13% gave this as their main reason, behind “to get away from it all” and “because of a previous visit”. Nearly two thirds of respondents indicated that they would be willing to pay to enter the area. The issue of public willingness to pay for certain landscapes is explored further below under ‘Valuing the Hill Farming Environment’.

A study of the role of the Northumberland National Park Authority in rural development drew some interesting conclusions. The Park has a small population and its economy is heavily dependent on agriculture. It attracts relatively small numbers of visitors – between 1 and 1.5 million per annum. They found that many farmers do not consider on-farm diversification as a general solution to the economic difficulties of hill farming in the Park. There is limited interest in tourism because of the perceived risks, likely small returns and absence of any evidence that demand is growing. Most farmers prefer to add value by stock improvements rather than processing and marketing. The Park appears to be losing its share of the tourism market, and the authors suggest that its unique selling points – wild landscapes and hidden histories – may appeal to a dwindling minority. Although there is no analysis of the relative merits of different land uses to tourism and rural development, they conclude that now may be an opportune time to consider more radical ideas such as the wholesale release of land from agricultural use.

A number of studies look at the Foot and Mouth Crisis and the profound impacts this had on the tourism sector. However, these impacts were caused more by restrictions on access than changes in farming itself. It is not possible to conclude that a decline in hill farming would result in the sort of major impacts on the tourism sector that were witnessed during FMD, as some have suggested.
Other economic activities associated with hill farming and heather moors in particular are grouse shooting and beekeeping. Both require good quality heather moor produced by controlled grazing and regular burning and the economic returns of both activities can be affected by overgrazing. Studies that exist on these issues relate to Scotland. A 1992 study stated that grouse moors were estimated to bring revenues of £15 million to the Scottish economy in 1989. A 2001 study found that 459 estates supported a total of 631 direct full time equivalent jobs in grouse related activities in Scotland in 2000, and 940 FTE jobs after allowing for indirect and induced effects. It was estimated that grouse shooting contributed £3 million to Scotland’s GDP. Most grouse moors are still loss-making, and need to be subsidised by their owners, but losses had reduced and employment increased since an earlier 1996 study.

In relation to beekeeping, a 1995 study showed that top quality heather moor was estimated to yield an average of £31.50 of honey per hectare in an average year, and £175 per hectare in an exceptional year. Lower quality moorland yielded £16-21 per ha in an average year and £88-£117/ha in an exceptional year. Highest returns from beekeeping come from young dense heather at low altitudes, and depend on appropriate heather management including control of grazing intensity and regular cutting or burning – these conditions were considered most likely to be achieved by grouse moor management. Often the beekeeper is a different person than the moorland manager, so there are external benefits of appropriate moorland management.

d.2 Valuing the Hill Farming Environment

A range of studies involving contingent valuation and choice experiments indicate that the public’s willingness to pay (WTP) to protect the types of habitats (heather moorland and upland grassland) associated with hill farming are substantial. Substantial values are also placed on hill farming features (e.g. walls and buildings). A study examining public willingness to pay for landscapes in the Yorkshire Dales related to agricultural intensity. The study presented 8 different landscape options to respondents and found a public preference for the current landscape, and estimated a willingness to pay of £24 per hectare per year to preserve “today’s landscape”. The next most favoured landscape was a “conserved” landscape, involving traditional farming practices plus dry stone walling and barn maintenance. WTP was considerably lower than that to protect the Norfolk Broads ESA (£76-£84 per household per year). One farming respondent from the Yorkshire Dales wrote that many walking visitors comment on the pattern of dry stone walls and field barns. Scottish studies have suggested a positive willingness to pay to convert grazed upland landscapes to native woodland and/or scrub. But some studies suggest that preferences in England and Scotland may differ, and that the public is willing to pay to preserve existing hill farm landscapes in England. These differences may reflect the relative scarcity of moorland in England compared to Scotland. A benefits transfer approach, piloted for the former MAFF, explored whether certain hill farming landscapes and habitats might be valued. Small contingent valuation studies conducted as part of this research indicated a mean annual household WTP of £13.70 for heather moorland in Northumberland and £12.81 for rough grazing in the South Pennines.

e) The linkages between hill farming and the rest of the agricultural economy, in particular the lowland livestock sector, and their significance.
Defra (2002) reported on economic conditions in cattle and sheep farms in the hills and uplands of the UK. Hill farming is relatively less important in the agricultural economy of England compared to those of Scotland and Wales. Key statistics and findings are as follows:

- Less favoured areas account for 1.8 million hectares in England, 17% of the agricultural area, compared to 42% in the UK;
- 40% of English beef cows and 45% of breeding sheep in England are in the LFAs;
- Traditional hill sheep farms produce lambs either finished on-farm or sold for fattening in the lowlands, and draft hill ewes for use in upland and lowland flocks to provide cross-breeding stock;
- LFA suckler beef herds produce weaned calves for finishing in the lowlands, though a significant number finish their own calves;
- Around 25% of milk produced in England and Wales comes from the LFAs;
- Average net farm income for LFA cattle and sheep farms in England declined to £4,836 in 2001/2 (35% of the level of the mid 1990s), and cash income to £13,689, compared to average subsidies of £26,900.

Data from Farm Incomes in the UK (Defra, 2002) gives a breakdown of the output and inputs of LFA Cattle and Sheep Farms in England. Expenditures on inputs represent a large proportion of the value of output. Hence while net farm incomes are currently low, expenditures on inputs continue to benefit the wider economy.

Hill farms are closely linked with lowland livestock systems – selling lambs and weaned calves for finishing in the lowlands and draft hill ewes to provide cross-breeding stock for upland and lowland flocks. A study for Defra concluded that it would be feasible for lowland sheep farms to move to a “closed flock” system, with limited financial impacts in the lowlands. A closed flock system could also be developed in upland areas, with insignificant impacts on gross margins. However, the impacts of these changes on hill farmers – 31% of whose output is derived from sales of surplus ewes to upland farmers – would be substantial. A closed flock policy in the uplands would end this market. The hill farmer would produce an increased number of store lambs with the effect that flock gross margin would reduce by 35% to £6.18 per ewe. In many areas this impact could be reduced to £3.68 per ewe (a 21% reduction) by crossing a proportion of the flock with a Texel ram to produce better quality store lambs. These impacts could be severe given the current low profitability of hill farming. In the longer term, a breed such as the Scottish Blackface could replace the Swaledale in the hills, to improve lamb quality and value.

The report concluded that widespread establishment of closed flock systems is unlikely for financial reasons, but that the effects of FMD on the availability and price of Mule ewe lambs in autumn 2002 may act as a driver for some farmers to adopt them. Any changes – and resulting impacts on hill farming – will be gradual.
In terms of the relationship between hill farms and lowland farms, it appears that hill farms are more dependent on lowland livestock farms than vice-versa.

As well as the interrelationship between hill farming and the lowland livestock sector, hill farming also benefits the wider rural economy through purchases of inputs and distribution, marketing and processing of outputs. A number of studies have looked at the upstream and downstream impacts of hill farming, some of these conducted to determine the impact of the FMD outbreak in 2001. Regional output and employment multipliers have been estimated at around 1.5 in the South West – i.e. each livestock farming jobs supports an extra 0.5 jobs elsewhere in the economy. These jobs can be upstream e.g. feed companies, vets, fertiliser and machinery suppliers and contractors and downstream e.g. auction marts, abattoirs, hauliers and food processors.

Input:output tables enable the overall effect of changes in agricultural output to be assessed. Evidence relating specifically to hill farming, and to most regions of England, is lacking. The Scottish Executive (2002) publishes input: output tables and associated multipliers for Scotland. These give the following multipliers, for Scottish agriculture as a whole, taking account of direct, indirect and induced effects:

<table>
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<tr>
<th>Agriculture</th>
<th>Multiplier Effect: Change in Wider Economy as a result of unit change in agriculture.</th>
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<tbody>
<tr>
<td></td>
<td>Output</td>
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<tr>
<td>Output</td>
<td>1.72</td>
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<tr>
<td>Income</td>
<td>-</td>
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<tr>
<td>Employment</td>
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* 18.4 jobs created per £1m output additional output in agriculture.

- Output multiplier = 1.72, i.e. a £1 change in agricultural output results in overall change of £1.72 in Scottish output;
- Income effect = 0.27; a £1 change in agricultural output enhances incomes by £0.27;
- Employment effect = 18.4 jobs per £1m output;
- Income multiplier = 2.55; £1 change in agricultural income results in change in overall incomes of £2.55;
- Employment multiplier = 1.9; each job created or lost in agriculture results in an overall change in employment of 1.9 jobs.

Given the greater importance of livestock farming to the Scottish economy than England, input:output tables for England are likely to be different with potentially
lower multipliers than shown above. The South West study would appear to confirm this assumption.

f) To determine the strength of evidence relating to the risk of widespread land abandonment in the uplands and assess what the impacts of abandonment or other alternative land uses would be on a) to e) above.

f.1 Abandonment

There is little evidence of a risk of widespread land abandonment in the uplands although we were able to find a few relevant studies. One report states that the evidence that does exist does not support the theory of agricultural abandonment in the UK in the short term due to a multitude of factors that keep farmers on the land. In the longer term continuing low farm incomes and the removal of price and income support by the CAP could make ‘abandonment’ a potential problem. Abandonment seems only likely to occur in small isolated plots in the longer term, as restructuring occurs and extensive farming operations emerge. The environmental impacts of this change are unclear but are likely to be a mixture of positive impacts from more extensive, low input farming systems and the negative effects of areas being undergrazed and insufficiently managed. Given the limited scale of likely land abandonment, the socio-economic impacts are also likely to be limited. A critical question determining possible impacts of land abandonment by farming is whether such land is bought or managed by non-farming occupants, used for alternative purposes or completely abandoned and left to revert to scrub and woodland? These issues are explored below.

Areas generally thought to be of highest risk of abandonment are the less productive areas – ie hill farms where soils and land conditions are relatively poor. Despite farm incomes currently being at record low levels in the UK and high numbers of farmers leaving the industry, land is not being ‘abandoned’ and left unutilized and land prices are generally being maintained. Savills (pers comm.) report that there was a weakening of land prices in the North West of England and South West Scotland in 2002 but increases in Yorkshire. High land values stop farmers leaving the industry as the land is a valuable resource against which they can borrow considerable sums of money. Economic issues appear not to be the only factor to influence a farmer’s decision making; history, family tradition, quality of life, job satisfaction, culture and surroundings are all intrinsic in keeping farmers on the land. Some respondents however pointed to abandonment of in-bye land in the North Pennines AONB and concerns about land abandonment in the North York Moors National Park on SSSI, SAP and SAC moorland habitats. The comment was made that the loss of hefted flocks had an impact on the local culture as such flocks add to the spirit and atmosphere of living in the Moors.

A study of new entrants to land markets, although not focused on hill farming areas in particular, adds weight to the case that demand for land is high. The research was focused on new entrants owning at least 20 acres (8.1 hectares) and looked at the UK land market as a whole. They found that new entrants purchased 22% of farms in 2000. In addition, 17% of farms were bought by existing non-farming landowners meaning that 39% of farms were bought by non-farmers. A greater proportion of smaller farms were bought by new entrants. The authors expect new entrant activity to continue to increase at its underlying trend rate of 1% of farms per annum but this
is based on assumptions that UK economic growth continues, residential property prices continue to grow and that farm incomes continue their long term decline in real terms. The research found that new entrant activity is highest in hot spots of high amenity value and accessibility. Areas which may overlap with LFAs include: the South West, West Midlands, Yorkshire and Derbyshire. The authors state that new entrant purchasing activity currently amounts to some 64,000 acres of enclosed farmland in Great Britain per annum, but this excludes the purchase of open moorland. They suggest that as a consequence of concentration in areas of high amenity value and high accessibility, such purchasing can account for significant percentages of land ownership in certain areas. The research found that new entrants buy land for reasons that include quality of life and lifestyle change, a long term wish to farm, tax advantage, equine interests and interest in field sports. They see themselves as having a strong conservation ethic and perceive that they are more likely, or open, to managing their land in an environmentally sustainable way than those who are more reliant on the land for income. However, the research also found examples of inappropriate land management and a lack of training in conservation and woodland management among new entrants.

In terms of the rental market, the National Trust is still able to find tenants willing to rent upland farms. However, in some areas few prospective tenants are now coming forward and the choice is becoming increasingly limited. It is likely that within the next few years some hill farms will become impossible to let to farmers wishing to adopt traditional hill farming systems.

Some respondents to the HFA consultation suggested that ‘managed abandonment’ as opposed to random abandonment could have some environmental benefits. A 2002 study examined ‘wild land’ experiences from around the world and evaluated them in the context of land management futures for the Northern Uplands. It concluded that the economic and social impacts of creating new wild land in Northumberland do not favour taking extensive areas of land out of active agricultural and sporting management. However genuine opportunities were identified for:

- extending and enhancing focussed, target areas of semi-natural habitat;
- capitalising on the existing natural and cultural assets in a sustainable way;
- actively developing nature-based tourism across the Region.

The main findings of the study included:

- The deliberate non-management of extensive areas of former agricultural land is not a viable option. It clearly takes a long time in the uplands to create a variation in the landscape and/or habitat type. It was estimated on the basis of two study sites that if areas are left untouched there will be very little clearly visible habitat change in a 10 to 15 year period.
- There are no indications that biodiversity would be enhanced in the medium term (say up to 50 years) to a degree that it would deliver a net social/economic benefit.
The exclusion of farming and sporting management to create new wild land would give rise to a very significant reduction in both capital value and income generation in the areas under consideration.

f.2 Alternative land uses

A number of studies have looked at the impact of forestry and woodlands in the uplands. The ecological impacts of forestry are dependent on the type of trees grown and the types of habitat they replace. At the margin, native broadleaved woodland is largely beneficial, conifer plantations are largely detrimental, but the optimal overall balance between wooded and open habitats is a matter of debate. All types of forestry have been found to help reduce flooding in the lowlands and soil erosion but forestry can be very damaging to archaeological remains particularly deep-ploughing in preparation for tree planting.

A study looking at the feasibility of replanting areas of native woodland in the Shropshire Hills, the Lake District and Forest of Bowland found there was limited willingness by farmers to plant woodland on their land, especially in times of economic hardship. A case study of a woodland management initiative in the Marches estimated that 1 job was created for every 55 ha of woodland brought into active management. The project created or sustained 10 jobs as a result of capital grant aid for forestry machinery, woodworking equipment, marketing and product development.

Grouse moor management is another land use in the uplands but one that relies, in part, on the continuation of grazing. One respondent suggested that sporting use could continue irrespective of farming but with rather more difficulty. The economic impacts of grouse shooting have been discussed at d) above as has the issue of the level of grazing intensity on the profitability of grouse moors. Several studies have looked at the impacts of grouse moor management on upland ecosystems. Management of heath for grouse moor has been important in ensuring the survival of heather in England. One respondent stated that grouse moor management has prevented afforestation of some uplands areas that would otherwise have had negative impacts. The best moors for wildlife are those with a variety of vegetation structures, from areas of short heather and bare ground to unburnt areas, and a complete range of vegetation in between. Management can also include retaining or encouraging native woodland and scrub, which benefits black grouse. Some studies indicate that the majority of upland bird species breeding on moor, heath and bog do not spend all their time there but depend also on a range of adjacent habitats, including adjoining farmland, marginal hill grasslands, and woodlands. Hence, integrated management of the upland environment is essential from a wildlife perspective.

Grouse moor management can also have negative effects on wildlife and biodiversity. Too frequent burning can lead to the dominance of heather over other species and can damage upland soils. Short rotation burning can dramatically reduce invertebrate numbers. Burning can also damage and kill plant species such as Sphagnum mosses and can even cause complete loss of these habitats. As management for red grouse tends to favour young heather, taller stands of older heather, which are important shelter for grouse and nesting sites for raptors, are often destroyed and are becoming rare. Bogs and wet heath used to be drained as part of grouse moor management but this practice has now ceased as keepers recognise that wetland areas are an important
source of invertebrates for feeding chicks. Some managers have even blocked artificial drains to produce additional wetland and this has created some valuable wet areas.

Grouse moor management is in conflict with a number of other interests in certain areas. The most serious from a nature conservation perspective is the illegal persecution of raptors in the interests of protecting the grouse populations. Some research has been carried out which looks at this issue. It is widely believed that grouse moor managers use a variety of methods to deter birds of prey including illegal persecution and killing of adults and young. Illegal poison use in Scotland was found by one study to be disproportionately associated with grouse moors. Hen harriers are worst affected by illegal persecution in England and were exterminated by gamekeepers in the 19th Century. Since 1998 hen harriers have only bred in the UK on grouse moors with nest protection schemes.

Large areas of the English uplands are used for military training and as such have restricted access and are very valuable for nature conservation. For example, over half (13,300 ha) of the highest moorland on Dartmoor is under the control of the Ministry of Defence. There is some inevitable disturbance to the wildlife as a result of military operations and there is considerable public outcry whenever public access is restricted to military land but the protection afforded species and habitats can be significant.

Conservation bodies such as the National Trust and RSPB are also owners of large expanses of the uplands. Their interests however largely require the continuation of traditional farming practices. The RSPB, for example, owns 4,451 ha of land at Geltisdale in Cumbria and manages the land – the majority under an organic farming system - for the benefit of red and black grouse, merlin and hen harrier. Otters have also recently recolonised the site. There are 4.5 Full-Time Equivalent (FTE) jobs on the reserve and the spending of these employees in the local area is estimated to support another 0.5 FTE job. There are no formal visitor arrangements for the Geltisdale reserve and therefore no official visitor numbers of spending figures available. A larger upland reserve at Lake Vrynwy in Wales has 9.2 FTE jobs supporting a further 0.9 FTE jobs in the local economy. Visitor spending is estimated to be £370,000 per year and assuming that 1 FTE job is supported by £35,000 of visitor expenditure, spending at the reserve supports 10.6 FTE jobs in the local economy with a local income of around £111,000.

Interest in windfarms is growing and the uplands are a possible location due to consistent winds. English Nature is concerned about the negative effect on upland areas due to loss of habitat during construction. Concern has also been expressed about the effects of wind farms on bird populations, both local and migratory due to disturbance of breeding sites and increased risk of bird strikes where wind farms are near to commonly used flight paths. There are also landscape and amenity considerations relating to windfarms.

Finally, as some farmers diversify, there is evidence of land being put to alternative uses. Some respondents gave examples of diversification into caravan and camping parks, off-road driving ranges, riding establishments and a wildlife sanctuary. The area of land taken up by such activities is likely to be limited however.
g) The justification for policy intervention to improve the economic, environmental and social sustainability of livestock farming in the hills, policy tools for intervention and methods for assessing the cost effectiveness of such tools.

A range of studies has been undertaken on various aspects of policy intervention in the uplands. One study states that the objectives beneath CAP production payments and rural development payments are essentially opposed and give incentives for contradictory practices. This is a view that is widely held by many non-government organisations (NGOs) and the statutory agencies. The evaluation of Hill and Livestock Compensatory Allowances (HLCA) in 1997 argued that the economic rationale for supporting hill farming needs to be justified on the grounds of market failure, i.e. that hill farming produces public goods in the form of landscape and environmental benefits. It concluded that keeping hill farms in business is not itself sufficient to ensure that key environmental goods are provided and drew together evidence that support payments can have negative environmental effects, e.g. by encouraging overgrazing. Several other studies also make the link between HLCA and overgrazing and other environmental changes such as the switch from hay to silage making and the shift towards sheep. Removing support for hill farming is likely to have a mixture of positive and negative environmental impacts. The 1997 study also suggested that by helping to sustain the farming population, HLCA may have helped to maintain the population and service base required to cater for visitors.

Several studies have looked at the role and impacts of agri-environment schemes in the uplands. Environmentally Sensitive Areas (ESAs) appear to have been more popular with upland farmers than the Countryside Stewardship Scheme (CSS) although evidence for lower uptake of the CSS is largely anecdotal from the Hills Task Force. Insufficient payment rates were cited as a key factor influencing uptake of CSS. A 1994 study of the North Peak ESA scheme showed relatively high levels of uptake but limited environmental improvements. The author felt the strategy of many participants was to enter land into the tier which most closely corresponded to existing management practices with the result that only fairly small changes in both farming practices and output levels resulted from the scheme. A later study argued that upland farmers are discouraged from enrolling in agri-environment schemes by a combination of:

- the (low) payment levels of agri-environment schemes;
- the demand they place on farmers to change their current agricultural practices (i.e. to reduce the number of grazing animals) which have been developed largely in response to mainstream CAP payments (driven by headage payments).

This research also suggested that the primary reason for farmer entry into agri-environment schemes was the financial gain. Another factor constraining land being entered into schemes is that of common land and the difficulty of securing agreements between, what can often be, a large number of graziers.

A study into the contribution made by agri-environment schemes to the preservation of the archaeological heritage of North Yorkshire concluded that such heritage had benefited from the ESA scheme and CSS and more localised schemes run by the two National Parks. However, it also concluded that although the preservation of
archaeological heritage is considered in some schemes (for example the Historic Landscape category of Countryside Stewardship), it is not yet a primary objective of any of them.

Agri-environment schemes appear to have created extra employment in upland areas. A recent evaluation of CSS in England\textsuperscript{14} concluded that, on average, the scheme helped create some 0.013 on-farm jobs per farm and an additional 0.056 local contractors’ jobs per farm, bringing the total to one extra job for around every fourteen farms in the Scheme.

Other initiatives and studies have attempted to look at a broader policy context of rural development in the hills and uplands. The Countryside Agency’s Land Management Initiatives looked at a number of upland areas and found the strengths of such areas to be:

- Quality of the landscape
- Peace and tranquillity
- Wildlife
- Tourism
- Closeness of the local community

Weaknesses of the areas were felt to be:

- Geographical factors
- Access to technology
- Limited possibilities for agricultural production
- Lack of affordable housing for local people

An economic evaluation of the Upland Experiment (Bowland Initiative and Bodmin Moor Project) concluded that these projects brought apparent economic and environmental benefits to these areas and that further evaluation of the social and health initiatives developed by the Bowland Initiative is warranted. The integrated nature of the projects appear to offer some important lessons in terms of future uplands policy. The cost effectiveness of such schemes appears to be not dissimilar to that of agri-environment schemes.
4 FINDINGS OF STAGE 2 CASE STUDIES

4.1 Introduction

Stage 2 of the project involved research in 4 separate case study areas during October and November 2003. The research was undertaken by teams from Land Use Consultants and GHK. The case studies are presented in full in a separate report, Volume III, and offer a valuable snapshot in their own right of hill farming in four different parts of the English LFA. There is much more information in Volume III than can be effectively summarised here and we refer readers to the full report for specific details. Brief summaries of each case study and a comparative overview are presented below.

The four case study areas were, from north to south, the south west Lake District in Cumbria, the south west part of the North York Moors in North Yorkshire, Dark Peak in Derbyshire and the north west fringe of Dartmoor in Devon. These areas are shown in Maps 2,3,4 and 5, (or Figures 2, 4, 6, and 8 from the Case Studies (Volume III) report).

4.2 Overview of Stage 2 research

The case studies were selected to elicit as wide a range of information and views - about the economic, social and environmental impacts of hill farming in England - as possible in the limited time and resources available for this project. The case studies provide a fascinating snapshot of hill farming in these areas and its interactions with the local economy, communities and environment. But they remain just that - snapshots - and cannot be said to be fully representative of hill farming in the English LFA as a whole. The findings of the case studies must therefore be treated with some degree of caution as must other previous studies that have focused on relatively small parts of the LFA. When put together however, all these studies show some similarities and common themes begin to emerge, painting a picture of the role and impacts of hill farming that feels credible and robust. The emerging themes and issues are explored in our conclusions for this project.

In undertaking the case studies, we attempted to consult as wide a range of stakeholders as possible in the time available. The full list of stakeholders can be found in Volume III. Many of these have direct links to or involvement with hill farming. Inevitably, there were many people not involved with hill farming that we were unable to talk to who would, no doubt, have had relevant views on the subject of hill farming and its impacts. Given greater time and resources, we could have cast our consultation net somewhat wider. In terms of future research topics, there would be considerable value to be gained from consulting people who live in hill farming areas but whose lives or work are largely unconnected to it and eliciting views from those who visit hill farming areas for recreational purposes. Outside of National Parks, visitor survey data appears to be rather limited. We accept therefore that the views presented in our case studies may not reflect the full set of views of people who live and work in and make use of the English LFA. This is not to dismiss the findings of the case studies but merely to ensure the reader is aware that other views will exist.
4.3 Case study selection

The four areas were selected by the research team and the Defra steering group on the basis that each one should represent different characteristics of the diverse agricultural economies and environments of the hills in England. In terms of their size, each of the areas was large enough to provide a sufficient reservoir of information but small enough to fit comfortably within a homogenous LFA area. Each area was generally linked with a market town that gave it an economic and social integrity.

Nine criteria were used to assess the suitability of a short list of 12 areas. The criteria were:

- The agricultural production systems (enterprises)
- Intensity of land management
- Patterns of tenure
- Related economic activity (particularly tourism)
- Level of natural disadvantage
- Remoteness from centres of population and transport links
- Statutory designations (such as National Parks and SSSIs)
- Duplication with other studies, and
- Regional spread.

Table 9 shows a checklist that was drawn up to aid the selection process.

Maps 2-5 of the four selected case study areas are given below (Figures 2, 4, 6 and 8 from the Case Study report).
Table 9: Checklist of selection criteria

<table>
<thead>
<tr>
<th>Selection criteria</th>
<th>SW Lake District</th>
<th>N York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep farming dominates</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Significant suckler beef sector</td>
<td>●</td>
<td></td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Stock finished in LFA</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Significant dairy sector</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some arable cropping</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Grouse moorland management</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
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<tr>
<td>High levels of tenanting</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High levels of owner occupiers</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Commons with active commoners association</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
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<tr>
<td>Long stay holiday destination</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Short break and day trip destination</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
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<tr>
<td>Relatively little tourism</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principally SDA</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mix of SDA and DA</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principally DA</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
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<tr>
<td>Accessible</td>
<td>●</td>
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<td>●</td>
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<td>Remote</td>
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<tr>
<td>National Park</td>
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<td>●</td>
<td></td>
</tr>
<tr>
<td>ESA</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAC / SPA</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>Few designations</td>
<td>●</td>
<td>●</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Map 2: Location of SW Lake District case study area, showing ward boundaries
Map 3: Location of the North York Moors study area showing ward boundaries
Map 4: Location of the Dark Peak study area showing ward boundaries
Map 5: Location of the Dartmoor Fringe case study area, showing ward boundaries
4.4 Case study summaries

The following sections provide an introduction to each case study area.

4.4.1 South West Lake District

This case study area was the most northerly of the areas chosen. It lies between Coniston Water in the east and the Duddon Valley in the west, from the Wrynose Pass in the north to the Duddon Estuary in the south. The central area of high moorland covers a single unfenced common running from Langdale to Broughton-in-Furness. The area was chosen as a case study because of the long standing and well developed tourism industry, particularly in the northern portion of the area; because of the strong tradition of a stratified sheep sector based around Herdwick and Swaledale flocks; and because, while the area is within the Lake District Environmentally Sensitive Area, the central block of common land is currently not in ESA agreement.

The area encompasses the wards of Broughton (the parishes of Dunnerdale-with-Seathwaite, Broughton West, Angerton and Kirkby Ireleth), Coniston (the parishes of Skelwith, Coniston and Torver), Crake Valley (the parishes of Lowick, Egton with Newland, Osmotherley, Mansriggs and Pennington) and Millom Without (Millom Without parish). It should be noted that the south western and south eastern parts of Millom Without, the south west part of Broughton ward and the south eastern edge of Crake Valley ward lie outside the LFA. The area is split between the local authority districts of South Lakeland (Broughton, Coniston and Crake Valley wards) and Copeland (Millom Without). The whole area is within the Lake District National Park.

The area is within the South Cumbria Low Fells Countryside Character Area. The landscape consists of two spines of rugged fells over 400m in height that run north east to south west (peaking at 800m on The Old Man of Coniston), with lower undulating fells and ridges running down to a coastal plain. The river Duddon occupies a broad valley between the two moorland ridges, and flows south from Wrynose Pass (height 393m) to the Duddon Estuary. The east edge of the area is bordered by Coniston Water which has a north-south axis. The high fells are unenclosed moorland with a diverse pattern of rock outcrops, heathland, tarns and becks, small wetlands and mires, rough grassland and bracken.

The broad floor of the Duddon Valley is relatively intensively farmed as improved grassland, with frequent blocks of woodland on the steeper sides (especially on the west side where there is an almost continuous band of ancient semi-natural woodland). The lower fells on the eastern and southern parts of the area are typified by minor river valleys covered by a dense pattern of semi-natural, mixed and conifer woodlands with small scale enclosures of semi-improved grassland, surrounded by well maintained dry stone walls. The villages (such as Ulpha and Torver), hamlets (Seathwaite, Broughton Mills and Bowmanstead), isolated farms and barns and large country houses tend to be constructed from local limestone and slate. There is an intricate pattern of undulating and twisting minor roads serving the dispersed settlements.
The population of the area is 7,464 (2001 Census), 31% of which is concentrated in Broughton (which includes the small market town of Broughton-in-Furness), 25% in Coniston (including the large village of Coniston), 24% in Crake Valley (including the fringes of Ulverston) and 19% in Millom Without (largely rural). The towns providing the main services to the area are Barrow-in-Furness, a large industrial centre to the south with a population of around 70,000, the market towns of Ulverston (population 11,524) and Millom (6,103) and the tourist centre of Ambleside (resident population of 3,560, rising very significantly during the tourist season).

4.4.2 North York Moors

The chosen study area was the Dales and Helmsley wards of Ryedale District, in the central and south-western parts of the North York Moors. It lies within the North York Moors National Park (NYMNP) and North Yorkshire County, and is predominantly Severely Disadvantaged Area (SDA), with smaller areas of Disadvantaged Area (DA) and some areas of non-LFA on the southern fringe.

The land is mainly blocks of heather moorland dissected by dales that run north-south. The main dales are (from east to west) Rosedale, Farndale, Bransdale and Ryedale. These descend into lower and more intensively farmed land to the south, including a substantial area of arable land around Helmsley, Rievaulx and Cold Kirby. The moorland is mainly Grade 5 agricultural land and includes large areas of common land, the dales are mainly Grade 4 land and the arable land is mainly Grade 3 land. There are areas of coniferous planted forests, notably in the west of Dales ward (North Riding Forest Park), and scattered semi-natural woodlands mainly on lower valley slopes.

The moorland is relatively low-lying, mostly between 150 and 400 metres in altitude, and was in forest until about 2,500 years ago. It is widely accepted that if it is not maintained as heather and grassland through grazing and burning it will succeed to scrub and eventually to forest (as has happened in a few areas). Most of the moorland is designated as Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and candidate Special Area of Conservation (SAC). There are also two smaller areas of SSSI at Duncombe Park, west of Helmsley township, and at Rievaulx Abbey. There is no ESA in the area. Most of the area is within the North York Moors and Cleveland Hills Joint Character Area, with the southern fringe in the Vale of Pickering Area.

The population of the two wards is 4,694 (2001 Census): 3,111 in Helmsley ward and 1,583 in Dales ward. This comprises about 20% of the population of the National Park (25,138). Helmsley is the main settlement and smaller settlements include Hawnby, Cold Kirby, Rievaulx, Sproxton, Pockley, Gillamoor, Spaunton, Lastingham, Appleton-le-Moors and Rosedale Abbey. Kirkbymoorside is just outside the study area but is an important servicing centre for the Dales Ward, as is the larger town of Pickering.

4.4.3 Dark Peak

The Dark Peak study area lies within the Peak District National Park, and in the county of Derbyshire. The chosen case study area covers the wards of (from east to west) Hathersage and Eyam, Hope Valley, Hayfield and St John’s (see map 4). The
area is administered by two local authorities: High Peak Borough Council (St John’s, Hayfield and Hope Valley wards), and Derbyshire Dales District Council (Hathersage and Eyam ward). The majority of the chosen area is Severely Disadvantaged Area (SDA), with a narrow strip of Disadvantaged Area (DA) in the more fertile valley bottoms to the south east.

The chosen case study area is part of the wider ‘Dark Peak’ area, which includes the Staffordshire Moorlands in the southern portion of the National Park. The name refers to the underlying geology of Millstone Grit sandstones (‘gritstone’) which contrasts to the adjoining limestone plateaux of the White Peak to the south of the case study area. The case study area largely consists of high moorland and adjacent in-bye land. Kinder Scout is located within Hope Valley ward, and at over 600 metres above sea level, it is the highest point of the Peak District. The wild and remote semi-natural character of the moorland means that the area is one of the most extensive tracts of ‘wilderness’ in England. Altitude and exposure are reflected in the land use and vegetation patterns with grouse shooting and sheep grazing dominating the moors. Small-scale enclosure is apparent in the sheltered valleys around the plateaux margins, consisting of managed livestock farms (beef and sheep in varying combinations) or dairy farms, often with subsidiary beef or sheep enterprises. Another aspect of the case study area’s character is the large-scale man-made reservoirs of the Upper Derwent Valley, with wide areas of coniferous planting. The moorland is designated as open access land under the Countryside and Rights of Way Act 2000 (CRoW), but most of it has been in Access Agreements for many years. Indeed, Kinder Scout has a close historical association with the mass campaigns and rallies of the 1920s and 1930s for open access and the creation of National Parks. The Pennine Way begins in Edale, which is in the centre of the case study area.

The majority of the case study area has a dispersed population, with the main centres of population being concentrated in the villages in the valley bottoms to the south and west of the area. The combined population of the different wards is 11,536 (2001 census); with the highest population being in the Hope Valley (3,812, 2001 census) which is the largest ward and covers the villages of Bamford, Thornhill, Aston, Brough, Hope, Castleton, Edale, Barber Booth and Peak Forest. The case study area is in close proximity to large urban centres such as Sheffield to the north east and Manchester to the north west – which contributes to the fact that the National Park as a whole is the second most visited in the world

### 4.4.4 Dartmoor fringe

This case study area was the furthest south of all the areas chosen. It lies off the north western edge of the granite Dartmoor massif on the heavy soils of the Culm measures. The area was chosen as a case study to represent the more intensive land use with a higher proportion of dairy farming and arable cropping associated with Disadvantaged Areas, compared to the more extensive moorland dominated land use in the Severely Disadvantaged Areas.

The area is bounded physically by the Dartmoor Forest Common to the south east (coinciding roughly with the A386), running from the towns of Tavistock in the south, to Hatherleigh in the north and Okehampton in the east. It encompasses all of the wards of Mary Tavy (the parishes of Mary Tavy, Peter Tavy and Brentor), Bridestowe (the parishes of Bridestowe, Sourton, Bratton Clovelly and Germansweek), Lew
Valley (the parishes of Beaworthy, Northlew and Inwardleigh) and a small part of Dartmoor Forest (the parish of Lydford). The area lies within the West Devon Borough.

Most of the area is within the Culm Joint Countryside Character Area, with the southern part lying in the South Devon Joint Countryside Character Area. The landscape consists of rolling, locally steeply-undulating open, pasture separated by many small valleys over heavy, poorly-drained soil supporting rushy pastures of low agricultural quality, but high nature conservation interest. The land falls from a height of around 300m at the edge of the Dartmoor Forest Common to 70m in the bottom of the valleys. On the higher more open ground, tree cover is limited to occasional large blocks of conifers with wind-shaped hedgerow and farmstead trees elsewhere. In the valleys, especially of the rivers Lyd and Lew there is a more intricate landscape of small fields carved out of woodland. On the poorest soils there are occasional unenclosed commons such as Hollow Moor near Halwill, most of which are designated as SSSIs for their botanical interest.

The population of the area is 4,657 (2001 Census) split almost equally between the three wards. The towns providing the main services to the area are Tavistock to the south (population 11,081) and Okehampton to the east (6,237). Launceston lies 5 miles to the west in Cornwall (population 7,135).

The area was severely affected by the Foot and Mouth Disease (FMD) epidemic of 2001. The first case in the region occurred at Highhampton, just to the north of the case study area, on 24 February, four days after the first UK case was discovered in Durham. The area around Highhampton rapidly developed into a hot spot of the disease, with cases recurring until late May. In total, the disease was confirmed on around 20 farms in the case study area and many more farms lost their livestock to the contiguous cull of at risk farms. It is thought that well over half of cattle and sheep in the area were culled. However, while the social scars of the disease continue, the physical impacts are less obvious. Most of the larger farms have restocked. The financial compensation paid for lost stock, and to recompense farmers for the cleaning and disinfection of their premises, led to a significant injection of capital to the area.

4.5 Case study findings

The following sections summarise the main findings drawn from the case study research. The case studies largely support the findings of previous studies and stakeholder views, assessed during Stage 1 of the project.

4.5.1 Economic issues

4.5.1.1 Characteristics of local economy

Agriculture and forestry have a minor and declining economic role in most of the case study areas, compared to the importance of industry, tourism and other service sectors. However, some variation is apparent, with agriculture and rural industries relatively prominent in the North York Moors study area (a sparsely populated area with few other opportunities. In general, unemployment is low although population densities are also low and employment is characterised by many part-time jobs and low wages. Given job trends and the high price of housing and other services such as
transport, it is hard to attract new labour in some areas e.g. North York Moors. These areas are becoming increasingly affluent as commuters, retired people or those with investment income move in.

4.5.1.2 Agricultural production systems.

Beef and sheep are the predominant farming systems in the hills and uplands although beef production has declined and breeds are shifting from hardy or semi-hardy breeds such as the Belted Galloway or Welsh Black cattle to Aberdeen Angus and Limousin. The traditional exchange of livestock between the upland and lowlands is still common although animals are increasingly finished in the more productive parts of the LFAs. As pointed out in the National Beef Association's submission to this study, there is no longer a significant stratified beef suckler herd in England, in which hill-bred hardy cows produce cross-bred heifers for upland suckled calf production. Nevertheless, the study encountered specialist suckled calf producers in both the SDA and DA making a significant contribution to UK prime beef production.

In the sheep sector, the stratified hill and upland flocks, supplying lowland producers with the mule breeding flock, is still much in evidence despite the severe restrictions on movement that were imposed during the Foot and Mouth Disease epidemic in 2001. Although the study did not consult lowland sheep producers, it seems likely that there will continue to be a demand for the pure and cross-bred hill ewes produced in the LFAs although, in the absence of production-related subsidies, this will be increasingly reliant on the profitability of upland and lowland finished lamb production.

Dairy farms are declining in number, with those remaining becoming larger in line with ongoing national trends. The relatively small size of many LFA dairy farms, often coupled with remote access for milk tankers, puts them at a competitive disadvantage. It is likely that milk production will decline further in most of the LFA (though probably not in the more productive DA areas such as those in Devon), with farmers leaving dairying taking up extensive beef and sheep production.

Some arable and fodder crops are grown on lower more productive ground such as that found in the Dartmoor Fringe case study area. These crops are almost all for home consumption and the LFAs make a negligible contribution to national off-farm sales of arable crops. The area of maize grown in the uplands has grown significantly during the last ten years as new varieties became available but there is unlikely to be further growth in view of the decline in dairying in most LFA areas.

4.5.1.3 Non Agricultural Land-Uses

Where forestry exists, it is managed mainly by governmental agencies (such as the Forestry Commission in the Dartmoor fringe), water companies (Dark Peak) or private estates. Forest tourism in these areas is becoming increasingly important and the timber value of forestry less significant (generally making timber production marginal or unviable in financial terms). Otherwise, only small blocks of woodlands remain with farmers generally being resistant to woodland management and seeing them only as a landscape feature or shelter for livestock.

Grouse shooting is an important source of income in Dark Peak and North York Moors case studies.
The Dark Peak is a major water catchment supplying cities such as Sheffield and Nottingham.

There appears to be increasing interest in renewable energy with a wind farm in the south west Lake District and hydro schemes in the Peak District National Park (but outside the study area). There are proposals for an energy plant that would use miscanthus and short rotation coppice to the north of the Dartmoor Fringe.

Recreational use of land is growing in some areas, e.g. many non-farming landowners keeping horses for riding in the Dartmoor Fringe case study area and other case study areas.

4.5.1.4 Patterns of land tenure

The percentage of tenanted land varies between areas: south west Lakes 49%; North York Moors 62%; Dark Peak 25%; Dartmoor Fringe 16%. Large landowners include the National Trust, County Councils and Water Companies. Owners such as the National Trust are keen to encourage tenants to consider diversification and enter agri-environment schemes.

4.5.1.5 Land Values and Trends in Marketing and Holding

In all case study areas, the land market appears relatively static with few entire farms coming onto the market. Demand is generally high and land prices are fairly buoyant. Often, when sold, farms are divided into lots with the house, some buildings and land sold off for residential purposes and off-lying land lotted separately to maximise interest from neighbouring farmers. Residential buyers are often seeking small areas of land for ponies or horses. Foot and Mouth Disease did not seem to be the catalyst for farm sales that some thought it would be.

In some areas e.g. Dartmoor Fringe, second home ownership is high with properties without land, such as old farmhouses or cottages in villages selling quickly. House prices in all four areas appear to be high and frequently beyond the means of many young, local people and farmers’ sons and daughters.

4.5.1.6 Sources and Uses of Farm Labour

The large majority of farm labour comes from within the family and is predominantly male. Family labour reduces costs but can lead to insularity and prevent new ideas coming into the business. Overall, farm employment has been declining for some time. Generally, the workforce is ageing although some larger farms often have younger family members coming into the business. Some farm labour has gone into contracting services.

4.5.1.7 Agricultural Products and Services Purchased by Farmers

Many supply businesses remain local to the case study areas but business is declining and farmers, particularly the larger businesses, are increasingly looking to suppliers out of the region and using the Internet to find the cheapest prices. This represents a weakening of the engagement of these farming businesses in the local economy. In contrast, many local businesses are increasingly supported by smallholders and non-farming land owners. Most vets have suffered a general decline in farm animal work
and increasingly make their income from small animals and pets. Agri-environment schemes have stimulated demand for new services in many areas for contract walling, fencing and other capital works.

4.5.1.8 Quality Assurance and Branding Schemes

The case studies found evidence of a wide range of assurance schemes and marketing and branding initiatives. There was limited information on membership of schemes such as Farm Assured British Beef and Lamb or the National Dairy Farm Assurance Scheme although this is thought to be significant. However, farmers in the Dartmoor Fringe, for example, perceive quality assurance schemes as ‘a con pushed by the supermarkets.’

4.5.1.9 The sale of agricultural products and services by farmers

In all case study areas the role of livestock markets has declined and there is an increasing trend to sell animals directly to abattoirs. The Dark Peak study however illustrated how investment can have a range of socio-economic impacts; a £6 million grant to improve Bakewell market (as part of a larger £18 million development grant for the town) has had significant benefits. There is some evidence of farmers’ markets and on-farm processing and direct selling although not being able to ensure continuity of supply is a constraint for many smaller producers. Farmers’ markets, where they exist, are important not only for the economic benefit to the relatively few farmers taking part, but also for raising public awareness of local food and farming issues and providing social interaction for the individuals who take part.

4.5.1.10 Diversification

The case studies identified a range of diversification activities, many of them still very much related to agriculture. Evidence of on-farm processing was found in the case studies although it remains relatively limited e.g. cheese making in the Dartmoor Fringe and a local drinks business in the Dark Peak. There were few examples of farmer retailing outside of farmers’ markets, although there appeared to be growing demand for local food and a number of initiatives aimed at promoting local food. Contracting work was a common option explored by some farmers to bring in additional income. Where diversification does occur, women are often a significant driver behind both its introduction and operation (estimated at 80% in the Dark Peak).

Many factors preventing diversification were cited. These include a lack of relevant skills, old age, lack of capital, high costs, planning constraints, health and safety issues and also a lack of business advice for these kind of projects. All case studies found problems of a lack of new ideas for diversification and innovation among the farming community. The Rural Enterprise Scheme (RES) was frequently referred to as a source of grant funding but many farmers appear to struggle with the rules and administrative burden. In particular, many lack the necessary skills to produce the business plan required by RES applications.

4.5.1.11 Characteristics of the tourism sector

Patterns of tourism within the case study areas varied significantly although tourism was a feature in all. Areas such as the Dartmoor Fringe and parts of the south west
Lake District were less visited than the Dark Peak or North York Moors although, even there tourism is often concentrated around honey-pot locations. Many visitors are day-trippers who bring fewer economic benefits than those holidaying in the area. Visitor surveys in a number of the case studies show that people go there for the landscape, peace and tranquillity and to engage in outdoor activities. There is a general perception in the study areas that agriculture has a positive impact on the landscape enjoyed by visitors, though few interviewees had considered the likely impacts of alternative land use scenarios. However, surveys of moorlands show that there are also negative perceptions of such areas with some people viewing them as bleak and inhospitable. Traffic congestion in some areas, but also conversely lack of access to others, influences tourism activity.

4.5.1.12 Tourism provision by farmers

Few farmers provide attractions other than bed and breakfast accommodation or caravanning and camping. In many areas, including the North York Moors and Dark Peak, there appears to be an oversupply of accommodation and applications under schemes such as the Rural Enterprise Scheme for providing new accommodation on farms are increasingly being turned down. Various initiatives, especially within National Parks, are aimed at increasing tourism demand and particularly trying to extend the tourism season beyond the summer months. Also, some farmers see accommodation as an easy option and underestimate the level of service provision or standards that are required.

Farmers also provide other services, the most common being horse riding and pony trekking, land services, local food and game keeping.

Where commercial shooting is present it constitutes an important source of income. Grouse shooting is big business in the North York Moors and significant in the Dark Peak, bringing income and providing local employment.

4.5.1.13 Off-farm income earned by farmers and their resident families

It is common for at least one member of the family to work off the farm, most commonly women although increasingly men are farming part-time and daughters and sons are working full-time off the farm. This off-farm work is a significant source of income and often underpins the farming business. More interestingly, most farmers see the purpose of off-farm working as underpinning the farming business rather than as a long-term alternative career in its own right.

4.5.1.14 Farm incomes

Farm incomes are generally low and have declined significantly since the mid 1990s, particularly in the dairy sector. Livestock subsidies, LFA support and agri-environment payments provide the majority of income although, as stated above, off-farm income is increasingly important to the viability of the farming business. The Dark Peak cited evidence of some families claiming income support and some farmers who would like to quit farming but feel unable to due to levels of debt.
4.5.2 Environmental issues

4.5.2.1 Intensity of agricultural land management

The intensity of agricultural management varies from the DA to SDA land, from the valley bottom to the tops of the hills and moors and from case study to case study. In the Lake District the most intensive farming (relative to the carrying capacity of the land) occurs in the valley bottoms and on some of the unenclosed fell. The North York Moors is generally more extensively managed, especially on the moorlands, contrasting with the intensive management of the in-bye while the Dartmoor Fringe appears to be the most intensively managed of all the case study areas due to more favourable climate, soils and topography. Dairying is more predominant in this area. The intensity of management on the open moorland is a cause of on-going concern in the Dark Peak and the South West Lake District. In many areas, farmers were keen to stress their understanding and acceptance of agriculture’s impact on the environment and that they have no desire to consciously damage it.

Both overgrazing and undergrazing were critical issues in the case studies with evidence of negative environmental impacts resulting from inappropriate grazing regimes. The unfavourable condition of many upland SSSIs, declines in biodiversity and loss of landscape quality are frequently referred to.

4.5.2.2 Relationship between environmental conservation and farming

Both farmers and nature conservation bodies recognize the interrelationship between the natural environment and hill farming systems. An example in the South West Lake District illustrates some of the problems that can arise from changes in farming practice. Cattle are generally regarded as more environmentally benign grazers than sheep but farmers seeking to enter Environmentally Sensitive Area agreements and those taking off-farm work tend to reduce cattle numbers rather than sheep because sheep require less labour and have been less profitable. The result is that it is more difficult to maintain the biodiversity value in these areas.

In most areas, the impacts of hill farming on natural resources such as soil, air and water are seen as less of a problem than impacts on biodiversity and landscapes. However, problems such as diffuse pollution do arise, particularly on lower lying and more intensively managed land and erosion is a problem in some parts of the hills. The Environment Agency is especially concerned about dairy farming in areas such as the Dartmoor Fringe. Meanwhile, in the Dark Peak the impacts of moorland degradation on water supplies are a key issue with some problems linked to heather burning where grouse shooting is profitable. The disposal of silage wrap is seen as a growing issue in some areas such as south west Lake District and some recycling schemes have been introduced.

4.5.2.3 Impacts on biodiversity

Levels of grazing are critical to the biodiversity value of the uplands. Both undergrazing and overgrazing can have negative impacts on biodiversity and numerous examples are given by the case studies. Some changes required to improve habitat quality for biodiversity include more cattle on grass fells during summer, fewer sheep in many areas and appropriate shepherding, controlled supplementary
feeding and less frequent burning of heather on grouse moors, to cite just a few examples.

Restructuring of farm holdings can create specific problems leading to loss of species due to the enlargement of fields and the removal of hedgerows, use of machinery and increased inputs.

4.5.2.4 Impacts on landscapes

The case studies offer numerous examples of changes in farming practice leading to undesirable changes in the landscape such as the loss of features such as hedgerows and the degradation of walls and buildings. However, agri-environment schemes have addressed some of these problems and there is a feeling among some stakeholders that landscape management has improved in recent years. Several case studies pointed to a sense of a gradual ‘gentrification’ of some areas as incomers develop farm cottages and buildings, and also the negative impact of the increase in pony paddocks and stabling.

4.5.2.5 Impacts on historic environment

Various impacts on the historic environment were cited in the case studies. Scrub and tree encroachment is a major threat to buried remains and grazing is required to prevent this. However, overgrazing can also create problems both for buried and standing remains. Much of the upland archaeological resource remains under surveyed in many areas e.g. the Dartmoor Fringe.

English Heritage identifies neglect and inappropriate development as problems for the built heritage with traditional buildings falling out of use, house and buildings being inappropriately developed for tourism and accommodation facilities and walls and stiles allowed to degrade. Such concerns were common to all four case studies.

4.5.2.6 Involvement of hill farmers in agri-environmental schemes

A significant number of farmers are involved in agri-environmental schemes, with different schemes operating in the case study areas. ESAs, Countryside Stewardship, English Natures’s Wildlife Enhancement Scheme and National Park schemes are frequently referred to. A range of environmental and socio-economic benefits are seen to arise from such schemes, some of them ‘spilling’ outside the areas covered by the schemes. Many farmers see agri-environment schemes as a financial lifeline. However, there are various concerns including whether schemes meet the needs of the local community, confusion due to the number of schemes and low payments. Many farmers also expressed particular concerns that removal of sheep from established hefts at certain times of year and the general low levels of stocking required pose threats to the longer term viability of hill farming systems in these areas. There was evidence from the South West Lake District that farmers’ anticipation of the decoupling of CAP commodity support will result in new land, particularly commons, coming under agreement. However, also in the South West Lake District, there was concern that restructuring of agri-environment schemes into Entry Level and Higher Level Schemes could see incentives reduced on much of the land currently in Tier 1 of the ESA.
4.5.2.7 Involvement of farmers in waste recycling

Different initiatives for recycling plastic (used silage wrap) are operating in North York Moors and South West Lake District.

4.5.2.8 Abandonment

Land abandonment does not appear to be a significant current problem in the case study areas but there are indications of a growing risk of abandonment of the more marginal land. In general, demand for in-bye land remains high within the farming community and from non-farmers and the land market appears relatively stable. Even if the fortunes of hill farming were to decline further, many farmers feel that farming would continue albeit with greater adoption of ranching style systems. However, the future of grazing on remoter and less productive areas of unenclosed moorland is much less clear, with consultees anticipating reductions in stocking, particularly in cattle, as a result of CAP reform. The strongest threat appeared to be in the North York Moors and South West Lake District. In the former, abandonment of grazing is a widespread threat on the moorlands, but they are likely to continue to be managed as grouse moors. The loss of labour and fell management skills - such as hefting the stock - are seen as a threat in many areas, reducing management capacity. Abandonment is largely viewed as unfavourable although some environmental benefits could arise from small scale agricultural abandonment allowing scrub and woodland regeneration.

4.5.3 Social issues

4.5.3.1 Cultural identity of the area

Farming and farmers continue to play a central role in the cultural identity of all the case study areas. However, many farmers perceive themselves as being part of a community under siege and that the old certainties in the farming economy and social structures that have guided their lives for many decades no longer exist. Many farmers feel threatened by the social changes taking place around them and by the affluence and social ambition of newcomers to upland areas. However, other stakeholders see incomers bringing new life experiences and benefits to rural communities. Incomers themselves often appear to value and want to support the traditional attributes of the areas they move into. For example, new landowners are often the ones to use local businesses for supplies being concerned more with quality than price than farmers who increasingly have to look further afield for the cheapest deal.

4.5.3.2 Community activities and institutions.

An ageing farming population, reductions in labour and highly time consuming activities mean than many farmers appear to have withdrawn from many events in the social calendar of the case study areas. However, Parish Councils and School Boards still appear to be reasonably well populated by farmer representatives. A lack of young people, due to limited employment opportunities and expensive housing, was seen as a particular problem in the North York Moors and apparent in other areas. However, there is still significant involvement of farmers in rural community life. The South West Lake District study gives examples of the livestock markets and
agricultural shows providing an interface between farming families and the wider community.

4.5.3.3 Social inclusion and integration

Farming families are often seen as providing a sense of continuity and stability in rural communities. But for reasons cited above, some farming families and men in particular appear to be becoming increasingly isolated. Social exclusion does exist in the case study areas but there is little evidence to suggest that the problems of the farming community are greater than those of other sections of society. In the Peak District, a LEADER + programme promotes social inclusion emphasising the needs of women and young people. Farming families are included but not prioritised with other groups such as single mothers and housewives seen as suffering greater social exclusion.

Affordable housing appears to be a significant issue in all the case study areas. It forces many young people to live away, even when they work in the area and is leading to an ageing demographic profile and less viable institutions (such as schools) serving young people and their families.

4.5.3.4 Recreational provision by farmers

Farmers provide several recreational services, the most notable being the access to land and fells and the maintenance of a network of rights of way. Access is perceived as both a threat to farming and the environment and an opportunity (related to diversification opportunities). Varying views were expressed about the CROW Act and new open access to moorland. Horse riding, cycle routes and shooting are other recreational activities which some farmers are providing facilities for.

4.5.3.5 Health safety and quality of life

Changes in production systems have increased the occurrence of physical injuries (due to the high demands on labour and long hours) and mental health problems such as stress caused by financial worries and depression. Occupational safety and the safety of young children left at home with a working parent are also issues.

Some of the health and social risk factors identified in the case studies include inadequate heating and sanitary facilities in houses (due to lack of investment sometimes related to insecurity of housing tenure), isolation, difficulties accessing childcare and education, and poor public transport, among others.

Given these problems, it might be expected that farming families would feel their quality of life is poor however, to the contrary, most farmers and their families feel, in general, that they have a high quality of life.

4.5.3.6 Skills and training needs of farmers

Continuation of farming knowledge is seen as an important requirement in hill farming areas but the transmission of knowledge from farming elders to the next generation is often broken by migration and a gradual ageing of the agriculture community. The Dartmoor Fringe study pointed out that farmers’ knowledge can be underestimated.
All case studies identified a lack of skills and the need for training among the farming community in relation to business management and development, IT, conservation management, walling etc. It was felt however that many farms are not dissimilar to other small businesses in rural areas in their need for business skills. Training programmes largely appear to be welcome, in the case study areas but are often underused perhaps pointing to a lack of time, lack of awareness of what is available or resistance to change.

Some farmers saw education as a way out of farming for their children and did not want them to pursue a farming career (see below).

4.5.3.7 Succession of holdings

The farming population is ageing and there appear to be several factors driving the next generation out of farming: educational aspirations, lack of services, insecurity of housing, low wages and stress. Some farmers are discouraging their own sons and daughters from continuing the farming activity. Many farms do not have a successor. However, demand for farms and land remains relatively high which supports the findings of land abandonment on the unenclosed in-bye land not being a significant issue. Farmers expanding their businesses (and/or buying land for sons and daughters), the increase in part-time farming and a small number of committed new entrants appear to keep hill farming, if not buoyant, certainly on-going. The slow rate of retirement of farmers, arising from the current relatively low levels of debt, lack of affordable retirement housing and a resistance to change, was not cited as a specific problem in the case studies but is know to be one reason why the rate at which farms come onto the market is slow. It is likely that uncertainty over the precise details of CAP reform also held back many farmers from making significant changes to their businesses during 2002 and 2003. It is likely that structural change will increase once the reforms are clarified.

4.5.3.8 Role of women

All the case studies found women to be a major driving force of diversification activities, managers of tourism businesses and most frequently working off-farm to support the farm business. Several examples of local Women’s Unions and support for women’s education and activities are given however younger women were felt to be less well served in the North York Moors study.

4.5.4 Hill farming scenarios

The hill farming scenarios explored in the case studies raise a number of additional issues:

- Scenario 1 was seen as the most probable scenario in all the case studies except in the North York Moors, where the risk of abandonment was seen as more in line with Scenario 2. However, the presence of grouse shooting in this area was seen as ensuring continued land management. Farmers see this scenario as one that is likely to keep them farming but the gradual decline in farming in the economy and society is seen as negative. Further losses of cattle are seen as problematic from an environmental perspective. There are also
concerns about a lack of significant expansion of agri-environment schemes that this scenario entails.

- Scenario 2 was seen as the least desirable for its negative environmental, economic and social consequences. In all case studies except the North York Moors this scenario was seen as least likely, though there was an increasing risk of under-grazing in the South West Lake District. Uncertainty about CAP reform and declines in farm labour and associated employment factors could make aspects of this scenario more likely.

- Scenario 3 was regarded as the most desirable by many of the stakeholders. There was some optimism that things were moving in this direction. Farmers welcome agri-environmental schemes and see them as becoming increasingly important although they have concerns such as the appropriateness of prescriptions or payment rates. Tourism is likely to remain an important economic activity in the hills in future but increasing tourism demand in some areas and throughout the year would be beneficial. Increasing diversification is also likely, however it appears to need encouraging and allied support e.g. business advice made available. A lack of new ideas and innovative approaches, farmers risk aversion and resistance to change present particular problems if this scenario is to be realised.
5 FINDINGS FROM STAGE 1 AND STAGE 2 RESEARCH

a) The nature and extent of the positive and negative environmental impacts of current hill farming practices in relation to landscape, recreation, wildlife, flood management and diffuse pollution.

- The environmental impacts of hill farming are relatively well studied although there is a lack of:
  - research comparing the impacts of different types/intensity of upland farming systems;
  - data on invertebrates compared to birds and plants;
  - long-term data sets quantifying soil erosion;
  - data linking precise stocking rates with vegetation change;
  - data on upland landscape change.

- The presence of grazing livestock in the uplands and associated traditional management practices such as, for example, shepherding, heather burning, hay making and dry stone walling can have a range of positive impacts on the upland environment.

- Without grazing and active land management, a very different pattern of habitats and landscape features could be expected in the uplands with a much greater presence of scrub and trees.

- Both farmers and nature conservation bodies recognise the interrelationship between the natural environment and hill farming systems.

- There is considerable evidence of the negative impacts of current hill farming practices on landscapes, wildlife, soil and water resources and archaeological resources. Many upland SSSIs, in particular, are in an unfavourable condition.

- The negative impacts of hill farming on the upland environment appear to arise as a result of: grazing levels that are too high or too low for biodiversity requirements; grazing by an inappropriate balance of cattle and sheep; a reduction or cessation of certain management practices such as shepherding and an increase in other practices such as supplementary feeding; management practices carried out in inappropriate ways e.g. poor quality heather burning or incorrect disposal of sheep dip.

- A few studies identify the cost of environmental problems associated with hill farming e.g. water related pollution incidents and soil erosion but generally such evaluations are lacking.

- Hill farming is not solely responsible for negative environmental impacts in the uplands. Environmental change also results from other activities such as
recreational access and tourism activities, forestry, grouse moor management, built development and industry.

b) The nature and extent of the social impacts of hill farming in relation to the local community, the maintenance of the local infrastructure and the provision of local services.

- There is a lack of sociological studies of hill farming and communities in hill farming areas and this area deserves further research.

- Studies that do exist tend to look at farming more generally or are focused on small, case study areas that are interesting in themselves but do not necessarily provide conclusive evidence for social trends or interactions.

- Farming and farmers continue to play a central role in the cultural identity of hill farming areas.

- Many organisations and individuals hold strong views about the positive contribution of hill farming families to the local community and their role in maintaining local infrastructure and the provision of services, but there is relatively little evidence to support these views and there are some views to the contrary. There is a perception among some stakeholders that incomers and commuters contribute less to rural life than long-standing or permanent residents but again there is little evidence to support this and views to the contrary have been provided suggesting incomers bring new life and ideas into the uplands and some evidence that they actively support local businesses.

- Examples of the positive social impacts of hill farming include: the involvement of farming families with local committees, clubs and societies; the contribution to activities such as festivals, shows etc; the use farmers make of other rural businesses; and, the role of farmers in providing services such as snow clearance, roadside verge maintenance, mountain rescue and fire control.

- A small number of studies in different areas and the case studies for this project point to a reduction in social interactions and a withdrawal of hill farmers from local community involvement in response to changing farming circumstances and economic pressures. Farmers themselves identify this trend and refer to it with a sense of regret.

- There are few current studies on the role of women in farming but anecdotal evidence backed up by the case studies suggests that women are very active in the farm business, better networked than their male counterparts and often the drivers behind diversification projects. Women are more likely to work off farm but often underplay the value of the contribution they make to supporting the farm business or more generally.

c) The effect of scale and intensity of agricultural activity on identified environmental and/or social impacts.

- Scale and intensity of agricultural activity have a significant effect on the environmental impacts that arise from hill farming.
Positive environmental impacts are largely discussed in the context of less intensive or ‘traditional’ hill farming systems.

Environmental impacts associated with the scale and intensity of agriculture vary depending on what aspect of environmental quality is being assessed. For example, a certain intensity of grazing can have positive impacts on one species and negative impacts on another.

There is limited evidence that the extent of landscape or ecological change has been caused by economic pressures – and the numerical decline in the agricultural workforce - and is not due to the diversity of values held by farmers.

There is some evidence that reductions in the farm labour force and increased mechanisation have resulted in less need or opportunity for communal farming activities and led to a decrease in the social interactions between individual hill farmers and their neighbours and other members of the local community.

d) The indirect economic effects associated with traditional hill farming and their importance, particularly in relation to the tourism sector in upland areas.

Tourism is a major economic activity in hill farming areas, much of which is concentrated in National Parks.

Tourism is a significant income generator and employer with estimates varying from region to region. In the South West, 78 per cent of the total holiday trips are motivated by conserved landscapes and attract spending of £2.4 billion and support 43 per cent of total tourism employment in the region.

While there is clear evidence that visitors are attracted to the uplands by landscape and environmental features, there is little evidence about visitors’ preferences between different land management systems and whether certain changes in land use e.g. afforestation, would be more or less popular.

Studies of the Foot and Mouth crisis demonstrate the importance of tourism to the economy but are not illustrative of the implications of a decline in hill farming as most FMD impacts arose as a result of access to the countryside being denied or, at least, discouraged.

Hill farmers entering agri-environment schemes have stimulated new economic activity e.g. contract walling and fencing businesses.

Farm diversification creates new employment opportunities and new demand for inputs and services.

Grouse moor management generates significant income and employment and is subsidised by estate owners. Estimates of the figures involved vary.

Beekeeping is a small scale economic activity in the uplands, often linked to grouse moor management.
• There is evidence that the public has a significant willingness to pay to protect the types of habitats associated with hill farming.

• Substantial values are also placed on hill farming features (e.g. walls and buildings).

• Scottish studies have suggested a positive willingness to pay to convert grazed upland landscapes to native woodland and/or scrub.

• Some studies suggest that preferences in England and Scotland may differ, and that the public is more willing to pay to preserve existing hill farm landscapes in England, particularly in relation to moorland. These differences may reflect the relative scarcity of moorland in England compared to Scotland.

• The linkages between hill farming and the rest of the agricultural economy, in particular the lowland livestock sector, and their significance.

• Hill farming is relatively less important in the agricultural economy of England compared to Scotland and Wales.

• Nevertheless, hill farming accounts for a significant proportion of sheep, beef and dairy output.

• Hill farms are closely linked with lowland livestock systems – selling lambs and weaned calves for finishing in the lowlands and with hardy hill ewes used to produce mules. Increasingly, on better quality land, some livestock are finished in the uplands.

• A study for Defra concluded that it would be feasible for lowland sheep farms to move to a “closed flock” system, with limited financial impacts in the lowlands but significant impacts on hill farming margins. It appears therefore that hill farms are more dependent on lowland livestock farms than vice-versa.

• Hill farming also benefits the wider rural economy through purchases of inputs and distribution, marketing and processing of outputs. However, there is evidence of contraction in upstream and downstream sectors as hill farming declines e.g. closure of auction markets and abattoirs and vets concentrating on small animal work. Farmers are also increasingly sourcing inputs further afield than the local economy e.g. through the Internet, in order to find the best price.

• Regional output and employment multipliers have been estimated at around 1.5 in the South West – i.e. each livestock farming jobs supports an extra 0.5 jobs elsewhere in the economy. This multiplier relates to all livestock farming, not just hill farming, and is likely to be lower if based only on hill farming activity.

• Studies into the effects of Foot and Mouth Disease have revealed impacts on a variety of upstream and downstream activities as a result of changes in livestock farming output.
f) The strength of evidence relating to the risk of widespread land abandonment in the uplands and the possible impacts of abandonment or other alternative land uses on a) to e) above.

- There is little evidence of a risk of widespread land abandonment in the uplands although few studies have been undertaken in this area. This view is supported by the case studies undertaken for this project.

- Areas generally thought to be at greatest risk of abandonment are the less productive areas i.e. hill farms where soils and land conditions are relatively poor. In most areas, land is not being abandoned or left unutilised but continues to be sold at relatively high prices. However, there are examples of the removal of flocks from commons, loss of grazing on steeper slopes and under management of land purchased by non-farmers.

- A study of new entrants to land markets, although not focused on hill farming areas, supports the case that demand for land is high.

- In terms of the rental market, major land owners such as the National Trust are still able to find tenants willing to rent upland farms but in some areas few prospective tenants are now coming forward and the choice is becoming increasingly limited.

- There is some limited support for ‘managed abandonment’ but a study examining wild land experiences around the world concluded that the economic and social impacts of creating new wild land in Northumberland would not favour taking extensive areas of land out of active agricultural and sporting management.

- Forestry and woodlands in the uplands can have both positive and negative environmental impacts. One study found limited willingness by farmers to plant woodlands.

- Grouse moor management can have a range of positive economic and environmental benefits in upland areas. It can also have negative effects on wildlife and biodiversity and a particular area of conflict is that of raptor persecution.

- The Ministry of Defence is a significant landowner and their extensively farmed or non-farmed land holdings can be valuable for nature conservation although concerns are expressed about restrictions on public access.

- Conservation bodies such as the National Trust and RSPB are large upland landowners. Such land management is able to demonstrate a range of positive environmental, economic and social impacts.

- Interest in windfarms in the uplands is growing. Some concerns exist about the impacts on habitats and birds and also landscape implications.
• Alternative land use as a result of farm diversification is occurring in the uplands but the area of land taken up by such activities appears to be relatively limited.

g) The justification for policy intervention to improve the economic, environmental and social sustainability of livestock farming in the hills, policy tools for intervention and methods for assessing the cost effectiveness of such tools.

• The economic rationale for supporting hill farming needs to be justified on the grounds of market failure, i.e. that hill farming produces public goods in the form of landscape and environmental benefits that would otherwise be under provided in the absence of public support.

• Landscape and environmental goods maintained by hill farming are a major reason for significant tourism activity in many parts of the uplands which in turn has economic benefits – this provides a further economic rationale for supporting hill farming.

• Keeping hill farms in business is not itself sufficient to ensure that key environmental goods are provided.

• Removing support for hill farming is likely to have a mixture of positive and negative environmental impacts.

• Support, such as that given through HLCAs, may have helped to maintain the population and service base required to cater for visitors.

• Farmers often enter agri-environment schemes for financial reasons and enter options that most closely correspond to their current management practices.

• Payment rates, the difficulty of meeting prescriptions and common land are all factors that can limit uptake of agri-environment schemes.

• Agri-environment schemes appear to benefit the archaeological heritage of upland areas.

• Agri-environment schemes appear to have created extra employment in upland areas.

• The Rural Enterprise Scheme is a key source of grant funding for business development but many farmers appear to struggle with the rules and administrative burden and many lack the necessary skills to produce the required business plan.

• A wide range of rural and social development plans and initiatives appear to be available in upland areas, as identified by the case studies for this project. Many of these are not specifically targeted at farming families but are available to them.
• Integrated approaches to land management and rural development (such as with the Bowland Initiative and the Bodmin Experiment) can have a range of economic, environmental and social impacts. The cost effectiveness of such schemes, in relation to administration costs, appears to be not dissimilar to that of agri-environment schemes.
6 CONCLUSIONS

This research was undertaken to achieve the following:

‘To identify, explain and, as far as possible, quantify the impacts of hill farming in England on the economic, social and environmental sustainability of the uplands and more widely.’

The project has drawn together a considerable amount of previous research and added to it through stakeholder consultation at national level and interviews with a wide range of stakeholders in four case study areas, located throughout the English LFA. The results provide a detailed and fascinating picture of the impacts of hill farming and of the many issues that national, regional and local decision makers, farmers, community leaders, funding bodies, NGOs and others will need to address in considering the future sustainability of the uplands and more widely.

6.1 Economic impacts and sustainability

In national terms, the direct economic benefits of hill farming in terms of agricultural employment and output appear to be in decline in the English LFA, as in agriculture elsewhere. However, regionally and locally, employment and economic activity associated with hill farming can be significant. For example, the southwest Lake District case study identified that while agricultural employment was only 1% at a District-wide scale, the figure rose to 10% in the case study area, providing an important source of employment for some 359 people. Hill farming also benefits the wider rural economy through purchases of inputs and distribution, marketing and processing of outputs. Regional output and employment multipliers have been estimated at around 1.5 in the South West – i.e. each livestock farming jobs supports an extra 0.5 jobs elsewhere in the economy. These jobs can be upstream e.g. feed companies, vets, fertiliser and machinery suppliers and contractors and downstream e.g. auction marts, abattoirs, hauliers and food processors. Hill farming has also had traditional links with farming in lowland areas with breeding stock in the uplands producing animals for finishing in the lowlands. These links however appear to be less established than they once were and several studies have suggested that hill farms are more dependent on lowland livestock farms than vice-versa.

The justification for public support for hill farming in agricultural terms is arguably weak but strengthened when the multiplier effect of agriculture is considered. Even so, the level of public expenditure required to maintain a relatively small number of jobs and produce primary products such as beef, lamb and milk seems disproportionately large to the benefits accrued. Having said this, given the limited employment opportunities in many parts of the LFA, the costs to society through, for example the need for social security support, to compensate for the loss of employment opportunities could itself, be significant. These factors must be weighed up in any future consideration of levels of support for hill farming.

What is clear is that other economic activity in the LFA, particularly tourism, appears to benefit from the presence of hill farming activity. Many parts of the LFA are popular tourist destinations. This is especially the case in areas designated as National Parks but is by no means common to all of the LFA. The Dartmoor Fringe case
study, where tourism activity is relatively low, provided an interesting contrast to that of the Dark Peak case study where tourism is the dominant industry. Visitor surveys show that people are attracted to the farming landscape of the hills and uplands and appreciate, among other things, the tranquillity and opportunities for recreation such as walking and cycling. Nationally, tourism is a significant employer and contributor to GDP and the economic benefits of tourism are significant in parts of the LFA. Studies of the Foot and Mouth crisis, which effectively halted tourism for many months in large parts of the LFA, have demonstrated well the economic value of tourism to these areas. Expenditure patterns and the economic benefits that flow from tourism vary with time of year and from area to area depending on the nature of tourism, for example day visitors versus long-stay holiday-makers. Many tourism jobs are seasonal, part-time or low paid, often in combination, in line with the requirements of and the services provided by the tourism industry.

The importance of tourism in hill farming areas raises questions for future policy. First, the nature of the exact relationship between hill farming and tourism is not well understood. While visitors appear to value the farming landscape, their preferences are not always well understood and many visitors do not make direct use of the hills and moors but visit instead villages, tourist facilities and woodlands and forests. Hence, a key question is ‘If hill farming was to change significantly – in ways explored through the case study scenarios - would visitors find these areas more or less attractive and would this lead to more or less tourism activity in these areas?’ The answer to this question is largely unknown and hence the indirect economic benefits of hill farming, as opposed to the economic benefits of tourism, are extremely difficult to quantify. It is impossible therefore to make a sound case that public support for hill farming is justified on the grounds that, without it, tourism activity and the economic benefits it brings, would decline. What we can say however, is that declines in tourism activity in the uplands, possibly in response to changes in hill farming, would have far-reaching economic consequences in these areas and beyond.

A second question confronts us however, if, as we might intuitively conclude, there is a special relationship between hill farming and tourism in the LFA which is worth nurturing. That question is, what kind of hill farming would maximise the indirect benefits for tourism? To answer this we need to understand better what tourists want from upland areas so that hill farming can be encouraged accordingly. A more comprehensive set of visitor surveys in different parts of the LFA would help to answer this question. If such surveys demonstrated that what visitors value is the outputs of hill farming, such as the maintenance of landscapes and the environment, then there may well be a case for public support for hill farming on the grounds that such outputs would otherwise be underprovided in its absence. In other words, there would be market failure since it is extremely difficult to directly capture payment for such outputs through tourism activity. Agri-environment schemes look like increasingly important policy tools in this regard. However, there may also be market opportunities for farmers and other businesses in the hills and uplands if the needs and preferences of visitors are better understood. There is already evidence of some farmers building on tourism activity by raising the quality of existing accommodation and visitor facilities, offering new attractions and selling produce through farm shops and cafes. They are therefore benefiting directly from the tourism activity that their hill farming activities help to generate.
Our research found evidence of other economic activity in the LFAs such as grouse shooting, woodland and forest management, horse riding and livery, food processing and retailing. Some of these activities are significant in terms of their economic output, for example, grouse shooting in parts of the North York Moors, but the majority of them, while often having a relationship with hill farming, are not dependent on it. On-farm food processing and retailing are the exceptions. For many of these other activities, changes in the fortunes of hill farming are likely to have little bearing on their economic viability.

6.2 Social impacts and sustainability

Our research found a variety of evidence of the nature and extent of the social impacts of hill farming in relation to the local community, the maintenance of the local infrastructure and the provision of local services. Farming and farmers continue to play a central role in the cultural identity of hill farming areas. But as hill farming has come under increasing economic pressures, farm incomes have fallen and farm labour has reduced, the positive contribution made by hill farmers and their families to the communities in which they live appears to have declined, but not disappeared. It is with a sense of regret within the farming community themselves that this has occurred. There is still evidence however of many individuals playing an active social role and taking on responsibilities such as Parish Councillors and School Governors and running or being involved in activities such as local shows and fetes. Farmers are also to be found undertaking tasks such as clearing snow from roads in winter, maintaining grass verges, mountain rescue and fire fighting and are often called upon by local residents where there is a minor crisis such as a tree blocking a road following storms. As hill farmers diversify their activities, stimulate the local economy and create local employment opportunities, they can also be seen to contribute to maintaining rural communities, which in turn stimulates demand for local services. In various ways therefore, hill farming families are part of the social glue that holds communities together. But there are also conflicts within upland areas between ‘locals’ and ‘incomers’ and differing views as to who makes the greater contribution to social sustainability. It is likely that in both camps there will be individuals who make greater and lesser contributions to the social fabric of the uplands and generalisations should be avoided.

The role of women within the hill farming community was brought out in this research. Many farmers’ wives work off-farm to supplement the household income and help keep the business afloat. They are also increasingly active in farm business decisions and key drivers behind farm diversification. As a result, women appear to be more socially active than their male counterparts and better networked in the local community. This strengthening role of women must be seen as a positive influence in a changing world and on the future sustainability of hill farming.

Our research, particularly the case studies, provides evidence of a range of social problems within upland areas. These range from health problems such as stress, depression and physical injury to the lack of affordable housing for young people and poor public services such as transport, healthcare and education. Some of these problems are specific to hill farmers, especially health problems arising from financial worries, the physical nature of the work and the poor housing conditions in which some families live. But many others are symptomatic of much wider social issues
affecting rural communities more generally and some problems are specific to other social groups such as single mothers and women. Neither are these problems peculiar to the LFA but can be found in rural areas more generally such as the Fens of East Anglia and much of Cornwall. This research was asked to assess the social impacts of hill farming and since many of these social problems do not fall into this category, it is beyond the remit of this research to investigate them further. Such problems do emphasise however the need for social policy intervention in rural areas if sustainable communities are to be maintained.

6.3 Environmental impacts and sustainability

Thousands of years of agricultural occupation, and livestock grazing in particular, have shaped the upland landscape and created the diversity of habitats and wildlife found there. Without grazing, scrub and trees would, over a period of time, establish themselves creating a very different natural environment. The agriculturally managed upland environment is one of landscape, biodiversity, natural resource, archaeological and cultural value as emphasized by the high degree of overlap between environmental designations and the LFA. Our research found considerable evidence of both the intrinsic relationship between hill farming and the environment and of the impacts – both positive and negative – of hill farming practices on it. Our work also highlights that other activities such as grouse moor management can have both positive and negative environmental impacts and farming is not alone in this regard.

The need for the continued presence of hill farming activities to maintain the upland environment is largely recognized and accepted by both environmentalists and farmers alike. The benefits of other land uses such as woodland, or even managed abandonment in some locations, are also argued by some stakeholders. But, the manner in which hill farming activities take place is the subject of considerable debate and research over the past twenty years or more. The shift towards more intensive and less environmentally benign farming practices has had, and continues to have, major negative impacts on wildlife, landscapes and the cultural heritage of the uplands. Damage to nationally and internationally important habitats continues in many parts of the LFA. But there are also growing signs of problems arising from a decline in hill farming and reductions in grazing levels leading to undergrazing in some areas. This research and other studies, evaluations and monitoring reports provide clear evidence of the range and extent of negative environmental impacts arising from current hill farming practices.

Dealing with the environmental impacts associated with hill farming requires a range of policy responses. Regulations, cross compliance, incentives and advice are part of the mix of policy tools that have been employed to address environmental problems in the uplands to date. Considerable attention has been focused in this and other research on agri-environment schemes such as ESAs and Countryside Stewardship as a means of securing and rewarding the positive environmental impacts of hill farming. Agri-environment schemes operate above and beyond requirements of good farming practice offering farmers positive incentives for the provision of public goods that would otherwise be underprovided in a free market. In doing so, they can help to secure the future environmental sustainability of the uplands. Such schemes have largely proved popular with farmers who see them as a source of income although numerous criticisms of schemes were presented to us during the case study phase of
this research. Many of these schemes focus on landscape and biodiversity objectives and less progress has been made addressing resource protection issues. The current review of agri-environment schemes, with proposals for an Entry Level Scheme and Higher Level Scheme, may well address many of the problems identified through this and other research. Less attention has been focused on regulation, cross compliance and advice in the uplands as a means of preventing negative environmental impacts and promoting positive ones. We discuss this issue in more detail below.

6.4 Policy intervention and policy tools

In drawing together our conclusions, we have identified a number of circumstances where there appears to be clear justification for policy intervention to ensure the economic, social and environmental sustainability of livestock farming in the hills. The main economic rationale for public support for hill farming is to ensure the provision of public goods that would otherwise be under provided. The continuation of hill farming, in one shape or another, appears critical to maintaining and enhancing the environmental quality of the uplands. This environmental quality is important not only in its own right, for example in terms of soil, air and water resources, but is what also helps to underpin a range of economic activity, particularly tourism which provides jobs and benefits to the local economy and more widely. Hill farming is also strongly associated with the cultural identity of upland areas; the presence of hill farming communities provides some degree of stability and continuity in an otherwise changing society and they are part of our cultural heritage.

These seem to us legitimate reasons for continued public support for hill farming. But it is also clear to us that hill farming, like other types of agriculture, cannot expect continued public support simply based on its agricultural output. Basic commodities of beef, lamb and milk can be produced far more cheaply and efficiently elsewhere. The argument for public support for hill farming based on its direct economic benefits – such as contribution to GDP or employment - is therefore weak. Hill farming therefore needs to look to what it can produce in ways that may not be achievable elsewhere and, more importantly, in line with what the public and consumers want. Like agriculture everywhere, it needs to go through a process of change and adaptation and orientate itself closer to the market. Our research shows that many farmers are already attempting to do this but it also highlights many difficulties and obstacles that hill farmers face in trying to do so. Lack of capital investment, an ageing population, few new entrants to farming, insufficient business support and advice, a lack of innovative ideas are just a few of these. It is in these areas that public support to help hill farming adapt and evolve seems both justified and essential if the sustainability of the uplands is to be ensured.

Our research points to a number of policy tools and measures that have been used to support hill farming from direct agricultural subsidies such as livestock headage payments and the Hill Farm Allowance scheme to agri-environment schemes and grant funding under the England Rural Development Plan. Hill farm incomes remain heavily dependent on public subsidy such as headage payments although increasingly off-farm income and agri-environment scheme payments are making a greater contribution. In line with EU and national policy, increasingly greater emphasis is being given to payments for public goods and helping farmers adapt to changing
circumstances and less to basic commodity support. However, the balance financially between these two is still weighted firmly in favour of the latter.

While we have identified some of the policy tools being used in the uplands, and reviewed previous assessments of them it has not been possible through this research to provide a comprehensive assessment of the range of policy tools available to support hill farming. Neither has it been possible to identify methods for assessing the cost effectiveness of different policy tools. We believe that this is a significant study in its own right requiring a different methodology and approach. Such work would need to identify a full list of policy tools, gather information on their application, budgets, administration, uptake etc, and determine impacts. This would then allow a cost-benefit analysis to be undertaken to determine the overall cost effectiveness of different policy tools in helping to secure the sustainability of hill farming.

6.5 CAP reform

The final word must go to the recent reforms of the Common Agricultural Policy. Throughout 2003, and the course of this research, negotiations have been taking place on significant reforms to the CAP with agreement reached in June. Some decisions on implementation options in England and the rest of the UK have only just been taken in the final weeks of this project. It was not within our remit to factor in the implications of these reforms but rather to assess, as best we could, the current economic, social and environmental impacts of hill farming. However, it would be remiss of us not to comment on the consequences of the reforms for the hill farming sector given that they are likely to result in substantial change.

The full decoupling of agricultural support and the introduction of a Single Farm Payment (SFP) in 2005 is likely to result in significant changes in the structure of the farming industry and on farming practices on the ground. Farmers’ business decisions are likely to become increasingly focused on the requirements of the market place rather than on maximising subsidy income. In the context of hill farming, there is likely to be less incentive to maintain livestock numbers and various economic analyses indicate there will be reductions in both suckler cow and sheep numbers in upland areas. This is likely to have some environmental benefits such as reducing grazing pressure on sensitive habitats but could also exacerbate problems of undergrazing; a further loss of suckler cows is of particular environmental concern given the current low ratio of cattle to sheep. Some farmers are likely to exit the industry with knock-on consequences for upstream and downstream industries and on the social aspects of upland areas. The announcement on 12 February 2004 that the SFP is to be paid on an area basis (phased in over 8 years) and that England is to be treated as two separate regions – land above the SDA line and that below – will further influence the decisions farmers make. An area payment will result in significant redistribution of subsidy within England but the decision to treat the SDA separately will limit the extent of this redistribution. However, in general, many upland farmers (i.e. those with DA land) will benefit from the area payment decision and see an improvement in farm incomes as a result. This injection of cash into the uplands could have both positive and negative impacts. On the one hand, it might help to maintain hill farming businesses that might otherwise have gone out of production under a decoupled payment paid on an historic basis and result in positive economic, social and environmental impacts. On the other hand, farmers may use an improved
income position, accompanied by removal of livestock quota, to intensify further their farming operations which could result in environmental damage. It will be critical to monitor the impacts of the reforms on hill farming and farming generally in order to be able to address problems and capitalise on opportunities as they arise.

The CAP reforms include a number of measures and options that can be used to help address the impacts of decoupling, improve on-farm environmental performance and help farmers adapt their businesses. Defra has decided not to use the option for National Envelopes (a top slice of up to 10% of the SFP) which could have been employed to deal with some of the negative impacts of decoupling. Securing continued grazing of important nature conservation sites was one option considered by Defra. However, receipt of the SFP will be conditional on all farmers meeting a range of legislative standards and farming according to Good Agricultural and Environmental Condition – so called cross compliance. The exact requirements of cross compliance are under development by Defra at the time of writing but will have various implications for hill farmers, generally requiring greater environmental care in relation to farming practices. Modulation (another mechanism to top-slice money from the SFP) will be used to raise money for funding the England Rural Development Plan (ERDP). The UK Government negotiated an agreement with the EU for additional voluntary modulation to enable it to meet its objectives for the ERDP and, in particular, to introduce the Entry Level Scheme (an agri-environment measure) England wide and a Higher Level Scheme. Given the interest to date of hill farmers in agri-environment schemes, this is likely to prove a positive step for the environmental sustainability of the hill and uplands.

The future for hill farming, and UK agriculture in general, is certain to be one of change. This research has attempted to identify and explain the economic, social and environmental impacts of hill farming as they currently exist. The CAP reforms will, undoubtedly, have a significant effect on the scale and nature of these impacts in future. An assessment of the implications of the CAP reforms for hill farming would be a useful accompaniment to this study to help guide future policy development and secure the future sustainability of the uplands.
An assessment of the impacts of hill farming in England on the economic, environmental and social sustainability of the uplands and more widely

**Literature Review and Consultations**

**Volume II**

A study for Defra

by the Institute for European Environmental Policy, Land Use Consultants and GHK Consulting

February 2004
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1. INTRODUCTION TO VOLUME II

1.1 Introduction

This report is the second Volume of a three Volume study to ‘assess the impacts of hill farming in England on the economic, social and environmental sustainability of the uplands and more widely. This Volume contains the findings of a comprehensive literature review; a summary of this literature review and its findings can be found in Volume I. The review is organised under the following subject headings:

- Environmental impacts
- Social impacts
- Economic impacts
- Alternative land uses
- Diversification
- Policy developments

This Volume also summarises views and information from key organisations and individuals, undertaken as Stage 1 of the research project, and responses to Question 1 of Defra’s Hill Farm Allowance consultation paper (April 2003).
2. LITERATURE REVIEW

2.1 Environmental impacts

Hill farming in the uplands of England has many different environmental impacts. The most frequently discussed impacts are the various ecological effects of livestock grazing but other influences include impacts as diverse as landscape maintenance/degeneration, flooding, loss of archaeological features through ploughing and ‘improvement’ of in-bye land.

The uplands of England are extensively covered by semi-natural habitats that are intimately linked to livestock farming systems (English Nature 2001). The survival of these habitats and the resulting landscapes are dependent on management either through livestock grazing or through other forms of management, such as burning of heather or mechanical cutting of rough grassland. There is a great deal of literature examining the environmental impacts of hill farming in the English uplands. This literature ranges in subject focus from the negative impacts of overgrazing and associated erosion and flooding through to the positive impacts of livestock grazing on plant and animal biodiversity. The majority of environmental impacts discussed in the literature relate to hill-farming of livestock, with destruction of archaeological heritage through ploughing of ‘in-bye’ land being a notable exception.

The impacts of hill farming in the uplands of England have changed as agricultural policy and the structure of the farming industry has changed. English Nature (2001) stated that as the number of people employed in agriculture has decreased there has been a decline in the labour-intensive management practices that are potentially beneficial to upland habitats, such as burning, bracken management and shepherding, and an increase in the use of supplementary feeding, out-wintering and ranching of livestock both of which are potentially damaging. The decline in shepherding is of particular concern as it makes better use of the grazing across the hill, avoids local concentration which can lead to overgrazing, reduces the need for supplementary feeding and is better for animal welfare. It is felt that these changes have had a marked effect on upland biodiversity.

The census data relating to upland areas shows various trends in the resident populations and local services. Such trends are widely corroborated in the literature. One widely noted trend that is also common to lowland areas of rural Britain is the increasing in-migration of affluent residents from other, usually urban, areas. Shiel (2002) argued that the sale of land to such newcomers could have positive environmental consequences as there is evidence to suggest that these ‘newcomers’ are likely to be more sensitive to the environmental impacts of farming (Potter and Lobley 1992).

2.1.1 General environmental effects of grazing

Much has been written about the effects of grazing on biodiversity generally and on upland habitats more specifically. But while much has been written on general themes and the theory behind the effects of grazing, little empirical research seems to have been done that elucidates a causal relationship between grazing and actual, historical ecological or landscape changes, with the exception of a number of local studies reviewed at the end of this section.

The central role of livestock grazing in creating and maintaining the open landscape that is characteristic of the British uplands is widely recognised. Thompson et al (1995) observed
that ‘below the tree line all but the wettest blanket bog would naturally succeed to trees in the absence of interference through burning or heavy grazing.’ The effects of grazing differ greatly between types of livestock and so the literature on the effects of grazing is reviewed separately below according to livestock regime type (sheep, cattle or mixed).

Different levels of and approaches to livestock grazing achieve differing agricultural, nature conservation or landscape objectives, but grazing at the right levels can have many ecological and environmental benefits. English Nature (2002b) stressed that environmentally sustainable grazing does not result in the suppression or loss of valued moorland vegetation, and can be achieved by reducing stocking levels, increasing shepherding and/or introduction of summer-only grazing. However if grazing is used in the wrong way and at levels that are too high or too low it can have serious negative impacts on upland habitats. As stated by Fuller and Gough (1999), it is a widely held view that severe grazing pressure, especially by sheep, is deleteriously affecting vegetation and wildlife in many upland regions of Britain. (eg Woods and Dabury 1987; Ratcliffe, 1990; Thompson et al 1995). There is a wealth of literature looking at overgrazing which will be discussed separately in a later section.

The feeding preferences of livestock, and thus the ecological effects of their grazing, are influenced by a number of factors. Oates (1998) identified the type or breed of stock, the season, the animal’s age, sex and background as influential factors and argued that these factors have often been ignored by conservationists in the past. The effects of grazing can also be influenced by grazing by wild animals, climate, recreation and other local conditions.

Such a large number of variables make it difficult to prescribe correct grazing regimes as there are so many influential factors: hence the lack of a universal stocking density limit for the British uplands. Thompson et al (1995) noted that the prescription of suitable stocking systems and prediction of their consequences are both highly complicated not only because of the variety of management practices and herbivore species found on heaths and moorlands, but also because of the complexity of their grazing behaviour, the wide variety of plant responses to being grazed and the numerous interactions of these with environmental factors. Grazing animals have seasonal preferences for different types of vegetation and as a result annual stocking densities cannot be used to give an accurate impression of the grazing pressure exerted on any one vegetation type during a typical year. Thompson et al (1995) stated that this and the resilience of different species act together to affect the patterns of vegetation. Another difficulty in prescribing suitable grazing regimes was highlighted by Waterhouse (1998) in that different habitats that occur side by side are likely to have different ideal grazing regimes.

One significant effect of grazing animals, as reported by Thompson et al (1995) is that they can have both positive and negative effects on seed production and dispersal. Heavy browsing can keep saplings under severe check and thus prevent or restrict seed production, but consumption of seeds and dispersal in dung can be an important mechanism of spread for some species, such as rowan and juniper (Livingston, 1972, Gilbert 1980, Kullman 1986 cited in Thompson et al 1995).

The effects of grazing can be long-lasting. This was illustrated by Ellet (1984), who gave a description of an in-depth study undertaken in Cardigan, Wales by Jones (1967) which found that very heavy grazing may prohibit heather moorland from re-establishing itself even after 12 years of protection but that by contrast a moderately-grazed grassland containing a mosaic of heather and bilberry plants can develop into dense heather moorland after 14 years of protection.
2.1.2 Impacts of sheep grazing

The literature indicates that sheep grazing can have both positive and negative environmental impacts. Either undergazing or overgrazing can be detrimental to habitats, landscape and the wider environment. The actual impacts of sheep grazing in the uplands of England have interacted with and been influenced to a significant degree by the changing incentives that have been given to farmers in the form of production subsidies. It is widely recognised that headage HLCA payments led to severe overstocking of the uplands of England, and to even greater stocking densities in Wales. These high stocking levels led to a severe situation of overgrazing in large areas of the British uplands and consequent habitat degeneration, biodiversity decline and increased erosion. Overgrazing by sheep was recognised to be such an important nature conservation problem that a significant number of research papers, surveys and policy papers have been written on the subject: these will be reviewed in the overgrazing subsection below.

In recent years there have been numerous, significant changes in the husbandry techniques commonly employed in upland sheep farming. Prompted by technological developments, advancements in breeding and structural change in the hill-farming industry, traditional practices such as shepherding, hefting and taking sheep of the hills in winter have all declined. These changes have lead to both unequal and increased pressure over grazing areas which have in turn led to not only increased general grazing pressure but also localised over and under grazing in the same grazing area.

On a general note, and perhaps not surprisingly, the National Sheep Association (1995) praised upland sheep production for the benefits it brings for both the environment and the rural economy in that it utilises land unsuitable for other enterprises and makes a significant contribution to the conservation of the natural environment.

Much has been written on the general environmental impacts of sheep grazing. A primary point that is important to recognise is that the effects of sheep grazing and upland hill production generally on the uplands of England, and elsewhere, are influenced by a multitude of variables both man made and natural. Waterhouse (1998) identified the main man-made factors arising from sheep farming that interact with grazing to have substantial effects on the upland environment. These include:

- changes to the type of forage grown at lower altitude pasture i.e. the recent major change from hay to silage which has led to more intensive pasture management and earlier cutting dates;
- burning, reseeding, liming, fertiliser, herbicide applications;
- the creation of features such as hedges, walls and wooded shelter belts;
- avermectin anthelminthines which create insecticidal dung, reducing dung-feeding fauna;
- control of predators of sheep and availability of carrion from dead carcasses (Fuller 1996); and
- the possible, but illegal disposal of waste sheep dip into water courses.
The behaviour and physiology of sheep influences their effect on upland habitats. Ellet (1984) explained that sheep are social animals and they graze in a flock rather than individuals spreading themselves out over available pasture. When lambs are born they adopt the grazing area of the flock thus leading to the multi-generational attachment of a flock to a certain grazing area or heft (Jones 1967). Like cattle, sheep lack upper incisors and so are unable to cut their food but sheep are able to be more selective and can bite closer to the ground than either horse or cattle. In pastures lightly stocked with sheep, grazing tends to become concentrated in areas with better pasture which in turn leads to poorer areas becoming taller and older and even less attractive to sheep. By contrast under heavy grazing the preferred grasses are rapidly depleted during late summer and sheep are forced to eat less favoured plants. In areas that are less attractive to sheep the heather can become tall and leggy leading to less grazing and further degeneration of the heather.

A number of empirical studies have been done on the effects of sheep grazing on certain habitats. Milne and Osoro (1997) describe a long term study carried out on three different sites by Marriot et al (1997) which looked at the impacts of grazing pressure from sheep on grassland species diversity. Grazing pressure was reduced gradually over a period of six years but it was found that little appreciable change in species diversity occurred. It was only when grazing was removed altogether that rapid change occurred. At the field scale large changes in plant diversity are unlikely to occur by simply lowering stocking density. Indeed there are some circumstances where a reduction in grazing pressure can actually reduce species diversity. Smith et al (1996) showed that the further that the grazing management moved away from a system of hay-making and specific high grazing pressures in the autumn and spring, there was a greater reduction in plant species diversity. This paper referred to a number of research papers in order to illustrate that a mixed grazing regime leads to higher levels of biodiversity. Dennis et al (1995) found that a combination of different management strategies involving such things as grazing by different animals, at different intensities and at different times of year is likely to maximise biodiversity. From the results of research by Milne and Fisher (1994) they deduce that the types of grazing management systems that are likely to maximise individual animal performance are unlikely to maximise biodiversity.

An interesting aspect of the impacts of sheep production is the use of breeds, often traditional, that are better suited to the upland environment and so do not need supplementary feeding and may have feeding preferences that are more compatible with nature conservation objectives. Wright et al (2002) found that very little research has been done on the use of traditional breeds for nature conservation purposes. One of the few studies identified by Wright et al was a study conducted by Newborn (2000) comparing the ability of Swaledale and Hebridean sheep to control invasive purple moor grass in Yorkshire. This found that Hebridean sheep showed a preference for purple moor grass although this was not deemed to have resulted in an appreciable change in overall leaf density. The area grazed by the Hebridean sheep did exhibit an increase in heather cover but the author could not draw conclusions about the precise reasons for this change.

A number of longer research projects have been carried out that look at the ecological effects of sheep grazing and its potential for the management of areas of nature conservation interest. Harris and Jones (1998) gave a description of a notable extensive sheep grazing and nature conservation project in the Orkney islands. The Loft and Hill of White Hamars project was set up in 1987 and covers 126 acres of improved agricultural grassland and mosaics of vegetation communities with high conservation value. Research looked at the effects of controlled grazing regimes on these habitats and found increases in the numbers of certain
plant and animal species and a general improvement in habitat structure. The report gives only limited empirical data but provides many useful and seemingly sound observations and anecdotal evidence of the impacts on certain species and habitats. It also gives prescriptive advice on how sheep grazing can best be managed to achieve conservation objectives.

With regard to the Scottish primrose Harris and Jones (1995) found that a controlled grazing regime could increase both the population and range of this species. Between 1987 and 1998 the recorded Scottish primrose population in the project area increased from 659 plants to 3980. The authors’ observations suggest that grazing is not the only important factor and that storms and resulting sea spray periodically reduced the population of primroses. With regard to cliff top vegetation the project found that the number of flowering herbs increased if the cliff tops are left ungrazed during spring and summer and sheep are allowed back in September. After 11 years of this management grass dominance has decreased in favour of a greater abundance of flowering herbs. The project found that:

- the level of grazing required to maintain maritime heath is critical. If sheep are left on for too long they can graze dwarf shrubs too heavily and the shrubs may lose their vigour or die – so the sheep were removed once they have lightly cropped the dwarf shrubs. Grazed in this way shrub cover on the maritime heath areas of the project land was maintained and even increased in some areas;

- with careful stock management sheep can very effectively graze tall wetland vegetation, reducing it to a short sward while maintaining themselves in a good condition. Authors’ observations suggest that over the course of the project there were significant increases in bumblebees, butterflies and flying insects (such as hoverflies and parasitic wasps).

The project report by Harris and Jones (1998) also contains a set of management notes containing general information about the effects of grazing on upland habitats:

- Grasses and related plants that grow from the base of the leaves are often relatively resistant to grazing, because it is only the top of the plant that is eaten and not the point of active growth. Most broad-leaved herbs grow from the tip of the stem and since this is the part most likely to be eaten they are much less tolerant of grazing. Other plants are much better adapted to grazing as they form low mats of growth e.g. clover, wild thyme, bird’s-foot-trefoil. Frequent grazing stops them from flowering but they can survive in that state for considerable time;

- Redistribution of nutrients occurs, with higher nutrient levels, where animals shelter, however in general sheep dung is usually well scattered over the grazing area. Cow pats have a more significant impact as they cover larger areas and can take a long time to break down, thus smothering plants underneath and causing significant changes in nutrient levels;

- Trampling has a significant effect on upland habitats. Even vigorous heather cover rapidly dies away on sheep tracks and very heavy use, establishing numerous tracks, may produce damaging impacts on a heath. However light seasonal trampling can help to provide the conditions necessary for some other species to survive – eg Radiola linoides. Effects of cattle trampling are much worse than sheep, partly because of their habit of ‘yarding’ together in favourite areas and also ‘because they are prepared to continue poaching land until it is a sea of mud halfway up their legs’ whereas sheep have a ‘relative reluctance’ to walk through wet mud.
With regard to actual, historical, impacts of sheep grazing on the uplands of England there is a lot of literature based on observation that attempts to draw conclusions but little scientific research was found in the literature search which could illustrate strong, evidence based causal relationships. The most research in this area has been specifically related to overgrazing and is reviewed below. English Nature (2002b) believed that, due to headage payments and thus increased stocking levels as well as improved access through the use of all-terrain vehicles, sheep are now more frequently over-wintered on the moor and are given additional feed. This means that grazing pressure is maintained throughout the winter – the time when upland plants are most vulnerable to the effects of grazing. In addition more severe trampling and localised overgrazing can occur around feeding points. Supplementary feeding also introduces additional nutrients and possible weed seed to the ecosystems. Problems associated with supplementary feeding can be minimised by spreading feed in lines, aided by use of traditional small hay bales, the scattering of concentrate over large areas rather than them leaving a large quantity in one place and the use of a number of small mineral blocks/licks on drier ground to avoid poaching.

Winter et al’s (1998) survey of LFA farmers found little evidence of the kind of long-lasting and long-term changes which are required for environmental improvement within the uplands. They also felt that even if sheep grazing pressures were to be reduced, there was likely to be inadequate cattle grazing in many instances.

2.1.3 Impacts of cattle grazing

There is considerable evidence in the literature and a strong conviction, particularly amongst a number of dedicated specialists, that cattle grazing can be beneficial to upland habitats. The effects of a mixed grazing system are widely believed to be the most beneficial: the literature on this is reviewed separately below.

The effects of cattle grazing on upland areas are considerably different to those of sheep grazing. This is partly due to the physical differences between the two types of animal. The mechanics of cattle grazing are very different to that of sheep. One observation by Wright et al (2002) which is repeated in other literature, was that compared with sheep, cattle are relatively unselective as grazers, due to their larger mouth parts (Gordon and Iason, 1989) and their lower metabolic requirements relative to body weight means that they can survive on poorer forage.

Dennis (1999), a vociferous champion of the wonders of cattle grazing for upland habitats, gives a long list of potential benefits of cattle grazing. His overview highlights:

- The non-selective behaviour of cattle in eating large quantities of poor quality herbage and extracting the nutrients from it is of great importance to the ecosystem;
- Cattle dung is of ‘supreme importance’ in that it is not only rich in nutrients but also supports huge numbers of invertebrates, which are an important food source for many birds and mammals. One cow produces around four tonnes of dung a year which supports about a quarter of her own body weight in invertebrates;
- Cattle tracks are important pathways for a whole range of woodland and moorland birds and mammals. They are probably of most importance during the breeding season for the movements of broods of young birds;
• Dennis argues that poaching and disturbance of soil by cattle is beneficial to other woodland species. Cattle help to push fallen tree seeds into the ground. Cattle disturb insects and amphibians, important food sources for birds and bats at night, as they walk through vegetation;

• A more recent analysis of the data from Rum has confirmed the trend towards greater species richness within grazed plant communities following the reintroduction of cattle. But at the same time the species richness between different plant communities was slightly reduced, favouring species characteristic of mesotrophic conditions against those of oligotrophic conditions (Ball and Hirst 1998).

With regard to upland woodland, Bignal and McCracken (2000), argued that cattle can create structural diversity in upland woodlands and can cause a substantial increase in levels of biodiversity on heaths and grassland. Essentially they introduce small scale perturbations to the vegetation resulting in an increase in biodiversity (Kampf 1999). Their herd behaviour can introduce seasonal and cyclic pressures which are virtually impossible to produce in any other way – not only through their grazing but through their trampling, dunging, resting and ruminating in favoured places and selecting foraging areas in relation to seasonal availability of herbage.

Research has shown that certain cattle breeds are better suited to harder conditions. Wright et al (2000) described a research project which concluded that purebred Welsh Black cattle performed much better on semi-natural vegetation than Charolais-cross steers, gaining significantly more weight. However both breeds performed the same on improved permanent pasture. It was concluded that the continental breed was less suited on grazing systems which rely on the use of semi-natural vegetation for part of the grazing season. Wright et al (2002) also reported that there is some evidence to suggest that the range of habitats and associated biodiversity which is desired [in the uplands] cannot be achieved without the use of grazing by cattle.

2.1.4 Impacts of mixed grazing systems

Mixed grazing systems are widely recognised in the literature as being the best form of grazing to promote biodiversity in upland habitats. According to Bignal and McCracken (2000) the biological importance of mixed grazing systems relates both to the spatial and temporal diversity that they introduce. In a spatial context they produce a patchwork of biotopes – meadows, grass pastures, crops, woodland, fallows and natural pastures (including alpine, heath, moorland, saltmarsh, marshland, bog and wood-pasture).

English Nature (2001) stated that grazing by different animals has different effects on the mix of plant and animal species present on grazing land. Mixed livestock systems lead to more diverse vegetation, than single type livestock systems, which in turn results in a greater range of plants and animals and is particularly important for breeding waders.

Gibson (1997) built on studies, carried out for English Nature in 1995, on the effects of cattle and horse grazing on species rich grassland in Worcestershire. The 1995 studies found that overgrazing by horses damages species rich grassland but that some species, both ‘desirable’ and undesirable from a conservation perspective, were favoured by overgrazing. The studies also showed that cattle grazing caused an equal degree of damage and that the degree of grazing pressure was far more important a factor than any difference between species of grazing stock.
Wright et al (2002) argued that grazing intensity can have a significant effect on the structure of vegetation and this in turn can have effects on the invertebrate population. Dennis et al (1997) found that a rotation of varied management over time, including different combinations of grazing animals, would encourage a greater diversity of beetles, through the creation of a mosaic of different structures within the sward.

2.1.5 Impacts of grazing by wild animals

The effects of grazing by domesticated livestock are influenced to varying degrees by the constant grazing of wild animals, ranging from substantial grazing by rabbits and deer to the less frequently recognised grazing of molluscs and other invertebrates (Harris and Jones 1998; Jones 1998).

In the uplands of England, arguably, the most significant wild grazing animal is the rabbit which have in the past decades, since myxomatosis, has seen significant population increase in some areas. Oates (1998) reported that since the mid 1980s rabbits have returned in large numbers to many districts throughout the UK. On National Trust land there are now vast populations on the South Downs, North Downs and Chilterns carboniferous limestone grasslands in the Yorkshire Pennines. In some areas rabbit numbers are so high that rabbit management has become the main conservation issue.

Johns (1998) reported that rabbit populations have increased in many locations as survival rates have increased due to recent mild winters (Long 1990) and short, closely grazed turf, especially when it is found in conjunction with dry sandy soils, is highly favoured by rabbits. Where sheep and rabbits are found on the same slope, the sheep can create scars and the rabbits can then burrow into the weakened turf as well as the scars. Of relevance to this, Samson (1999) argued that, with regard to the significant increase in the rabbit population in the Yorkshire Dales in recent years, it is possible that sheep have helped to create short, dry turf in which rabbits thrive.

2.1.6 Overgrazing

During the 1980s and 1990s in the UK a significant amount of research was carried out and a large volume of literature produced into the occurrence and impact of overgrazing in the British uplands. During this period overgrazing became one of the most critical conservation problems in the UK and England, partly as a result of the incentive, in the form of HLCA and sheep/beef premium headage payments from the EU, to overstock upland grazing areas. In the foreword of the booklet ‘Managing the English Uplands’ (English Nature 1997) Derek Langslow says ‘despite progress being made, overgrazing remains the most significant issue that adversely affects the quality and extent of upland habitats. Reduced grazing levels would enhance the biodiversity.’ Overgrazing is not however a problem unique to the UK. The Report of the Royal Commission on Environmental Pollution (1996) states that overgrazing is the cause of 23% of the soil degradation in Europe (compared with a global figure of 35%). Overgrazing is not a new phenomenon and there have been many cases of severe overgrazing in the UK in the past 200 years. Johns (1998) recounted how in the early 1800s over 100 people were forced to leave the Monarch Islands in the Outer Hebrides after overgrazing weakened the grassland and a storm blew the top soil away.

The significance of overgrazing is demonstrated by the data on loss and damage to SSSIs, with agricultural activities accounting for 88% (by area) of reported cases in 1997/98 and continued overgrazing of upland heath and grassland being responsible for 99% of the area.
damaged by agriculture. (English Nature 7th Annual Report 1997/1998 cited in English Nature 2001) Evans 1990 (cited in Johns 1998) suggests that the decline of heather and bilberry moors and their replacement with grassland (a phenomena widespread throughout the British uplands), in particular waivy hair-grass and mat-grass can be attributed to overgrazing by sheep and reduced levels of moor management. It is waivy hair-grass covered slopes that Evans states are especially vulnerable to overgrazing and erosion.

Thompson et al (1995) summarised estimates from the Monitoring Landscape Change (MLC) project (Huntings Survey 1986) which give the only data that allow a consistent view on both rates of change in upland heather and the causes of loss in England and Wales. These show that 27% of heather moorland was lost in England and Wales between 1947 and 1980, although the net loss was 20% because there was extension of heather cover on upland grassland in Yorkshire and Humberside between 1969 and 1980. Heavy grazing by sheep accounted for 67% of the total change in moorland cover.

The situation with regard to overgrazing has been exacerbated by the commonage system in England. In England and Wales there are over 8,600 commons, covering more than 550,000 ha (3% of England’s total land area is common land). Commons are particularly important in Cumbria, which holds 30% of England’s common land and makes up 25% of SSSIs and 55% of SACs and SPAs in the area. 75% of the 155 cases of overgrazing investigated by MAFF relate to upland commons according to English Nature (2001).

Defra (2003) argued that there are a number of reasons for the majority of overgrazing occurring on dwarf shrub heath on common land:

- dwarf shrub heath is the most extensive type of semi-natural vegetation in England and occurs mainly in the uplands;
- managing grazing levels on commons is inherently difficult because of the shared nature of the grazing unit;
- dwarf shrub heath is slow growing and therefore susceptible to damage;
- damage or deterioration in dwarf shrub heath is easily recognised.

Defra (2003) reported that 85 per cent of overgrazing complaints are concerning land that lies within the moorland line of the LFAs. 64 per cent of complaints are concerning dwarf shrub heath as a habitat type and 76 per cent are concerning common land.

According to the Wildlife Trusts (1996) five years of research by the Game Conservancy Council has shown that overgrazing by sheep had caused a major decline in the black grouse population by reducing preferred foodplants, nesting cover and brood rearing areas. Where sheep graze all year at a density of one ewe per hectare there are 40 per cent fewer black grouse compared to grazing one ewe per hectare in just spring and summer. Brood rearing success is also significantly reduced (Game Conservancy Council 1996 in Wildlife Trusts 1996). Fielding and Haworth (1999) observed that it is now thought that overgrazing is one of the main reasons for the decline of black grouse.

The Wildlife Trusts (1996) outlined a number of short case studies of upland areas, with regard to overgrazing:
• The Peak District: within the ESA 15 sites are suffering from overgrazing and of 24 upland areas of conservation importance, many are suffering from overgrazing from ‘severe’ to ‘appalling’. In addition the park has lost 95% of hay meadows, mostly through reseeding for silage production;

• Gradsbach Hill in the Peak District National Park: surveys by the RSPB have shown a significant decline in biodiversity as a result of overgrazing. From 1974 to 1996 the total number of breeding pairs fell from 203 to 21, with the range of species declining from 17 to just six. Species which have disappeared include ring ouzel, red grouse, black grouse and merlin;

• Dartmoor: overgrazing has created about 5,300 ha of grass moor and 4,900 ha of bracken. Grouse, plovers and waders such as dunlin have had their breeding and feeding grounds destroyed.

Oates (1998) stressed that overgrazing is the main issue affecting National Trust land in the uplands. The Trust is seeking means of reducing grazing pressure in order to safeguard nature conservation interest on overgrazed upland habitats. The problems are complex and solutions not easily found, not least as most of the Trust’s land in upland areas is common land or leased under traditional agricultural tenancies. Solutions being explored by the Trust at this time included offering rent concession in exchange for reductions in stocking levels and entering land into ESA schemes.

The Countryside Commission (1984) observed that as well as losses of semi-natural moorland vegetation, upland broadleaved woodlands are also under threat. In recent years there has been a tendency to use the woods as extensions to farm grazings, particularly during the winter months. The combination of pressure and neglect has meant that many of these woodlands are unable to regenerate and are also becoming less valuable as habitats for a wide range of plants and animals.

The economic evaluation of HLCA payments by Drew Associates (1997) reported that the evidence of the Moorland Association to the Agricultural Committee (HCCA 1993) illustrates the complexity of overgrazing. The Association observed that while the survival of the hill farmers and his sheep is of fundamental importance to the conservation of heather moorland and to the survival of hill communities, the HLCA Scheme, which was vital to the survival of the hill farmer, did, in part, encourage overgrazing.

Johns (1998) found evidence in the literature to suggest that once bare ground has been established it is very difficult for vegetation to recover, especially if environmental conditions are difficult and grazing animals are present. Grant et al 1978 (cited by Johns) recorded the tendency for sheep to graze near bare areas and, in doing so, enlarge them. Midmore et al (1998) suggested that overgrazing may also exacerbate the impacts of pollution, acidification and climate change on upland vegetation. Ellet (1984) suggested that moorland vegetation which is overgrazed does not produce many flowers or seeds, and the result is poor re-vegetation.

2.1.7 Hill farming and birds

The effects of livestock grazing on birds received a large amount of attention in the literature, with some looking at actual historical impacts in the uplands of Britain. This apparent emphasis on the effects on birds can be partially explained by the general enthusiasm for
birds amongst the scientific community, that birds are widely considered to be valuable indicators of habitat quality and environmental health and also that management of the uplands for grouse moors is an important land use and commercial industry in the North of England. The uplands of England are an important habitat for a number of rare, nationally and internationally important birds and livestock grazing can have significant effects on it, both positive and negative. Much of the research looking at this interaction provides valuable information not only on birds populations but also on habitat structure and floral and invertebrate population size and diversity.

Midmore et al (1998) argued that although more detailed research is necessary, there is considerable circumstantial evidence in support of a link between increased grazing pressure and declining bird population (Fuller 1996, RSPB 1986, Fuller and Gough 1999). In contrast, and despite presenting substantial evidence identified as part of a literature review, Fuller and Gough (1999) concluded that exceedingly little is known about the ecological relationships between grazing and bird populations. It seems from the literature that the relationship between grazing and birds is arguably the most well documented ecological interaction with respect to hill farming but that more robust empirical research is necessary.

English Nature (1996) gave a brief overview of the effects of land management routines on upland birds. Rough pasture and semi-improved grasslands, particularly with an uneven, tussocky sward, are important habitats for feeding and nesting waders. Even some improved fields are important sources of food for golden plover, lapwing and curlew when they are not tending eggs or young on the moor. Flower-rich meadows provide seeds for feeding twite and black grouse, areas of bracken and shrub are important breeding and feeding sites for twite, stonechat, whinchat and ring ouzel and light woodland may hold redstart, pied flycatcher and tree pipit.

In their comprehensive text on upland habitats, Fielding and Hawthorn (1999), explored the effects of grazing on birds and reviewed existing literature and evidence. They observed that, because of its effect on invertebrate populations, grazing can affect the food chain of many birds and the effect of grazing on vegetation structure can reduce the amount of shelter and protection from predators available to upland birds. They identified research that had found that too much grazing (>2 ewes per ha) creates an open canopy which favours more common carabid species at the expense of more localized and less common species (Gardner et al 1997). Baines (1996) found that the highest breeding success of black grouse occurs on lightly grazed moors, irrespective of whether a gamekeeper is used to control potential predators. Fielding and Haworth (1999) observed that it is now thought that overgrazing is one of the main reasons for the decline of black grouse.

Fuller and Gough (1999) reported that the effects of grazing on the diversity, species composition and abundance of invertebrates have been documented by Morris (1973, 1978), Gibson et al (1992), Holmes et al (1993), McFerran et al (1994, 1995) and Keiller et al (1995). These various studies had found that where increased grazing pressure results in alterations to floristics and vegetation structure it can lead to large changes in invertebrate communities and may alter the availability of preferred foods of birds. Availability of lepidoptera larvae, a key food of black grouse chicks, appears to be considerably less in heavily grazed than lightly grazed moorland, and this correlates with variations in grouse density, and breeding success which are both higher on lightly grazed moors (Baines, 1996).

Fuller and Gough also reported that heavy grazing on grassland can create extremely uniform, short swards which are attractive feeding sites for starlings, magpies, jackdaws, rooks and
choughs. These ‘lawns’ are particularly attractive because soil biodiversity is increased by the addition of dung (Keiller et al 1995). The dung itself creates localised sources of invertebrate food that are exploited by some birds, mainly corvids and starlings. Numbers of magpies, jackdaws and carrion crows have increased in recent decades, especially on grazed farms (Gregory and Merchant, 1996).

Fuller and Gough (1999) found that there was evidence that trampling by livestock can result in losses of nests in ground-nesting birds with the risk of trampling varying according to bird species, type of stock, density of stock and time of nesting (Beintema and Muskens 1987; Green 1988). In Britain nest losses among ground-nesting birds have increased in recent years due to trampling. In an analysis of nest record data for lapwings, Shrub (1990) found that the percentage of grassland nests lost to trampling in any year was significantly correlated with the overall densities of both sheep and cattle on English and Welsh grassland. Fuller and Gough also reported that relaxation of grazing can result in an increase in an increase in voles (Hill et al 1992, Hope et al 1996). Conversely heavy grazing resulting in short swards would be expected to reduce small mammal populations leading to food reductions for predators such as short-eared owl, barn owl and kestrel.

2.1.8 Gamebirds

Thompson et al 1995 reported that while heavy grazing can result in the direct loss of suitable habitat (eg Grant et al 1982) and a reduction in the gamebird distribution, a more moderate grazing intensity can have more subtle indirect effects resulting in a reduction in gamebird density. Such effects include cover from predators, increased parasite transmission and reduced availability of arthropods taken by young gamebirds. Moderate grazing will reduce vegetation biomass and may well result in reduced cover from predators. Reduced biomass will also mean less food for herbivorous arthropods and consequently less food for grouse chicks. Heavy grazing can result in the replacement of palatable vegetation by unpalatable vegetation which develops a thick mat layer leading to more ticks and consequently increased transmission of the virus and reduced grouse densities.

The Game Conservancy Trust manages two recovery projects for black grouse: one in the North Pennines and one in Tayside, Scotland. An overview of research results presented in 2000 (GCT 2000) found that grazing pressure in the North Pennines has had a negative effect on the population of black grouse and that the decline in the practice of shepherding has meant that sheep use moorland margins more, which are a critical zone for black grouse. The number of displaying blackcock showed a ‘tentative increase’ from 110 in 1997 to 140 in spring 2000 in the 10 monitoring sites in the North Pennines where grazing numbers had been reduced. On 10 broadly comparable sites where the density of grazing sheep has remained the same over the same period, numbers of displaying blackcock decreased from 140 to 111. At these same sites, average breeding success has been consistently better where grazing has been restricted.

Fuller and Gough (1999) observed from the literature that heavy grazing on grassland can create extremely uniform, short swards which are attractive feeding sites for starlings, magpies, jackdaws, rooks and choughs. These ‘lawns’ are particularly attractive because soil biodiversity is increased by the addition of dung (Keiller et al 1995). The dung itself creates localised sources of invertebrate food that are exploited by some birds, mainly corvids and starlings. Numbers of magpies, jackdaws and carrion crows have increased in recent decades, especially on grazed farms (Gregory and Merchant, 1996). Fuller and Gough (1999) also reported that, according to the literature, availability of lepidoptera larvae, a key food of black
grouse chicks, appears to be considerably less in heavily grazed than lightly grazed moorland, and this correlates with variations in grouse density, and breeding success which are both higher on lightly grazed moors (Baines, 1996 cited by Fuller and Gough).

### 2.1.9 Raptors

Fuller and Gough (1999) outlined numerous observations about changes in bird populations around the UK and the possible links with sheep grazing. It was suggested that a decline in the number of breeding hen harriers in Orkney since the 1970s may have been caused by increased grazing pressure by sheep resulting in reduced food availability (Meek et al 1998). In contrast to Wales, where there has been a marked decline, golden plovers in the South Pennines show no evidence of long-term decline (Brown 1993, Yalden and Pearce-Higgin, 1997). Sheep numbers have increased greatly in the South Pennines indicating that simple relationships between grazing pressure and bird populations are unlikely to exist. Fuller and Gough (1999) reported that it has been suggested that a decline in the number of breeding hen harriers in Orkney since the 1970s may have been caused by increased grazing pressure by sheep resulting in reduced food availability (Meek et al 1998).

The short leaflet on the hen harrier in England produced by English Nature (2002) reported that studies in Scotland have confirmed that in certain situations, high densities of breeding hen harriers can limit red grouse populations and reduce the number of birds for shooting. However, the situation in England is very different and only small numbers of hen harriers are present and numbers are far too low to have any significant impact on grouse numbers. Despite this illegal persecution carried out primarily on moorland managed for grouse shooting is thought to be the main factor limiting the hen harrier population in England.

### 2.1.10 Erosion

Johns (1998) gave a comprehensive examination of the relationship between erosion and LFA areas, the amount of water running off the land and the impacts that grazing animals may have on these. The report found that the enhanced removal of vegetation, erosion of soil and rock and the consequential increased runoff of water is a widespread problem in the British uplands. The report found that effects of this erosion have severe implications for the work of the Environment Agency and the wider economy. Intensive grazing pressure was found to be a significant part, but not the only cause, of the erosion problem. Other factors include the creation of bare soils by fire, bracken control and forestry. The presence of grazing animals on such soil exaggerates the problem of erosion and retards the return of vegetation. Johns stressed that long-term data sets are required to quantify the problem and that these are currently unavailable. However significant knowledge is held by people living and working in areas experiencing erosion and high run-off – but such information was considered to be insufficient as a basis for remediation strategies.

Johns (1998) undertook a very comprehensive literature review on the subject of overgrazing and resultant erosion and run off. Johns found that Anderson and Radford (1994) gave the most scientifically sound data to show how effective recolonisation of eroded slopes by vegetation could be following a reduction in grazing pressure. Tallis (1985) relates the current erosion of the Southern Penine moorlands (initiated 200-300 years ago) to intensified grazing and trampling of moorlands. O Sullivan (1994) undertook assessment of sediment cores taken from Slapton Ley NNR. He identified that an increase in sedimentation of the Ley since 1950 is associated with the post-war intensification of agriculture and the resultant loss in top soil. Braunack and Walker found that after 16 years without grazing the surface soil properties of
semi-arid woodland showed evidence of prior damage by grazing sheep. Gifford and Hawkins (1978) reported that infiltration rates might still have been increasing 13 years after grazing had ceased. Johns (1998) and Langlands and Bennet (1973) suggested that greater grazing pressure may lead to lower rates of infiltration into the soil and consequently more runoff into streams. This in turn may lead to erosion of stream banks and headward retreat of gullies into the peat. The literature review showed that the academic community holds a full range of views on the subjects of overgrazing, erosion and run off which are often contradictory. This contradiction can be seen as resulting partly from a tendency to look at small-scale study areas that tend to be non-representative.

Johns reported that Evans (1996) gives estimates for the cost of water related pollution incidents in the uplands (£2 million per year) and total cost of erosion in the uplands and lowlands as £23 million to £50 million per year. Evans also estimates the cost of fencing off stock from actively eroding moorlands to allow vegetation to colonise exposed peat and mineral soils.

Evans’ (1997) examination of a need for a national survey of grazing related soil erosion found that erosion initiated and maintained by animals grazing upland grassy swards occurs in soil associations covering 2.7 per cent of England and Wales and 16.4 per cent of Scotland. As long ago as 1965 Thomas surveyed the slopes of Plynlimon (Wales) and found that 5% were affected by ‘upland sheet erosion’ induced by sheep. In 1990 Evans had examined the effect of a rise in sheep numbers in the Peak District and found that intensive grazing pressure occurring there led to the exposure of bare soil and a compaction of the soil surface which would in turn be likely to increase run-off. A questionnaire survey of National Park Authorities undertaken for an Environment Agency project showed that 18.4% of erosion occurring in NPs is perceived to be caused by trampling pressure and 16.3% by overgrazing and 16.3% by recreation. Other agents of erosion included climate, fire, increased run off and loss of vegetation (Johns 1998).

Hickie (2000) reported the findings of research by the Salmon Research Agency, based in County Mayo in the west of Ireland, on the impacts of overgrazing on the aquatic environment in that area. The main findings, all related to soil erosion, included:

- Peat losses of up to 250 tonnes per sq km were recorded in 1993 and 1994, equivalent to five times less than a control site not subjected to intense overgrazing;
- Gravel beds used for spawning salmon and sea trout became clogged during the winter months, reducing fish survival rates;
- Salmon productivity has declined significantly due to reduced water clarity in the important nursery areas of lakes;
- The increased humic content of lakes has reduced light penetration this reducing primary productivity.

2.1.11 Run-off and flooding

Overgrazing, habitat degradation and resultant soil erosion can have important consequences for water supply and flooding in lowland areas. The relationship between an increase in stock numbers and runoff has been measured (Evans 1996). Sansom (1999) described a study carried out in the north Derwent catchment showing that between 1944 and 1975 the numbers
of sheep in the area doubled from 12,000 to 24,000 and that over this period the runoff rate increased by 25 per cent.

Moor gripping or upland drainage was carried out widely in the 1960s and 1970s with grant aid from MAFF to improve drainage and heather cover. It is estimated that moor gripping affects 70% of upland moorland in Britain. Sansom (1999) stated that it is generally accepted that the process has contributed to increased runoff and damage to rivers, riverbanks and spawning areas downstream.

Sansom (1999) described a study by Van der Post et al (1997) whereby sediments were taken from Blelham Tarn in the Lake District by frozen core sampling to give a profile for the last forty years. The profile showed that there has been an exponential increase in sedimentation rates and that the predominant source was soil from within the catchment. The significant increase in the stocking rates of sheep suggested that most of the recent sediment has been derived as a direct response to the increased pressure from sheep grazing.

2.1.12 Effects of veterinary medicines

English Nature (2001) described how the dipping of sheep to eradicate parasites has had serious consequences for aquatic invertebrates as a result of accidental spillage of sheep dipping chemicals into watercourses. Following the introduction in 1996 of requirements for training and certification of those purchasing Organo-Phosphorus (OP) sheep dip, the proportion of farmers using synthetic pyrethroid (SP) dips increased dramatically. The use of OPs has since been banned. There has as a result been an increase in pollution incidents of SP in rivers, particularly in upland catchments. SPs are very highly active and there have been several incidents in rivers containing nationally and internationally important aquatic invertebrates (English Nature 2001).

Fuller and Gough (1999) drew attention to the possible ecological side-effects of some anti-parasitic drugs, notably the avermectins. The concern is that non-target invertebrates may be affected by the drugs and decomposition of the dung may be retarded. One detailed study (Madsen et al 1990) found adverse effects of ivermectin on the decomposing fauna of cattle dung. Most of the ecological work on avermectins has been on cattle and it is not clear what impacts there may be on the sheep dung fauna, though one study at least (Wardhaugh et al 1998) reports transient effects on insects feeding on sheep dung. These findings and observations on avermectins and particularly ivermectin are supported by Wright et al (2002) and Dennis (1999).

2.1.13 Landscape

Influences on the landscape, both positive and negative, arise from several different aspects of hill farming. Hill farming is regarded as contributing to landscape maintenance and improvement through habitat maintenance and maintenance of traditional landscape features such as hedge and dry stone wall field boundaries and traditional farm buildings. Hill farming can also have negative effects on the landscape through creation of farm tracks through the use of all terrain vehicles, habitat degeneration and soil erosion arising from excessive grazing pressure.

In their examination of the role of Northumberland National Park Authority in rural development, Carrol and Phillipson (2002), felt that it would be difficult to envisage how the environment and cultural heritage of the Park could be conserved or enhanced without the
pro-active engagement of the managers and the land, the owners of its physical heritage and the local communities, whose culture and livelihoods sustain the vitality of the Park.

As part of the Upland Landscape Study Sinclair (1983) found that active or composite landscape change was associated with amalgamation of farms. This implies that landscape change is most associated with entrepreneurial farmers (i.e. those who are fairly young, full-time, on large and expanding holdings and highly profit conscious). The average age of farmers interviewed for this study was 51.

Midmore et al (1998) observed that heather and moorland are considered to be of special landscape value, and naturalness and colour variation in the hills have shown to be highly valued by the public (Bullen et al 1998 cited by Midmore). Particular attention has also been drawn to the important historic nature of field boundaries and archaeological features in the upland landscape. These have persisted under relatively low-intensity management and have become a significant resource contributing to both amenity value and to the public perception of the hills and uplands as a special place (Barr 1997 and Bullen et al 1998).

2.1.14 Bracken

Bracken is another problem afflicting the British uplands on a large scale. Bracken invasion is not a product solely of hill farming but it is influenced and possibly encouraged by sheep grazing under certain conditions. While bracken is widely perceived to be a negative phenomenon in the uplands as an aggressive coloniser there are also evidence presented in the literature to suggest that bracken can be of great benefit to certain upland species. So whilst this is not a direct environmental impact of hill-farming it is an important interaction that is currently of great concern in the uplands of England.

English Nature (2001b) observed that the annual rate of bracken expansion for the UK as a whole is equivalent to the rate of land loss to either urbanisation or afforestation. Both grouse and sheep monocultures seem to have contributed to the bracken problem as has the contraction of the upland cattle economy since suppression of bracken by trampling from cows has been reduced.

English Nature (2001a and 2001b) stated that bracken can provide valuable habitat for the high brown fritillary butterfly, but without sensible management it can become too dense and encroach into other important habitats. Bracken can also provide valuable nesting sites and shelter for whinchats, merlin, short-eared owl and skylark. It also provides song posts and perches for birds such as whinchat and stonechat. Whinchats are associated with areas of low altitude and high bracken cover and have declined in many previously occupied lowland areas leaving the uplands as their breeding stronghold in Britain. English Nature (2001b) stated that in some areas bracken supports certain woodland ground flora, including violets and bluebells by acting as a substitute woodland canopy. Bracken can also protect some plants from grazing, such as chickweed wintergreen and lesser butterfly-orchid and it allows some plants under its shade to survive drought summers. Bracken also supports a large number of invertebrates, providing a significant nectar source early in the year and provides shelter for the weevil, one of Britain’s few endemic invertebrates. Bracken can improve the texture and stability or some soils, especially on sandy slopes.

Allen (in Thompson et al 1995) asserts that the commonly made claim ‘that ‘many birds are lost when bracken replaces other communities’ and, in particular, the implication that it is the rarer species that are most at risk from bracken expansion, is unsupported. A recent attempt to
take a balanced view of ‘the bracken problem’ (Pakeman and Marrs 1992 cited in Thompson et al 1995) notes the association but also reports various supposedly negative effects of bracken on upland birds.

Fielding and Haworth review the relationship between bracken and other upland species. Bracken can be an important habitat for:

- moorland birds (particularly whinchat and other species including ring ouzel, hen harrier, merlin and twite) (Haworth and Thompson 1990);
- certain rare plants species including the autumn crocus Colchicum autumnale and Solomon’s seal Polygonatum multiflorum;
- two species of butterfly, heath fritillary Mellicta athalia and high brown fritillary Argynnis adippe, which use food plants present under light bracken cover;
- over 40 species of invertebrates;
- and some reptiles and mammals can benefit from the shelter it provides. It is also considered to be an important characteristic of the upland landscape during autumn and winter.

These authors also recognised that bracken is an aggressive plant that spreads rapidly and that it is problematic in that sheep ticks can be abundant in bracken litter (see subsection ‘Ticks, Lymes disease and louping ill’ below).

2.1.15 Ticks, lymes disease and louping ill

Of relevance to both sheep grazing and bracken in the uplands of England is the presence of ticks and their carriage of Lyme disease and louping ill. The literature suggests that sheep grazing and the thick mats of vegetation that can sometimes be produced encourages ticks. Lyme disease is of considerable health concern for the human population and louping ill can cause considerable financial loss in grouse.

The Game Conservancy Trust (2001) stated that sheep ticks and louping ill have been present in the UK for over 400 years. Molecular analysis by the Moredun Research Institute in Scotland suggests that louping ill was probably introduced from Ireland to Wales by tick-infested livestock, thence to Scotland and England. Currently, sheep ticks and louping ill are causing major losses of sheep and grouse. Ticks not only spread louping ill through grouse and sheep population they also prohibit the development of grouse chicks through high rates of tick biting. Up to 79% of young red grouse that contract louping ill develop clinical signs of the disease and subsequently die. The introduction of infected and parasitised livestock is still the most likely means for ticks and louping ill to reach a moor as sheep and red grouse are the only numerous hosts in upland Britain (with the exception of mountain hares) that ‘amplify’ enough louping ill in their bodies to pass it on to feeding ticks.

Louping ill, a major cause of chick mortality in red grouse (Hudson 1992, 1995) is transmitted between hosts by the sheep tick. Sheep grazing may affect numbers of ticks and incidence of the disease, leading to reduced grouse populations. Tick abundance is highest in areas where thick mats of vegetation occur, such as bracken beds and unpalatable grass;
consequently, where heavy grazing promotes mats of less palatable grass, a build-up in tick numbers may result (Hudson, 1995).

2.1.16 Commons

The commonage system in England has had important and largely negative interaction with hill farming and has exacerbated problems of overstocking, overgrazing and erosion and has discouraged, and in some cases prevented, entry of upland grazing land into agri-environment schemes. English Nature (1999) argued that the largest single issue for nature conservation on upland commons is heavy grazing, mainly by sheep.

Some 20% of National Trust land is registered common land, much of it in upland regions (Oates 1998). The legislation is such that the Trust is unable to influence the grazing of common land in its stewardship as easily as it might wish. Indeed, from a nature conservation angle much of the common land owned by the Trust is either over or undergrazed; the former being prevalent in the uplands and the latter in the lowlands. In addition the restraints regarding the erection of fencing on common land is a major issue within nature conservation in the UK at present.

Winter et al (1998) reported that ESA explanatory notes state that common land can be entered into agreements but that ‘all those who have grazing or other relevant rights of the land, including the owner of the commons, will normally have to enter the ESA scheme under a joint agreement.’ MAFF (1994). This requirement has been interpreted in different ways in different areas. In the Lake District, a common has been entered into an ESA agreement but only after the common was divided into grazing units, with just two units accepted into the scheme. On one unit a commoner refused to sign the agreement but MAFF accepted the agreement on the basis that the individual had given the other graziers an assurance that his grazing levels would remain unchanged (Short 1998).

With reference to the Long Mynd in Shropshire which has suffered severe overgrazing as a result of the commonage system, Ellet (1984) observed that the problem of no-one accepting the responsibility of enforcing sound rules and regulations on commons in general has resulted in disharmony between the various interests involved. Consequently, the Common Land Forum was set up in January 1984 by the Countryside Commission, with the specific remit of preparing heads of agreement between all interests on second stage legislation for common land, following the original recommendation of the Royal Commission in 1958.

One possible positive environmental impact of the commonage system was highlighted by the Countryside Commission (1984), which argued that common land and common rights have been a major limitation on landscape change, and has thus served, to a certain extent, to limit detrimental changes to the upland landscape.

2.1.17 Hill farming and archaeology

The Council for British Archaeology (CBA) undertook a survey of upland archaeology and the threats upon it in 1984-5 under the joint auspices of the CBA and the Royal Commission on the Historical Monuments of England (reported in Darvill 1986). The report stressed that the uplands constitute the largest single reserve of well-preserved historic landscape in Britain today and are of great national and international importance. Approximately 32,000 upland archaeological sites are documented in existing records. Darvill argues that agricultural land improvement has been the single most destructive and most widespread threat to upland
archaeological sites. However agriculture is not the only threat to upland sites, the table below, given by Darvill, outlines the many other threats.

Table 1: Spread and intensity of threats to upland archaeological heritage

<table>
<thead>
<tr>
<th>Threats</th>
<th>Number of counties reporting threat</th>
<th>Rank value score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agricultural land improvements (incl. drainage, reseeding, first ploughing, stone clearance, reclamation, pasture to arable conversion)</td>
<td>23</td>
<td>2.9</td>
</tr>
<tr>
<td>2. Agricultural facilities improvements (incl. new roads, buildings, etc)</td>
<td>3</td>
<td>4.0</td>
</tr>
<tr>
<td>3. Regular ploughing</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>4. Mineral extraction and quarrying (incl mines, quarries and waste dumps, etc)</td>
<td>14</td>
<td>7.5</td>
</tr>
<tr>
<td>5. Industrial and domestic building</td>
<td>4</td>
<td>8.3</td>
</tr>
<tr>
<td>6. Forestry (incl new planting, replanting etc)</td>
<td>16</td>
<td>8.8</td>
</tr>
<tr>
<td>7. Natural erosion (incl acid rain, soil movement, etc)</td>
<td>4</td>
<td>9.75</td>
</tr>
<tr>
<td>8. Visitor erosion (incl walkers, bike riders, horse riders, farm animals)</td>
<td>16</td>
<td>10.1</td>
</tr>
<tr>
<td>9. Public utilities (incl. Water schemes, pipelines, buildings etc)</td>
<td>7</td>
<td>17.8</td>
</tr>
<tr>
<td>10. Vandalism</td>
<td>2</td>
<td>20.5</td>
</tr>
</tbody>
</table>

*Rank value score = sum of assigned rank (1-5) squared, divided by reported incidence

From: CBA 1986

Ploughing is a serious threat to upland archaeology just as it is to that in the lowlands. For example in the Cotswolds of 906 sites with above-ground traces visited during a survey in the late 1970s, 38 per cent were extensively damaged by the plough and a further 8 per cent were partially affected. In the North York Moors 15 per cent of known sites have been totally ploughed out and a further 10 per cent have been ploughed within the last decade.
Darvill argues that archaeological destruction is most likely to occur at the moorland edge, especially in areas adjacent to improved land. Land improvement along the main river valleys that dissect upland areas has fragmented the area of moorland. Farming in particular, but also quarrying, mineral extraction and other works nibble away along the edges of moorland.

2.1.18 Local examples of environmental impacts of hill-farming

In the case of the Long Mynd, Ellet (1984) felt that it is extremely doubtful whether sheep utilise more than 15 per cent of the heather on the Common, a phenomenon which placed extremely heavy grazing pressure on rough pasture and grassy heath areas. Surveys of ground cover were undertaken on the Long Mynd in 1965, 1973 and 1984. The greatest amounts of change were from Grassy Heaths to Rough Pastures (12.02 per cent of the Common) and from Rough Pastures to Dense Bracken (13.84 per cent of the Common). Soil erosion has become a serious problem on the Long Mynd. There are problems with people causing potential erosion problems, such as around Devil’s Month and on the sides of Cardingmill Valley (the National Trust’s ‘honey pot’). But Ellet thought it reasonable to assume that the large number of sheep (over 16,500) do far greater harm through both walking and grazing than the visitors. Ellet reported that the local National Trust warden believed that the whole of the south-facing slope of Townbrook was eroding because of high sheep numbers.

Emery (2002) gave a brief case study on the management history of Lullington Heath National Nature Reserve on the South Downs in East Sussex. In 1955 the land owners of the reserve (a water company) refused the conservation agency permission to stock sheep on the land because the public water supply for the nearby towns’ drinking water was being extracted from the bedrock below the site. During the 1950s and 1960s all the Nature Conservancy could do was to use machines and man power to try and prevent scrub invasion. With limited resources they were only able to keep certain areas mown and were not able to control scrub invasion over the entirety of the site. However, in 1960s the water company gave permission for livestock grazing on the land and from that point on the land was grazed by a mixture of sheep, ponies and goats in order to manage the mosaic of scrub, grassland and chalk heath.

With reference to the North Peak in the Peak District National Park, Froud (1994) stated that the critical factors for moorland are the winter stocking rates and the extent to which concentrated overgrazing occurs such as results from static winter feeding or foddering points. Problems of overgrazing are exacerbated by moorland being burnt irregularly as sheep will tend to avoid areas where the heather has become old and leggy. Areas which have been damaged by accidental fires which can cause the peat to burn for weeks and leave large sunken areas which are slow to revegetate if not fenced off from sheep. At the time the ESA was introduced, eroding moorland and encroaching bracken each accounted for 4.5% of the designated area. In particular areas the erosion resulting from recreational pressure is acute.

2.2 Social impacts

2.2.1 Socio-cultural aspects of farming life in the uplands

An important aspect of the social impacts of hill farming, that is also possibly the easiest to identify, is the impact on the farming community itself: the rewards and burdens of being a hill-farmer. It is also important to identify these aspects of hill farmers’ lives in order to better understand the wider social impacts of farming in the uplands.
Walsh (1991) provided an excellent, comprehensive, eloquent and well informed analysis of the status and future of hill-farming in the Lake District that drew on extensive and diverse literature review and farmer interviews. This PhD thesis was provoked by the lack of sociological studies on upland England. She felt that more recent publications on socio-economic issues in rural England have had a definite lowland bias. The thesis considers the historical and socio-cultural context to land use change and the decline of agriculture and an active working population in the Lake District. With regard to the desirability of supporting farmers Walsh quoted the European Commission from its Green Paper ‘Perspectives for the Common Agricultural Policy’ as saying ‘taking into account the ever-increasing importance of conservation and nature and the maintenance of the fabric of rural society, there is a need to maintain a significant number of farmers on the land.’ (CEC, 1985)

Reed et al (2002) undertook an in-depth survey of 26 family farms (36 individuals) in the Hatherleigh to Holsworthy area in Devon. Their survey focused on the economic and social well being of these farms and provided a mixture of substantial interesting anecdotal evidence and relevant statistics. Although there were no cases of extreme poverty Reed et al found many cases of significant personal and economic hardship. Many were reluctant to admit to ‘going without’ (for example skipping meals or turning off the heating) although others did point out delaying household expenditure for the sake of the farm business and readjusting their material needs. Most of the families interviewed were described by Reed et al as being deeply embedded within the locality, possessing high levels of local cultural capital and existing within dense networks of family and social association. Many had withdrawn from social contact as part of a strategy of working longer, harder hours on the farm in order to survive. This was seen in the decline in formal civic participation, reductions in other activities which involve getting off the farm, lack of knowledge of non-farming neighbours and generally increased isolation. Reed et al argued that such isolation could also have negative effects on the farm business due to a reduction in knowledge sharing with other farmers and reduced cooperation. The respondents noted ‘regret’ at no longer being so actively involved in their community.

Religion was found to play an important part in the lives of the majority of those interviewed by Reed et al (2002) with high levels of church attendance (higher among women) and with ministers being the person most likely to be called upon for advice, after families and friends. In the 1982 farm survey (undertaken by M Winter reported in Reed et al 2002) 75 per cent of the farmers had no post-16 education, this fell to 62 per cent in the 2002 survey. An informal system of bartering and exchange of labour exists among the farmers. A round of gifts and obligations was apparently forming a complex social economy that did not involve money. Such a system would degenerate with a decline in the number of small farmers in the area.

Reed et al found that peer and social pressures had been put on those, in the upland Devon study area, that were considering not restocking after FMD, some who had left farming have been the object of verbal abuse and the general cultural tenor that ‘real men farm’ can hinder change and make it an uncomfortable process.

Sinclair (1983) undertook a survey of farmers in 12 different upland areas of England and Wales. Examples of the findings of his survey include:

- 1 in 7 farmers had never married;
- of children who had left school 60% are in non-farming employment and only 23% are employed on the family farm;
• of children who were not employed on the family farm only 1 was living in the same parish as the responding parent;

• of those children still at school 16% are expected to take over the family farm by their fathers;

• 69% of farmers recognised that they had a responsibility for more than food production, this was primarily seen in terms of ‘stewardship’.

Upland farm ownership appears to be more stable than for lowland farms. Potter et al (1996) found that only 1.2% of upland farms changed hands between 1984 and 1990, compared with 27% of lowland farms in pastoral landscapes.’ This stability was also reflected in fewer changes in farm management, although it was unclear if this was a consequence of a lack of options in a difficult environment or a lack of incentives.

Walsh (1991) found that, in the Lake District, the dearth of both educational and agricultural qualifications was compounded by a lack of alternative work experience, with only 20 per cent of the sample stating that they had worked in other occupations, mostly manual work. 88 per cent of the sample were from farming backgrounds, many of which went back through generations. 76 per cent had been born and raised within twenty miles of their present homes and 18 per cent were from further than twenty miles away but still from within Cumbria. Only 6 per cent were from beyond the boundaries of the county.

The findings of Reed et al (2002) and Sinclair (1983) suggest that remaining in hill farming, especially since FMD and during financially stressful times, can have a negative effect on farmers financial and psychological well being in that it can isolate farmers, both socially and professionally, and place them under severe stress. However the evidence presented in the literature is mixed with some studies such as Reed et al observing increasing social exclusion and stress levels juxtaposed against others, such as Powe et al in their evaluation of the future for the North York Moors Land Management Initiative area (reviewed below) which highlighted the closeness of the community as one of the main strengths of the area.

Walsh (1991) argued that isolation of farmers has also been exaggerated by the general reduction of the agricultural workforce. At busy times in the farming calendar mutual aid was once prevalent: as with the ‘boon ploughings’, communal sheep dippings and clippings, hay-timing and shepherds’ ‘meets’ (i.e. the meeting of farmers at certain times of year to return stray sheep to their owners), all of which afforded opportunities for social interaction. Mechanisation has superseded these practices and along with the numerical decline in the farming population, farmers have withdrawn further into the confines of their work. Walsh stated that this social marginalisation is also reflected in the wider community and their degree of involvement in other organisations. 80 per cent of the Lakeland sample did not belong to any locally based organisations at all (excluded here are national organisations such as the National Farmers Union). The remainder by and large belonged to ones which were intrinsic to the locale; for example fox hunt and hound trail committees, local agricultural show committees and agricultural discussion groups.

Walsh noted that the social isolation of farmers when linked to growing financial hardships has resulted in an increase in the number of suicides, though farmers as an occupational group have always had a comparatively high suicide rate. Increasing loneliness and financial crisis are, according to Walsh, often ‘masked by idyllic perceptions of rural life’.
Midmore et al (1998) suggested that LFAs, whilst being agriculturally disadvantaged, are comparatively advantaged in many respects: they have the opportunity to gain from relatively scarce landscape and environmental qualities, and the social and cultural dimension of their farming communities. Some evidence (Potter and Lobley 1993, 1996) suggests that these characteristics are mutually interdependent, and that a relatively dense network of small farms is helpful in maintaining the quality of the natural environment. The opportunity exists of incorporation of shared social values into characteristics of the products of LFAs, not simply of agriculture, but also in diversified tourism and other cultural products.

In the majority of literature that included interviews with farmers and touched on the subject of job satisfaction the responses were similar: that there was a high level of job satisfaction in hill farming but that the economic returns were very low and the future of the industry uncertain. Hill farmers in the Lake District interviewed by Walsh (1991) expressed such feelings:

- ‘You’re never bored. There’s always something unexpected happening; it keeps you on your toes. And you don’t have to take orders from anyone; there’s nobody breathing down your neck. I can’t think of anything I dislike about the work. More than dislike, it’s the worry and what I worry over is the amount of money I’m getting out of the job. It isn’t getting better. I worry about the future – where farming is going.’

- ‘You build up a place in the hope that your kids will take over one day. Your heart tells you that. The quality of life is different from virtually all other occupations. But you hope your son would be financially stable. In your heart you’d like to see him carry on the farming. But your head says something different, what with these politicians and their indecision, the future doesn’t look so rosy.’

- ‘I like working with sheep but for the hours you put in, the money isn’t enough. No bugger would do this.’

The socio-economic situation of hill farms can have important consequences for the landscape and environment in upland areas.

Walsh (1991) felt it important to reiterate that the extent of landscape and ecological change in the Lake District has largely been caused by economic pressures exerted on the hill farming sector and not due to the diversity of values held by farmers. This tends to support the findings of Newby et al. As they state about their East Anglian farm sample, ‘Only those who can afford to ignore these economic exigencies feel capable of exercising the choice to maintain a more traditional agricultural landscape.’ (Newby et al, 1977, 25). Walsh (1991) also argued that the physical deterioration of landscapes in the Lake District is attributable to the numerical decline of the agricultural workforce and that the management of cultural landscapes depend upon the continuity of traditional farming practices, many of which now have been superseded by modern methods. Walsh also argued that with the erosion of farm incomes, maintenance work (which is imperative for the conservation of the cultural landscape) is often abandoned in order to concentrate on more profitable tasks.

### 2.2.2 Demographics of the farming community

Throughout Europe as a whole the age of full-time agricultural workers is increasing. This is especially true of upland areas in England. Another characteristic of the hill farming community in England is that the majority of full time workers are men. As Gasson points
out, women comprise a minority amongst full time regular workers in the farm labour force. Nearly half of the women employed in agriculture in the UK at the time of 1978 June census were casuals, who might be employed for a few months or only a few days a year. About two-thirds of the remaining regular workers were part-timers. This is a much higher proportion than for the British economy as a whole, since only 40 per cent of all working women have part-time jobs (Mallier and Rosser 1979 cited by Gasson).

Gasson (1980) also stated that the larger the farm business, the greater the probability of a farmer having a wife. The Agriculture EDC data show the proportion of farmers married rising steadily from under 77 per cent on farms employing no regular workers to 89 per cent on farms with five or more regular workers. There is an association between small livestock farms and celibacy in Wales and Northern England which is likely to be a reflection of the system of inheritance, poor living and the shortage of marriage partners for farmers’ sons in upland areas, a situation graphically described by Nalson (1968).

2.2.3 The social value of upland landscapes

The upland landscape plays an important social role in England as it is an important venue for recreation and as such is highly valued by the public. In as much as sustainable farming helps to maintain upland landscapes it can be viewed as having a positive social impact by maintaining a valued landscape. However it is interesting to note how little awareness there is among the general public of the importance of human intervention in maintaining the open landscapes they associate with the uplands. As part of a survey of opinions amongst the Scottish public towards upland landscapes, by MacKay (1995) (in Thompson et al 1995), people were asked to describe upland landscapes. The adjectives that people used ranged through words such as open, wild, empty, bleak, desolate and hostile (MacKay 1995 in Thompson et al 1995). The lack of significant socio-cultural responses (apart from a few references to shooting) is of interest: it is possible to put together a kaleidoscope of word images which link with past and present human use of moorland, from standing stones to field patterns, sheilings, crofting, peat-cutting etc. Little of this emerges in the survey; it requires a more tutored understanding of the land, that is not held or not in the surface consciousness of the general public.

It is also important to consider the extent to which this apparent importance of upland areas for recreation would change if the land cover of the uplands were to change. Would visitor numbers change if a greater area of the upland was returned to forest?

Data from the National Parks Visitor Survey 1994 (reported in Fielding and Haworth 1999) show that 76 million recreational visitor days were made to National Parks in England. A separate survey showed that 2.27 million visitor days were spent in the Peak District.

One member of the Farm and Rural Community Scheme in the North York Moors National Park (part of the Countryside LMI initiative) was concerned that the National Parks Authority was ‘trying to make it into a museum’. Another participant agreed with this and stated:

‘it’s not about producing beef or anything else but it is more about making it pretty for the tourists to come out and have a look at.’

Another stated:
‘if that is what they want then they are going to have to say, if this attracts the tourists we should be given more credit and financial credit for creating it.’

Walsh (1991) reported similar comments from one of the farmers interviewed in the Lake District who gave a strongly-felt response on the subject of stewardship.

‘Well the land in this area, it will always have to be farmed because people like to look at it. That’s going to become more and more the case. We don’t like being called park-keepers – no. That isn’t our role: we’re farmers first and it’s purely incidental that we’re park-keepers also and we’ve kept the Park very well.’

Another farmer responded:

‘You’ve to look after the land – that’s the first agricultural fact of life. If farmers don’t follow it, then they won’t have a future; they and their sons won’t be able to make a living.’

Mackay (1995) argued, on the basis of a survey conducted by System 3 Scotland for Scottish Natural Heritage (SNH 1993) and a survey undertaken in 1987 for the Countryside Commission for Scotland, that there is no strong evidence that moorland in Scotland is a prime destination for open-air recreation compared with popularly visited places on the coast or loch edge. For the first survey walkers were asked by System 3 Scotland about 1350 recent walks. This survey found that only 9% were described as being located in a ‘mountain or moorland setting’. The Countryside Commission for Scotland survey (1987) found that when people were asked about their favourite Scottish landscape the favourite was ‘Lochs surrounded by hills’, the second was ‘views at coast to islands’, third was ‘high and rocky mountain scenery’ and ‘open moorland and heather hills’ was fifth out of only eight choices.

2.2.4 Maintaining cohesion of the rural community

The majority of work focusing on the importance of the farming community in sustaining rural communities, social structure and rural ‘culture’ is general in its approach and there is little substantial literature exploring the role of specifically hill-farming in this context.

In their assessment of the prospects for agriculture and rural economy in the North York Moors LMI area, Powe et al (2000) got focus groups of local stakeholders to identify the strengths and weaknesses of the LMI area. This process identified the closeness of the community within the LMI area as being one of its main strengths.

The Countryside Commission (1984) conducted a consultation exercise and a series of public meetings to gather information and views on ‘What Future for the Uplands?’ 250 consultation responses were received from farming and forestry industries, local authorities, public bodies, voluntary organisations and individuals. Many of those interviewed regarded their dependence on towns 10 to 20 miles away as a threat to the identity and future of their own local community; the rising costs and difficulties of travel often causing people to leave villages for the towns. Even in those areas where commuters with families are settling, long-standing residents see the newcomers as being more orientated towards the towns for education, services and social life. The survey also identified the closure of village schools in the uplands, often as a consequence of a decline in population and the local economy, as a matter of considerable concern. It could be argued that the decline of the upland farming community and their replacement with commuters and other incomers who rely more on the
resources of the nearest urban centre exacerbates the decline in local services as there would be fewer people utilising these resources rather than going to the nearest town/city.

Reed et al (2002) found that farming families appear to continue to play an important but limited civic role in the broader community, even whilst the farming community is in difficulty. Community involvement was a constant feature of those who took part in the survey although these commitments were restricted to a narrow range of organisations and roles. It was most common to be a school governor, usually the village primary school their children attended, after this is was most common to be a member of the NFU committee, or a farmers’ organisation such as CLA or the Young Farmers.

2.2.5 Improvement of agricultural land

According to Midmore et al (1998) the scale of intensification in enclosed pastures in LFAs accelerated rapidly in LFAs in the early 1980s (RSPB 1996) as grant aid and new technology offered farmers the opportunity to upgrade land they had previously considered unimprovable. Midmore et al argued that although removal of hedgerows has been far less than in other areas of the UK, there has been a significant decline in the extent and quality of hedges in the uplands. Despite the valuable contribution of field boundaries to the character of LFA landscape, flailing and heavy browsing has resulted in poor hedge structure, impoverished ground flora and relatively low wildlife value (Alcock 1992 cited by Midmore).

With regard to general agricultural improvement of upland areas English Nature (1995) argued that agricultural improvement is not disadvantageous to all species. The richer, more productive, fields can provide useful feeding grounds for some birds, as long as sufficient undisturbed land remains for nesting. Other agricultural improvements, such as increased stocking densities can be beneficial to carrion feeding species such as the golden eagle Aquila chysaetos and raven Corvus corax. However improved sheep husbandry has led to fewer deaths and thus a reduction in carrion feeders.

(See also section above on Hill farming and archaeology)

2.2.6 Farm amalgamation

The National Trust (Agriculture – 2000 and beyond) argued that farmers in the uplands provide the skills and experience to maintain landscape features such as stone walls. Farm amalgamations, if they take place, will inevitably reduce the number available to carry out such work. At present the Trust is still able to find tenants willing to rent upland farms. However, in some areas few prospective tenants are now coming forward and the choice is becoming increasingly limited. It is likely that within the next few years some hill farms will become impossible to let to farmers wishing to adopt traditional hill farming systems.

Potter (1991) argued that in the uplands agricultural change has operated in a more complex way than elsewhere, with the reclamation of large tracts of semi-natural vegetation going hand in hand with the amalgamation and loss of farms. In these areas, the intensification of farming, far from strengthening the rural economy has produced depopulation and social decline (MacEwen and MacEwen 1987). LFA headage payments, together with the benefits of the sheepmeat regime encouraged many of the better-placed livestock farmers to reclaim, improve and over-stock the land, with consequent habitat degeneration. Potter felt that smaller and more marginal producers have found themselves disadvantaged by a system which rewards output and the ability to expand output through capital investment. The
combined impact of headage payments, land improvement grants and other benefits which occur under the EC’s sheepmeat regime has, Potter argued, been to accelerate the rate of farm amalgamation, reducing the number of hill farms, farmers and farm workers by creating fewer, more productive units.

MacEwen and Sinclair (1983) found that in the Upland Landscapes Study (ULS) the rate of farm amalgamation had actually accelerated during the period 1950-1976 (i.e. since the passing of the Hill Farming Act 1946 and the Agricultural Act 1947) and that the agricultural population was also declining.

2.3 Economic impacts

2.3.1 Tourism

The Countryside Agency (2003) presents data on visits to the countryside from the Great Britain Day Visitor Survey 2002/2003. A quarter of all leisure day visits in England are to the countryside, with walking the most common activity. People spend money on about half of the countryside trips they make, resulting in average expenditure of just under £12 per person per trip. As a result, spending on countryside day trips amounts to around £9 billion per annum in England. 38% of people who had taken a day trip in the previous 12 months had visited a National Park, with the Peak District and Lake District being the two most popular, accounting for 23% and 22% of visitors respectively.

Council for National Parks data suggest that parks in England and Wales receive a total of 92.5 million visitor days per year, with almost 90% of these in upland areas (Table 2).

Table 2: Visitors to National Parks (Source: Council for National Parks)

<table>
<thead>
<tr>
<th>Visitor days (millions per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brecon Beacons 7</td>
</tr>
<tr>
<td>Dartmoor 4</td>
</tr>
<tr>
<td>Exmoor 1.4</td>
</tr>
<tr>
<td>Lake District 22</td>
</tr>
<tr>
<td>Northumberland 1.5</td>
</tr>
<tr>
<td>North York Moors 8</td>
</tr>
<tr>
<td>Peak District 19</td>
</tr>
<tr>
<td>Pembrokeshire Coast 4.7</td>
</tr>
<tr>
<td>Snowdonia 10.5</td>
</tr>
<tr>
<td>Yorkshire Dales 9</td>
</tr>
<tr>
<td>The Broads 5.4</td>
</tr>
<tr>
<td>Total 92.5</td>
</tr>
</tbody>
</table>
While these National Parks are predominantly hill farming areas, it is not clear the extent to which the landscapes produced by hill farming represent the predominant attraction to visitors.

The Lake District National Park Authority (undated) highlights the importance of tourism to the Lake District economy. More than 50% of the workforce in the Windermere and Keswick Travel to Work areas is employed in hotels, catering and distribution. Tourism also helps to support services such as bus and rail, shops and pubs. The scenery and landscape of the park was the most important attraction identified by visitors in a national visitor survey of National Parks in 1994 (Countryside Commission, 1994). This survey gave similar findings for other National Parks, but did not explore what aspects of the landscape appealed to visitors.

Highlands and Islands Enterprise (1996) estimated that hill walking and mountaineering brought annual expenditure of £107 million and income of £53 million to the Scottish Highlands.

A study by SNH (1998) estimated that walking related expenditure in Scotland amounted to £257 million in 1998, generating (directly and indirectly) 9400 FTE jobs. When mountaineering is included, these figures increase to £361 million spending and 13,350 FTE jobs.

Midmore (2000) estimated that walking brought annual expenditures of £170 million and supported around 5000 FTE jobs in the Welsh economy; if mountaineering was included, these figures rose to £240 million and 7,000 FTE jobs. These figures related to the Welsh economy as a whole - a conservative estimate of the impact of walking on the rural economy of rural Wales was to support income of £55 million and 3,000 jobs, including direct and indirect effects. Inclusion of mountaineering would add further income of £22 million and 1250 FTE jobs in the rural economy. These totals are equivalent to around 2% of rural GDP and 1% of rural employment; by comparison agriculture accounts for around 4% of rural GDP and 7% of employment. Midmore estimated that creating additional employment by improving walking opportunities (through access and rights of way) would cost around £433 per job, around ten times lower than agriculture (£4,279 per job). He concluded that the potential of walking as a means of rural economic regeneration is underexploited. The paper did not consider links between land use and tourism.

The National Trust has commissioned a series of reports investigating links between tourism and the environment. The South West study estimated that 12.6 million holiday trips per year – 78% of the total – are motivated by conserved landscapes – coast, moors, woods, villages and rural attractions. These were estimated to attract holiday spending of £2.4 billion and support 97,000 jobs in the region – 43% of total tourism employment. 16% of people interviewed in the survey had walked on the moors during their visit, compared to 72% who partook in general “sightseeing in the countryside”. The survey did not collect information about the links between land use and tourism.

The North East study (National Trust, 2001a) estimated that of 67,000 tourism jobs in the region (7% of regional employment), 27,000 were dependent on the quality of the environment. In addition, agri-environment schemes were estimated to support 100 jobs and to help to sustain a further 1,800 other farming jobs in the region. The study reported surveys by Northumbria National Park (1999) that found that visitors to the park especially enjoyed the scenery, landscape and clean air (70% of those interviewed), and peace and quiet, good walking opportunities and uncrowdedness (approx 50% of interviewees). Another survey by
the National Trust (2000) found that 44% of visitors to the region identified the natural and built environment as their main reason for visiting the region, although only 1% stated that mountains and hills were their primary motivation, behind the Roman heritage, coast, AONBs and “peace and quiet”. The National Trust report identified the hills and landscapes of the region (Northumbria National Park, North York Moors National Park, Cheviots, Kielder Forest etc) – as well as its coast and historic environment - as being important environmental features, but did not provide insights into the link between upland land use and tourism. Visits to national parks accounted for 1.4 million of the 8.9 million visits to “environmental attractions” recorded in the region in 1998.

The Wales study (National Trust, 2001b) estimated that tourism spending associated with environment-motivated trips totalled £821 million in 1999, supporting an estimated 23,600 jobs. This includes estimated expenditure by visitors to “open hills and moors” as well as a range of other environmental features. “Open hills and moors” were found to be the prime motivating factor for around 6% countryside day visits in Wales – less than more general features such as “landscape and scenery” and a range of non environmental factors – and 2% of all holiday visits to Wales. Again, the study indicated that general landscape factors were an important consideration for visitors to Wales, but gave few indications of the implications of the management of upland areas for the tourism industry.

A survey of 1,500 visitors to the Lake District (National Trust, 2001c) provided a little more insight into the links between tourism and management of the upland environment. 91% of respondents agreed (strongly or slightly) that farmers should be paid to live and work in the Lake District, while 89% agreed that “well cared-for fields” added to the enjoyment and appeal of the area. 83% agreed that, without the work of the National Trust, the Lake District would not be as appealing or attractive as it is. Responses to the statement that more woodland would improve the landscape were divided: 39% agreed strongly or slightly, while 41% disagreed strongly or slightly. 55% of respondents had undertaken low level walks of 2-8 miles, with 28% identifying this as there main activity, while 22% had completed longer walks or hill walks, with 9% identifying this as their main activity. Although 62% considered “mountains and hills” as a factor in their decision to visit Cumbria, only 13% gave this as their main reason, behind “to get away from it all” and “because of a previous visit”. Nearly two thirds of respondents indicated that they would be willing to pay to enter the area.

Carroll and Phillipson (2002) reported the role of the Northumberland National Park Authority in rural development. The Park has a small population and its economy is heavily dependent on agriculture. It attracts relatively small numbers of visitors – between 1 and 1.5 million per annum. They found that many farmers do not consider on-farm diversification as a general solution to the economic difficulties of hill farming in the Park. There is limited interest in tourism because of the perceived risks, likely small returns and absence of any evidence that demand is growing. Most farmers prefer to add value by stock improvements rather than processing and marketing. The Park appears to be losing its share of the tourism market, and the authors suggest that its unique selling points – wild landscapes and hidden histories – may appeal to a dwindling minority. Although there is no analysis of the relative merits of different land uses to tourism and rural development, they conclude that now may be an opportune time to consider more radical ideas such as the wholesale release of land from agricultural use.
2.3.2 Other Economic Values

Hudson (1995) discussed the relationship between upland management and grouse shooting in Britain, reviewing trends in grazing intensity and predation pressure and their effects on grouse moors. Most grouse moors in Britain make a loss, although some compensation for this may be received by the owner through the value of his or her own shooting. Overgrazing by livestock and deer have reduced the productivity of grouse moors and affected their financial performance.

According to a study by McGilvray and Perman (1992), grouse moors were estimated to bring revenues of £15 million to the Scottish economy in 1989. A study by McGilvray (2001) found that 459 estates supported a total of 631 direct full time equivalent jobs in grouse related activities in Scotland in 2000, and 940 FTE jobs after allowing for indirect and induced effects. It was estimated that grouse shooting contributed £3 million to Scotland’s GDP. Most grouse moors are still loss-making, and need to be subsidised by their owners, but losses had reduced and employment increased since an earlier 1996 study.

MacLennan (1995) discussed the relationship between heather moor management and beekeeping in Scotland. Top quality heather moor was estimated to yield an average of £31.50 of honey per hectare in an average year, and £175 per hectare in an exceptional year. Lower quality moorland yielded £16-21 per ha in an average year and £88-£117/ha in an exceptional year. Highest returns from beekeeping come from young dense heather at low altitudes, and depend on appropriate heather management including control of grazing intensity and regular cutting or burning – these conditions were considered most likely to be achieved by grouse moor management. Often the beekeeper is a different person than the moorland manager, so there are external benefits of appropriate moorland management.

2.3.3 Valuing the Hill Farming Environment

Bullock and Kay (1997) reported a contingent valuation study of the public benefits of upland change from reduced grazing levels in the Central Southern Uplands of Scotland. An ESA, the study area was characterised by semi natural farming systems with low intensity grazing (2-3 ewes per hectare) and a mixture of heather, scrub and trees. The study investigated three scenarios – “policy off” (relatively high grazing levels and little heather and scrub), “policy on extensified” (similar to the ESA prescriptions with extensive grazing, more heather and trees and more diversity) and “policy-on very extensified” (much greater stock removal, considerable regeneration of heather, scrub and trees). Respondents were presented with illustrations of these scenarios. Most respondents preferred the “very extensive” scenario involving some expansion of tree cover, going beyond the current ESA policy, which focused on heather conservation and regeneration. Annual willingness to pay for this extensification averaged £58 per household per year, which produced an aggregate estimate of £32 million per year. These benefits greatly exceeded the costs of the ESA scheme, predicted to grow to up to £2 million per year after 10 years.

Different conclusions emerged from an earlier contingent valuation study by Willis and Garrod (1993), reported also in Bateman et al (1994). Their study examined public willingness to pay for landscapes in the Yorkshire Dales, related to agricultural intensity. Using a similar illustrated approach, and presenting 8 different landscape options to respondents, it found a public preference for the current landscape, and estimated a willingness to pay of £24 per hectare per year to preserve “today’s landscape”. The next most favoured landscape was a “conserved” landscape, involving traditional farming.
practices plus dry stone walling and barn maintenance. Willingness to pay was considerably lower than that to protect the Norfolk Broads ESA (£76-£84 per household per year).

The difference in the findings of the Bullock and Kay and Willis and Garrod studies may reflect differences in public perceptions of moorland in Scotland and England. Mackay (1995) reviewed evidence of people’s perceptions of moorland in Scotland, and found no strong evidence that moorland is a prime destination for open-air recreation compared to popularly visited places at the coast or the loch edge. Surveys of walkers and the general public in Scotland identified a range of positive and negative perceptions of moorland, but concluded that the Scots were generally more ambivalent to moorland landscapes than people in England and Wales. Mackay suggested that this could be due to the relative scarcity of open moorland in the latter countries compared to Scotland, and also their relative wildness, whereas in Scotland they are seen more as an intermediate zone between the lowlands and the mountains.

The same article quoted a survey of walkers by System 3 Scotland (1993) that found that only 9% of 1,350 recent walks in Scotland had taken place on moors or mountain edge. Another study by System 3 Scotland (1987) reported a survey of attitudes to conservation of the countryside, and found that “open moorland and heather hills” was identified as a favourite landscape of only 10% of the population, behind lochs, coasts and islands, and rocky mountains.

Bullock et al (1998) used a multi-attribute choice experiment approach to value the various aspects of the deer stalking experience in the Scottish Highlands. This examined the value that stalkers place on landscape, as well as including other attributes such as price, deer numbers, quality of hunting and supplementary activities. Landscape was defined in terms of the proportion of native forest and open moor. The study found that British red deer stalkers expressed a preference for stalking in open moorland rather than forest, where good quality animals are available, but noted that native woodlands have a role as a wintering habitat for deer, and that they can contribute to attributes such as body and antler weight that are valued by hunters. The study estimated the welfare derived from different packages of attributes, and found that packages that involved stalking in Caledonian Pine Forest habitats resulted in negative welfare effects compared to open ground habitats.

Hanley et al (1998) reported the results of a valuation study of landscape features of Breadalbane ESA, using choice experiments. The study explored respondents’ preferences for “protecting” different features of the ESA: woods, heather moorland, archaeology, wet grasslands and dry stone walls. Heather moorland was ranked second of these five features, behind woods, with a marginal willingness to pay of £22.95 per household per year.

A study for MAFF (1999) reviewed a variety of studies valuing different environmental landscape features, and used the results to construct a benefits transfer model (Environmental and Landscape Features model – ELF). The studies used included valuations of heather moorland, woodland, rough grazing and hay meadows. A summary of studies relevant to the uplands is presented in Table 3. The willingness to pay results and related socio-economic data were used to develop a benefits transfer model designed to estimate the value of particular environmental features in a broader context.
Table 3: Studies Relevant to the Valuation of Upland Environmental Features

<table>
<thead>
<tr>
<th>Study area</th>
<th>Environmental Feature</th>
<th>Alternative</th>
<th>Mean Household WTP (£)</th>
<th>Aggregate WTP/ha (£)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Mourne Mountains/Slieve Croob</td>
<td>Rough Grazing Intensification</td>
<td>£23.25</td>
<td>£451</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6b. Breadalbane</td>
<td>Heather Moorland Intensification</td>
<td>£13.44</td>
<td>£1789</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18a. Aberdeen</td>
<td>Heather Moorland Rough Grazing</td>
<td>£113</td>
<td>£16,300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18b. Aberdeen</td>
<td>Heather Moorland Woodland</td>
<td>£65</td>
<td>£3,300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18c. Oban</td>
<td>Improved Grazing Rough Grazing</td>
<td>£133</td>
<td>£925</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18d. Oban</td>
<td>Rough Grazing Woodland</td>
<td>£65</td>
<td>£725</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: MAFF (1999)

The above studies suggest that the willingness to pay to protect landscape features varies according to the alternative offered – for example the Oban study found a positive WTP to protect rough grazing from conversion to woodland, but a preference for improved pasture. The authors then conducted contingent valuation studies of heather moorland in Northumberland and rough grazing in the South Pennines, in order to compare the results with the predictions of the ELF model. The CV studies found mean annual household willingness to pay of £13.70 for heather moorland and £12.81 for rough grazing. This concluded that sample means were insignificantly different from the model predictions, but that error bands were wide due to the small number of entries used to develop the model.

The Mourne Mountains and Slieve Croob study (Moss and Chiltern, 1997) estimated that work completed under the scheme was valued by the public at £13 million, which included protection of 8500 hectares of rough land (£3.6 million). The remaining value related to the protection, replacement, maintenance and repair of dry stone walls, hedges and buildings.

Hanley (1996) reported a study of the benefits of the Breadalbane and Machair ESAs. This estimated an annual willingness to pay of the Scottish public of £44 million for the Breadalbane ESA (preservation of stone dykes, woodlands and heather moorland) and £26.8 million for the Machair ESA (to protect botanical and bird interest, archaeology, beaches and dunes).

Hanley and Wilson (1998) estimated willingness to pay to prevent the loss of two landscapes – heather moorland and rough grassland, by asking the public their willingness to pay to
prevent conversion to improved grassland or woodland, in two areas near Oban and Aberdeen. The study estimated average willingness to pay per hectare per year of £16,200-£32,600 to prevent conversion of heather moor to productive grassland, and £3,300-£6,600 to prevent conversion to forestry. For rough grassland, there was a willingness to pay of £925 to £1,850 per hectare per year to convert the habitat to improved grassland, but a WTP of £725-£1,450 per hectare per year to prevent its conversion to forestry.

Cobbing and Slee (1994) reported a contingent valuation study of Mar Lodge, a Scottish Highland estate, including mountain and pine forest landscapes. This estimated that mean willingness to pay to preserve the wildlife and landscape of the estate totalled £108 million when aggregated across the population of Scotland as a whole, or £62 million if access to the estate was excluded. However, the study did not assess the value of different landscapes or habitats within the estate.

Macmillan and Duff (1998) estimated the non-market costs and benefits of native woodland restoration using the contingent valuation method. The study assessed the public’s willingness to pay to re-create native pinewoods on moorland sites in Affric and Strathspey. Those expressing a preference for moorland over native woodland were asked how much compensation they would require if such a land use change were to take place. The study found an average benefit for woodland re-creation per household of £35 in Affric and £53 in Strathspey. When the compensation required by the small proportion of respondents who expressed a preference for moorland was included, estimated net mean willingness to pay was unchanged for Affric but fell to £24 per household for Strathspey. Best estimates of the net benefits of pinewood restoration were put at £382 per ha per year and £216 per hectare per year for Affric and Strathspey respectively. The study concluded that non-market costs need to be considered if the benefits of land use change are not to be overestimated.

2.3.4 Hill Farming and the Agricultural Economy

Defra (2002) reported on economic conditions in cattle and sheep farms in the hills and uplands of the UK. Key statistics and findings are as follows:

- Less favoured areas account for 2.2 million hectares in England, 17% of the agricultural area, compared to 42% in the UK;

- 40% of English beef cows and 45% of breeding sheep in England are in the LFAs;

- Traditional hill sheep farms produce lambs either finished on-farm or sold for fattening in the lowlands, and draft hill ewes for use in upland and lowland flocks to provide cross-breeding stock;

- LFA suckler beef herds produce weaned calves for finishing in the lowlands, though a significant number finish their own calves;

- Around 25% of milk produced in England and Wales comes from the LFAs;

- Average net farm income for LFA cattle and sheep farms in England declined to £4,836 in 2001/2 (35% of the level of the mid 1990s), and cash income to £13,689, compared to average subsidies of £26,900.
Data from Farm Incomes in the UK (Defra, 2002) gives a breakdown of the output and inputs of LFA Cattle and Sheep Farms in England (Table 4). Expenditures on inputs represent a large proportion of the value of output. Hence while net farm incomes are currently low, expenditures on inputs continue to benefit the wider economy.

Table 4: Output and Income Data: LFA Cattle and Sheep Farms in England

<table>
<thead>
<tr>
<th></th>
<th>2000/01</th>
<th>2001/02</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average Area (ha)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent/temporary</td>
<td>86</td>
<td>85</td>
</tr>
<tr>
<td>grass</td>
<td>93</td>
<td>94</td>
</tr>
<tr>
<td>Rough grazing (sole right)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total livestock units</strong></td>
<td>123</td>
<td>121</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beef cows</td>
<td>64</td>
<td>30</td>
</tr>
<tr>
<td>Ewes</td>
<td>33</td>
<td>32</td>
</tr>
<tr>
<td><strong>Annual Labour Units</strong></td>
<td>1.8</td>
<td>1.7</td>
</tr>
<tr>
<td>Of which farmer and spouse</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Total farm output</strong></td>
<td>67.1</td>
<td>68.1</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cattle rearing/fattening</td>
<td>24.0</td>
<td>27.1</td>
</tr>
<tr>
<td>Sheep and wool</td>
<td>22.9</td>
<td>20.9</td>
</tr>
<tr>
<td><strong>Inputs</strong></td>
<td>60.3</td>
<td>58.5</td>
</tr>
<tr>
<td>Of which:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feed</td>
<td>11.0</td>
<td>11.5</td>
</tr>
<tr>
<td>Machinery</td>
<td>5.3</td>
<td>4.9</td>
</tr>
<tr>
<td>Labour</td>
<td>7.6</td>
<td>7.3</td>
</tr>
<tr>
<td>Depreciation</td>
<td>5.7</td>
<td>5.5</td>
</tr>
<tr>
<td>Land and Buildings</td>
<td>13.0</td>
<td>12.1</td>
</tr>
<tr>
<td><strong>Net Farm Income</strong></td>
<td>6.7</td>
<td>9.7</td>
</tr>
</tbody>
</table>

Rockliffe (2002) examined the links between sheep farming in the hills, uplands and lowlands, and considered the implications of a possible move towards a “closed flock” system of sheep production. The present sheep industry is based on the hill sheep farmer producing breeding stock for the upland farmer to cross with a Bluefaced Leicester type of ram. The resulting “mule” ewe is used by the lowland sheep farmer for finished lamb production. If the lowland sheep farmer were to adopt a closed flock system (by retaining a proportion of the stock to produce replacement ewes), this could have significant implications for farming in the hills and uplands. This would require a more complex system, and there would be no financial incentive to do so, but there would be some benefits in terms of biosecurity and the
opportunity to improve lamb carcass quality. A closed flock system could also be developed in upland areas, with insignificant impacts on gross margins.

However, the impacts of these changes on hill farmers – 31% of whose output is derived from sales of surplus ewes to upland farmers – would be substantial. A closed flock policy in the uplands would end this market. The hill farmer would produce an increased number of store lambs with the effect that flock gross margin would reduce by 35% to £6.18 per ewe. In many areas this impact could be reduced to £3.68 per ewe (a 21% reduction) by crossing a proportion of the flock with a Texel ram to produce better quality store lambs. These impacts could be severe given the current low profitability of hill farming. In the longer term, a breed such as the Scottish Blackface could replace the Swaledale in the hills, to improve lamb quality and value.

The report concluded that widespread establishment of closed flock systems is unlikely for financial reasons, but that the effects of FMD on the availability and price of Mule ewe lambs in autumn 2002 may act as a driver for some farmers to adopt them. Any changes – and resulting impacts on hill farming – will be gradual.

Some indication of the impacts of short term changes in hill farming output on the wider agricultural economy can be gained by examining studies of the impact of foot and mouth disease. For example, Phillipson et al (2002) considered the impacts of FMD on the rural economy of the North East. FMD was estimated to have affected overall revenues of beef, sheep and dairy farming in the region by £98 million in the region. Output from surveyed farms fell by 36%, in 2001/2. This in turn had effects on:

- Auction markets, whose business was reduced in line with lost output (e.g. 28% in Hexham and nearly 50% in Darlington);
- Input purchases, which fell by 4% from £4.34 to £4.16 million in the surveyed farms;
- Diversified activities, which fell by an average of £1,663, or 26% per farm;
- Impacts on tourism businesses were particularly severe, as people were discouraged from visiting the countryside;
- Labour costs were largely unaffected.

While the study emphasises the links between livestock farming and the rest of the rural economy, it should be noted that FMD had disproportionately large impacts on some activities (e.g. tourism – mostly through restrictions on visitors rather than farming changes) and small impacts on others (e.g. input demand was only slightly reduced, as in the short run costs could not be cut in line with revenues).

A similar study by Bennett et al (2002) for Cumbria estimated a loss of agricultural output of £200 million compared to a loss of tourism revenues of £400 million in the county. A 40% reduction in output was expected to lead to the loss of 600 full time equivalent farming jobs, and about 900 jobs in ancillary sectors (i.e. approximately 1.5 upstream/downstream jobs per direct job). Around 400 of these job losses were in upstream (feed companies, vets, fertiliser and machinery suppliers, contractors etc) and 500 in downstream activities (auction marts, abattoirs, hauliers, processors etc). The tourism sector was expected to take a season to recover.
Gripaios et al (2001) used multipliers from the South West Economy Model – an input:output model for the South West region, to assess the impacts of foot and mouth disease. Multipliers used are given in Table 5. Outside farming, the main businesses affected by FMD were identified as tourism, hauliers, vets, livestock markets, and processing activities.

Table 5: Multipliers Used to assess Impacts of Changes in Livestock Farming due to FMD

<table>
<thead>
<tr>
<th></th>
<th>Output multiplier (overall effect per unit of farm output)</th>
<th>Employment multiplier (total jobs per direct job)</th>
<th>GDP multiplier (total GDP effect per unit of output)</th>
<th>Employment multiplier (jobs per £1m output)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>1.46</td>
<td>1.40</td>
<td>0.67</td>
<td>24.6</td>
</tr>
<tr>
<td>Sheep</td>
<td>1.45</td>
<td>1.39</td>
<td>0.64</td>
<td>24.3</td>
</tr>
<tr>
<td>Dairy</td>
<td>1.45</td>
<td>1.50</td>
<td>0.64</td>
<td>20.4</td>
</tr>
</tbody>
</table>

Source: Gripaios et al (2001)

Input:output tables enable the overall effect of changes in agricultural output to be assessed. Evidence relating specifically to hill farming, and to most regions of England, is lacking. The Scottish Executive (2002) publishes input:output tables and associated multipliers for Scotland. These give the following multipliers, for Scottish agriculture as a whole, taking account of direct, indirect and induced effects:

- Output multiplier = 1.72, i.e. a £1 change in agricultural output results in overall change of £1.72 in Scottish output;
- Income effect = 0.27; a £1 change in agricultural output enhances incomes by £0.27;
- Employment effect = 18.4 jobs per £1m output;
- Income multiplier = 2.55; £1 change in agricultural income results in change in overall incomes of £2.55;
- Employment multiplier = 1.9; each job created or lost in agriculture results in an overall change in employment of 1.9 jobs.

2.3.5 Abandonment

Shiel (2002) argued that the evidence does not support the theory of agricultural abandonment in the UK in the short term due to a multitude of factors that keep farmers on the land. In the longer term continuing low farm incomes and the removal of price and income support by the CAP would make ‘abandonment’ a potential problem. Abandonment seems only likely to occur in small isolated plots in the longer term, as restructuring occurs and extensive farming operations emerge. The environmental impacts of this change are unclear but are likely to be a mixture of positive impacts from more extensive, low input farming systems and the negative effects of areas being undergrazed and insufficiently managed.
Areas generally thought to be of highest risk of abandonment, according to Shiel, are the less productive areas – i.e. hill farms where soils and land conditions are relatively poor. Despite farm incomes currently being at record low levels in the UK and high numbers of farmers leaving the industry, the land is not being ‘abandoned’ and left unutilised, but is being sold at relatively high prices. Shiel also argued that high land values stop farmers leaving the industry as the land is a valuable resource against which they can borrow considerable sums of money. Economic issues are not the only factor to influence a farmer’s decision making, according to Shiel. History, family tradition, quality of life, job satisfaction, culture and surroundings are all intrinsic in keeping farmers on the land.

2.4 Alternative land uses

2.4.1 Forestry

The Task Force for the Hills (HTF) (2001) argued that afforestation could provide agricultural benefits in the form of wind-breaks and also major environmental benefits from tree soaks in the uplands to reduce water run-off and expensive anti-flooding measures downstream. However they felt that there is unlikely to be significant income generation potential in small-scale remote plantings and it may have an adverse effect on biodiversity.

The Institute of Hydrology (1998) was commissioned by Department of the Environment to examine the effects on water resources of upland management practices (ie forestry) in two catchment areas in highland Scotland. The research found that there was a ‘marked change in the sediment response in both catchments’. The report also states that ‘research has shown that upland forest cover results in significant decrease in the streamflow of upland water due to the interception and subsequent evaporation of water by the forest canopy’.

With reference to the increasing areas of conifer plantations that took place across the UK, Reed (1995) described how faced with a choice between sitka spruce and grouse moor conservationists in the north became advocates of grouse moor.

English Nature (2001b) reported that water companies now own or manage substantial areas of ground in the uplands. The quality, quantity and timing of water yield from mountain catchments are of considerable social and economic importance and are all affected by land use in the catchment. Woodland slows the passage of water from hill sides to a far greater extent than grasslands as trees have a greater surface area onto which rain will fall. Some of the water caught by the trees will evaporate and still more will be taken up by their root systems. This means that there are fewer rapid fluctuations in river levels and less erosion and sediment load in water from wooded catchments than from unwooded ones.

In its survey of upland archaeological sites, the Council for British Archaeology (1996) stated that forestry is particularly harmful to upland archaeological sites because of extra-deep ploughing in advance of new planting, root growth and clear felling and stump clearance. In Cleveland for example 16 per cent of known Bronze Age barrows have been destroyed or seriously damaged by forestry operations.

Thompson et al (1999) examined three separate studies, carried out for English Nature, looking at the feasibility and practical issues involved in replanting areas of native woodland in the Shropshire Hills, the Lake District and the Forest of Bowland. The report stressed English Nature’s commitment to increasing the area of native woodland in the English uplands and its conviction that this would be a beneficial development. Thompson et al also
assessed, by way of a farmer survey, the willingness amongst farmers in the Shropshire Hills to plant woodland. A significant factor was the fact that farming was at a low ebb and as one interviewee put it ‘Farmers will not plant trees when times are hard’. On the whole there was considerable enthusiasm amongst interviewees for native woodland rather than conifers or exotics. While the incentives are so closely linked to production (of livestock) it is unlikely that many farmers will opt for reforestation and voluntarily reduce their forage areas.

During the survey conducted by the Countryside Commission (1984) farmers and local people questioned whether forestry contributed as much to local employment as was sometimes claimed, pointing out that labour requirements fluctuated greatly during the forestry cycle and that little of the work these days was undertaken by local people.

2.4.2 Grouse moor


English Nature (2001) looks at the impacts of grouse moor management on upland ecosystems. Management for grouse moors remains a major land management activity in the Peak District, North Pennines, Forest of Bowland and North York Moors. The management of heather moorland specifically for red grouse has a significant impact on the wildlife interest of the uplands. The practice started in the early nineteenth century and reached a peak about 100 years ago. Management for red grouse centres mainly on rotational burning and predator control. Burning takes place most commonly on dwarf shrub heath but there is also some burning of blanket bog, enclosed and unenclosed grassland, bracken and scrub. The best moors for wildlife are those with a variety of vegetation structures, from areas of short heather and bare ground to unburnt areas, and a complete range of vegetation in between. Management also includes retaining or encouraging native woodland and scrub, which benefits black grouse. Recent studies indicate that the majority of upland bird species breeding on moor, heath and bog do not spend all their time there but depend also on a range of adjacent habitats, including adjoining farmland, marginal hill grasslands, and woodlands.’ The report concludes that integrated management is essential.

Grouse moor management can have negative effects on wildlife and biodiversity. Too frequent burning can lead to the dominance of heather over other species and can damage upland soils. Short rotation burning can dramatically reduce invertebrate numbers. Burning can also damage and kill plant species such as Sphagnum mosses and can even cause complete loss of these habitats. As management for red grouse tends to favour young heather, taller stands of older heather, which are important shelter for grouse and nesting sites for raptors, are often destroyed and are becoming rare. Bogs and wet heath used to be drained as part of grouse moor management but this practice has now ceased as keepers recognise that wetland areas are an important source of invertebrates for feeding chicks. Some managers have even blocked artificial drains to produce additional wetland and this has created some valuable wet areas.

Reed (1995) felt that good grouse moor management provides an ideal environment for breeding waders and grouse alike and provides suitable breeding habitat for certain raptors. Reed also reports that Bibby and Nattrass (1986) found higher densities of merlins on grouse moors and suggest that as much as 50% of UK merlin populations may nest on grouse moors.
Felton and Marsden (1990) argued that grouse moor is an extremely important land use in upland Britain and is one of the main reasons that heather has survived in many cases. In a survey of grouse moors in Northern England it was found that sheep stocking levels had not increased between 1975 and 1985, against the general trend over this period for quite significant increases in sheep numbers on hill and upland farms. Fielding and Haworth (1999) attributed loss of grouse moor primarily to three things: upland conifer afforestation, reclamation of heather to grass for more intensive agriculture and poor heather management through excessive grazing and inappropriate burning.

However not everyone is in agreement that grouse moor management is entirely positive from a nature conservation point of view. Gimingham (1995) argued that when heather is well-managed for grouse production and regularly burnt in the dominant phase there is inevitable a progressive reduction in floristic diversity. Consequently there is also a reduction in the diversity of invertebrates (Gimingham 1985) and other species such as reptiles. Reed (1995) also argued that there is scant evidence concerning the associations of upland birds with heather moors, even less for those managed as grouse moors.

Grouse moor management is also in conflict with a number of other interests in certain areas. The most serious from a nature conservation perspective is the illegal persecution of raptors in the interests of protecting the grouse populations. Some research has been carried out looking at the illegal persecution of raptors by grouse moor managers. It is widely believed that managers use a variety of methods to deter birds of prey including illegal persecution and killing of adults and young (English Nature 2001, Fielding and Haworth 1999). Whitfield et al (2002) found that illegal poison use in Scotland is disproportionately associated with grouse moors. Hen harriers are worst affected by illegal persecution in England and were exterminated by gamekeepers in 19 Century. Since 1998 hen harriers have only bred in the UK on grouse moors with nest protection schemes.

Fielding and Haworth (1999) described a project where breeding harriers, and other birds of prey, on four different grouse moors, were protected from suspected illegal killing. The average density of breeding harriers increased for four years on each of the moors. For example during 1992-96, harrier numbers at Langholm in the Scottish Borders increased from two to 14 breeding females. Peregrine numbers were more constant over time but did show an increase at Langholm of from three to five or six pairs. This and other studies have shown that birds of prey do have a significant negative effect on grouse populations. However Fielding and Haworth maintained that it is widely believed that predatory birds can have a significant impact on estate incomes because they reduce the number of grouse available for shooting. The difficulty is finding a solution that is acceptable to all sides. Careful habitat management was suggested to be a likely long-term solution.

Reed (1995) observed that in the Peak District the conflict was and still is between grouse and sheep farming. Anderson and Yalden (1981) have shown a trebling of sheep numbers in the areas between 1950 and 1980, coupled with considerable loss of heather moor, and studies on birds in these areas have reported declines in golden plover and dunlin (Yalden 1994), black grouse (Lorenbourg et al 1978, Yalden 1986) and red grouse (Yalden 1972).

Thompson (1995) felt that management for grouse shooting provides the greatest sustainable, unsubsidised income from moorland areas. Grouse moor owners need viable heather cover to sustain their quarry, but sheep farmers do not rely so heavily on dwarf-shrub dominated for their stock. Bird species richness and diversity would be greater over upland areas in the
absence of any burning if scrub and woodland developed in open mosaics, but the abundance of some key moorland birds would be greatly reduced.

Felton and Marsden (1990) estimated that, to be commercially successful, a grouse moor must be able to support two or three drives in one day in various weather conditions. 750 ha is probably the minimum area of heather required to allow this.

2.4.3 Heather management

Gimmingham (1995) suggested that for nature conservation uneven stands are preferable but that this would be extremely labour intensive to achieve if it were to be done by hand-cutting selected plants.

Table 6 Requirements and objectives for different moorland management types (Felton and Marsden 1990)

<table>
<thead>
<tr>
<th>Use</th>
<th>% moor heather</th>
<th>% heather cover</th>
<th>Burn area</th>
<th>Burn frequency</th>
<th>% not burned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep</td>
<td>50</td>
<td>50</td>
<td>15-20 ha</td>
<td>7-10 years</td>
<td>None</td>
</tr>
<tr>
<td>Wildlife</td>
<td>50-75</td>
<td>50-75</td>
<td>2-6 ha</td>
<td>10-15 years</td>
<td>10-50</td>
</tr>
<tr>
<td>Grouse</td>
<td>75-85</td>
<td>75-90</td>
<td>1-3 ha</td>
<td>10-15 years</td>
<td>&lt;10</td>
</tr>
<tr>
<td>Landscape</td>
<td>50-75</td>
<td>50-75</td>
<td>5-15 ha</td>
<td>10-15 years</td>
<td>10-50</td>
</tr>
</tbody>
</table>

Table 6 highlights the relatively small differences between wildlife and grouse management and the relatively large differences between sheep management and other uses. Both wildlife and grouse management benefit from some grazing.

2.4.4 Natural regeneration/afforestation

The generally accepted theory is that lack of human intervention in an upland context will lead to degeneration of heather and plant succession resulting in eventual afforestation. There are some, however who would dispute or quantify this assumption. English Nature (2001b) argued that degeneration of heather does not always occur in the absence of management, as heather can regenerate vegetatively by layering (adventitious rooting of stems) and stable stands of heather can develop (MacDonald et al 1995).

With reference to the Forest of Bowland, Thompson et al (1999) argued that in the absence of management practices such as livestock grazing and grouse moor management, both of which produce open, unwooded habitat types, such as grassland and heathland, natural woodland cover would be expected to extend to the summits of most of the hills in the Forest of Bowland AONB, though at the altitudes of 400m or more the effects of exposure may result in the woodland cover being patchy or open, rather than a closed canopy. In the same vein Thompson et al also pointed out that in order to create new woodland areas in the uplands it is necessary to fence off of certain areas to prevent destruction of saplings by grazing animals. Such fences can have a negative impact on the landscape, especially if carelessly designed.

Midmore et al (1998) believed that woodlands in hills and uplands are under threat as current grazing levels are unlikely to allow regeneration. Most are now small, highly fragmented and

Natural Capital Management (2002) (NCM) examined ‘wild land’ experiences from around the world and evaluated them in the context of land management futures for the Northern Uplands. NCM concluded that the economic and social impacts of creating new wild land in Northumberland do not favour taking extensive areas of land out of active agricultural and sporting management. However genuine opportunities were identified for:

- extending and enhancing focussed, target areas of semi-natural habitat;
- capitalising on the existing natural and cultural assets in a sustainable way;
- actively developing nature-based tourism across the Region.

The main findings of NCM (2002) included:

- The deliberate non-management of extensive areas of former agricultural land is not a viable option. It clearly takes a long time in the uplands to create a variation in the landscape and/or habitat type. NCM estimated on the basis of two study sites that if areas are left untouched there will be very little clearly visible habitat change in a 10 to 15 year period;

- There are no indications that biodiversity would be enhanced in the medium term (say up to 50 years) to a degree that it would deliver a net social/economic benefit;

- The exclusion of farming and sporting management to create new wild land would give rise to a very significant reduction in both capital value and income generation in the areas under consideration. Substantial funding would, therefore, have to be made available to compensate for that reduction and it is difficult to see that this would represent ‘good value for money’.

Where livestock farming becomes economic or impossible the National Trust argues (in Agriculture – 2000 and beyond) that the Trust should be prepared to allow some hill land to remain ungrazed. The establishment of natural woodland sand scrub communities at moderate altitudes would be of biological interest, as would the reduced pressure on bogs, wetter areas and some of the more palatable species. The Trust has already removed grazing temporarily from some areas, such as Snowdonia and the Peak District, to allow restoration of moorland.

2.5 Diversification

Many of the farmers consulted by the Hills Task Force (2001) (HTF) made the point that few of them have enough time, capital or ability to expose themselves to the risks involved in diversification alongside full time farming activity. Moreover the complexities of food legislation were thought to be prohibitive. Cooperatives can be formed to share the cost and risk of diversification – as has been the case in North York Moors (NYM) Quality Sheep Association (which emerged from the NYM Moorland Regeneration Scheme under Objective 5b), but it was felt by the HTF that there is not a culture of cooperation in the hills and cooperation can even sometimes be geographically unrealistic where road connections between farmers with neighbouring grazing land can be significant (e.g. one farmer in Cumbria having to travel 170 miles round trip to meet with someone sharing commonage grazing rights). There are many opportunities for growing alternative crops – such as niche
crops like pharmaceutical crops; energy crops; bracken and waste wool peat alternatives for pot plants (marketed in Cumbria as Lakeland Gold).

2.5.1 Recreation

According to Fielding and Haworth (1999) recreation in upland areas is increasing and there is considerable debate about its significance. Some species such as the merlin Falco columbarius and golden plover are thought to be unable to tolerate disturbance; others seem to be more resistant.

2.5.2 Military training ground/Defence Estates

Fielding and Haworth (1999) pointed out that there is a significant area of moorland designated for military training, for example Warcop in Cumbria. Over half (13,300 ha) of the highest moorland on Dartmoor is under the control of the Ministry of Defence. There is some inevitable disturbance to the wildlife as a result of military operations and there is considerable public outcry whenever public access is restricted to military land but the protection afforded species and habitats can be significant. Fielding and Haworth (1999) argued that it is probably true to say that a golden eagle nesting within one of these ranges would have greater protection and less disturbance than one nesting in a National Park.

2.5.3 Windfarms

English Nature (2001b) explained that wind farms are built in upland areas as they are consistently windy. According to English Nature they can have a negative effect on upland areas through loss of habitat during construction. Concern has also been expressed about the effects of wind farms on bird populations, both local and migratory due to disturbance of breeding sites and increased risk of bird strikes where wind farms are near to commonly used flight paths.

2.6 Policy developments

2.6.1 Economic Rationale for Support for Hill Farming

Drew Associates (1997) conducted an economic review of the HLCA scheme. They argued that the economic rationale for supporting hill farming should be justified on the grounds of market failure, i.e. that hill farming produces public goods in the form of landscape and environmental benefits. They suggested that HLCAs could help to support provision of these goods by keeping farmers in business, but noted that this in itself does not guarantee the provision of certain public goods associated with hill farming (such as heather moorland and stone walls). Furthermore, HLCAs could result in reductions in environmental values by encouraging overgrazing, so their overall impact on the environment is unclear. However, by helping to sustain the farming population, HLCAs may have helped to maintain the population and service base required to cater for visitors. The authors suggested that the removal of HLCAs could result in a more “natural” upland landscape – this could have environmental benefits, but there would also be a risk of a loss of some of the environmental features maintained by farmers. They also suggested that public perceptions of environmental change that might result might differ between different groups – e.g. ramblers, caravanners and birdwatchers might value different aspects of the upland landscape.
2.6.2 CAP payments

LUC (2002) concluded that the objectives underlying mainstream CAP (Pillar One) and ERDP schemes under the Rural Development Regulation (Pillar Two) are essentially opposed, with the first either positively encouraging or maintaining unsustainable production levels and the second attempting to stimulate more sustainable and diverse farm management.

2.6.3 LFA payments

It is widely recognised that HLCA payments led to overstocking and thus overgrazing of the uplands in England (Dwyer and Baldock 2000; LUC 2002; Winter et al 1998; Drew 1997, Firbank et al 2000; Hughes and Jenkins 1990 etc). LUC (2002) argued that HLCA payments also caused, inter alia, a switch from hay to silage (with resultant negative effects on wild flower and thus invertebrate populations), use of native woodlands for grazing (to increase forage area for grant purposes) preventing natural regeneration and a growing imbalance in mix of grazing animals towards sheep (pure sheep grazing is often less desirable than a mix of sheep and cattle).

Since the replacement of HLCAs with area based HFAs and introduction of over-grazing and supplementary feeding conditions on LFA and other livestock payments, the problem of overgrazing in the English uplands has been somewhat reduced but is still considered to be a significant problem.

2.6.4 Agri-environment schemes

HTF (2001) found that many upland farmers are unwilling to enter into Countryside Stewardship agreements because of the comparatively small farm size, small area of grassland and large length of traditional boundaries which they must maintain but are not paid (enough) to do so. Commonland also presents significant obstacles for the uptake of agri-environment schemes and on such areas it has proved very difficult to prevent serious cases of overgrazing. The problem of agreeing agri-environment agreements between common land graziers has been overcome in a few cases, such as Crosby Ravenworth Common in Cumbria which is now in CSS. Public agencies and English Nature have succeeded elsewhere – often helped by Objective 5b.

Froud (1994) gave a review of the impacts of the North Peak ESA scheme. Uptake into the original North Peak ESA was high from the first year. In 1988 79% of the eligible area was entered rising to 86% (39,120 ha) by 1991. Most farmers were able to partake in the scheme without reducing their stocking numbers – which combined with the £6,650 annual payment made the scheme appealing to a large number of farmers. Under the ESA scheme there was a small increase in the length of continuous dry stone walls on agreement land, but there was little change in the condition of traditional farm buildings, not surprisingly as there was no direct financial provision made for their upkeep and improvement. The impact on moorland management was apparently mixed, with an increase in heather burning. A potentially significant development under the ESA was the fencing off of regeneration zones. Froud felt that the overall strategy of many participants seemed to be to enter land into the tier which most closely corresponds to existing management practices with the result that only fairly small changes in both farming practices and output levels resulted from the scheme. However the scheme has initiated a long-term process of moorland regeneration. A survey of participating farmers was undertaken which found that 50% thought the ESA had an effect on farming practices, 63% thought that it had an effect on the landscape and ecology, 63%
thought it had an impact on the rural economy, 75% thought the scheme should be renewed and 73% said that they would join the scheme again (the rest said they didn’t know).

Grenville (ed) looked at the contributions that incentive payments to farmers can make to the preservation of archaeological heritage. It explores the North Yorkshire experience in depth and gives estimates for the contributions of a number of different local (eg through North York Moors National Parks Authority) and government schemes. Grenville found that the Pennine Dales Environmentally Sensitive Area had been used to protect a wide range of landscape features, some of which were archeologically significant. Figures given for the contribution of the scheme include:

- 555 metres of hedge planted;
- 3,780 metres of hedge laid;
- 31,086 metres of stone wall repaired;
- 325 metres of new stone wall.

In conclusion Grenville stated that the archaeological heritage of North Yorkshire has benefitted from the implementation of the Environmentally Sensitive Areas scheme and Countryside Stewardship, and the more localised schemes run by the two National Parks. However It also concluded that preservation of archaeological heritage, although considered in some schemes (for example the Historic Landscape category of Countryside Stewardship) it is not yet a primary objective of any of the schemes.

A recent evaluation of the Countryside Stewardship Scheme in England, reported in Carrol and Phillipson (2002) concluded that, on average, the scheme helped create some 0.013 on-farm jobs per farm and an additional 0.056 local contractors’ jobs per farm, bringing the total to one extra job for around every fourteen farms in the Scheme (Harrison-Mayfield et al 1996).

LUC (2002) argued that upland farmers are discouraged from enrolling in agri-environment schemes by a combination of:

- the (low) payment levels of agri-environment schemes;
- the demand they place on farmers to change their current agricultural practices (i.e. to reduce the number of grazing animals) which have been developed largely in response to mainstream CAP payments (driven by headage payments).

LUC’s research also suggested that the primary reason for farmer entry into agri-environment schemes was the financial gain.

2.6.5 Other initiatives

The LMI programme is an attempt to develop a new policy framework that will continue to promote sustainable land management but will also help to revitalise the local economy and provide a closer link between local people and the land.

Specific aims of the Upland LMIs, as described in Powe et al (2000) are to:
• Promote integrated rural development by supporting and developing links between agriculture, the rural economy and relevant community and environmental interests;

• Encourage local character and culture by maintaining and enhancing the skills and customs associated with traditional upland land management;

• Increase agricultural and social benefits by redefinition of agricultural support mechanisms;

• Develop a system of sustainable stocking levels supported by a variety of grazing regimes that will maintain the viability of upland holdings while at the same time delivering enhanced environmental benefits.

A focus group was established of local people from a range of employment groups. One activity of these focus groups was to identify the strengths and weaknesses of the LMI area and the opportunities and threats. The main strengths of the area were felt to be:

• Quality of the landscape;

• Peace and tranquillity;

• Wildlife;

• Tourism;

• Closeness of the local community.

Weaknesses of the area were felt to be:

• Geographical factors;

• Access to technology;

• Limited possibilities for agricultural production;

• Lack of affordable housing for local people.

The North York Moors Farm and Rural Community Scheme pays farmers for the maintenance of hedges and dry stone walls. One member of the LMI focus group said of this:

‘If there wasn’t this plan by the National Park to help farmers maintain walls, hedges and the like the place would be going to rack and ruin because a farmer can’t afford to get a contractor in to build these walls. They can put up wire net for a fraction of the cost to turn the livestock, they aren’t as good they don’t give shelter to the livestock… but the farms could afford to do this themselves. A lot of farmers aren’t skilled at dry stone walling because they’ve got so many other things to do so it is a specialist job but this scheme is a grand thing for farmers they get a little bit of money and they get the stone walls maintained.’

Another participant commented that
‘always put your walls up but you may rush them up, but with this new scheme you can maybe employ somebody to do it a bit more professionally … it’s lovely to see a good wall.’

2.7 Gaps in existing literature

In general there is a lack of literature on the subject of the social impacts of hill farming in upland England. To a certain extent conclusions can be drawn from studies of rural England in general and in the lowlands and applied to upland situations but there are important differences and more robust research in this area would be beneficial.

There is also a lack of data and research which attempts to explain actual historical upland vegetation change in England and the UK.

Specific gaps in existing knowledge and research were highlighted in the literature. These included:

- Fielding and Haworth (1999) felt that, in comparison with plants and birds, upland invertebrate fauna, particularly that in the montane zone, has been poorly studied;

- Johns (1998) stressed that long-term data sets are required to quantify the soil erosion problem and that these were, at the time of writing, unavailable;

- Oates (1998) felt that there is a lack of sufficient monitoring of grazing schemes being operated by the different conservation bodies in the UK, including the National Trust. ‘Despite the considerable effort that has gone into organising nature conservation grazing schemes in recent years, and the vast amount that has been learnt, there are surprisingly few situations in which the impact of grazing animals if a certain types can be accurately predicted’ (Oates 1998);

- Midmore et al (1998) felt that across the UK there is a paucity of data that link precise stocking rates with the various vegetation changes that have been documented;

- Wright et al (2002) found that very little research has been done on the use of traditional breeds for nature conservation purposes;

- Dennis (1999) drew attention to the fact that there is little experience or published knowledge on the beneficial effects of low density native cattle on forest ecosystems in Britain;

- Woods (1984) discovered significant gaps in available data on upland landscape change. He felt that an inadequate database, coupled with wide regional and local variations in landscape character, makes any national assessment of the nature of recent changes very difficult;

- Gasson (1980) felt that little could be learned from official sources about the role of women as farmers, partners, directors and farmers’ wives. One very significant omission from the agricultural census in 1980 was the labour contribution of farmers’ wives.
2.8 References


44. Frazer, M (2003) Grazing in Less Favoured Areas (Draft report as part of Defra contract) IGER, Aberystwyth


of Environmentally Sensitive Areas in Scotland. Journal of Agricultural Economics, 49 (1), 1-15


70. Hughes, G and Jenkins, T (1990) Hill livestock compensatory allowances and environmental conservation


74. Jones, W and Green, D (1986) Farm Tourism in Hill and Upland Areas of Wales Department of Agricultural Economics, The University of College Wales, Aberystwyth

76. Lake District National Park Authority (1989) Choices for Farmers. GCSE Resource Guide 3 for teachers highlighting some issues relating to hill farming in the Lake District today and in the future Lake District National Park, Windermere

77. Lake District National Park Authority (undated) Education Service Tourism Factsheet. www.lake-district.gov.uk


84. McInerney, J, Turner, M, Barr, D and MacQueen, G (2000) What’s the damage? A study of farm level costs in managing and maintaining the countryside Special Studies in Agricultural Economics Report No. 51 Ministry of Agriculture, Food and Fisheries (Farm Business Division), London


89. Midmore, P, Sherwood, A and Roughley, G (1998) Greening LFA payments: the environmental dimension of agricultural support in disadvantaged areas of the United Kingdom Welsh Institute of Rural Studies, University of Wales, Aberystwyth


98. Mutch, W and Hutchinson, A (1980) The Interaction of Forestry and Farming Economics and Management Series, No 2 Department of Forestry and Natural Resources, University of Edinburgh


100. National Trust (2000) Survey of visitors to the North East, conducted by System 3


112. Pollott, G (?) Sheep Breeds and Breeding in Britain 1996-97 Wye College, Ashford


114. Powe, N, Willis, K and Garrod, G (2000) Assessing future prospects for the agricultural and rural economy in the North York Moors Land Management Initiative area: the Farm and Rural Community Scheme Centre for Research into Environmental Appraisal and Management, School of Architecture, Planning and Landscape and Department of Agricultural Economics and Food Marketing, University of Newcastle upon Tyne


126. SNH (1998) Jobs and the Natural Heritage – The Natural Heritage in Rural Development


3- RESPONSES TO RESEARCH TEAMS REQUEST FOR INFORMATION AND VIEWS

In June 2003, IEEP (on behalf of the research team) wrote to over 100 organisations and individuals requesting information and views on a range of issues relating to hill farming. The need for evidence of the environmental, social and economic impacts of hill farming was particularly emphasised. A number of respondents referred us to their submission to Defra on its Hill Farming Allowance consultation. Others referred us to various publications and documents that have been considered as part of the literature review carried out for this project. A number of respondents replied directly with written views and comments. These views and comments have been used in writing this section of the report and key issues arising from these comments are summarised below. The organisations who responded are also listed below.

3.1 Key issues arising from comments

3.1.1 Indirect effects of hill farming on the economy

- Emphasis on links to tourism and the role of hill farming creating an environment that attracts visitors to it. People visit uplands because they are beautiful, wild and have good public access.

- Hill farming supports range of services such as hauliers, feed merchants, builders, vets.

- Commuter residences and second homes replacing hill farms contribute less to local economy than resident population.

- Visitor surveys in Lake District identify landscape value and ability to experience uplands e.g. through walking as major attraction for visitors. 48% of employment associated with tourism compared with 1% for agriculture and fishing.

- HFA and CAP schemes cost £3.60 a year per head of population. £3.60 would not buy access to Yorvik Centre at York or London Eye.

- Within North York Moors, hill farming is a fundamental part of upland management maintaining moorland and dales farmland which are highly visited areas. But wooded areas in the south of North York Moors also receive significant visitors where facilities are provided.

- Experience of North York Moors LMI is that farmers tend to spend a significant proportion of their income in the local economy supporting both agricultural support industries and the broader rural economy.

- Walking visitors in Yorkshire Dales comment on pattern of dry stone walls and field barns.

- Good grazing management has positive impact on grouse moor management which itself contributes to the local economy.
3.1.2 Nature and extent of environmental impacts

- Undergrazing an increasing problem in many areas and overgrazing over-emphasised

- Problems arising from hill farming in Lake District NP include: localised soil erosion; damage to archaeological features; transfer of stone and slate to carry out maintenance work elsewhere; pressure to use fences with landscape impact; overgrazing. Positive impacts noted resulting from agri-environment schemes.

- Fencing is unsightly and a psychological barrier to access.

- The decline in cattle in the uplands has had negative environmental impacts and overgrazing is a problem associated primarily with sheep.

- North York Moors LMI showed that community perceived intensively managed fields as managed and having high economic value and preferred these to perceived abandoned land which they considered ‘scruffy’.

- Moorland owners have limited pressures of overgrazing and supplementary feeding by enforcing grazing numbers and buying out surplus numbers. Where this has not occurred the impacts of overgrazing can be seen.

3.1.3 Nature and extent of social impacts

- Farmers involved in local community e.g. often church wardens, on local councils, school governors, NPA members etc;

- Farmers provide services such as snow clearing and maintenance of roadside verges.

- Lake District National Park Authority (NPA) concerned at lack of opportunities for young people to live locally and enter farming industry.

- Many local events such as shows, carnivals and BBQs rely heavily on input from farming community.

- North York Moors LMI showed distinct differences between communities with one village where the local community group contained no farmers and another which was dominated by farmers.

- Definition of a farmer increasingly blurred as farmers take on other roles and jobs e.g Community Caretaker for North York Moors LMI who maintains villages and also farms.

- Gone are the villagers who used to sit on the village seat on a summer evening – it is like riding through a ghost town.

3.1.4 Linkages between hill farming and the rest of the agricultural economy

- Dependency of lowland livestock production on breeding animals and stores from hills. Providing breeding ewes is essential to viability of hill farms.
• Finishing animals in lowlands helps fertility of arable land and lowlands supply feed and bedding.

• Changes in hill farming have knock-on effects such as less stock requiring less feed and vet inputs and more effort to sell locally added value produce meaning more local employment.

• Estimate of 1 local job in supply sector for every 10 farmers.

• In North York Moors LMI, short distances between upland and lowland mean that many farmers have both upland and lowland units or certainly rent grazing in the lowlands or vice versa.

3.1.5 Scale and intensity of agricultural activity

• Carrying capacity of land in hills is constrained by physical and climatic factors.

• Tenancy agreements impose restrictions on intensity of farming on the open moors.

• Some evidence in North York Moors LMI that larger farms are less diversified and have chosen to focus mainly on production.

• Concentration of grazing rights is causing damage to heather.

3.1.6 Evidence of risk of widespread abandonment

• No land abandonment as such but farms being split up with house sold and land amalgamated into other farms. Reductions in labour.

• No evidence of widespread abandonment in Lake District NP.

• Greatest threat of abandonment to heather moorland and higher ground.

• Abandonment of in-bye in North Pennines AONB has had impact on landscape character.

• Concerns regarding abandonment of land in North York Moors National Park on SSSI, SAP and SAC moorland habitats with gradual removal of hefted flocks. As well as environmental effects, flocks are part of local culture and add to spirit and atmosphere of living in the North York Moors.

3.1.7 Alternative land uses

• Game shooting and hobby or part-time farms on the increase in SW.

• Organic farming static.

• Examples of range of diversification such as caravan and camping parks, off-road driving range, riding establishments and wildlife sanctuary.

• Pressure for development of wind farms in Lake District NP.
• In heather moorland areas of England and Wales, sporting land use would continue irrespective of farming but with rather more difficulty.

• Grouse moor management has prevented afforestation.

3.1.8 Other comments

• There is no group or body, apart from hill farmers and gamekeepers, who can manage the hills and farming is the cheapest option.

• Visitor surveys tend not to ask about perceptions by visitors of relative quality of elements within the landscape.

• Survey of 1,500 visitors to Cumbria in 2000 found that 91% agreed that farmers should be supported to live and work in the Lake District and 89% believed good husbandry added to the enjoyment and appeal of the area.

• Lake District NPA considers the farming community to be well placed, in terms of knowledge and skills, to carry out practical management of the uplands.

• The hill farming way of life is hard, unrelenting labour with comparatively meagre rewards for the hours and conditions of work. Contribution of hill farmers is immense and often taken for granted.

3.2 Organisations responding

Countryside Agency

Dartmoor Commoners Council

Environment Agency

Family Farmers’ Association

Farmer (Mr David Pearson)

Farmer (Hans Porksen)

Lake District National Park Authority

Landscape Institute

The Moorland Association

National Beef Association

National Sheep Association

North York Moors National Park Authority

Open Spaces Society
Royal Society for the Protection of Birds
Tenant Farmers Association
Upper Teesdale Agricultural Support Services
4- SUMMARY OF DEFRA CONSULTATION RESPONSES

The following is a summary of responses to Question 1 of Defra’s consultation on the Hill Farm Allowance Scheme. Question 1 asks: (a) What public benefits – environmental, social and economic – do you think hill farming provides? (b) Which are the most important and why?

Key issues:
Key issues arising from responses are as follows:

Environment
- Many respondents highlight the longstanding importance of cattle and sheep grazing in developing, maintaining and managing the environmental quality of the uplands, both in terms of important landscapes and wildlife.
- Several respondents cite environmental problems arising from reductions in cattle numbers.
- Both environmental problems of under and over grazing are identified especially on SSSIs/SPAs/SACs and the importance of shepherding and hefting (and their decline) are referred to.
- Other environmental problems identified include soil erosion and compaction, water pollution and siltation, exacerbating flooding downstream.
- Two respondents suggest that without hill farming it would be difficult for Government to meet its own environmental targets.
- A small number of respondents state that hill farming is the most efficient and cost effective way of delivering much of the required environmental land management.
- A small number of respondents suggest land abandonment could have environmental benefits in some areas but suggest ‘managed abandonment’ may be most appropriate. Others raise concerns about abandonment and potential of increased fire risk and spread of disease.

Social
- Many respondents refer to the contribution of traditional hill farming families to the cultural identity and values of upland communities.
- Some suggest farmers and their families are the hub of rural communities.
- A number of respondents highlight skills retained within farming families such as stock management and the management of features such as walls and barns. Also that farmers often provide other services e.g snow ploughing, mountain rescue, fire service, grass verge maintenance.
- One respondent says that others e.g. gamekeepers, water companies, foresters also provide services and contributions to society.
• One respondent suggested that people who do not live in hill farming areas but work there e.g. foresters may make less of a contribution to rural social life than permanent residents such as farmers.

Economic
• Many respondents highlight hill farming as a source of employment in the hills and uplands although several comment on declines in shepherding and farm labour.
• A small number of respondents point to other activities as sources of employment e.g. grouse shooting and moorland management.
• Almost all respondents refer to the role of hill farming in maintaining landscapes and the environment on which they suggest the tourism industry in these areas is built. Tourism is identified as a source of economic revenue and a significant employer.
• Many respondents refer to the services on which hill farming relies e.g. vets, hauliers, feed suppliers and suggest that without hill farming there would be less of such economic activity.
• A number of respondents highlight the importance of LFA cattle and sheep breeding in terms of the overall livestock industry.

Relative importance of benefits
• The majority of respondents see environmental, social and environmental benefits as being of equal importance and inter-related. Some comment it is not possible to have one without the other.
• A small number of respondents highlight the economic and social benefits of hill farming as being most important. Some give greater emphasis to the economic aspects while others emphasise the social aspects.
• A small number of respondents highlight the environmental benefits of hill farming as being most important. Some emphasise landscape importance while others emphasise wildlife.
An assessment of the impacts of hill farming in England on the economic, environmental and social sustainability of the uplands and more widely

Reports of case studies

Volume III
A study for Defra
by the Institute for European Environmental Policy,
Land Use Consultants and GHK Consulting

February 2004
INTRODUCTION

This is the third part of the published results of research commissioned by Defra into the impacts of hill farming in England. This report describes the evidence collected from visits that were undertaken during October and November 2003 to four separate case study areas. These visits were undertaken by a team from Land Use Consultants and GHK Consulting. The study was overseen by the Institute of European Environmental Policy.

The four case study areas were, from north to south, the south west Lake District in Cumbria, the south west part of the North York Moors in North Yorkshire, Dark Peak in Derbyshire and the north west fringe of Dartmoor in Devon. These areas are shown in Figure 1.

Purpose of the case study visits

The purpose of the case studies was twofold. Firstly they were used to explore the links between hill farming and the communities, economy and environment of upland areas focusing on particular locations and examples. This tested, as well as illustrated, the findings of the first stage of the study (a review of previous research which is published separately), and examined how these linkages vary between areas. Secondly, the case studies examined the environmental, social and economic implications of three different scenarios involving changes in the level and nature of hill farming activity, including if hill farming were to cease to exist.

Research topics addressed

The full list of research topics is included in an appendix to this report. The issues that were addressed in each area can be summarised as follows:

The economic impact on the farming industry. This considered the inputs and outputs of farmers’ food production and land management activities, including livestock and crop production and processing, woodland and environmental management and links with other farmers, suppliers, services and buyers both within and outside the area.

The impacts of farming on the wider rural economy. This topic was usually dominated by the implications for tourism but also included other activities related to farm diversification, such as craft and industrial activity. It also included off-farm income generated by members of the farming family resident on the holding and expenditure by farmers and their staff on non-farming inputs.

The environmental impacts of agricultural land management. This topic covered farmers’ involvement in agri-environment schemes, management of designated sites (habitats and archaeological features) and key species, focusing particularly on evidence of over-grazing and protection (from pollution) of natural resources.

The social contribution of hill farming. This included farming’s impact on the quality of life and social opportunity of local people and visitors (recreation, health, education etc), factors affecting the health and quality of life of farmers, their families and staff, the involvement of farmers in local community organisations and activities and the role of farming women.
Introduction

Figure 1. Location of the case study areas
The scenarios

Meetings held during the visits were used to debate the likelihood, the benefits and disadvantages of three scenarios proposed by the study. Debate over the scenarios was not appropriate at every meeting (for instance many rural businesses and community groups not involved in farming were not familiar with some of the issues involved). These three scenarios can be summarised as follows.

1. **The status quo.** This scenario assumes a continuation of existing patterns and trends in hill farming. It recognizes that the trend in terms of the numbers of LFA farms, livestock and labour force is one of a steady decline. These trends continue at a steady rate, though with little or no land coming out of production. There is some alternative land use e.g. for forestry, nature conservation or recreational use but the majority of land remains in traditional agricultural production. The area of land entered into higher tier agri-environment agreements remains at current levels and patterns of diversification, centred on tourism, remain similar. Part-time and hobby farming continues to increase in areas close to centres of population and where alternative employment opportunities exist. Marketing and processing of produce is pursued by a limited number of farmers.

2. **A reduction in hill farming.** This scenario assesses the likely impacts of a substantive reduction in traditional hill farming activity, with a decline in the number of farms, farmers and workers and the overall number of livestock. It assumes there could be up to 50% fewer farms but the average size of those remaining would increase suggesting some farm amalgamation. It also assumes that large tracts of land could cease to be grazed or possibly be abandoned completely in terms of agricultural activity, with a reduction in the area of land in agri-environment schemes. In social terms, the traditional hill farming family is assumed to decline significantly, and new social influences may be apparent in some of the less remote upland areas. This scenario also looks at the implications for alternative land uses if hill farming was to decline. It considers the implications on the lowlands of a breakdown of the traditional stratification of the sheep flock with a reduction in the number of breeding ewes and store lambs sold from the hills.

3. **Diversifying the role of hill farming.** This scenario assumes a continuation of hill farming activity but supported by alternative enterprises and with greater reliance on alternative sources of income, including off-farm income. Some decrease in the numbers of farms, farmers and workers and livestock is anticipated but to a much lesser degree than under Scenario 2. Little or no land is abandoned but the range of additional land uses, most compatible with farming, is assumed to increase. These will create new demand for inputs and services not associated with traditional hill farming. The area of land entered into agri-environment agreements will increase significantly (up to 70-80% of the LFA). Opportunities for strengthening the traditional role of the uplands in producing a stratified sheep flock and suckler beef herd, based around hardy breeds, are explored in this scenario.

**Selection of the case study areas**

The four areas were selected by the Defra steering group on the basis that each one should represent different characteristics of the diverse agricultural economies and environments of the hills in England. In terms of their size, each of the areas was large enough to provide a sufficient reservoir of information but small enough to fit comfortably within a homogenous LFA area. Each area was generally linked with a market town which gave it an economic and social integrity.
Introduction

Nine criteria were used to assess the suitability of a short list of 12 areas. The criteria were

- the agricultural production systems (enterprises);
- intensity of land management;
- patterns of land tenure;
- related economic activity (particularly tourism);
- level of natural disadvantage;
- remoteness from centres of population and transport links;
- statutory designations (such as National Parks and SSSIs);
- duplication with other studies; and
- regional spread

Table 1 shows a checklist that was drawn up to aid the selection process.

<table>
<thead>
<tr>
<th>Table 1. Checklist of selection criteria</th>
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<tbody>
<tr>
<td>Selection criteria</td>
</tr>
<tr>
<td>Sheep farming dominates</td>
</tr>
<tr>
<td>Significant suckler beef sector</td>
</tr>
<tr>
<td>Stock finished in LFA</td>
</tr>
<tr>
<td>Significant dairy sector</td>
</tr>
<tr>
<td>Some arable cropping</td>
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<tr>
<td>Grouse moorland management</td>
</tr>
<tr>
<td>High levels of tenanting</td>
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<tr>
<td>High levels of owner occupiers</td>
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<tr>
<td>Commons with active commoners association</td>
</tr>
<tr>
<td>Long stay holiday destination</td>
</tr>
<tr>
<td>Short break and day trip destination</td>
</tr>
<tr>
<td>Relatively little tourism</td>
</tr>
<tr>
<td>Principally SDA</td>
</tr>
<tr>
<td>Mix of SDA and DA</td>
</tr>
<tr>
<td>Principally DA</td>
</tr>
<tr>
<td>Accessible</td>
</tr>
<tr>
<td>Remote</td>
</tr>
<tr>
<td>National Park</td>
</tr>
<tr>
<td>ESA</td>
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<tr>
<td>SAC / SPA</td>
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<tr>
<td>Few designations</td>
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**Brief characterisation of each area**

The descriptions of the four selected areas drawn up in advance of the visits are as follows.

**1. SW Lake District.** An area of fells on the south western edge of the Lake District where sheep farming dominates on the higher fells, with some beef and dairy production on the lower land. The stocking density of sheep has been markedly high compared to the other case study areas, with a resulting impact on moorland and in-by vegetation. The area is within the Lake District National Park as well as the Lake District ESA. The area is accessible to the northern conurbations from the M5 and is a major holiday destination, with
many farmers providing holiday accommodation and a significant proportion of properties in the settlements (e.g. Coniston, Torver, Broughton Mills) owned as second homes or rented as holiday lets. The area includes an active commons association. The common is not currently in the ESA, with stocking densities significantly higher than required by the ESA, though there is interest from commoners and the association in the scheme. Though badly affected by the 2001 Foot and Mouth Disease epidemic, most farms which had stock slaughtered have restocked.

2. **SW North York Moors.** This area of the North York Moors (encompassing Ryedale, Bransdale, Farndale and Rosedale) is characterised by smaller farms, a higher proportion of part-time farmers and a greater proportion of beef cattle to sheep than the SW Lake District (above) and Dark Peak (below). Land management on the moorland and higher in-bye land is relatively extensive (to the extent that under-grazing is now much more significant as an environmental issue than over-grazing), though more intensive dairy farming takes place in the dales and fringes of the area. There is a tradition of grouse shooting and allied heather moorland management, though not at the scale or intensity as the Yorkshire Dales and Cheviot Hills. The central moorland is SSSI, SPA and candidate SAC. A project run under the Objective 5b Programme (Moorland Regeneration Programme) brought together landowners and conservation bodies and demonstrated both economic and environmental benefits. The proximity of the Middlesbrough conurbation to the north and York and Leeds to the south brings large numbers of people to the area, mostly for day visits but the proximity of the coast also makes it a significant longer term holiday destination. The Forestry Commission’s North Riding Forest Park is a major tourism attraction.

3. **Dark Peak.** This northern and eastern area of the Peak District is markedly less agriculturally productive than the two areas described above and also than the ‘White Peak’ which lies to the south. Farms are generally relatively small and most farmers are owner-occupiers (though not so on the larger northern moorland block where large holdings are often under institutional ownership). However an increasing number of holdings are now owned by non-farmers who either commute daily to work in Manchester or Sheffield (this is much more significant than in the other proposed case study areas) or are second homes. The area is within the Peak District National Park and largely lies within the North Peak ESA. A large proportion of the moorland is SSSI. Moorland management for grouse shooting is still practised but the economic contribution of shooting has declined, principally because of the high recreational use of the area from the Sheffield and Manchester conurbations which lie just outside the area. The National Park as a whole is claimed to be the second most visited National Park in the world with over 20 million visitors per year.

4. **The Dartmoor fringe.** This area has been chosen to represent the more intensive farming found in the ‘Disadvantaged Area’ fringe that lies within almost all LFA areas. Dairy farming dominates in many parts of the area, with beef and sheep farms prevalent elsewhere. Most farmers are small family-run owner-occupiers. Many grow small areas of arable crops for their own use. Relatively small areas of unimproved grassland (Culm grassland) are designated as a candidate Special Area of Conservation, but most of the area lies outside statutory environmental designations. Part of the area is covered by the Countryside Agency’s South West Land Management Initiative. It is relatively remote from centres of population and, compared to the other case study areas, has an undeveloped tourism sector, though second home ownership is an increasing issue.
Introduction

**Nature of the evidence collected**

Although the case studies relied heavily on verbal information collected during the visits, the consultancy team were aware of the dangers of depending on unsubstantiated anecdotal information or hearsay. Specific examples of businesses, initiatives and community activities were sought to confirm or deny views expressed by consultees and use was made of statistical data such as the 2001 population census, 2002 agricultural census and other local surveys.

**Thanks**

The consultancy team is extremely grateful to all the people who took part in meetings or were willing to talk on the telephone and who contributed their views to this study. These people are listed in full at the end of this report. While they may not agree with all the views expressed here, it is hoped that they recognise the flavour and consensus of the many interesting and stimulating discussions that were had during the team’s visits.
1. Introduction to the study area

This case study area was the most northerly of the areas chosen. It lies between Coniston Water in the east and the Duddon Valley in the west, from the Wrynose Pass in the north to the Duddon Estuary in the south. The central area of high moorland covers a single unfenced common running from Langdale to Broughton-in-Furness. The area was chosen as a case study because of the long standing and well developed tourism industry, particularly in the northern portion of the area; because of the strong tradition of a stratified sheep sector based around Herdwick and Swaledale flocks; and because, while the area is within the Lake District Environmentally Sensitive Area, the central block of common land is currently not in ESA agreement.

View across the Duddon Valley, east from Ulpha

The area encompasses the wards of Broughton (the parishes of Dunnerdale-with-Seathwaite, Broughton West, Angerton and Kirkby Ireleth), Coniston (the parishes of Skelwith, Coniston and Torver), Crake Valley (the parishes of Lowick, Egton with Newland, Osmotherley, Mansriggs and Pennington) and Millom Without (Millom Without parish). It should be noted that the south western and south eastern parts of Millom Without, the south west part of Broughton ward and the south eastern edge of Crake Valley ward lie outside the LFA (Figure 2). The area is split between the local authority districts of South Lakeland (Broughton, Coniston and Crake Valley wards) and Copeland (Millom Without). The whole area is within the Lake District National Park.

The area is within the South Cumbria Low Fells Countryside Character Area. The landscape consists of two spines of rugged fells over 400m in height that run north east to south west (peaking at 800m on The Old Man of Coniston), with lower undulating fells and ridges running down to a coastal plain. The river Duddon occupies a broad valley between the two moorland ridges, and flows south from Wrynose Pass (height 393m) to the Duddon Estuary. The east edge of the area is bordered by Coniston Water which has a north-south axis. The high fells are unenclosed moorland with a diverse pattern of rock outcrops, heathland, tarns and beck, small wetlands and mires, rough grassland and bracken.
SW Lake District

The broad floor of the Duddon Valley is relatively intensively farmed as improved grassland, with frequent blocks of woodland on the steeper sides (especially on the west side where there is an almost continuous band of ancient semi-natural woodland). The lower fells on the eastern and southern parts of the area are typified by minor river valleys covered by a dense pattern of semi-natural, mixed and conifer woodlands with small scale enclosures of semi-improved grassland, surrounded by well maintained dry stone walls. The villages (such as Ulpha and Torver), hamlets (Seathwaite, Broughton Mills and Bowmanstead), isolated farms and barns and large country houses tend to be constructed from local limestone and slate. There is an intricate pattern of undulating and twisting minor roads serving the dispersed settlements.

The population of the area is 7,464 (2001 Census), 31% of which is concentrated in Broughton (which includes the small market town of Broughton-in-Furness), 25% in Coniston (including the large village of Coniston), 24% in Crake Valley (including the fringes of Ulverston) and 19% in Millom Without (largely rural). The towns providing the main services to the area are Barrow-in-Furness, a large industrial centre to the south with a population of around 70,000, the market towns of Ulverston (population 11,524) and Millom (6,103) and the tourist centre of Ambleside (resident population of 3,560, rising very significantly during the tourist season).
Figure 1. Location of SW Lake District case study area, showing ward boundaries
2. Economic issues

2.1 Characteristics of the local economy

Across the district as a whole, the two largest sectors of the economy are engineering and manufacturing (especially in the centres of Barrow-in-Furness and Kendal) and tourism (most significant to the north of the area but also important in Coniston). The economic profile of South Lakeland District shows that manufacturing employs 22% of the workforce, the wholesale and retail sectors 16% and hotels and restaurants 6%. Quarrying of limestone and slate is locally important but only employs 1% of the workforce.

Agriculture and forestry now employ less than 1% of the workforce at a District-wide scale, although within the case study area this figure rises to 10% or 359 people (Table 1). It is also clear that many of the small businesses in the area are also connected to agriculture, such as engineers, hauliers, requisite suppliers and contractors. Hotels and restaurants employ a further 10% of the workforce and it is likely that a large proportion of those in agriculture are also involved in the tourism sector.

Table 1. Employment by industrial sector in the case study wards, 2001

<table>
<thead>
<tr>
<th>Industry</th>
<th>Number of people</th>
<th>Proportion of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture; hunting and forestry</td>
<td>359</td>
<td>10%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>537</td>
<td>15%</td>
</tr>
<tr>
<td>Wholesale and retail trade; repairs</td>
<td>471</td>
<td>13%</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>371</td>
<td>10%</td>
</tr>
<tr>
<td>Real estate; renting and business activities</td>
<td>280</td>
<td>8%</td>
</tr>
<tr>
<td>Education</td>
<td>393</td>
<td>11%</td>
</tr>
<tr>
<td>Health and social work</td>
<td>374</td>
<td>10%</td>
</tr>
<tr>
<td>Others sectors</td>
<td>857</td>
<td>24%</td>
</tr>
</tbody>
</table>

Source: ONS Neighbourhood Statistics, based on 2001 Census

2.2 Agricultural production systems

Table 2 shows the agricultural census data for the area from June 2002. As noted above, parts of these wards (chiefly the southern part of Millom Without and south eastern part of Crake Valley wards) are outside the LFA. It is likely that a significant proportion of the dairy farming and cropping takes place in these areas, though dairy farming is also a feature of the Disadvantaged Area within Broughton and Crake Valley wards.

The main commercial breed of sheep in the area is the Swaledale, a hardy breed found throughout the north of England, particularly on the northern Pennines. Swaledale ewes, usually crossed with a Blue Faced Leicester ram, produce the North Country Mule breeding ewes that are the main productive flock throughout northern England. The Swaledale flocks (most are pure bred though there has been a recent trend to cross with Cheviots) kept in the area therefore contribute to a stratified sheep sector in the north of England. Relatively few lambs are fattened for slaughter in the area, though adjacent areas outside the LFA (particularly the fertile Witcham valley) provide rich pasture for finishing livestock.

Traditionally, shearling hoggs were sent north to the Solway Firth, east to the Eden Valley or south to Lincolnshire or the Wiltshire Downs. The movement to Lincolnshire and Wiltshire has been much less in the two years since the Foot and Mouth Disease (FMD) epidemic of 2001, with the arable or dairy farmers in these areas who would have taken the animals on agistment being wary of accepting sheep from Cumbria in case of a resurgence of the disease.
Pure bred hill ewes are traditionally retained in the area on the lower fells but there has been a recent trend to winter them in milder areas such as the Solway Firth and Eden Valley. One farming consultee commented that this practice may be diminishing the hardiness of some flocks and the strength of their heft on the unfenced fells.

A particular feature of the area are the Herdwick sheep, especially on the National Trust’s tenanted farms. The breed is strongly associated with the children’s author and Lake District farmer, Beatrix Potter. It was a condition of her bequest to the National Trust that the charity should maintain viable breeding flocks, which it does through its tenancy agreements.

Most suckler beef herds in the area are based around Limousin cross cows, mostly spring calving. These are generally preferred to other hardy and semi-hardy breeds such as the Aberdeen Angus, Belted Galloway or Welsh Black cattle, though farmers commented that these breeds can attract premium prices in niche markets, particularly Aberdeen Angus. The National Trust have recently been experimenting with using Black Galloway cattle to graze fells dominated by the unpalatable *Molinia* (Purple Moorgrass).

As with the sheep there is a strong tradition of selling store cattle (from nine months) to finishers outside the area (southern Scotland is now a common destination), though a significant number of farmers, particularly those with land in the Witcham Valley finish cattle on purchased barley. There is no longer stratification of the beef herd in the same way as the sheep flock, nor did beef farmers in the area see any merit in reviving it.

Amongst farms keeping suckler cows, the average number of cows is around 20 (typical for hills farms in the north of England), though there are a small number of much larger herds that account for much of the output of store cattle from the area.

Dairying takes place on a number of the lower farms in the Disadvantaged Area. Average herd size is around 50 milking cows, significantly less than the average for all England but typical of dairy farms in the LFA. Almost all the cows are Holstein Friesians, though the extent of the Friesian influence is less than in more productive herds in the lowlands. Grass silage forms the basis of conserved fodder and maize is rarely grown in the area.
Figure 2. Distribution of LFA land in the SW Lake District area
### Table 2. Key farming statistics for the SW Lake District case study area, 2002

<table>
<thead>
<tr>
<th>All farmland</th>
<th>Farmland tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmland area (ha) (excluding grazed common)</td>
<td>19,170</td>
</tr>
<tr>
<td>Number of holdings</td>
<td>371</td>
</tr>
<tr>
<td>Rented</td>
<td>49%</td>
</tr>
<tr>
<td>Owned</td>
<td>51%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of holdings by type</th>
<th>No. of holdings by size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and sheep (LFA)</td>
<td>Less than 5 ha</td>
</tr>
<tr>
<td>Cattle and sheep (lowland)</td>
<td>5 ha to &lt; 20 ha</td>
</tr>
<tr>
<td>Dairy</td>
<td>20 ha to &lt; 50 ha</td>
</tr>
<tr>
<td>Mixed</td>
<td>50 ha to &lt; 100 ha</td>
</tr>
<tr>
<td>Cereals</td>
<td>100 ha or greater</td>
</tr>
<tr>
<td>General cropping</td>
<td></td>
</tr>
<tr>
<td>All other holding types</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main land uses (ha)</th>
<th>Livestock (head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crops and fallow</td>
<td>Total sheep</td>
</tr>
<tr>
<td>Temporary grass</td>
<td>104,512</td>
</tr>
<tr>
<td>Permanent grass (&gt; 5 years)</td>
<td>Breeding ewes</td>
</tr>
<tr>
<td>Rough grazing</td>
<td>53,761</td>
</tr>
<tr>
<td>Woodland*</td>
<td>Lambs under 1 year</td>
</tr>
<tr>
<td>Setaside</td>
<td>44,760</td>
</tr>
<tr>
<td>All other land</td>
<td>Total cattle</td>
</tr>
<tr>
<td></td>
<td>13,715 est.</td>
</tr>
</tbody>
</table>

|                               | Beef breeding herd                |
|                               | 1,558 est.                        |
|                               | Dairy herd                        |
|                               | 2,975 est.                        |
|                               | Cattle herd replacements          |
|                               | 2,523 est.                        |
|                               | Cattle under 1 year               |
|                               | 3,480 est.                        |
|                               | Total pigs                        |
|                               | ##                                |

* Woodland refers to woodland on farm holdings only, not total woodland.

**Note:** These figures are taken from Defra’s June 2002 Agricultural Census and use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as ‘est.’). Where this is not possible, withheld data is shown as ##.

There is an ongoing trend in the concentration of agricultural production in all sectors onto fewer holdings, with a growing number of farms falling into Defra’s Agricultural Census category of ‘other types’, the majority of which are likely to be farms too small to support a full-time worker. The proportion of farms in this category has risen from 10% in 1990 to 33% in 2002. Amongst the main farming sectors, the decline has been sharpest in the dairy sector, falling from 25% of holdings to 12%. The proportion of LFA beef and sheep has fallen slightly from 41% to 38%, but given that many of the ‘other types’ holdings are likely to be small farms keeping beef and sheep on a part-time basis, it is clear that many of the farms leaving dairying have become beef and sheep farms.

### 2.3 Non agricultural land use

As noted above, the common land grazing on the higher fells is not included in the agricultural census data, but all of this, with the exception of steeper scree slopes and quarries which occupy a relatively small area, should be considered as contributing to agricultural production.

There are significant blocks of woodland in the area, although overall they are thought to occupy less than 15% of the area. There are two substantial blocks of forestry managed by the Forestry Commission. These are Dunnderdale Forest at the head of the Duddon Valley and the Postlethwaite Allotment at the head of the Lickle Valley. Ribbons of broadleaved woodland run down the eastern side of the Duddon and Lickle Valleys and, in more isolated blocks, of Lake Coniston, but most of this is not in active management. The agricultural
census data (Table 2) show that 680 ha, nearly half of it in Broughton ward, is on agricultural holdings, but, again, most of this is not in active management.

A member of staff at the Cumbria Woodlands Project commented that historically most broadleaved woodlands in Cumbria were actively managed, usually as oak standards with hazel coppice, to produce bobbins for the weaving and carpet industry, charcoal for smelting, bark for tanning and for on-farm timber products. However, there has been a progressive separation of farming from woodland management, to the extent that most small woodlands on farms are now regarded simply as providing winter shelter for livestock or fenced off and left.

The Forestry Commission’s economic management of its woodland appears to take place quite separately from the ‘sister’ agricultural economy (for instance there was no evidence of farmers undertaking forestry contracting work in the area). However, it is clear that forestry can provide an important contribution to the economy as a tourism attraction (for instance the Forestry Commission’s Grizedale Forest to the east of the case study area), though this did not appear to be the case for the two blocks in the area.

There was little discussion during the case study visit about the impact and opportunities arising from wind generation. There is an established wind farm of 12 turbines on Kirkby Moor on the southern end of the case study area, as well as wind farms on the coast just outside the area at Haverigg and Askham. Both the Northwest Development Agency and Cumbria County Council have identified onshore wind energy as a significant source of renewable energy, with the ridge of high fells running from Harter Fell to Black Combe in the case study area identified as one of the many areas in the county with potential. However, the current impact of this on farming and on farming businesses, at least in the case study area, appears to be minor.

2.4 Patterns of land tenure

The agricultural census shows an equal balance between owner-occupied and tenanted land over the area as a whole (defined by the Census as land rented for more than one year). The highest levels of owner-occupation lie in Crake Valley (58%) and the lowest in Broughton ward (42%), largely as a result of the National Trust role as a landlord in the Upper Duddon Valley, where it has eight farms. The County Council has a number of tenanted farms in the case study area, most of them maintained as relatively small ‘starter’ farms, although their tenants often take on or purchase other land. Most other landlords are private individuals, many of whom live outside the area.

Farm sizes vary significantly across the area, from Millom Without ward which has the largest number of farms in the largest size category (11% of holdings 100 ha or over) where moorland farms tend to range over large areas of Whitefell and Black Combe and the farms in the Witcham Valley tend to be larger units, to Crake Valley which has the fewest large holdings (5%) but the highest proportion of holdings in the 50 to 100 ha category and where most of farms have no common rights.

Over the region as a whole, Defra has estimated through the agricultural census that just under half of holdings can be considered full-time (supporting at least one full-time farmer). There is little variation within the wards and, from the large number of holdings of less than 5 ha (144 or 39% overall), it is clear that most of the half of all holdings that are considered as part-time are small units. The greatest number of these small holdings is in Coniston ward where they are concentrated on the edge of the villages of Coniston, Torver and Blawith.
2.5 Land values and trends in marketing of holdings

While many consultees talked about the accelerating change in the size of farms and the number of part-time farming businesses in the area, it was clear that this was not matched by any large scale changes in the ownership of land.

Very few entire farms have been sold as a going concern in the last five years (indeed consultees could only cite one example of a 150 acre farm at Broughton Mills that had been bought by a farmer moving from a larger farm at Kirkby Lonsdale). In many situations, where a farmer is giving up or withdrawing from farming, the family lets (or, less commonly, sells) the land to a neighbour, continuing to occupy the farmhouse. Often, the family will subsequently sell the farm buildings for development, or develop them for holiday lets. Where a farm is sold (and there have been few cases where this has occurred), the holding is offered for sale in lots, with the house, farm buildings and a small area of land being offered as a residential property and the off-lying land lotted separately to maximise the interest from neighbouring farmers. Consultees were wary about making generalisations about purchasers of vacant farm houses. Though some are bought as second homes or holiday lets, there appears to be strong demand from people working locally or in the larger towns such as Barrow in Furness.

Perhaps surprisingly, the FMD epidemic of 2001 was not the catalyst of large numbers of farm sales that some predicted. Instead, consultees suggested that the compensation paid to farmers allowed them to restructure debts and the restocking (which most farmers who lost stock did immediately) gave them a new incentive to reinvest further in the farming business. While relatively few farms had confirmed disease (around ten farms in the Duddon Valley were taken), many more had stock taken under the contiguous cull or under the welfare slaughter scheme. One non-farmer working in the community suggested that farmers’ decision to restock was more of an emotional than an economic decision: “Most were itching to get back into farming – they needed to fill the void in their lives that FMD had left”. While some farmers have restocked with the same number of livestock they had previously, many have reduced their overall numbers, resulting in lower stocking on the higher fells.

The price of housing in the area, compared to similar sized houses in the nearby towns of Millom and Ulverston, was remarked on by many people. Two bedroom cottages in the Duddon Valley sell for £200,000 while the same sized house on a housing estate in Millom, just ten miles away, can be bought for £40,000. As a result, first time buyers who work in the area, including sons and daughters working on farms tend to live in Millom, Ulverston or Barrow in Furness and commute in. It was also suggested that the is tending to create an artificially ageing structure in local communities and community institutions. Many consultees decried the recent closure of the village school at Ulpha because of the low school roll.

The disparity between the rental value of agricultural properties and residential or holiday properties is a big issue for landlords who are well aware that the rental value of farmhouses and cottages on the residential or holiday let market is significantly more than the agricultural rent on the whole holding.

2.6 Sources and uses of farm labour

The agricultural census shows that the large majority of labour on farms is provided from within the family (with an estimated 48% of labour being classed as full-time farmers, 39% part-time farmers and only 14% being employed labour). 86% of this employed labour is male and over half of this is full-time.
This heavy reliance on family labour is typical of farms in the Lake District, and indeed in most upland areas. But many consultees were keen to stress both the strengths of this situation (the ability to reduce costs by reducing the drawings of family members without having to shed labour and the continuity provided by the long term commitment from family members), and also the weaknesses (the insularity and lack of outside influences and the mental stress that can build up within a family). Many consultees also emphasised the reservoir of local farming and land management skills (and cultural knowledge) that reside within the tight knit farming families in the area. These issues are returned to later in this report.

Table 3. Agricultural employment data for the South West Lakes case study area, 2002

<table>
<thead>
<tr>
<th></th>
<th>Full-time</th>
<th>Part-time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>250</td>
<td>206</td>
<td>456</td>
</tr>
<tr>
<td>Managers</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Employees</td>
<td>36 (est.)</td>
<td>34 (est.)</td>
<td>70 (est.)</td>
</tr>
<tr>
<td>Casual workers</td>
<td>n.a.</td>
<td>59</td>
<td>59</td>
</tr>
<tr>
<td>Total</td>
<td>288 (est.)</td>
<td>299 (est.)</td>
<td>587 (est.)</td>
</tr>
</tbody>
</table>

Note: These figures, taken from Defra’s June 2002 Agricultural Census, use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as ‘est.’).

2.7 The agricultural products and services purchased by farmers

The agricultural sector seems to be well served by suppliers, especially given its relatively remote situation (bordered on two sides by the sea). Furness & South Cumberland Supply Association Ltd, a farmer owned general agricultural merchants, is based locally in Ulverston and has a depot in Broughton in Furness. This company can supply most agricultural inputs needed by farmers in the area such as animal feeds, fertiliser, seeds, fencing and building materials, pesticides and animal health products. National suppliers also service the area with the animal feed specialists ABN having a large mill at Langwathby near Penrith.

The veterinary practice of Rushton, Browne and McKinney is based in Broughton in Furness and does most of the farm animal work in the area. One of the partners in this practice commented that, while farm animal work was still an important part of their business, it had declined significantly in relation to small animal work for members of the public (farm animal work now representing about half of the business whereas it had been around three quarters 15 years ago).

The firm Agricultural Machinery & Repairs are based near Millom and the agricultural engineer, David Johnson at Broughton Mills, services machinery and undertakes welding and metal fabrication for many of the farms in the area.

2.8 Quality assurance and branding schemes

The study was unable to gather reliable information on the proportion of farmers who are signed up to quality assurance schemes. However, on the basis of national trends, it is likely that the majority (though probably not a very large majority, particularly amongst smaller farmers) of beef and sheep farmers are members of the Farm Assured British Beef and Lamb (FABBL) Scheme, which is a requirement from many of the larger abattoirs. Membership of the equivalent scheme in the dairy sector, the National Dairy Farm Assured Scheme, is much higher (close to 100%), though a vet commented that the majority of farmers see it as an unwelcome obligation rather than giving them any market advantage or helping them
improve their farming practice (specifically in relation to the herd health plans required by the
scheme).

Cumbrian Fellbred is a brand developed by a group of farmers and a local catering butcher that
sources beef, lamb, and pork from around 40 farms in Cumbria. While most of these farms
are located in the agriculturally more productive Eden Valley, a small number are in the case
study area. The brand focuses primarily on the provenance of the meat but also assures the
quality of production through the farms’ membership of FABBL. The managing company,
Cumbrian Fellbred Products, has concentrated on supplying the catering trade in the past but
now markets direct to the public through a website.

The Distinctly Cumbrian programme, funded by the Northwest Development Agency, aims to
create and enhance the rural infrastructure needed to support the production, distribution and
marketing of Cumbrian added-value products. Managed by the Cumbria Rural Enterprise
Agency, the project hopes to create an internationally accessible virtual marketplace for
Cumbrian producers and processors, enhance the infrastructure for local production and
distribution and develop the capacity of producers by encouraging collaboration and co-
operation and demonstrating new operating practices. The National Park Authority reported
that interest in the initiative from farmers is generally high, particularly those who are adding
value to their products. However, farmers in the case study area were less aware of it and did
not give it a high priority.

Uptake and interest in organic production in the area was low, especially in relation to the
interest in the Devon case study area.

2.9 The sale of agricultural products and services by farmers

The area has traditionally been well-served by livestock markets, with a farmer owned market
in Ulverston and the larger H&H Kendal Partnership which is based in Kendal but holds
markets in Broughton in Furness. Throughput of finished stock through markets has declined
in recent years, particularly since the FMD epidemic during which many farmers became
accustomed to selling direct to abattoirs. Anecdotally, the switch from liveweight (through
an auction ring) to deadweight (direct to the abattoir) marketing has fallen less in the case
study area than other areas of England. The viability of the auction marts themselves has
fallen considerably as a result both of the losses sustained during the FMD epidemic, when
they were closed, the declining throughput and the long period of low prices in the late 1990s.
Nevertheless, in the case study area the role of the auction mart, both as a broker of store
animals between farmers and as a social meeting place, remains strong.

Most finished stock from the area is sent for slaughter to the abattoir R P Winder in
Ulverston. Further afield, stock is sent to Keypack at Banderbridge near Preston, Rose
Country Meats at Clitheroe and Welsh Country Meats on Anglesey. On a smaller scale, there
are butchers in Greenodd (P and D Hutchinson) and at Newton in Furness (Ayres) who
purchase small numbers of lambs and bullocks direct from farmers. Older cattle are currently
dispatched through the Over Thirty Month Scheme to the abattoir, Duerdens at Lindale in
Furness.

Most of the milk produced in the area is sold either through the producer co-operative Dairy
Farmers of Britain or directly to Dairy Crest for supply to their cheese factory at Aspatria.
Other purchasers include Wiseman’s Dairies liquid milk plant in Lancaster and the Glanbia
cheese plant at Lockerbie in Scotland.

Wool is sold through the British Wool Marketing Board, and the National Trust have recently
received approval from the Board for a scheme that will sell wool from Herdwick sheep
(which has a very low value of around 2p/kg on the open market) directly to a carpet manufacturer in Kendal at a significantly enhanced price of 50p per kg. There are other small businesses taking advantage of niche demand for Herdwick wool such as Old Hall Farm in Broughton in Furness.

### 2.10 Diversification

Information on the diversification options being pursued by farmers was obtained from the Rural Development Service (RDS), on the basis of applications to the Rural Enterprise Scheme (RES) and Processing and Marketing Grant Scheme (PMG) and from discussion with farmers. It would appear that most diversified economic activity by farmers is still agriculturally related. For instance, the RES has supported the purchase of a mini-digger to assist a farmer undertaking walling contracting work and the PMG has been used to expand a cutting plant on a farm based butchers. Non-agriculturally related activities included health related services provided from the farm, usually by the farmer’s wife. The RDS gave examples of two farmers’ wives who had received training from the Vocational Training Scheme to enable them to provide Bowen Therapy for horses and Pilates exercise for people.

The RES has also funded the Rural Future’s project being run by Voluntary Action Cumbria that encourages group activities by farmers. Though focussing initially on the area worst hit by FMD in Northern Cumbria, the project has submitted an application to the RES for a mobile incinerator to operate in the case study area.

There is a strong tradition of agricultural contracting in the area and an increasing number of smaller farmers are applying these skills to non-agricultural manual work or work with machinery and haulage. It was clear from talking to farmers who have diversified that most see these activities as necessary to support the continuing farm business rather than as an opportunity to significantly change their career path with a view to eventually leaving farming.

When the subject of diversification into novel crops was raised with consultees there was universal agreement that this was unlikely to be economically viable and would probably be resisted on environmental grounds. Short rotation coppice and other biomass crops will only grow well on the lower valley ground which, in the local context, is too valuable for its agricultural productivity to be spared for these uses. It was suggested that priority should be given to encouraging the use of timber residues from woodlands and forestry (particularly to stimulate desirable management of broadleaved woodlands) rather than growing new crops.

### 2.11 Tourism

The Lake District is one of England’s main tourism destinations, both for short breaks for visitors from the conurbations in the north of England, but also for longer residential holidays from people from all over the UK and increasingly from abroad. Throughout the Lake District, many farmers cater for these tourists by providing serviced accommodation usually within the main farmhouse (bed and breakfast), converting unused farm buildings to holiday lets or providing land and services for camping and caravanning. While many farmers, particularly those on the edge of Lake Coniston and in the Duddon Valley, are involved in these activities, consultees emphasised that tourism is less significant as an economic influence in the case study area compared to the central Lakes between Windermere and Keswick.

The tourism ‘product’ of the case study is distinctive from that in the central Lakes. With the exception of The Old Man of Coniston in the north eastern part of the area, the area has no
large, popularly walked, hills. With the exception of Coniston Village with its provision of water sports facilities and access to the Langdale Valleys, the area can be described as ‘off the beaten track’ in Lake District terms. A member of staff at the National Trust commented “The Duddon Valley [where the Trust has eight tenanted farms] is a quiet valley for tourists. This is an asset, giving it a reputation as a tranquil area”.

Consultees estimated that the balance between the different types of accommodation was 60% in favour of bed and breakfasting and 40% self-catering (by the number of farms providing these services) with around half of these farms also advertising camping. The main season runs from Easter into October, with Christmas and the New Year now popular as a peak period, particularly for the larger self-catering cottages which are more difficult to let in the summer period. Farmers providing accommodation in the area commented that most visitors are UK based and that the proportion of foreign visitors was less than in the better known central Lakes area.

The Cumbria Tourist Board is concerned about the general oversupply of accommodation in the Lake District as a whole, including the case study area, with low bed occupancy rates reducing the viability and investment in the sector. The Tourist Board is keen both to raise the standard of existing provision (a priority also for the Rural Enterprise Scheme operated by the Rural Development Service) and to raise the national and international profile of farm tourism, both generically through area wide promotion, but also through improving the IT presence (websites) of individual operators. The Cumbria Destination Management Association is treating farm tourism as a priority.

Fewer farmers provide additional attractions for tourists, other than accommodation or camping/caravanning facilities. However, there are two farms south of Coniston that provide pony trekking onto the fells and one of the farms in the area providing self-catering accommodation has recently received a grant from the RES to provide CCTV facilities so that visitors can watch nesting barn owls on the farm. Not surprisingly, there appears to be little involvement by farmers in the water sports facilities on Lake Coniston.

There was a strong consensus that the main motivation for most farmers providing tourism accommodation remains the core farming business, even where income from tourism exceeds that from farming, as it does on many farms providing self-catering accommodation. A member of staff from the Cumbria Tourist Board commented “Farmers see tourism as an enabler to farm”. However she also commented that farmers are increasingly aware of their reliance on tourism – “Tourism is no longer a luxury on many farms – it’s a commodity”. These views were confirmed by a farmer’s wife who had been secretary of the local Farm Stay UK group.

Farmers who were not providing tourism services were somewhat negative about the economic contribution made by visitors in the wider economy. “Most tourists come to walk the fells for free and don’t spend money in fine weather” and “Those coming to holiday cottages bring their food with them” were typical comments.

### 2.12 Off-farm income earned by farmers and their resident families

It was difficult to obtain any reliable evidence on the level of off-farm employment and business by farmers and their family. However, it was suggested that on all but the largest farms, the farmer or his wife (and son or daughter if they are part of the farming unit) work away from the farm. Farmers cited the slate quarries, haulage, IT work, construction work and employment in the retail sector in the larger towns of Ulverston and Barrow in Furness as examples of work obtained by farmers or their resident families.
In terms of time allocation, farming has been squeezed to the ends of the day and week, taking place outside regular working hours on small farms.

Once again, as noted with farmers engaged in tourism, there was a strong sense that this off-farm work, particularly from the farmer and his partner, is justified on the basis of supporting the core farming business, rather than as a means of developing a new long term career, even where the off-farm work dominates the family’s income, as it does on many small farms.

As noted earlier in section 2.5, there appears to be a significant amount of two-way commuting, with farmers and their families who are resident in the area travelling to work outside the area (particularly in the larger towns), at the same time as farm workers and the sons and daughters of farmers living in cheaper housing outside the area travel in to work on the farms and in businesses connected with them.

2.13 Farm incomes

Farm incomes in the area are low and have declined significantly since a peak in the mid 1990s. Most people seemed to be stoical about the low profitability in farming. One of the non-farming (community related) consultees commented that “This area has always been based around ‘survival farming’. When sheep prices are good, farming becomes prosperous – but now they are back to survival”. Indeed, awareness of the relative poverty of many small farmers amongst the wider community appeared to be strong with many citing the FMD epidemic as having increased their awareness of the economic position of farmers.

As elsewhere in the UK, falling farm incomes in the last decade have forced a change in the scale of farming or a reliance on non-farming income. A farmer’s wife commented “A 100 acre farm used to provide a comfortable living – it doesn’t anymore”.

The majority of most farms’ incomes comes from public subsidy in the form of livestock headage payments and area payments (with the ESA making a significant contribution to those farmers with agreements). The impact of the switch from the Hill Livestock Compensatory Allowance to the Hill Farm Allowance (HFA) in 2001, and the reduction in the HFA payment since then, was singled out by farmers as having had a major impact on profitability.

The economic ramifications of low farm incomes in the wider economy have already been noted in respect of the veterinary practice (which had taken on more work with small animals) and the livestock markets (which were rationalising).
3. Environmental issues

3.1 The intensity of land management

Three different grades of land were evident, in terms of the intensity of land management and agricultural ‘carrying capacity’. On the flatter land in the valley bottoms, and on the top of some of the lower ridges (such as in the Lickle Valley), land is relatively easily worked by machinery and tends to be managed as long term leys, occasionally as short term grassland interspersed with forage crops such as stubble turnips. This land is the most intensively fertilised and stocked and is responsible for producing the winter forage (generally silage on dairy farms and hay on beef and sheep farms). Secondly, on the lower valley sides, the enclosed in-bye land is generally too steep and rocky to be cultivated and is managed as permanent grassland, most of it fertilised with inorganic manure and/or farm yard manure and providing year round grazing. Finally, the open fell is generally dominated by semi-natural vegetation (though there are areas on the lower commons which have been agricultural improved by repeated reseeding or long term fertiliser application). Grazing levels are lower on this land, although on all but the highest fells livestock are left out over winter. In environmental terms, the intensity of land management is an issue on the valley bottom land and the unenclosed fell, as explained below, and not generally on the steeper in-bye.

On the fells, particularly those designated as SSSI, the high density of sheep was seen as a major concern by English Nature and the Cumbria Wildlife Trust. High levels of sheep grazing tend to suppress the growth of dwarf shrubs and boggy vegetation, which has the highest biodiversity value, and lead to dominance by the relatively unpalatable grass \textit{Molinia}. Cattle are generally regarded as more environmentally benign grazers, but at high densities they can cause problems of poaching to vegetation and soil erosion at gates and beside drinking areas. However, the RDS commented that cattle numbers on the fells had been falling and that the predominance of spring calving herds meant that cows were often not grazed on the fells during the environmentally optimal period of the late summer. It was suggested that farmers required to reduce stock numbers in order to enter the ESA, and those reducing their workload to take on off-farm employment, usually chose to reduce cattle numbers rather than sheep because sheep require less labour (with the exception of the lambing period). In terms of the environmental contribution to grazing, English Nature would like to see cattle representing at least 20% of grazing livestock units on the fells.
Views on the impact of the ESA on the intensity of land management were somewhat mixed. Evidence from the ecological monitoring undertaken by ADAS during the period 1993 to 1996 was that, during the first five years of the ESA, the condition of dwarf shrub vegetation on Tier 1 land was not significantly different from that on fells not in ESA agreement. Discussion during the visit to the area revealed that while the ESA requires farmers entering the scheme to maintain stock numbers below a certain level (0.3 Livestock Units per ha on the grass fell and 0.225 LUs per ha on the heather fell in Tier 1), this is not sufficiently low to allow degraded vegetation to recover. Given the much higher stocking levels on many fells currently not in the ESA, often exceeding 3 ewes or 0.45 LU per ha, farmers have commented that the ESA payment is insufficient to compensate them for the reduction in the Sheep Annual Premium Scheme payment, making it unviable for them to enter the common into the ESA. This is the case on the large blocks of continuous common land – collectively known as the Walna Scar group of commons - running down the centre of the case study area, which are currently not under ESA agreement (though an application has been submitted – see below).

On the lower lying and most intensively managed land, water pollution arising from land drainage and from the application of slurry and manure from housed cattle (particularly dairy cows) to water logged land was a major concern, affecting the quality of water in the rivers and in wetland habitats such as Duddon Moss (a SSSI lying to the south of the case study area).

3.2 Impacts on natural resources

Consultees were generally less concerned about the impacts of farming on natural resources than on biodiversity (see below), though concern was raised about the relatively poor water quality of many rivers in the Lake District. As implied above, the main impacts tend to arise on the activity on the lower, more intensively managed. Point source pollution arising from failed slurry, manure or silage stores or dirty water spreading systems are generally rare, but where they occur they can be catastrophic in terms of water quality in the streams and rivers. Concern was expressed about the low levels of reinvestment by farmers in their plant and equipment, particularly on dairy farms where profitability has slumped most dramatically in recent years and where pollution risks from housed cattle are generally greatest.

Diffuse pollution which cannot be identified from individual sources and is generally the result of inadequate farming practices over a larger area (such as the application of fertiliser or slurry to water logged land or the spreading of muck at field edges) is an underlying problem being addressed by the Environment Agency through advice to farmers. The low levels of nutrients in the ground water and streams arising from the fells means that low level leaching of fertiliser can produce a large chemical change in the water quality.

Pollution from the higher in-byre and fell land is generally of less concern, although erosion caused by livestock on tracks and in gateways can be a local problem. The kind of footpath erosion caused by walkers that is common on the most popular fells in the central Lakes is rare in this area.

Farmers voiced their concern about the disposal of fallen stock on farms now that on-farm burial has been banned in all but very limited circumstances. Faced with the cost of disposing of carcasses through commercial services, it was suggested that some disreputable farmers might dump carcasses on low lying common land, causing pollution.

The disposal of used silage wrap is considered a growing environmental issue, with the plastic film commonly being buried in pits on farms. As a result, the Cumbria Farm Plastic
Recycling Scheme was launched in 2000 to collect and transport used silage wrap and other farm plastics to Dumfries in Scotland where it is recycled by the firm BPI. By the summer of 2003 the scheme had collected 1,620 tonnes of waste plastic. Funded by a range of partners including Defra’s Rural Enterprise Scheme, the project is run by a partnership of the Lake District National Park Authority, Environment Agency, National Trust, FWAG, South Lakeland District Council and individual farmers. Farmers in the case study area were aware of the project but not all were using it, citing the practical difficulties of storing and arranging collection of the plastic as the reason.

It is worth noting that there are several Sites of Special Scientific Interest in the case study area notified for their geological interest. These include Ashgill Quarry and Coniston Mines and Quarries. Their geological interest lies in the exposures of fossils sequences and volcanic rock formations. There is relatively little impact on these from hill farming.

3.3 Impacts on biodiversity

The case study area contains three SSSIs notified for their ecological interest. These are the Subberthwaite, Blawith and Torver Low Commons (also notified as a Special Protection Area), which contain nationally important areas of mires and wet flushes; the adjoining Kirby Moor, which is the largest most intact area of heath dominated moor in South Cumbria; and the Duddon Valley woodlands, notified as a varied assemblage of semi-natural woodlands. To the south of the case study area, and receiving water draining from the area, lie Duddon Moss SSSI and the Duddon Estuary SSSI, both also notified as SPAs.

As noted above, the key farming issues impacting on these sites are the level of grazing, the balance of sheep and cattle grazing and, for the wetland sites (particularly the freshwater Duddon Moss), the quality of water feeding the site. In terms of positive habitat management there is a need for more grazing in late summer, particularly by cattle, on the grass fells to reduce the dominance of *Molinia*. Control of bracken, either by machinery or through livestock trampling in early spring, is also desirable, though excessive control can reduce habitat diversity, particularly for the high brown fritillary butterfly. The burning regimes used on the open fell are also described as an issue in English Nature’s Natural Area Profile, but were not mentioned by consultees during the case study visit.

Outside the protected sites, Cumbria Wildlife Trust report continuing concern about small scale habitat loss and impoverishment. This occurs both through an intensification of management (for instance removing scrub woodland from stream sides) and a reduction in management (such as allowing fences to fall into disrepair if livestock are ‘ranched’ over large areas).

3.4 Impacts on the landscape

There was less evidence, either from consultees or from written material, on the impact of farming on the landscape of the area than on other environmental topics. The impact of farming on the higher fells is considerably lighter, in terms both of its shaping of the landscape character and of its potential to cause undesirable change, than on the valley land and higher in-bye.

Changes in farming practices over the last 30 years have led to the loss, or poor management, of characteristic features and elements in the landscape such as species-rich grasslands, wetlands, stone walls, hedgerows and farm buildings. However, current management was generally felt to be more benign than it has been over this period. ‘Gentrification’ or
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‘suburbanisation’ of farm cottages, buildings and yards bought by non-farmers was a concern but with relatively few properties changing hands it seems to be having a slow impact.

The issue of potential destocking of the higher fells, and the change (defined by most consultees as a loss) to the landscape character of the area that would result is discussed below.

3.5 Impacts on the historic environment

The most significant individual archaeological site in the area is Hardknott Castle, a Roman Fort east of Wrynose Pass at the head of the Duddon Valley, with which hill farming has no significant impacts. The lower fells contain a number of Neolithic stone cairns and the more recent mining heritage, particularly the copper mines at Seathwaite and the slate mines at Coniston, are also of national interest, but here again impacts from farming are relatively minor and generally limited to accidental damage from livestock, though high levels of gazing can damage soils. It is the network of stone walls, stone stiles and gate posts and the many vernacular farm buildings, most of which are not scheduled, where farming has the strongest impact on the historic environment.

English Heritage’s response to the draft National Park Management Plan identifies neglect and inappropriate development as the main threats. Neglect of stone walls and their associated architecture of stiles can result from low farm profitability, partly addressed by capital grants to farmers in ESA agreements. Inappropriate development of farm buildings, particularly their conversion to holiday accommodation, should be addressed through the planning system, though several consultees commented that the inflexibility and conservatism of the National Park Authority, as the planning authority, can lead to buildings denied planning permission being allowed to decay.

The future of Lakeland culture and local customs, seen to reside largely within the farming community, was an issue raised by many consultees, both farmers and others. This issue is returned to below.

3.6 Involvement of hill farmers in agri-environment schemes

The role of the ESA in conserving and enhancing the environment has already been referred to above. Over the ESA as a whole, 80% of the holdings have entered agreements that cover around 80% of the land area. While precise data on the situation in the case study was not obtained by this study, consultees reported a similar substantial majority of eligible holdings and land in the scheme. Over the ESA as whole, around 70% of the common land is under agreement, a considerable achievement given the difficult negotiations that have to take place between active graziers and non-grazing commoners over the division of payments and reductions in stocking. Nationally, the common land in the Lake District ESA is a significant proportion of all common land under agri-environment scheme agreements (Cumbria has 30% of England’s common land).

The fact that the Walna Scar group of commons in the case study area is not in agreement is therefore significant. As explained above, it is the high stocking density across the commons as whole (around 3 ewes per ha) and the large reduction in stocking that will be necessary to meet the ESA prescriptions that means that, until now, it has not been economically worthwhile for most farmers grazing the common to enter it into agreement. An outline application to bring parties to the table has been submitted by a landowner acting as an ‘honest broker’ for the commons associations for the last three years but until now, when discussions between graziers have taken place, it has become apparent that agreement will not
be reached. However, the prospect of support in the livestock sector being decoupled from headage in 2005 is removing the incentive to keep high numbers of stock on the fells and it is understood that an agreement is now being actively pursued. If agreement is reached, the annual payments to commoners (based on £25/ha for Tier 1 grass fell, plus £5 per ha for common land) will be in excess of £90,000, so injection into the local economy would be considerable.

The role of the Federation of Cumbria Commoners was widely praised. By providing technical guidance and moral support to the commons associations, they are helping them to reach and enforce agreement between commoners over fell management. This is particularly the case in the tricky negotiations that must take place between active and non-active commoners over the apportionment of ESA payments. The proposed legislation to give commons associations more power in these situations should further assist this.

The way in which the ESA impacts on the local economy was raised by several consultees. An agricultural engineer in the area commented that he had received several significant commissions funded through ESA conservation plans, including one large one for replacing parkland fencing. At a time when the wider economic climate was forcing farmers to reduce their spending on machinery maintenance, the ESA had bought a welcome increase in his business. A contrary view was put forward by the vet who commented that the reduction in stocking levels required by the ESA tended to reduce levels of disease requiring treatment as well as reduce the headage of animals. For him the ESA had reduced his work and income. The ESA had also affected the rental and freehold value of land outside the ESA, with farmers in receipt of ESA payments willing to offer higher payments to secure land on which to graze animals destocked from the fells. As one land agent put it “The ESA payment tends to spill down the valley”.

The role of English Nature’s Sheep Wildlife Enhancement Scheme (WES) was also commented on by many farmers. Funding for the Sheep WES was secured by English Nature from Defra as part of the national envelope of the reformed Sheep Annual Premium Scheme in 2003. Targeted at selected SSSIs where English Nature considers dramatic destocking necessary (often by around 70%) to allow dwarf shrub and mire vegetation to recover, the Sheep WES pays a capital payment in return for an agreement to reduce sheep numbers over the following five years. In the Lake District, the scheme is used to top-up ESA payments, reducing stocking levels below the Tier 2 levels. The closest fell receiving the Sheep WES to the case study area, just to the north, is on Eskdale. Here, the stocking density is being reduced to 0.1 LU (0.67 ewes) per ha. English Nature state that this level is based on long standing ecological evidence of the grazing density necessary to allow heather to regenerate (after which stock numbers can rise again). EN staff pointed to the ecologically positive experience on Caldeck and Uldale commons in the northern Lakes where heather has regenerated well under this stocking regime.

Farmers however, were critical of the Sheep WES suggesting that at these low levels of stocking, the high fixed costs of keeping stock on the fell (of checking them and of clearing the fell for tupping, scanning, lambing, shearing, dipping and weaning) meant that some commons would probably not be stocked at all. The potential for agricultural abandonment is covered in further detail below.

Finally, on the topic of agri-environment schemes, several consultees (both farmers and conservationists) voiced concern about the potential impact on the area of the proposed refocusing of agri-environment schemes into the Entry and Higher Level Schemes. There is a perception that, under the new arrangements, it is unlikely that land currently in Tier 1 of the
ESA (the majority) will receive the same levels of payment and that entry into the Higher Level Scheme will be tightly limited by the available budget. Combined with the decoupling of the livestock premium schemes, it was suggested that a sharp reduction in the payment levels received on land currently in Tier 1 of the ESA, particularly the open fell, could result in land not being stocked at all.

3.7 Abandonment

There was universal agreement from all consultees that unplanned agricultural abandonment of land was not desirable from an environmental standpoint, and would have wider negative economic and social consequences. There appeared to be no wish to see the complete ‘wilding’ of fells or valleys on biodiversity, landscape, resource protection or cultural heritage grounds. Indeed it was likely that these assets would be damaged by the resulting growth in gorse and other shrubs on the high fells and by the colonisation of woodland lower down. Cumbria Tourist Board was concerned that most tourists would be disconcerted by an absence of farming and by scrub encroachment on in-bye and fell land. Some conservationists saw merit in selected areas being fenced to exclude stock (usually adjoining existing semi-natural woodland to allow natural regeneration), but only on relatively small areas and as part of a deliberate policy.

There is one example just outside the case study area, on Lowick Common, where grazing has ceased and bracken, hawthorn, birch and other trees were recolonising. It was reported that the only active commoner had been reducing his grazing for many years and that, when his stock was slaughtered during the FMD epidemic in 2001, these animals had not been replaced. The example of Bethecar Common, also just outside the case study area, where there are now only two active graziers, was also cited as an area that may be abandoned in the future.

Consultees agreed that there was little foreseeable likelihood of the widespread abandonment of the most agriculturally productive in-bye land in the valleys and lower fells. Demand for land was currently strong and, even with the decoupling of support payments, cross-compliance would require the land to be kept in favourable condition.

However, there was a more open debate about the likelihood of the higher fells being abandoned, particularly on common land where cross compliance would be difficult to enforce. Whether as a result of lower market prices for lamb, reductions in support payments or the requirements of schemes such as the Sheep WES, consultees were agreed that below a certain critical level of stocking, the costs of fell management, most of which were fixed, would exceed the income and abandonment would result. There is no consensus on what this level would be and the Cumbria team of English Nature has commissioned research to explore this issue.

Two critical issues raised by farmers and the National Trust were the level of manpower necessary to gather stock and swale (burn) the commons, which is largely independent of the number of stock kept, and the impact that reducing stock numbers has on the heft. Stock tends to wander more when stock numbers are low and the inconvenience and cost of driving round from one side of large commons to the other (a two hour trip around the Walna Scar group of commons in a Landrover) to collect a few animals that had wandered is great, relative to the benefit of keeping the animals on the common. Fortunately few commons in the area were completely slaughtered out during the FMD epidemic of 2001. This did occur on Ulpha Common and the National Trust, with Rural Enterprise Scheme money, is running a project to re-heft a new flock on the common. However, it was agreed that the high cost of
doing this made it unlikely that, in the foreseeable future, any large areas of common that are abandoned would be restocked thereafter, unless under a ranching situation where free movement of stock and high losses were accepted.

It is not only the loss of livestock hefts that would make restocking of abandoned fells extremely unlikely. Farmers’ knowledge of their fell (such as stock movements or prevalence of disease in different areas) is based on long experience that would be more difficult to replace, in comparison to the more uniform situation on in-bye land. It was also suggested by an NFU representative that flocks may be genetically ‘tuned in’ to particular fells (for instance in terms of resistance to parasites or suitability to mineral levels in vegetation).

4. Social issues

4.1 Cultural identity of the area

The connection between farming and farmers and the cultural identity of the area was strong. It was difficult to find residents in the area to talk to who were not in some way connected to farming and even amongst those who were not, there was a strong perception that the small scale – some said subsistence – beef and sheep farming tradition defined how people saw the area. Particularly in the market town of Broughton in Furness the conservatism and perhaps even insularity of many farmers seemed to infuse the wider community. Several people commented that, while the non-farming population may be largely unaware of farming’s wider impacts (particular their role in managing the higher fells), the FMD epidemic, which had been a harrowing period for the whole community, had left no one in any doubt that “agriculture is the foundation stone of the countryside”.

Activities such as the livestock markets at Broughton in Furness and the Broughton & Millom and Lowick agricultural shows provide the main interface between farming and the wider community.

4.2 Community activities and institutions

There appeared to be a disparity across the area over the extent to which farmers and their families are involved in community activities. In Subberthwaite and Blawith parish, three of the five parish councillors, as well as the clerk, are all closely involved in farming. The Parent Teacher Association at the village school is also farmer-dominated. The situation in Lowick Parish Council, just outside the case study area, was said to be similar. It was suggested that this is the case because farms in these parishes have always been relatively prosperous and farmers have tended to take the lead in other areas of the economy such as tourism provision. Farming families have a longer term commitment to community institutions than many other residents whose presence in the area is usually more transitory. As one farmer’s wife stated “We feel a responsibility to get involved in the community.”

However, the situation was different in Broughton in Furness where, on the Parochial Church Council and on the School’s Governing Body, people involved in farming were in a small minority. It was suggested that farmers in this area, running north into the Lickle Valley, tend to be a less vocal group, running smaller and generally less prosperous businesses compared to others in the town itself, and feeling less of an obligation to run institutions on behalf of the wider community.
There is a thriving Younger Farmers Club at Broughton, and another at Lowick just outside the area. While the majority of club members (around 60%) are from farming families, the YFC provides a valuable focus of activity and social interaction in the wider community. Further afield, Russland YFC has closed through lack of interest.

Amongst institutions more restricted to farmers, the Broughton Grassland Society and Broughton and Ulverston NFUs were said to be valuable opportunities for farmers to meet, as were the livestock marts at Broughton, Ulverston and Kendal. The Shepherds’ Meets had also been well supported in the years since FMD. Institutions for women are described below.

The membership, and particularly running, of community institutions tends to be dominated by older people. This may be a result of the lack of affordable housing for younger people remarked on earlier. It is also a result of work patterns and a culture that favours older people taking the leading role. As one non-farmer involved in the community said about farming families: “The younger generation is expected to stay at home and run the farm. The older generation expects to have more time to get involved off the farm”.

The impact of the longer working hours being experienced by farmers was said to be reducing their willingness to get involved in community activities. In the past, farmers who have worked on the farm all day welcomed the opportunity to attend an evening meeting off the farm. However, with farm work being squeezed out of normal working hours by other work commitments, farmers had fewer free evenings.

4.3 Social inclusion and integration

The impact of FMD on the community’s perception of farming and farmers has already been referred to, as have the differences in the way that farmers in different parts of the area are prepared to get involved in community activities. From the few local consultees who were not connected to farming, there was a suggestion that many farmers on the small remote farms appear mistrustful of others in the community and seem to relish their own isolation, making few attempts to engage with others. This generalisation could obviously not be applied to all farmers and appeared not to be the case in the area between Coniston and Ulverston where farms were larger and less remote.

From the very limited discussion on the social links between the case study area and the nearby towns of Millom and Barrow in Furness, there appeared to be little contact between these communities, with young people working in the area but forced to live in the more affordable town houses, regarding the towns as a world apart.

4.4 Recreational provision by farmers

The Lake District as a whole has been a popular destination for walking and other outdoor pursuits for at least two hundred years. There has always been de-facto open access onto the unenclosed fells and this is the main draw for most walkers. Access across public rights of way on enclosed land is therefore regarded by most as a means of getting onto and off the open fell. Nevertheless, the paths across farms and the fells are heavily used, though less so in most of the area compared to the central Lakes. With so many farmers receiving an income from tourism, the inconvenience of caravans on the roads, gates occasionally left open and stock worried by dogs, was accepted by most as inevitable and a price worth paying for the tourism income.

The Cumbria Tourist Board sees equine tourism as an activity that suits the area’s reputation for tranquil beauty and are encouraging more farmers and other landowners to provide
facilities for this (stabling for horses and guided treks). The two businesses in the area already providing riding facilities have already been referred to.

While many farmers undertake rough shooting over their own land, there appeared to be no large commercial shoots in the area. There was no grouse shooting on the open fells.

The issue of the mapping of open access land under the CROW Act was raised by several consultees. The inclusion of in-by-e land on the draft maps had been controversial and in some cases objections had been raised. However, the main issue arising from the Act was not new access being provided, but the infrastructure needed to accommodate an anticipated rise in walkers. The National Park Authority and the National Trust (where they are the landlord) already direct walkers arriving by car to car parking and provide signage and stiles. However, there was concern about the cost of providing more of these in future (though Defra has provided funding to the NPA for this purpose), as well as concern about inconsiderate walkers taking advantage of what they see as their ‘rights’.

4.5 Health, safety and quality of life

Many consultees raised the issue of the increasing isolation of farmers working alone on farms, where in the past they would have had other family members or paid staff with them, and working longer hours. Concerns were expressed about the safety of people working in these circumstances, and also the safety of young children left at home with a working parent, usually the father, while the other parent took work off the farm.

The financial pressure faced by families with declining farm incomes was seen as a mental health issue, particularly for medium and larger sized farms that require a full-time input and limit the scope for taking on off-farm work. It was noted that families who took on financial loans to enter or expand the business in the mid 1990s, when farm incomes were higher, were feeling this stress the greatest (though interest rates have fallen significantly since this period).

Nevertheless, it was recognised that farming in the area still provides a high quality of life, this being the reason that most farmers carry on farming. As one non-farmer put it “There is a high quality of life to living and working on the land – but sometimes people say this to convince themselves that the economic hardship and isolation is really worthwhile”.

4.6 Skills and training needs of farmers

The RDS commented that the Vocational Training Scheme has been underused in the area. This may be addressed as a result of the ‘20 day’ rule being dropped (where applicants previously had to provide 20 days training to be considered for a grant). Providers of training to farmers include Newton Rigg College which offers a full range of residential and part-time courses to the land based sector and the Westmorland Agricultural Society which, on a much smaller scale, has provided courses on IT use for farmers at their Showground near Kendal.

The main issue from most consultees relating to farming skills was the continuation of knowledge on fell management. With the conditions on each fell varying significantly, the difficulties of passing this knowledge on within the diminishing reservoir of active farmers, particularly with increasing mobility between generations, was a common worry. As one person put it, “My big fear is the loss of skills and the way of life. Many of the farmers in this area may not be highly educated people, but they have a huge stock of knowledge of their stock, their land and their heritage. We will not be able to recreate this. Once its gone, its gone”.

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The National Trust, which now accepts that it will need to bring in people from outside the area to take on tenancies, is aware that new tenants will need time to take on local knowledge and it accepts a responsibility to provide this help. The Commons Associations would also appear to have a central role in fostering this local knowledge.

Fell Farming Traineeships is a pilot project run by the Fells and Dales LEADER+ programme with additional funding from the National Park Authority’s Sustainable Development Fund and the National Trust. The pilot, which is due to end in July 2004 (funding is being sought for its continuation), has placed six trainees with six farmer groups (involving 25 farmers), one of which is based around Coniston. Practical training on stock and land management is provided by the farmers, with the project providing training on ‘public good’ topics such as environmental management and public access.

4.7 Succession of holdings

That there were a declining number of young people within the farming families willing to take on their business was beyond doubt. However, there was no common agreement about whether this would lead to a crisis of succession in the foreseeable future. A meeting of farmers came to the view that, while around half of farms a generation ago had a full-time successor within the family, now it is only around 20%. The National Trust suggested that about a third of their tenanted farms in the area had a younger generation who were interested in taking over the tenancy. However, with farmers accepting that part-time working and farm amalgamations will be the norm in the future, it is not clear whether the replacement of farmers within existing families will keep pace with retirements.

The National Trust has particular expectations of their tenants. Firstly, the Trust has taken a deliberate decision not to amalgamate farm holdings and most of their farms are therefore let on the basis that they will not provide a full-time income. Secondly, they want tenants who are willing to take on their conservation objectives for the land, buildings and Herdwick flock. While ten years ago, most tenancies could be filled from within the local farming community, they now expect to have to look further afield, often finding ‘off-comers’ with the necessary experience of upland stock management from Scotland or the Pennines. The Trust is clear that experience and strong commitment to managing the fell is necessary to meet their requirements. They are not interested in taking on tenants who are more interested in an attractive house in the Lakes than the prospect of farming inhospitable terrain – though they stated there was no shortage of interest from unqualified people who might be termed ‘good lifers’.

For these reasons, almost all new entrants to farming in the area have a farming background. While this is likely to strengthen the strong sense of a farming community, it is also likely to accentuate their isolation from the wider community in those areas where this is already the case.

4.8 The role of women

The traditional role of women on farms (often perceived, probably incorrectly, as looking after the ‘hearth and home’ while the husband did all the farming) is changing, mainly as a result of an increasing number of younger women (wives and daughters) obtaining employment off the farm. The increasing administration needed on farms, both financial and in keeping records of livestock births, deaths and movements, is often taken on board by women. Despite these changes, which have affected women in the case study area as much as across hill farming areas as a whole, it appeared that many women still cherished their
supporting role, seeing this as increasingly important given the increasingly pressured lives of many farming families.

The area was notable in having a strong network of organisations and structures supporting farming women. Cumbria’s Rural Women’s Network, based near Penrith, has a part-time Entrepreneur Advisor in the south Lakes area to assist rural women who are developing new or existing business ideas. The organisation supports a network of rural women to encourage the exchange of ideas and experience and has provided training to women in the case study area on IT use.

The Furness Ladies NFU meets monthly and, while mainly a social organisation, it was cited as an important form of support to women who can feel isolated on their farms. This organisation appears to be a local equivalent to the Women’s Food and Farming Union (WFU) which is not active north of Lancaster.

The area has two active Women’s Institutes at Broughton Mills and Woodlands. It was estimated that around half of farmers’ wives in the area are members of the WI, with a higher proportion than this for people over 60. The WIs take a particular interest in rural issues, but one of their strengths is the opportunity for older women from farms who often do not have jobs off the farm to discuss non-farming issues with the wider community.
5. The scenarios

Scenario 1

The first scenario explored by the study envisages a continuation of current trends, with no dramatic resurgence or collapse in the farming economy and resulting wider impacts. The strong structure of farming families with an innate conservatism to change; an already high level of reliance on non-farming incomes; many long term owner occupiers (less likely to be exposed to debt); and two landlords (the National Trust and County Council) with a long term commitment to maintaining their presence in the area, would suggest that the area will be able to withstand further changes. This would appear to be the case for the farming activities taking place on the in-bye land.

A large measure of uncertainty over the immediate future, particularly relating to the way in which the Single Farm Payment will be calculated, meant that many farmers are unsure about their own business strategy. Nevertheless, there is a strong commitment to remaining in the core business of farming, with most farmers who have diversified or taken on other sources of income off the farm (the majority) doing so to support the core farming business, rather than as a route out of farming.

It would appear that, despite the policy changes and falling incomes of the last few years, the farming population has remained remarkably static. There are few opportunities for new entrants who have no previous experience in farming, even on the tenanted properties, principally because of the knowledge necessary to maintain livestock on the fells.

There is strong support for the ESA which is becoming increasingly important as a source of income in the area, with a major injection of funding expected when the Walna Scar group of commons come into agreement. While the increasing importance of income from the ESA is changing the profile of spending by farmers in the local economy, it is unlikely that most farmers will seek dramatic changes in the way they trade with their suppliers and purchasers. However, the future of the ESA, particularly the Tier 1 payments, in the light of the proposals for a new structure of Entry and Higher Level Schemes, is uncertain and it is possible that this change will result in a significant reduction in income if payments on most Tier 1 land fall.

Scenario 2

The second scenario envisages a dramatic reduction in farming activity and withdrawal from the management of marginal land, with little corresponding increase in diversified and environmental activity. As stated above, the uncertainty over the impending decoupling of the CAP and the restructuring of agri-environment schemes make it difficult to anticipate the scale of change over the next five years. However, there were strong and credible warnings that further declines in livestock numbers in the hills, or of commoners exercising their grazing rights, could make the management of many of the higher fells unviable. Here it is the availability of sufficient labour to undertake the shared activities of gathering stock and swaling the fell, and the knowledge of how to do this, that are the critical issues rather than the availability of funding to keep stock on the hills (though the two are obviously connected). There were already examples where grazing of low lying commons had ceased or fallen sharply and many consultees regarded the risk of this being repeated on larger areas of higher fell as being real.

There was no support for the whole scale abandonment of fells, though English Nature still wished to see substantial reductions in stocking on most of the SSSI fells, even those in ESA
Tier 1 agreements. However, there was concern that the sharp reduction in stocking pursued by EN through their Sheep WES scheme could result in complete withdrawal of grazing by many commoners.

The experience of rehifting sheep onto Ulpha Common after it was slaughtered out during FMD demonstrates how difficult and costly this is. Most consultees regarding the withdrawal of grazing from fells as a ‘one way street’ that was unlikely to be reversed.

The future of the hardy breeds of sheep on the fells appears to be stronger now than it has been in recent years (biosecurity measures introduced after FMD temporarily threw the future of the stratified sheep sector and the areas Swaledale breeding flock into some doubt). The National Trust’s commitment to the Herdwick breed, through their tenancy agreements and scheme to increase the value of the fleece, seems likely to secure the breed’s future in the medium term.

However, there is more concern about the numbers of cattle kept in the area. While no-one was predicting the disappearance of suckler cattle from the area (indeed the national prognosis for the suckled beef sector is good), the willingness of farmers to keep cattle on the open fells, particularly in the late summer, was presenting a problem for the environmental management of the Molinia dominated grassland. Most farmers, particularly those taking on work off the farm, choose to reduce cattle numbers rather than sheep numbers and, in the absence of further incentives to keep cattle (the Hill Farm Allowance already including a supplement), it seems likely that this trend will continue, particularly amongst part-time farmers in the area.

Scenario 3

The third scenario anticipates a continuation of farming activity coupled with expansion of diversification, local processing of farm products and the area of land in agri-environment schemes.

The real risk of abandonment of some fells, outlined above, suggests that this scenario is the least likely. The uncertainty about the future of decoupled and agri-environment payments meant that few farmers were planning major investment in new enterprises.

The anticipated ESA agreement over the Walna Scar group of commons will significantly increase the area of land under agreement in the area and much of the income received from this is likely to be recycled within the local economy. While this development has much to do with the decoupling of livestock payments in 2005, it has more to do with the current agri-environment regime than the one that is likely to replace it.

There was no enthusiasm for novel crops, which were felt to be inappropriate both agronomically and environmentally. The opportunities for increased diversification appear to lie in improving the quality of existing provision, particularly in growth areas such as equine tourism, rather than in more farmers providing accommodation to tourists. There is support for this and a willingness by many existing providers to upgrade their facilities, while promoting the area as a more tranquil and unspoilt alternative to the busy central Lakes area.

With the exception of a few local meat processing businesses, there is little evidence of a resurgence of value adding or processing on farms. There would appear to be less interest in organic farming than in the Devon case study area and while farmers were aware of locally branding initiatives such as Distinctly Cumbrian, none were encountered using them.
NORTH YORK MOORS CASE STUDY

1. Introduction to the study area

The chosen study area was the Dales and Helmsley wards of Ryedale District, in the central and south-western parts of the North York Moors. It lies within the North York Moors National Park (NYMNP) and North Yorkshire County, and is predominantly Severely Disadvantaged Area (SDA), with smaller areas of Disadvantaged Area (DA) and some areas of non-LFA on the southern fringe (see Figures 1 and 2 on the following pages).

The land is mainly blocks of heather moorland dissected by dales that run north-south. The main dales are (from east to west) Rosedale, Farndale, Bransdale and Ryedale. These descend into lower and more intensively farmed land to the south, including a substantial area of arable land around Helmsley, Rievaulx and Cold Kirby. The moorland is mainly Grade 5 agricultural land and includes large areas of common land, the dales are mainly Grade 4 land and the arable land is mainly Grade 3 land. There are areas of coniferous planted forests, notably in the west of Dales ward (North Riding Forest Park), and scattered semi-natural woodlands mainly on lower valley slopes.

View towards Lower Blakey Ridge, Farndale

The moorland is relatively low-lying, mostly between 150 and 400 metres in altitude, and was in forest until about 2,500 years ago. It is widely accepted that if it is not maintained as heather and grassland through grazing and burning it will succeed to scrub and eventually to forest (as has happened in a few areas). Most of the moorland is designated as Site of Special Scientific Interest (SSSI), Special Protection Area (SPA) and candidate Special Area of Conservation (SAC). There are also two smaller areas of SSSI at Duncombe Park, west of Helmsley township, and at Rievaulx Abbey. There is no ESA in the area. Most of the area is within the North York Moors and Cleveland Hills Joint Character Area, with the southern fringe in the Vale of Pickering Area.

The population of the two wards is 4,694 (2001 Census): 3,111 in Helmsley ward and 1,583 in Dales ward. This comprises about 20% of the population of the National Park (25,138). Helmsley is the main settlement and smaller settlements include Hawnby, Cold Kirby, Rievaulx, Sproxton, Pockley, Gillamoor, Spaunton, Lastingham, Appleton-le-Moors and Rosedale Abbey. Kirbymoorside is just outside the study area but is an important servicing centre for the Dales Ward, as is the larger town of Pickering.

Figure 1. Location of the North York Moors study area showing ward boundaries
2. Economic issues

2.1 Characteristics of the local economy

“There is no shortage of work, but a shortage of well paid work.” Economic Development Officer.

Tourism, now estimated to support 4,400 full-time equivalent jobs in the National Park, is a much larger industry than agriculture although the latter is still significant, particularly in more remote central areas which are still heavily dependent on agriculture. Grouse and pheasant shooting are also important activities.

There is very little else, although some craft activity, forestry and charcoal production takes place. There is some potential for mobile IT-based businesses to develop, although this has tended to occur in the more accessible areas to the south and the lack of broadband is a significant constraint.

2001 Census statistics for employment among the inhabitants of Helmsley and Dales wards reveal that 16% of the workforce work in agriculture, hunting and forestry (Table 1). This compares to 14% in wholesaling and retailing, 12% in hotels and restaurants, 12% in manufacturing, 9% in education and 9% in real estate. These figures include commuters out of the area. Commuting is significant in the south of the National Park (to York) and in the north (to Teesside), but the central areas are more remote and less suitable as a commuting base.

Unemployment is low, at below 1.5% for the inhabitants of the two wards. Surprisingly, unemployment statistics hardly changed during the Foot and Mouth Disease crisis despite severe impacts on both tourism and agriculture, nor is there marked seasonal unemployment. Pluriactivity and a significant cash-in-hand economy are thought to be factors.

Because of the dominance of tourism and agriculture, wage rates are generally low. There is, however, significant wealth in the area which is a desirable home for commuters, retired people and people with investment income, boosting house prices and making affordable housing a significant concern.

As a result of low unemployment, low population densities, the lack of affordable housing and relative inaccessibility (especially in winter when roads are difficult), the difficulty of attracting labour is likely to affect the development of businesses. Some businesses have had difficulties in finding staff recently.

Table 1. Employment by industrial sector in the case study wards, 2001

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of people</th>
<th>Proportion of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture; hunting and forestry</td>
<td>368</td>
<td>16%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>274</td>
<td>12%</td>
</tr>
<tr>
<td>Wholesale and retail trade; repairs</td>
<td>319</td>
<td>14%</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>271</td>
<td>12%</td>
</tr>
<tr>
<td>Real estate; renting and business activities</td>
<td>208</td>
<td>9%</td>
</tr>
<tr>
<td>Education</td>
<td>202</td>
<td>9%</td>
</tr>
<tr>
<td>Health and social work</td>
<td>159</td>
<td>7%</td>
</tr>
<tr>
<td>Others sectors</td>
<td>492</td>
<td>21%</td>
</tr>
</tbody>
</table>

Source: ONS Neighbourhood Statistics, based on 2001 Census
2.2 Agricultural production systems

“In the village I live in there used to be 33 farms producing milk. Now there is one. There’s a third of the farm businesses and a fifth of the number employed in farming. Quite a few of those are part-time.” Farmer.

The North York Moors are quite low-lying in relation to other upland areas and support hill type vegetation at relatively low altitudes, as a result of the relatively cold, dry climate. The moorland vegetation is generally of poor quality for grazing and under-grazing and abandonment are of greater concern than over-grazing. Grass provides the majority of the summer bite, with heather used for winter grazing for those flocks remaining on the hill in winter. Table 2 provides summary agricultural data for the area.

Most farms are small relative to regional averages, with an average of 20-25 hectares of in-by. The in-by is farmed relatively intensively and is considered by many to be somewhat over-grazed. Hill flocks have traditionally been small and there are still only two or three in the National Park with more than 1000 ewes.

### Table 2. Key farming statistics for the North York Moors case study area, 2002

| Farmland area (ha) (excludes common rough grazing) | 15,304 | Rent | 62% |
| Number of holdings | 262 | Owner | 38% |
| Cattle and sheep (LFA) | 78 | Less than 5 ha | 79 |
| Cattle & sheep (lowland) | 49 | 5 ha to < 20 ha | 43 |
| Dairy | 7 (est.) | 20 ha to < 50 ha | 51 |
| Mixed | 32 | 50 ha to < 100 ha | 55 |
| Cereals | 24 | 100 ha or greater | 33 |
| General cropping | 9 | | |
| All other holding types | 63 (est.) | | |

| Crops and fallow | 3,904 | Total sheep | 80,360 |
| Temporary grass | 906 | Breeding ewes | 39,261 |
| Permanent grass (> 5 years) | 6,524 | Lambs under 1 year | 39,528 |
| Rough grazing | 2,700 | Total cattle | 10,120 (est.) |
| Woodland* | 350 | Beef breeding herd | 2,592 |
| Set-aside | 482 | Dairy herd | 830 (est.) |
| All other land | 437 | Cattle herd replacements | 767 |
| | | Cattle under 1 year | 3,224 |

* Woodland refers to woodland on farm holdings only, not total woodland.

**Note:** These figures are taken from Defra’s June 2002 Agricultural Census and use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as ‘est.’). Where this is not possible, withheld data is shown as #.
The North York Moors National Park contains more arable land than most other National Parks - about 20% of the Park area - concentrated in the relatively fertile calcareous grits in the South West. As a result, a large proportion of the study area is arable, mostly wheat, barley and rape. There are also several intensive pig farms in the Helmsley area.

The eastern part of the study area is more typical dales and moorlands and supports livestock systems. This is mostly beef and sheep, although there is a declining number of dairy farms, which are growing in size. Many farms operate mixed beef and sheep systems - the number of suckler herds has held up well compared to other upland areas, with some farmers switching from dairy to sucklers in recent years. Until the 1930s there was widespread mixed farming with arable land uses being common in the dales, but there has since been a gradual polarisation with arable in the south west of the park and livestock elsewhere.

A stratified sheep rearing system operates in the area, with hill sheep farms crossing Swales with Blue-Faced Leicesters to produce mule ewes for breeding. Farms lower down the hill produce store lambs and store cattle, while an increasing number are finishing their own animals.
Figure 2. Distribution of LFA land in the North York Moors area
2.3 Non agricultural land use

2.3.1 Forestry

“The viability of forestry is even worse than hill farming.” Farmer.

Forestry covers large areas, especially on Forest Enterprise (FE) land and larger estates. Significant areas of woodland are in the North Riding Forest Park, at the eastern end of the study area, and in Deer Park, East Moor, Riccaldale and Bransdale. Most of the FE land in the area is leased from private landowners, who retain the shooting rights, and is important for pheasant shooting. In general forest management and game shooting work together, although there are some conflicts – especially where FE wants to clear fell woodlands.

There are approximately 32,000 hectares of woodland in the National Park, representing 22% of the park’s area, of which approximately 75% are coniferous or mixed woodlands. Of the remaining 6,700 ha of broadleaved woodland, about 2,200 ha are SSSI.

FE has around 20,000 hectares of woodland in the park, of which 2,000 hectares is ancient woodland, including ancient semi-natural woodland (ASNW) and plantation ancient woodlands (PAWs). FE is aiming to restore all the ancient woodlands in the area to ASNW. This is generally done through a gradual process of conifer removal and natural regeneration, rather than by clear felling. There is a significant cluster of ancient woodland around Helmsley, where approximately 30% of the land is woodland and 30% of that is ASNW.

FE has only 50 staff in the park, so most of the forestry work (harvesting, planting, fencing etc) is done by contractors, including farmers. Most of these are based in the North Yorkshire area. One farmer has a contract to cut the grass in all of the picnic sites, and to maintain forest drives.

There are large areas of coniferous plantation in the east of the study area and outside, but these have little commercial value and are now widely seen as being a mistake. The majority of trees are more than 40 years old and close to maturity. However, the economics of harvesting them (let alone planting new woodlands) are marginal, following a halving of timber prices in the last five years. Less accessible areas of woodland and trees on the steeper slopes are especially uneconomic to harvest.

Forestry policy has changed dramatically in the last 20 years. In 1983 FE was still planting conifers on moorland – now this no longer occurs and the organisation is beginning to restore plantations to semi-natural habitats. FE is looking to re-create heather moorland in the Hambleton Hills area to the south west of the study area, where re-creation of moorland from arable land is now considered impossible. Timber production is now seen as supporting rather than dominating Forest Enterprise’s objectives.

Forest tourism is becoming increasingly important. Forest Enterprise has cabin sites to the east of the study area, and has recently invested £5m in their development. Dalby Forest, just outside the area, attracts many thousands of visitors each year, about a third of whom are holidaymakers and two thirds day-trippers, from as far away as Hull, York and Leeds. Forest Enterprise expects to gain £1.6 million in tourism revenues from its activities in the NYMNP compared to £1.1 million in timber revenues. Due to falling timber prices, it has moved from a £0.5 million surplus five years ago to a £0.5 million deficit today. There are now cash flow advantages in restructuring woodlands compared to clear felling and replanting.

There are a few sawmills in the National Park, including one in the study area, in Helmsley. This produces mostly fencing and construction timber. Timber is also exported to a sawmill in Durham (mostly construction timber) and chipwood plants in Hexham and on the Welsh
The increased use of recycled paper and chipboard has hit the market for small roundwoods.

There are many small farm woods, most of which are not managed and not financially important. There is great resistance to woodland expansion on the moors, but there is interest in expanding semi-natural woodland cover in the valley sides, and developing corridors between existing native woods. FC, NYMNPA and EN are now agreed about the benefits of extending semi-natural woodlands on land of lower natural value such as arable land, bracken banks and improved pasture. One of the problems of allowing natural regeneration of woodlands is that much of the regeneration is of pine and spruce due to the extensive seed sources in the area.

NYMNPA and FC have recently funded a Native Woodland Development Officer to promote native woodland creation and assist grant applications, and this has resulted in an increase in the area of native woodland planting.

Energy crops are not considered a good option on the arable areas on the moorland fringe as the growing season in the area is considered too short.

2.3.2 Shooting

“As long as people are interested in bird shooting, grouse shooting will be top of the tree.”
Estate owner.

“The money isn’t in North Yorkshire, it’s in London, America and Belgium... The shooting does bring a hellish lot of money.” Gamekeeper

Grouse shooting is big business, especially for owners of large estates, and covers most of the heather moorland area. Some shooting is let commercially and other moors managed for the benefit of estate owners themselves. Grouse moor management employs large numbers of people as beaters and keepers and generates contract work, often done by local farmers. The tourism industry also benefits from the shooting clients, particularly at the higher end of the accommodation market. In general, grouse shooting enterprises have fared reasonably well in recent years, enabling employment levels to be maintained. The business is affected by cycles of grouse numbers but the market for grouse shooting has been robust.

According to a local gamekeeper, there are around 40 full-time keepers working on grouse moors in the Park, and perhaps three times this number of keepers in total if pheasant shoots are included. Grouse shooting also employs significant numbers of casual workers. One estate with 2,800 hectares employs 25 people per day for 12 days in the year as beaters, and 15 men for two weeks in bracken spraying, heather burning, gritting and road repairs. This amounts to a total of 450 person days per year or two full-time equivalent jobs. Additional work is concerned with capital projects such as constructing shooting butts.

Management of most grouse moors tends to involve sheep grazing as well as burning. There are mixed opinions as to the importance of sheep grazing in managing grouse moors – most believe that it is important to control heather overgrowth, encourage growth of young heather shoots and prevent scrub regeneration. An alternative view is that this can be achieved through burning, with some scrub clearance when necessary, which is the practice on one moor. One landowner estimated that it costs him £200 per year to prevent regeneration of 400 hectares of moorland in this way, a relatively modest sum given the area involved.

Ticks and louping ill have been a significant problem for grouse. The Moorland Regeneration Programme funded by Objective 5b made significant progress in controlling the problem through increased frequency of sheep dipping, vaccination against louping ill and
bracken control. The project has now ceased and there is no ongoing funding but some estates are continuing to fund bracken control and pay for vaccination of their tenants’ flocks.

Heather burning typically occurs in strips or patches less than 30 metres wide, as grouse do not favour large open areas without cover. It is therefore better to have large numbers of small burns than to burn very large areas at one time.

It is clear that grouse are more important on the moors in economic terms than sheep grazing. The value of grouse is currently £50 per bird and a party may pay £8-10,000 for a day’s shooting. Grouse moors are performing well financially and managers are optimistic about the future. Grouse moors do not compete against pheasant shoots but operate in a high value international market, where estates’ main competitors may be dove shoots in South America, some African shoots and duck shoots in India. An estate owner spoke of a contract lined up this year with some shooters visiting from the US, which was going to be worth £150,000, but which was cancelled due to concern about the SARS virus and the Iraq war.

Pheasant shooting is also very popular, particularly in southern parts and especially around Helmsley, which is considered to be among the best pheasant shooting areas in the country.

2.4 Patterns of land tenure

A high proportion of farmland is rented (62%) compared with the national average of 34%. Major landowners include the National Trust (800 ha at Bransdale in 11 tenancies) and several large estates – Rosedale, Spaunton, Farndale, Bransdale, Hawnby, Rievaulx, Duncombe Park, Ravenswick and Pockley. Most of these have a combination of arable land, pasture, moorland and woodland.

There has been a significant shift from tenanted to owner occupied land. According to the NYMNPA, the proportion of owner occupied farmland in the Park stood at around 40% twenty-five years ago, 50% five years ago, and has increased to about 55% today. Some of the big estates have retained moorland and woodland and sold their farmland. However, the figures for the study area in Table 2 indicate that 62% of farmland was rented in 2002 – suggesting lower rates of owner occupation in the study area than in the Park as a whole. Most of the moorland is owned by large estates. In the park as a whole, about 47% of the moorland is registered Common Land, with grazing rights spread between large numbers of farmers. A declining number of graziers are exercising their rights. For example in Danby, to the north of the study area, there were 150 graziers in the 1960s but this has declined to 23 today.

2.5 Land values and trends in marketing of holdings

Land values are buoyant, reflecting strong demand for agricultural property and land from non-farmers, but there does not appear to be a great deal of land coming onto the market. Those farms that do come up for sale are often divided up, with non-agricultural buyers keeping the farmhouse and some land, often for keeping horses, and selling the rest to farmers eager to expand their holdings. Horse paddocks are more numerous on the Teesside side of the park, but are also appearing in the study area.

2.6 Sources and uses of farm labour

Employment in farming has declined significantly. Table 3 shows the distribution of agricultural employment among farmers, managers and other employees. Farm labour has become increasingly scarce, and there is now a shortage in the area, as people have moved away or found alternative sources of employment. The situation is exacerbated by problems
with finding affordable housing. As a result farmers report difficulty in finding labour to help with silaging. Some other forms of activity – e.g. walling, hedging and tree planting – are easier to find workers for as they provide winter work, which fits better with the seasonality of tourism.

Table 3. Agricultural employment data for the North York Moors case study area, 2002

<table>
<thead>
<tr>
<th></th>
<th>Full-time</th>
<th>Part-time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>200</td>
<td>182</td>
<td>382</td>
</tr>
<tr>
<td>Managers</td>
<td>5 (est.)</td>
<td>2 (est.)</td>
<td>7 (est.)</td>
</tr>
<tr>
<td>Employees</td>
<td>53 (est.)</td>
<td>42 (est.)</td>
<td>95 (est.)</td>
</tr>
<tr>
<td>Casual workers</td>
<td>n.a.</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>258 (est.)</td>
<td>279 (est.)</td>
<td>537 (est.)</td>
</tr>
</tbody>
</table>

Note: These figures, taken from Defra’s June 2002 Agricultural Census, use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as ‘est.’).

2.7 The agricultural products and services purchased by farmers

“We could run into trouble with vets soon – it’s becoming uneconomic to run a large animal practice.” Farmer

“It’s hard now to get vets that know about big animals.” Agricultural Development Officer

“Now you have to look seriously at a sheep that’s ill and decide whether it’s worth calling the vet out. We don’t like being put into that situation.” Farmer

The area is still reasonably well served by vets, especially in surrounding towns such as Thirsk, although there is concern that the declining fortunes of the farming industry are affecting their viability. Many vets are also finding it easier and more lucrative to specialise in pets, rather than livestock.

Agricultural feed and supplies are purchased from a variety of suppliers in the region. BATA is the main agricultural supplier in the area itself, with a main base in Amotherby near Malton and outlets dotted around North Yorkshire. There is one outlet in Helmsley, in the study area, and another just outside it in Kirkbymoorside. Farmers also use a variety of suppliers outside the immediate area, including Varley in Darlington, Thompson in Murton, Armstrong Richardson in Stokesley and BOCM in Selby. Since supplies are sourced from a wide area, any related economic impacts of further agricultural decline on the study area itself would be expected to be limited, especially as local outlets are increasingly focusing on the needs of horses and pets rather than being wholly agriculturally dependent.

2.8 The sale of agricultural products and services by farmers

The nearest markets are in neighbouring towns – Thirsk, Northallerton, Russwarp and Malton. Agricultural markets are active but not as busy as they were before the Foot and Mouth Disease epidemic. There is also a major annual sheep sale in the study area, at Blakey, on the Hutton-le-Hole to Castleton road.

The area is also served by several large abattoirs in neighbouring towns, including York, Teesside, Carnaby, Wisbeck and Thirsk, although many smaller ones have closed in recent years. There are no significant local marketing co-operatives for livestock.
2.9 Diversification

2.9.1 General

“I’ve tried to think of ways of diversifying but I haven’t come up with anything sustainable. I just have to send the wife off to work.” Farmer

Many farms have diversified into a range of alternative businesses, with some of the most common being contracting for other farmers or estate owners, haulage or road works contracting and accommodation provision or other tourist services.

Not all farmers see diversification as a viable option. Reasons given for diversification being difficult include:

- Location – and remoteness from markets
- Skills
- Land tenure – some tenants claim that their landlords prohibit them from diversifying. Others state that they are reluctant to diversify because they do not wish to invest their own capital in ventures from which they may not reap long term benefits. On the other hand, Defra’s experience is that a tenant is as likely to diversify as an owner occupier and that landlords often contribute to the capital cost of diversification projects
- Difficulties of balancing needs of stock and other responsibilities
- A shortage of innovative ideas
- Planning constraints. Although planning is seen as a significant barrier to diversification, 87% of applications were granted approval in 1999. It is not known how many potential developments are discouraged prior to planning applications being made.

Many have diversified into accommodation, either bed and breakfast or self-catering cottages, but the market for accommodation is looking increasingly saturated. A few have developed other tourism related businesses such as pony trekking.

The Rural Enterprise Scheme (RES) is a competitive scheme and requires farmers to produce a business plan to accompany their application. Many are interested in converting farm buildings to holiday accommodation but such projects are unlikely to be funded unless applicants are able to demonstrate evidence of a strong local demand, or to link accommodation to the development of attractions, activity holidays, or specialist facilities (e.g. for horses).

The RES budget for Yorkshire is being allocated to target, with 71% of applications receiving funding. There is a fairly even spread of grants across the Yorkshire region, although only a small number of awards have been in the North York Moors area.

2.9.2 Food Processing and Marketing

“We could sell lamb in York, but it’s too far away.” Farmer

“We have more than a few lambs to sell, don’t we?” Farmer

“If you are going to farmers’ markets every day, you’re not looking after your stock.” Farmer

“It’s time someone looks at what we get and what the supermarket gets.” Farmer

There appears to be very little processing activity locally. Some farmers have looked into it but have been put off by inspection fees. There are no local cheese-makers. Some farmers sell their own meat, after sending it away for killing and cutting.
There is an increase in interest in local food, which is seen as offering farmers an opportunity to gain more value from their produce, as well as building links between farming and tourism, enhancing the tourism experience and increasing the benefits to the local economy. However, the limited size of local markets relative to production means that this is likely to be a niche activity. There are, however, larger markets in surrounding towns and cities – York, Thirsk, Northallerton and Leeds – including some quality butchers – which offer further marketing opportunities. Most of the demand for quality local food is to the south of the study area – the Teesside conurbation to the north is seen as much more price-sensitive.

There is also unexploited potential to promote local food in the tourism market, but this depends on better advertising and labelling to raise awareness among consumers about the origins of food.

Various marketing initiatives have been tried – Heather Lamb (still going on a small scale), the Objective 5b funded Game Marketing Initiative (which was largely unsuccessful), the more successful North York Moors Quality Sheep Association (which raised the quality and price of breeding ewes) and the DAPA (Developing Assets of Protected Areas) project. DAPA, funded by NYMNPA and Yorkshire Forward, aims to facilitate the creation and expansion of businesses linked to the special qualities of the Park and the Howardian Hills AONB.

DAPA has produced a local produce guide to raise awareness of local food, crafts, timber products etc. Although this guide identifies a number of farms that offer local meat, none of these are in the study area. However, two butchers shops in Helmsley stock local meat from the study area.

While supporting the marketing of local produce, the NYMNPA has decided not to develop locally branded food on the grounds that this would be difficult to achieve on a meaningful scale, and is better left to regional initiatives such as Yorkshire Lamb, based in Skipton. However, individual businesses are using the name of the North York Moors to sell their produce – one farm has an outlet in London and sells North York Moors beef and lamb. There are also plans to introduce a Ryedale local food festival in the Helmsley/Castle Howard area.

Moorsfresh, an independent local food distribution and wholesale business, began trading in Pickering in 2002, part funded by a RES grant. It aims to service small rural producers in North Yorkshire. It currently serves over 100 customers and deals with the produce of more than 40 rural based food manufacturers.

Some farmers had tried collective marketing but were disadvantaged by the seasonality of their produce, finding that they could not negotiate favourable terms with an abattoir without a more stable supply of finished animals.

2.9.3 Retailing

There is only one farm shop in the area, in Gillamoor, and, while successful and supporting significant employment, this sells mostly organic vegetables. Another farm shop just outside the study area, in Pickering, sells a variety of vegetables, many of them locally grown, as well as local beef and pork. The owner has a small herd of 12 suckler cows, and sells all his output through the shop. This enables him to realise £1,500 per bullock, compared to £600-£700 if sold at market.
2.10 Tourism

“Tourism is the business in the rural area. But what tourists come for, the farmer provides. If farming declines, the tourism industry will decline as a result. Farming provides the environment that tourism needs.” Farmer

“A lot of us don’t see any direct benefit from tourism, but we provide what the tourists want to see.” Farmer

“They’re obviously coming to see the environment. There’s nowt else, is there?” Farmer

“You don’t want this area to change a great deal.” Tourism development officer

The NYMNPA currently receives around 8.5 million visitor days per year, divided roughly one third each between day trippers, holiday visitors staying in the Park and holiday visitors staying outside (e.g. in York or the coast) and making day trips to the park. There is a high proportion (75%) of repeat visits. There is a strong seasonal pattern, with visitor days ranging from 366,000 in January to 1.17 million in August 2002.

Visitor expenditure in the Park was estimated at £165 million in 2002, supporting an estimated 4,424 full-time equivalent (FTE) jobs.

Much of the tourism is focused on ‘honeypot’ villages like Helmsley and Hutton-le-Hole, attractions such as Rievaulx Abbey, Rosedale Abbey, Ryedale Folk Museum and Duncombe Park, and the dales themselves – especially Farndale, Rosedale and Bransdale. There are also popular roads over the moorland and the area is bordered by the Cleveland Way. Helmsley is developing as a tourist town and now has a variety of shops, some of them quite upmarket.

Visitor surveys indicate that the factors attracting tourists are landscape quality and peace and tranquillity. The landscape is considered attractive for a variety of reasons. These include its broad horizons, variety, and the proximity of a range of landscape types such as moors, coast, farmed dales and forests.

The NYMNPA has held focus groups to investigate people’s perceptions of moorland. These have found a variety of positive and negative perceptions. The open landscape appeals to some, but is seen as bleak and inhospitable to others. Many people do not connect the moors with a farmed landscape or recognise the importance of human management. Some foreign visitors assume that the sheep are wild animals rather than farmed ones.

Game shooting is a growth area, attracting wealthy visitors and bringing significant revenues to the local economy. Several of the large estates offer accommodation to shooting parties. Cycling and horse riding are also popular activities for visitors and livery, blacksmiths and farriers are growing trades.

Sustainable tourism is a significant issue. The peace and quiet that the park offers is one of the main attractions to visitors, and is threatened by traffic congestion, especially during the busy summer months. The Park and District Council do not, therefore, wish to increase tourism during the busier times of year, but to encourage more people to visit during the winter and shoulder months. The Moorsbus initiative has enhanced public transport provision, connecting the park to a number of major towns and cities. It is widely seen as a positive example of recreational public transport.

As well as transport, the NYMNPA is attempting to increase use of local food in the tourism sector and extend the season to enhance the viability of village services. Tourism plays an important role in service provision. Many local services would not survive if they did not
North York Moors

benefit from the tourism trade. Land use can have a role in affecting the carrying capacity of visitors. Woodlands, for example, are more effective at hiding people than open landscapes.

Also of interest are the social and economic aspects of tourism. The Park is aiming to attract visitors from a wider range of backgrounds. Progress is slow, although the Moorsbus initiative helps to extend access to groups without cars. A potentially conflicting objective is to maximise the economic impacts of visits, as this implies targeting higher spending visitors.

Many farmers provide accommodation for visitors, either serviced or self-catering. One concern is that there appears to be an oversupply of self-catering accommodation. Farmers are still looking to diversify into accommodation provision, but there is concern that those best suited to do so (with the aptitude, finance, buildings and location to succeed) are already in the market. Consumer expectations regarding the quality of accommodation are rising. There is concern that some farmers see accommodation as an easy option and underestimate the level of service provision required.

There is a fairly limited supply of farm-based attractions and opportunities are often limited by the capacity of the road network.

2.11 Off-farm income earned by farmers and their resident families

Many farms are dependent on off-farm income, being farmed part-time or relying on wives or other family members to work to support them. Farm contracting is a source of income for many, especially for farms that produce insufficient income to support an entire family.

2.12 Farm incomes

“It shows how unimportant money is. You can’t buy our way of life.” Farmer

“You’re better off enjoying your job and earning nowt than earning lots and not enjoying it.” Farmer

Farm incomes in the area are low and, on average, over half is from subsidy payments. This reflects both the recent difficulties facing hill farming and the relatively small farm size and high rates of tenanted land in the area.

The latest data from the regional farm business survey (Askham Bryan College, 2003) show that, in the Yorkshire and the Humber region as a whole, incomes on upland farms increased between 2001/2 and 2002/3. Output per farm averaged £82,700 in 2002/3, an increase of 15% on the previous year, with 77% of this figure derived from sheep and cattle rearing. Average net farm income doubled to £22,500. Management and investment income, after deducting the cost of labour inputs of the farmer and spouse, was positive for the first time in six years, averaging £6,017 per farm. Improved profitability resulted from an increase in the value of sheep output and a reduction in variable costs.
3. Environmental issues

3.1 The intensity of land management

“The Single Farm Payment would be the end of moors sheep farming... you would have to pay people to graze sheep.” Farmer

Because of the low altitude and relatively harsh climate, much of the moorland is more akin to lowland heath. It has low agricultural productivity and is extensively managed. Most local contacts believe that under-grazing is more of a problem than over-grazing. Over-grazing does occur in isolated areas, such as at feeding sites, and is being addressed by measures such as discouraging supplementary feeding of sheep on the moor. In general over-grazing has not been a problem, even in the past. There are some localised instances of over-grazing of moorland, mostly through lack of management of the flocks rather than excessive absolute numbers.

In the hefted system in operation on the moorland, removal of sheep flocks causes problems as it leads to vacant hefts, causing sheep to spread out and making them harder to control. Road deaths from roaming sheep have increased, affecting the viability of many sheep enterprises. The National Park and English Nature’s Wildlife Enhancement Scheme (WES) have started to offer gathering payments, recognising the environmental benefits of controlling grazing.

There is substantial debate about whether fences should be introduced to control the problem of sheep movements. The National Park is strongly opposed to the introduction of fences on the moorland and is putting in cattle grids to try to mitigate the problem. Grouse moor managers are also resistant to fences, both on landscape grounds and because they are likely to kill grouse through bird strike. They argue that grouse are more valuable in financial terms than sheep.

In contrast, in-bye land is very intensively managed, and over-grazing is considered a significant issue. The average small size of farms is a key factor. Stocking rates on some of the in-bye land have continued to increase in recent years as stock have been moved from the moors, where grazing is considered increasingly unviable.

Some interviewees pointed to examples of disjointed and unintegrated policies – for example some farmers claim extensification payments under the HFA scheme and overstock their in-bye land instead.

3.2 Impacts on natural resources

Hill farming is not considered to have a great impact on soil, water and air resources in the area, which generally meet quality objectives. The overall intensity of grazing is low and diffuse water pollution is not a significant problem. There are some localised problems relating to sheep dip disposal; erosion at feeding sites; fertiliser and agrichemical application close to watercourses; occasional point source incidents from intensive dairying; as well as odours and slurry spreading from pig farming. Elevated levels of nitrogen have also been associated with arable farming in the Rievaulx area.

3.3 Impacts on biodiversity

“There is no over-grazing in the North York Moors. Under-grazing is the problem.” Farmer
“The whole of the moors is sadly under-grazed. They have a third of the stock they had at the turn of the century.” Farmer

“The ideas put forward ten years ago haven’t worked.” Farmer

“If you took the sheep off the uplands, it would be the worst thing that could happen to grouse moors.” Gamekeeper

Most of the open moorland in the national park is SSSI – covering 44,000 hectares, the largest inland area of SSSI in the UK – as well as SPA and candidate SAC. It supports important populations of waders such as golden plover, curlew, snipe, and lapwing, red grouse, and birds of prey including merlin and peregrine, as well as important heathland plant communities. Different species have different habitat requirements – merlins require long heather but golden plover and other waders favour heavily burnt habitats. A recent survey by the RSPB has identified important populations of breeding waders on the moors and grassland on the upper valley slopes.

The moors are managed intensively for grouse. Until now, relatively small areas of the moors have been entered into agri-environment schemes, so grouse moor management has effectively paid for the upkeep of this large area of heather moorland.

English Nature argues that the heather is overburnt and would prefer to see longer heather, with less frequent burning. The National Park Authority would also prefer longer burning rotations and little or no burning of blanket bog.

English Nature is now offering WES agreements both to SSSI landowners and graziers. For landowners, these 10 year agreements are largely designed to reduce the intensity of moorland management, most of which is not considered to be in favourable condition. Favourable condition would involve more shrub species, lichens and mosses, some longer heather for nesting raptors, and 10% of the moorland unmanaged to allow patches of scrub to form.

The WES defines different management categories for moorland areas:

1. Longer burning rotation areas – where heather is burnt on a 17-year or longer rotation
2. Minimal heather management areas – where there is minimal burning or cutting
3. Blanket bog areas – where there is restricted or no burning
4. Wet heath areas – with a longer burning rotation or no burning
5. Merlin zones – with at least 2% degenerate heather in blocks
6. Wader areas – with a more intensive burning cycle, but not less than 10 years

EN is also offering many farmers management agreements of five or more years under the WES scheme, and this is attracting substantial levels of interest from graziers. The WES scheme is aiming to support a managed hefting system rather than large scale ranching operations – seeking to increase shepherding and spread sheep more evenly across the moors, maintain appropriate stocking rates, and encourage longer heather in some places. Grazing agreements comprise three possible area-based payments:

1. Stocking density payment – for maintaining environmentally sustainable stocking rates, with minimum as well as maximum limits specified
2. Foddering payment – where there is no foddering or feeding of only small hay bales.
3. Gathering payment – for hefts that have increased significantly in area in the past

Capital payments may also be available for fencing to protect hefts, heather burning by graziers, heather cutting, bracken control, blocking of grips, woodland management, and special projects.
At the moment there is a gradation in the intensity of management of the moorland – which is heavily managed in the west and often under-managed in the east – the National Park Authority argues that variations in management in individual parts of the Park, to create more of a mosaic of habitats, would be preferable.

One of the problems of long heather is the significant fire risk. There was a major fire in the east of the park earlier in 2003 that had significant impacts on the moors.

The in-bye land is important in landscape terms but is intensively managed and low in biodiversity value. It tends to be managed more intensively than in many other upland areas – there is little semi-natural grassland and usually a sharp demarcation between the farm and the moor, with little rough grazing in between.

Bracken has spread significantly in the area in recent decades, although the reason for this is unclear. Most conservationists would like to see it controlled more than it is now, although it does support some plant and invertebrate communities, as well as some birds such as whinchat. Bracken is also unpopular with grouse moor interests, as it harbours ticks. Many of the estates are therefore seeking to control it through a programme of spraying. According to the NYMNP management plan (1998), 6500 hectares of bracken control took place between 1988 and 1995, reducing the total area in the park to 17%. The Plan stated that the ideal would be to reduce this area to 10%.

Grazing of woodlands is a localised problem, and can hinder natural regeneration in some areas, occurring especially where gates have been left open or fences damaged. FE has a common law duty to fence woodlands that border commons, to prevent stock being lost in them. Forest Enterprise culls 300 deer per year in the park, to reduce grazing of woodlands. According to one landowner, sheep droppings can be beneficial to biodiversity by encouraging invertebrates that provide food for grouse and waders, while grazing also helps to create open patches favoured by waders.

Less attention has been paid to biodiversity in the arable areas in the south west of the study area, but the issues appear to be similar to those in arable farming more widely – simplification of crop rotations, loss of spring cereals and winter stubbles, increased agrochemical use, loss of unfarmed features and a decline in mixed farming have all had negative impacts on biodiversity.

3.4 Impacts on the landscape

“Until recently I farmed 300 acres in 73 different fields, with 23 miles of wall, hedge and gutter, and 154 gates. The cost of the upkeep is horrendous. But that’s what attracts the tourists.” Farmer

“I can’t see what anyone would want to change.” Tourism development officer

“A lot of people think that the moor is a natural landscape, but it’s only like that because it’s managed.” Parish councillor.

“There’s nothing more depressing than the interim stage of abandoned land – it would have a drastic effect on the tourism industry.” Parish councillor

The landscape of the area is diverse – valleys run through the park, creating a mosaic of heather moorland, farmland and valley woodlands. Substantial areas of arable land in the south west contribute to the diversity, although there has been a polarisation between arable in the SW and livestock farming to the north and east, with very few mixed farms now left.
Hill farms operate hefted flocks, and there have been instances where withdrawal of flocks from the hills has led to others spreading out and becoming harder to manage. Thus abandonment is quite a problem and there is a danger that its impacts on the hill sheep farming system is significant. The NPA has recently invested in new cattle grids in an attempt to control the movement of livestock.

Though there is relatively low risk of abandonment of the heather moors themselves, which are valued for grouse shooting, loss of sheep from the moors is likely to lead to scrubbing up of the hillsides, which is seen as deleterious in landscape terms, and as impacting on the cultural heritage of the area.

Expansion of semi-natural woodland is seen as a positive thing in the right places – especially the valleys, rather than larger areas of open land.

3.5 Impacts on the historic environment

The NYMNP has around 15,000 archaeological sites, of which more than 700 are Scheduled Ancient Monuments. There are many archaeological and historic remains on the moors, dating back to the stone, bronze and iron ages, including earthworks and standing stones. Also on the moors are the remains of mining activity dating back to the 1500s-1700s, including spoil heaps, mining cottages and infrastructure remains. In the study area, there are particular concentrations of archaeological sites in the Rievaulx, Rosedale and Farndale areas.

Farming has had a major impact on archaeological sites over the centuries, especially on lower sites where successive ploughing has levelled many of the upstanding monuments. Moorland management generally has caused less damage, but certain operations such as intensive heather cutting and bracken control have had some impact. Removal of stone has been a significant problem in the past, but this has been reduced through management agreements. The NYMNPA Farm Scheme has helped to protect unscheduled sites on farmed land. Afforestation has also caused disturbance of archaeological sites and there is concern that scrub encroachment could damage the archaeological value of the moors.

Lower down the valleys, the main features of archaeological and historic interest are the villages themselves, as well as the in-bye land and patterns of enclosures. In Gillamoor and Spaunton, the patterns of the original mediaeval villages are still apparent. The Park has more than 3,000 listed buildings and structures.

3.6 Involvement of hill farmers in agri-environment schemes

There is no ESA scheme in the area, so Countryside Stewardship is the main national agri-environment scheme in operation. Stewardship offers a variety of different prescriptions for different farm types in the area. As a result, farms enter the scheme for different reasons, the scheme is applied in a somewhat piecemeal way, and it is difficult to identify standardised approaches for the area. Many entrants are part-time farmers.

Key targeting objectives for CSS in the area include:

In the Tabular and Hambleton Hills
- Conservation and enhancement of hay meadow and pasture
- Conservation and enhancement of wet pastures and riverside habitats
- Enhancement of moorland to benefit upland birds
- Restoration of field boundaries across the whole farm
- Arable options – spring cereals, field margins and headlands, winter stubbles

In the Dales farmland
• Enhancement of moorland habitats
• Conservation of hay meadow and pasture
• Enhancement of wetlands
• Restoration of field boundaries
• Restoration of traditional buildings and field boundaries

Countryside Stewardship has not worked well on the in-bye land. Payments set on a national basis (£45/ha) do not work for the relatively intensively farmed grassland in the area, especially when extra conditions are attached regarding upkeep of stone walls etc., of which there is a high density. There is also some moorland in Stewardship, but this is limited by the difficulty of managing common land in accordance with Stewardship prescriptions. Some of the arable land has been entered into Stewardship, which has encouraged grass margins, spring cutting and winter stubbles. On moorland, bracken spraying is popular with landowners, but Defra want CSS to deliver a wider range of management practices.

There is some dissatisfaction with Stewardship among farmers on the grounds that nationally determined prescriptions are often not suitable for the specific needs of the area. For example, the same stocking rate is required on both heather moors and grass moors, but it is considered too high for the heather moors and too low for the grass moors. Some farmers would like to lime the moors, believing that they are becoming more acidic over time, but this is not permitted under stewardship. While there is scope for more land to be entered into agri-environment agreements, current payment levels on CSS are limiting uptake.

The NPA has its own farm scheme. This has 130 whole farm agreements, focused on specific target areas, and involving total expenditure of £400,000 per annum. The NPA likens it to one of the more sophisticated ESAs – it pays for a range of practices including restoration and management of moorland and semi-natural grassland; management of traditional boundaries; reductions in stock on the in-bye; changes in management of silage fields including later cutting and lower fertiliser applications; maintenance of flush areas; stock-proofing of woodland; and maintenance of archaeological features and buildings. The NPA considers that the scheme has achieved a great deal but that it is constrained by resources, concentrated in the central parts of the National Park, and that there would be benefits in extending it over a wider area. The scheme is able to pay farmers to meet local priorities such as stone wall maintenance that are not covered by CSS.

Schemes have helped to supplement farm incomes and are seen as a lifeline by many farmers. Although designed to pay for costs incurred or income foregone, payments can enhance incomes where farmers undertake the work themselves. They have helped to pay for significant extra work in the countryside, and generated work and income for contractors.

On SSSI moorland, management agreements with English Nature under the WES scheme are proving an attractive option for many graziers.

The variety of schemes available (CSS, WES, Farm Scheme) and their different focus, objectives, prescription and payment rates cause some confusion for farmers.

3.7 Abandonment

Agricultural abandonment is a significant concern on parts of the moors. Many flocks that were removed during the Foot and Mouth Disease crisis have not been put back.

“It’s a real risk. If our neighbour takes his sheep off, we have to cover a wider area. It’s harder to do.” Farmer
North York Moors

“Some farmers who lost out of foot and mouth got big payments and have not restocked. I think that’s wrong.” Gamekeeper

“If things stay as they are, the only way to keep sheep on the moor will be to pay farmers to keep them there.” Farmer

“We still have them out, but I’m in two minds as to whether to keep them out.” Farmer

“It will become a wilderness.” Farmer

There was some concern that agricultural reform could exacerbate the problem of abandonment, since headage payments have helped to maintain the numbers of sheep grazing the moors. On the moorland, therefore, agricultural abandonment is a very real risk.

However, a clear distinction needs to be made between the abandonment of grazing and the cessation of management altogether, particularly since grouse moor management faces a much more positive financial future and is not expected to be at risk.

The risk of land being abandoned altogether is restricted to areas not managed for grouse, such as some of the steeper banks and less accessible patches of land, rather than the moor tops. This is already happening in places, where birch scrub is evident. Significant areas of land have been abandoned in the Westerdale area. Also of concern is that many areas, if left to regenerate, are likely to be dominated by non-native conifers from plantations in the area.

In-bye and arable land continue to be managed intensively, and there is strong demand for it, so risk of abandonment presently seems slight.

3.8 Renewable Energy

There are no renewable energy schemes involving farmers, although there has been talk of a scheme to develop a community renewable energy facility in the Park to utilise low-grade timber from forestry plantations, which might potentially provide an outlet for timber from farm woodlands. Wood heat seems the leading option, given strong opposition to wind farms in the park, and the lack of a hydro resource. The Park potentially generates 50,000 tonnes of timber per year. FC and Yorkshire Forward are currently investigating the idea, although there is some caution following the failure of the ARBRE project in Selby.

3.9 Involvement of farmers in waste recycling

Waste plastics are a significant issue in the area, especially with the introduction of new waste regulations that will class them as controlled wastes and impose restrictions on their disposal.

A Sustainable Development Fund was introduced by the Park Authority in 2002 to support innovative business ventures designed to contribute to the sustainability of the area. Projects have included a plastics recycling initiative, using mixed agricultural waste plastics including silage wrap.
4. Social issues

4.1 Cultural identity of the area

“If we lost farming in the village it would be catastrophic in terms of our culture and tradition.” Parish councillor

Farming continues to play an important role in defining the area’s culture and social structure. Although the numbers of farmers have declined, they are still present in most villages and prominent in some (Spaunton, for example). Annual shows such as Rosedale Show play an important role in the rural calendar and farming is a prominent part of this.

Villagers see sheep as playing an important role in village life – they are part of the character of sheep villages. Loss of sheep from some areas is seen by local people as an adverse trend because, as well as having a cultural impact, it necessitates grass cutting.

Various historical institutions associated with farming are still in operation, such as the manorial courts leet controlling the commons, which include the Spaunton Court Leet.

4.2 Community activities and institutions

“Farms are still an important part of the community and keep the village halls and pubs going.” Farmer

“People who live in those houses shop at the supermarket and fill their car up at town prices. The village shop and petrol station close and the indigenous community suffers.” Farmer

As with most remote rural areas in England there has been a steady decline in population since the post-war boom years of agriculture, the population has become older on average with fewer children and young people, and farmers have been replaced to an increasing extent with commuters, tele-workers and retirees. Most rural schools have closed and village activities such as dances are largely a thing of the past.

There has been an increasing trend in commuting, with many people in the area working in York or Teesside, and some as far away as Leeds. Many of the villages are attractive and desirable places to live, and house prices are high compared to local incomes. This often forces tenant farmers to move out of the villages when they retire. However, commuters do also bring new skills and energy to the area, and make a contribution to village life. The significant numbers of second homes is also a concern, although this problem is greater on the coastal fringes of the park.

One significant concern is that there are very few 18-30 year olds in the area – a shortage of employment opportunities and lack of affordable housing forces them to leave – while incomers tend to be older and more affluent.

Access to services is a key concern in the area. A wide range of village services have continued to decline in the last decade, including shops, halls, pubs and post offices. Schools have been lost from the area in the past, but not in recent years. Farming communities play an important role in maintaining demand for them, given the scarcity of other employment opportunities to retain families in the area.

With many incomers and commuters, farmers are seen as an important source of continuity and stability in rural communities in the area.
4.3 Social inclusion and integration

“Lastingham has changed from being a working village to one with retired people and commuters. There used to be seven farms, now there are only two. If we lost the two farms we still have, the culture would change further. We would lose a lot of the place names and traditions. Farmers do a lot of things in the village, many not paid. If a tree blows down, the first person we call for is a farmer. We’d also have to pay for things, like keeping the grass verges down.” Parish Councillor

Although they have declined substantially in number, farmers are still important in many rural communities and are generally seen as playing an important role in village life. Farming provides a sense of continuity for the community – farms have been handed down through generations, and their continued existence provides some stability at a time of substantial social change.

4.4 Recreational provision by farmers

“Human beings are too selfish. The right to roam, roads and teashops bring southerners to the North York Moors. They bring money, but it means we’ve got major roads. In 40 years, it will be more like Jellystone Park than the national park. Cars, picnics, walkers, barbecues, litter, fires, kite flying and football – it’s all disturbance to ground nesting birds.” Gamekeeper

The area is served by a good network of rights of way, and there is open access to much of the moorland, which is due to be extended through the introduction of the right to roam. The idea of open access to the moors causes some problems for gamekeepers, who are concerned about disturbance to nesting grouse and other birds, and are only able to restrict access for a limited number of days each year.

Scrub encroachment would reduce opportunities for open access to moorland, and hence the recreational benefits of the right to roam.

4.5 Health, safety and quality of life

“I consider that I’m one of the luckiest people alive. I do a job that I enjoy doing. It’s never a toil to go to work. I see things that other people in the country only see on their holidays. I love nature, and it’s all around. My own son is my workmate, and my grandson is on the farm. But I’ve no money.” Farmer

“It’s a way of life.” Farmer

While most farmers enjoy their work, significant problems are apparent, including:

- Stress – caused by pressure of work and financial worries, which peaked during the Foot and Mouth Disease outbreak. The Rural Stress Network is attempting to address this issue
- Isolation – especially for one-car families who can have difficulties in accessing services, and at particular times of year (e.g. roads are often cut off in winter)
- Difficulties in accessing healthcare, childcare and other services

Many of these problems are common to rural communities in general, and there is little evidence that social exclusion is greater among farmers than other groups.
4.6 Skills and training needs of farmers

Key priorities for skills development identified by interviewees include conservation management, walling, computer skills and business skills. Forest Enterprise reports a skills shortage and a difficulty in finding contractors with forestry and fencing skills, exacerbated by the seasonality of the work involved (mostly winter jobs).

The Cleveland Training Group, in conjunction with the Land-based and Rural Training (LART) initiative has developed a major agricultural and rural training programme for North Yorkshire and Cleveland, under the Vocational Training Scheme. This provides funding for a wide range of courses, including computer training, business and financial management, crop husbandry, animal husbandry, foot care and fertility, general maintenance, machinery maintenance, meat processing, dairy processing, conservation (including pond creation and hedgerow management), interior and garden design, stencil workshop and creative cookery. 75% funding is provided for non-legislative courses.

4.7 Succession of holdings

“If the younger generation goes now, what will happen in 20 or 30 years time? It’s hard to put people back into farming, especially stock farming.” Farmer

“The tenancy on a farm near us was advertised recently by the National Trust. 18 years ago they sent out 100 sets of particulars and 60 people viewed it. This time 15 people requested particulars, and three viewed it. Two wanted to keep horses and one free-range hens. No one wanted to farm it.” Farmer

“You can’t blame anyone who gets a degree and finds they can work a 35 hour week for three times the pay. It’s a downward trend and you can’t stop it.” Farmer

“A lot is down to rules and regulations now. You can’t have your kids on tractors. I didn’t take the kids farming with me because I didn’t want to break the rules. If I had, they might be more interested in farming now.” Farmer

“We don’t have lots of young people who want to stay. Most of them have left already.” Parish councillor

“I’ve a son of 19 and he doesn’t want to take over. He’s seen what it’s like and doesn’t want it. When I snuff it that’s it. It doesn’t worry me – it’s not the life it was” Farmer

Many young people still want to go into farming, despite the problems, although some have left the area to pursue alternative careers. Many farmers, experiencing difficulties themselves, have discouraged their children from entering the industry. There is general concern about the ageing farming population and the shortage of young people entering the industry. There are likely to be implications for the structure of the farming sector, with larger farms and increased numbers of small part-time enterprises.

4.8 The role of women

Women play an important role in the farming business. As well as looking after the home and family, they are often the driving force behind diversification initiatives, and may provide additional income through employment off the farm. One concern is that younger women are often not so well served by traditional networks such as women’s institutes and parish councils.
5. The scenarios

Scenario 1
In many ways this is fairly close to current trends – declining numbers of farmers, increasing farm size, increased hobby farming and acquisition by non farmers, some diversification and reliance on off-farm income. However, some aspects of this scenario are perhaps less realistic, in that it involves no land abandonment (whereas in reality there is a significant trend towards removal of sheep from the moors), and does not envisage a significant expansion in agri-environment schemes (whereas agri-environmental activity is expanding significantly, especially through the WES). The scenario would see a continued decline of the role of agriculture in society and the economy, although the impact would be less than that in Scenario 2. The environmental impacts would be mixed – many would see avoidance of abandonment as being positive for the environment, but there would be concern about the lack of expansion of agri-environment schemes and the continuation of some of the negative impacts of farming.

Scenario 2
This scenario is in some ways more realistic than Scenario 1, as it envisages significant declines in production leading to some abandonment of the moorland areas. However, it is important to note the distinction between agricultural abandonment and the total cessation of management. Grouse moors are the predominant land-based enterprise on the moors and overall abandonment does not appear to be a strong threat. Furthermore, the scenario is also seen as unlikely to occur in the more intensively farmed in-bye land. The suggestion that overall participation in agri-environment schemes would decline also appears unlikely, although a decline in the moorland areas might be expected, perhaps increasing the importance of the WES scheme as a vehicle for influencing grouse moor management.

If it did occur, the consequences of Scenario 2 would generally be seen to be negative for the environment, economy and society – with potential negative impacts for biodiversity, the landscape and historic environment, and further reductions in the economic contributions of farming and its role in rural communities.

Scenario 3
Existing policy interventions are designed to achieve a scenario such as this, and there is some optimism that things are moving in this direction and that further uptake of agri-environment schemes and diversification measures can be achieved. Businesses such as Moorsfresh offer opportunities for farmers to enhance the value of their output and to market it on the basis of its contribution to the environment. However, some interviewees pointed to the barriers to diversification and to entry to agri-environment schemes, and were sceptical that there are sufficient opportunities to enable all farmers to diversify their incomes. Significant changes in land use are also seen as unrealistic – forestry is seen as less viable in financial terms than agriculture, although there is likely to be some additional woodland creation and habitat management as part of a largely farmed landscape. The lack of agricultural abandonment in this scenario also seems optimistic when compared to the current outlook.

If it did occur, Scenario 3 could offer a range of environmental, social and economic benefits, and would appeal to most stakeholders, although some farmers would perhaps prefer to stick to their core business rather than diversifying significantly.
DARK PEAK CASE STUDY

1. Introduction to the study area

The Dark Peak study area lies within the Peak District National Park, and in the county of Derbyshire. The chosen case study area covers the wards of (from east to west) Hathersage and Eyam, Hope Valley, Hayfield and St John’s (see map 1). The area is administered by two local authorities: High Peak Borough Council (St John’s, Hayfield and Hope Valley wards), and Derbyshire Dales District Council (Hathersage and Eyam ward). The majority of the chosen area is Severely Disadvantaged Area (SDA), with a narrow strip of Disadvantaged Area (DA) in the more fertile valley bottoms to the south east (see Figure 2).

The chosen case study area is part of the wider ‘Dark Peak’ area, which includes the Staffordshire Moorlands in the southern portion of the National Park. The name refers to the underlying geology of Millstone Grit sandstones (‘gritstone’) which contrasts to the adjoining limestone plateaux of the White Peak to the south of the case study area. The case study area largely consists of high moorland and adjacent in-bye land. Kinder Scout is located within Hope Valley ward, and at over 600 metres above sea level, it is the highest point of the Peak District. The wild and remote semi-natural character of the moorland means that the area is one of the most extensive tracts of ‘wilderness’ in England. Altitude and exposure are reflected in the land use and vegetation patterns with grouse shooting and sheep grazing dominating the moors. Small-scale enclosure is apparent in the sheltered valleys around the plateaux margins, consisting of managed livestock farms (beef and sheep in varying combinations) or dairy farms, often with subsidiary beef or sheep enterprises. Another aspect of the case study area’s character is the large-scale man-made reservoirs of the Upper Derwent Valley, with wide areas of coniferous planting. The moorland is designated as open access land under the CRoW Act (2000), but most of it has been in Access Agreements for many years. Indeed, Kinder Scout has a close historical association with the mass campaigns and rallies of the 1920s and 1930s for open access and the creation of National Parks. The Pennine Way begins in Edale, which is in the centre of the case study area.

The Hope Valley and surrounding moorland
The majority of the case study area has a dispersed population, with the main centres of population being concentrated in the villages in the valley bottoms to the south and west of the area. The combined population of the different wards is 11,536 (2001 census); with the highest population being in the Hope Valley (3,812, 2001 census) which is the largest ward and covers the villages of Bamford, Thornhill, Aston, Brough, Hope, Castleton, Edale, Barber Booth and Peak Forest. The case study area is in close proximity to large urban centres such as Sheffield to the north east and Manchester to the north west – which contributes to the fact that the National Park as a whole is the second most visited in the world.

Figure 1. Location of the Dark Peak study area showing ward boundaries
2. Economic issues

2.1 Characteristics of local economy

Agriculture now plays a relatively minor direct role in the local economy, and across the wards it accounts for an average of 4% of employment (see Table 1). Hope Valley ward has the highest percentage of workers employed in the sector (5.6%). There is very little industrial activity in the study area, although the Blue Circle cement works in the Hope Valley, which once employed 1000 people, still employs 250 people.

Services now account for more than 60% of employment in the Peak District. Tourism is the dominant industry in the area, and helps to support a range of retail and business service activities.

In addition, there has been an increase in footloose businesses locating locally for lifestyle reasons – e.g. computer service, design firms and architects, many of which operate from converted farm premises. Quality of life factors are important here – and the landscape and culture of the area play an important part. Most people starting businesses in the area have some sort of link – e.g. through family - although some have moved here having holidayed regularly in the area. There is also some quarrying activity in the Hope Valley and Eyam areas, for limestone, gritstone and vein minerals.

The area has few large employers and large numbers of micro-businesses – this makes it difficult for support agencies such as Business Link to serve the local business community. There are relatively high rates of self-employment and the area has a generally prosperous feel to it, being wealthier than former coalfield areas of Derbyshire such as Bolsover.

North West Water (United Utilities) and Severn Trent Water are significant landowners, with Severn Trent owning a large proportion of land in the Upper Derwent Valley. Most of this land is forestry plantation, with little being farmed. The National Trust also owns a large amount of land in the area. Its High Peak Estate (within the study area) covers approximately 12,500 hectares and contains 14 whole farms plus a number of land-only tenancy agreements.

The area is not yet broadband enabled, and low population density and a lack of large businesses are significant barriers to making this investment.

Rates of self-employment (18% in High Peak Borough in 2001) and business densities are relatively high, but many of the self-employed are engaged in relatively low income agricultural or tourism operations. Wage rates in the Peak District are close to the national average, though living costs are relatively high, particularly in relation to transport and housing.

Part-time employment is also important in the area, and many people rely on several part-time jobs. However, unemployment rates are low (the average over all the wards being 1.72% compared to a national average of 3.4% - 2001 census), and the area does not score highly against the main deprivation criteria. As a result, though it experiences economic challenges, there is concern that the area will struggle to compete for development funding against nearby cities such as Derby when the current Objective 2 programme ceases in 2007.

The Hope Valley area is very much a commuter area – Hathersage is known as a home for large numbers of doctors, surgeons and other professionals working in Sheffield. House prices have risen substantially and affordable housing is an important local issue.

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1 This figure also includes workers in the forestry and fishing industries.
Table 1. Employment by industrial sector in the case study wards, 2001

<table>
<thead>
<tr>
<th></th>
<th>Agriculture; hunting and forestry</th>
<th>Manufacturing</th>
<th>Wholesale and retail trade; repairs</th>
<th>Hotels and restaurants</th>
<th>Real estate; renting and business activities</th>
<th>Education</th>
<th>Health and social work</th>
<th>Others sectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of people</td>
<td>209</td>
<td>838</td>
<td>752</td>
<td>369</td>
<td>799</td>
<td>678</td>
<td>657</td>
<td>1,426</td>
</tr>
<tr>
<td>Proportion of total</td>
<td>4%</td>
<td>15%</td>
<td>13%</td>
<td>6%</td>
<td>14%</td>
<td>12%</td>
<td>11%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Source: ONS Neighbourhood Statistics, based on 2001 Census

2.2 Agricultural Production systems

Sheep farming predominates, but there are also significant numbers of suckler cows and a small and declining number of dairy herds (Table 2).

Sheep are reared for sale in three different ways:
- On the hills, a Swaledale cross is used to produce mule ewes for breeding. A Texel cross is increasingly being used instead.
- Other farms produce store lambs for finishing in the lowlands.
- Some farms, mostly in the bottoms of the valleys, finish their own lambs.

Some cattle are finished locally, but there is an increasing tendency to sell cattle as stores for finishing in the lowlands, to the south or east, and even as far as South Wales. Cattle often travel increasing distances to Lincolnshire, East Yorkshire and Norfolk, where straw and feed is plentiful – it is now considered easier to transport the cattle themselves than the raw materials needed to keep them.

Dairying was previously more prominent, but is now declining. One of the problems is accessing the more remote farms with large tankers – as a result, most of the remaining farms are close to larger roads. The number of dairy farms has declined steadily in number but they have increased in size and intensity, with remaining farms seeking to expand and improve their land.
Table 2. Key farming statistics for the Dark Peak case study area, 2002

<table>
<thead>
<tr>
<th>Farmland area (ha)</th>
<th>Farmland tenure (number of holdings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(excludes common grazing)</td>
<td>20,512</td>
</tr>
<tr>
<td>Number of holdings</td>
<td>262</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No. of holdings by type</th>
<th>No. of holdings by size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and sheep (LFA)</td>
<td>131</td>
</tr>
<tr>
<td>Cattle &amp; sheep (lowland)</td>
<td>0</td>
</tr>
<tr>
<td>Dairy</td>
<td>15 (est.)</td>
</tr>
<tr>
<td>Mixed</td>
<td>6 (est.)</td>
</tr>
<tr>
<td>Cereals</td>
<td>0</td>
</tr>
<tr>
<td>General cropping</td>
<td>2 (est.)</td>
</tr>
<tr>
<td>All other holding types</td>
<td>108</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main land uses (ha)</th>
<th>Livestock (head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crops and fallow</td>
<td>##</td>
</tr>
<tr>
<td>Temporary grass</td>
<td>311 (est.)</td>
</tr>
<tr>
<td>Permanent grass (&gt; 5 years)</td>
<td>7,916</td>
</tr>
<tr>
<td>Rough grazing</td>
<td>11,993</td>
</tr>
<tr>
<td>Woodland*</td>
<td>190</td>
</tr>
<tr>
<td>Setaside</td>
<td>0</td>
</tr>
<tr>
<td>All other land</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Woodland refers to woodland on farm holdings only, not total woodland.

**Note**: These figures are taken from Defra’s June 2002 Agricultural Census and use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as ‘est.’). Where this is not possible, withheld data is shown as ##.
Figure 2. Distribution of LFA land in the Dark Peak area
2.3 Non agricultural land use

Forestry is not a major land use in the Dark Peak, although there are some forestry plantations around Derwent and Ladybower reservoirs, and patches of woodland on the hillsides and in the cloughs. Forestry is generally not seen as providing viable economic opportunities, though there is some interest in expanding woodland cover in appropriate areas for environmental reasons. The Peak District National Park Authority (PDNPA) works with the Forestry Commission to promote woodland grants in the area, involving a combination of planting and natural regeneration. There is some commercial exploitation of timber, mostly for firewood and craft-based activities.

Grouse shooting is a major business in the North Peak Environmentally Sensitive Area (ESA), with extensive areas of heather being managed for grouse through an intensive programme of burning. Grouse shooting tends to co-exist with light grazing in the area, since the grouse moors are able to support extensive grazing by sheep, but there are some conflicts between graziers and gamekeepers. Though sheep grazing is not considered essential to grouse moor management, it helps to improve the economics of the operation.

The ESA has helped to finance the regeneration of heather moorland, and, by enhancing the incomes of grouse moors, has enabled an increase in the number of keepers in the area. One tenant holding which has shooting rights over several thousand acres has instigated a major programme of heather regeneration, involving fencing off large areas to exclude grazing, widespread spraying of *Molinia* and reseeding with heather. 2002 and 2003 have both been good grouse years, although a steep decline in the grouse population can now be expected according to the normal seven-year cycle.

Perhaps the most economically important land use is the role of the area as a water catchment for major cities such as Sheffield, Nottingham, Derby and Leicester from the Ladybower, Howden and Derwent reservoirs located to the east of the case study area in the Upper Derwent Valley. Kinder reservoir to the west and the Longendale reservoir to the north supply the Manchester conurbation. Over 80% of the ground within the National Trust’s High Peak estate drains into these surrounding reservoirs.

PDNPA’s Development Plan policy allows for renewable energy schemes (apart from large-scale wind power stations), where these do not compromise the statutory purposes of the Authority. There has been no significant development of renewables in the study area, though there are hydro schemes elsewhere in the Park. Local people are also becoming increasingly aware of the possibilities of domestic scale renewable energy schemes and some of them are interested in supplementing their energy supply from renewable sources.

2.4 Patterns of land tenure

A large proportion of land in the area is tenanted. There are some major landowners such as the National Trust, Severn Trent Water and North West Water. The Peak District National Park Authority also owns a section of Dark Peak land: the North Lees Estate, which includes Stanage Edge. Many farms have some tenanted land and some of their own, as well as using the large unfenced areas of moorland (such as Kinder and Bleaklow), which are often shared open grazings (but are not registered as Commons). Different landowners have different objectives and attitudes. For example, the National Trust is sympathetic to nature and landscape conservation objectives, and employs its own farm and countryside advisers. Private landowners have various attitudes – Severn Trent is generally sympathetic to conservation, while some private landlords may be more resistant to environmental schemes.
2.5 Land values and trends in marketing of holdings

The number of farms in the area continues to decline, and average farm size is increasing, although there are also increasing numbers of small hobby farms.

In recent years non-farming incomers who live in the house and have sold off or let the surrounding farmland, perhaps keeping some of it to graze horses, have bought many farms. In some cases land has been neglected after being acquired by non-farmers. Some interviewees spoke of an increase in the role of speculators acquiring farm properties, selling off houses and amalgamating units. Land prices have held up well, even in the dairy sector, despite low levels of profitability. Local farmers and stakeholders report that, as well as a buoyant market for property, land prices have held up as a result of a strong demand to hold land and poor recent returns on alternative forms of investment.

2.6 Sources and uses of farm labour

Agriculture provides around 3.4% of employment in our case study area (2001 Census). Some farmers reported difficulties in finding people to work for them, because of problems of affordable housing and the relative unattractiveness of farm labouring compared to other occupations.

Table 3. Agricultural employment data for the Dark Peak case study area, 2002

<table>
<thead>
<tr>
<th></th>
<th>Full-time</th>
<th>Part-time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>155</td>
<td>165</td>
<td>320</td>
</tr>
<tr>
<td>Managers</td>
<td>0</td>
<td>1 (est.)</td>
<td>1 (est.)</td>
</tr>
<tr>
<td>Employees</td>
<td>15 (est.)</td>
<td>34 (est.)</td>
<td>49 (est.)</td>
</tr>
<tr>
<td>Casual workers</td>
<td>n.a.</td>
<td>53</td>
<td>53</td>
</tr>
<tr>
<td>Total</td>
<td>170 (est.)</td>
<td>253 (est.)</td>
<td>423 (est.)</td>
</tr>
</tbody>
</table>

Note: These figures, taken from Defra’s June 2002 Agricultural Census, use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as ‘est.’)

2.7 The agricultural products and services purchased by farmers

There has been a significant decline in the number of businesses offering agricultural supplies locally, as well as numbers of some service firms such as hauliers and blacksmiths. Despite recent extensification of agriculture in the area, remaining businesses report steady trade, largely as a result of a declining number of firms competing for the market. However, the majority of agricultural supplies are sourced from national companies such as CWG and BOCM who send representatives to the area. Local suppliers such as William Eyre & Sons in Brough pick up on the more ancillary products not supplied by national companies, such as spray. The influx of hobby farmers to the area has meant that local suppliers such as William Eyre & Sons have benefited from increased trade – with these farmers tending to spend more on products than the average farming families. It was pointed out that agricultural suppliers are not reliant on hill farmers for their trade. Indeed, hill farmers do not need to spend a lot over the year by nature – the main products needed are sheep dip, medicines and worming products (sheep are wormed once a year). Trade therefore mainly comes from other activities and in particular the remaining dairy farms:

- Feed/medicine/general suppliers – Brough, Hartington, Darley Dale
- Agricultural machinery/engineers – Bakewell, Darley Dale
- Vets – Buxton, Sheffield, Chapel-en-le-Frith. A vet from Buxton visits the area
- Business Advisors/Accountants – Bakewell, Sheffield, Manchester
- Feed suppliers – Brough, Hartington, Darley Dale
Some farmers have begun to share machinery, although there is significant potential to increase this. There has been a significant increase in contracting, reducing the need for farmers to buy and maintain their own machinery.

Agri-environment schemes have stimulated the growth of a large number of small contracting businesses conducting walling, fencing and other capital works. These tend to be one-man bands that are not recorded by the official statistics. Often farmers and their families undertake contracting to supplement their own farm income.

2.8 Quality assurance and branding schemes

Many farmers are resistant to quality assurance and branding schemes, which are seen as increasing the need for paperwork and the levels of regulation imposed on the business.

A Peak District Environmental Quality Mark was launched in 2003, as part of the PDNPA’s New Environmental Economy programme (see 2.10.3). The programme aims to give accreditation to businesses that meet environmental standards and protocols. It currently applies to four groups of businesses:

- Farming
- Accommodation
- Food
- Arts and crafts

The protocols are designed to be meaningful and demand change, but not too onerous as to be impossible for most businesses to achieve. For farming businesses, the mark requires:

- Compliance with environmental legislation
- Compliance with Codes of Good Agricultural Practice
- Specific quality standards linked to habitats, boundaries and buildings. To qualify, a certain percentage of these need to achieve a certain standard. Where farms are unable to meet these standards, they can still qualify for the mark by entering a contract to achieve them by a certain deadline

Food businesses are required to stock at least two farm products that hold the mark, as well as meeting other standards for energy use etc.

The quality mark therefore uses the market to raise environmental standards, although woodland grants and agri-environment schemes may be used to help to finance the work required. With the quality mark being new it is not yet widely recognised, but it is hoped that it will increasingly be sought by consumers as an indicator for quality and distinctiveness.

21 businesses currently have the mark (12 of which are farms), and other applications are in progress.

2.9 The sale of agricultural products and services by farmers

“The Bakewell project has been absolutely crucial to the survival of hill farming in this part of the Midlands”. Economic Development Officer

A new livestock market was developed in Bakewell (to the south of the case study area) in 1997, to replace the former town centre market. The original market was becoming increasingly marginal, with significant numbers of stock being traded at more modern markets in Newark and Chelford due to rising standards of animal welfare required, and the more modern markets being more efficient. As a result, Derbyshire Dales District Council led a funding bid that put together funding of more than £6 million from Objective 5b funds,
Dark Peak

Single Regeneration Budget (SRB) funds and the sale of the District Council’s existing town centre site. The project was part of a wider £18 million public and private funding package to revamp Bakewell town centre with new retail and housing developments.

The new market is on a greater scale, with better road access, more capacity and better conditions – including improved ventilation, safety and animal welfare standards. Whilst on the edge of town, it maintains its link with the town centre via a new footbridge. The market is the only major one serving the area, with the nearest others being in Leek, Derby, Chelford, Newark and Uttoxeter. The scale of the market and the number of buyers and sellers help to ensure that local farmers get the best price for their livestock.

Along with the livestock market, this new centre in Bakewell (Agricultural Business Centre or ‘ABC’) also houses North Derbyshire Business Link, the offices of Bagshaws (the livestock and property auctioneers) and a number of different stalls for businesses and services linked to farming on market days such as a drop-in medical centre and farming IT service.

The project is generally seen to have been a great success. The predictions of an economic impact assessment by Sheffield Hallam University (Egan et al, 1995), undertaken at the time of the funding bid, have been reflected in subsequent experience, which has seen a reduction in the expected rate of decline in the livestock sector locally. The assessment forecast that the project would create or safeguard 825 full-time equivalent jobs and an income of more than £9 million in the local economy through the operation of the facility itself in the farming sector, through the activities of Business Link, and through the development of the town centre. It is important to note that these jobs are additional to the local area but not necessarily the wider area, since many of them would be expected to displace employment elsewhere. If the livestock market were to close, the report forecast that 350 jobs and income of £4.5 million would be lost from the local economy by 2001, largely as a result of declining farming activity (based on an assumption of 7-8% annual decline in employment).

The auctioneer at Bakewell market remarked that the quality of stock and level of animal husbandry has improved over the years, and that those staying in farming are doing the job better.

The market plays an important social and economic role. As well as acting as a meeting point for farmers and a focus for service delivery to the farming community, it attracts large numbers of the wider public to Bakewell, many of whom travel significant distances to make special visits on a Monday.

The new market has increased turnover compared with the previous facility, and is considered to have played an important role in stemming the decline in farming locally. An average of 300 sheep are sold every Monday at auction.

Despite the success of the new market in Bakewell, a key issue in the area is that a number of local abattoirs have closed, with the three nearest facilities in Buxton, Chesterfield and near Sheffield all now dedicated to the Over Thirty Months Scheme. As a result, most livestock need to go further afield (e.g. to Stoke, Mansfield, Stockport, Derby, Wakefield, Bradford or Penistone) for slaughter.
2.10 Diversification

2.10.1 General

“There’s a limit to diversification. OK – some of the younger, more go-getting ones can find a way to diversify. We can’t without an immense capital injection and a new road into the lane.” Farmer

“The two lorries earn more than the farm does, and the farm takes 10 times as much capital investment”. Farmer

“Realisation that they have to change has to come from the farmers themselves.” Defra advisor

Business Link reports occasional visits from farmers, which have increased since the Rural Enterprise Scheme (RES) came in. Most are interested in tourism but there is an increasing focus on local food and some more unusual activities such as maggot farming. Business Link still sees only a small proportion of the large numbers of farmers passing through Bakewell Agricultural Business Centre on market days (which are twice a week, the main one being on a Monday).

Many older, more traditional farmers however find it hard to change – diversification tends to be easier for the younger, more adaptable and entrepreneurial farmers.

Barriers to diversification were described as:

- Capital costs – letting people onto the farm often involves significant costs in terms of improving access, providing car parks, toilets etc
- Health and safety issues – opening up farms to the public raises health and safety concerns and can increase insurance costs
- Age – often it is the younger farmers who diversify
- Access to funding – it is often difficult to fund capital projects such as barn conversions which involve significant levels of expenditure but create little additional employment
- A shortage of imaginative projects and ideas – most diversification proposals involve mainstream ideas, e.g. conversions of buildings to holiday accommodation, of which there is already a large supply. Funders report a shortage of more innovative ideas which have the potential to diversify the economy and generate a significant impact
- A resistance to co-operation among some farmers
- Time, and a reluctance to neglect the core business of farming
- Low levels of IT skills and awareness of technology
- Tenant farmers often find it harder to diversify than owner-occupiers, as they have less control over their use of land and buildings and less incentive to invest in their development
- Farmers see planning constraints as being restrictive. PDNPA claims that around 80% of planning applications are granted permission, but there is a suggestion that many potential applicants are deterred at the informal discussion stage – so this distorts the actual success rate
- Difficulties in accessing grants through RES – many farmers find the whole process too onerous and bureaucratic
- Many farmers do not have the entrepreneurial spirit or motivation to develop a successful non-farming business
Dark Peak

- Land tenure – Tenants may have less incentive to invest in diversification projects. There may be real or perceived resistance to diversification from the landlord. A tenant’s lease may require that their main income be derived from farming.

The Rural Enterprise Scheme (RES) has had relatively limited take-up in the area. Farmers find it inaccessible and many struggle to deal with the rules and administrative burden involved. A key barrier to accessing RES funding is not the application form itself but the need for it to be accompanied by a business plan. Most farms have limited access to business advice. The scheme is operated at a regional level, and there is a tendency for large farms, in the more arable areas of the East Midlands, to be more successful in accessing funding than those in upland Derbyshire. For example, of 110 schemes approved so far in the region, 54 have been in Lincolnshire and only 13 in Derbyshire, of which five are in the Peak District, to a value of £260,000.

RES suffers from a lack of imaginative projects that create significant additional economic benefit – proposals to convert buildings tend to score lowly as they are capital-intensive yet usually create few jobs compared to other types of projects such as packing or processing schemes.

Defra has been criticised by local stakeholders about the lack of progress in grant-aiding local projects through RES and PMG, but points out that it is dependent on good quality applications and that it can encourage bids but not write them for the applicant. East Midlands Development Agency and Country Land and Business Association (CLA) have funded an advisor who is working to facilitate applications at a regional level. Defra says that it would welcome similar initiatives to support the development of bids in the Peak Park.

It has been estimated that 80% of diversification projects in the area have been initiated by women – who often take charge of this side of the farm business whilst the husband generally continues to farm. There are funded training courses available for women to learn key skills such as IT to help develop their business, an example being the Amethyst Project being conducted by the Peak District Rural Deprivation Forum – see 4.8.

2.10.2 Food Processing and Marketing

“There is a real growth in local sale of produce through farm shops and farmers’ markets which contribute directly to the local economy and quality of life.” Hathersage Parish Council.

There is growing demand for local food. A Peak District Food for Tourism Project 2001-3 resulted in the production of a local food brochure, ‘Savour the Flavour of the Peak District 2003’. This lists 67 food and drink businesses in the Peak District, several of these in the study area, including:

- Bradwell’s Ice Cream, Bradwell – manufacturer and distributor of quality ice cream, to supermarkets as well as local shops
- Heather Hill Farm Meats, Bamford – Organic beef, pork and lamb, bacon, gammon and sausage from organic family farm
- W Watson & Son Farm Shop, Hope – Home-reared Losehill lamb and beef, home-made sausages, burgers and bacon

Most of these farms supply local markets, though there is some national distribution.

There are farmers’ markets once a month at Bakewell, Buxton and Glossop (all just outside the study area). In 2003 there were two agricultural shows/food fairs in Bakewell and one in Buxton.
There is interest in direct marketing given the low prices paid at market – there is wide dissatisfaction amongst Dark Peak farmers at the low prices paid by supermarkets. However, levels of production in the area relative to resident population limit the possibilities for local marketing. A farmer producing 400 lambs per year is unlikely to find a single buyer for them locally. Several interviewees expressed the view that local food is a niche market:

“All the research shows that most consumers are not interested in where food comes from”. Farmer, Edale.

“We organised a young farmers’ do. There was one pub offering imported meat and a low price, and another offering local meat at a higher price. We took a vote on it, and they went for the cheaper option. If young farmers won’t buy local food, who will?” Young farmer, Hayfield.

However, it should be pointed out that with 47 million visitors a year to the wider Peak District area and the large populations of the nearby conurbations, there is certainly a market here for local produce which has not yet been exploited to its full potential. The problem for farmers is that there are many small outlets selling produce, with each not demanding large amounts of produce. The potential demand is therefore hidden.

No projects have been funded under the Processing and Marketing Grant scheme in the National Park, out of 24 in the region.

2.10.3 New Environmental Economy Scheme

PDNPA has launched a ‘New Environmental Economy’ (NEE) programme which finances the development of new products and services based on using the high quality environment of the Peak District as a business asset and marketing tool. The project was developed by PDNPA after consultation about priorities for the LEADER+ programme led to a decision that it should focus more on promoting social inclusion and meeting the needs of women and young people, rather than adding value to local produce.

Funding of £700,000 for NEE has been secured from 11 different sources, with a focus on using European Regional Development Fund (ERDF) for the period 2002-2008. The programme has allocated funding to the following themed projects:

- Food and Tourism – to encourage marketing of local food to visitors
- Make the Most of Your Milk – development of dairy products
- Produce Markets – direct selling, farmers markets and fairs
- Great Peak District Fair, Buxton
- Peak Cuisine – supporting the development of new menus and recipes from local ingredients
- Environmental Quality Mark – an environmental standard for local businesses
- Youth Hostels Local Food Procurement – an initiative to develop local food menus in Youth Hostels. A pilot of the initiative has been a success, with a participating hostel in Castleton doubling its sales of meals

As well as these themes, funding is allocated to individual projects. Applicants are required to provide matching funding at a rate of 30-80% of the value of the project. To date, 21 businesses have been funded and 270 enquiries received.

Participation by the farming community has been limited because of confusion about whether the programme is able to fund projects on farms. In the early stages it was promoted to the farming community, but advice was then received that ERDF money could not be used on farms, and that RES/EAGGF projects should be used instead. However, this advice has now
been reversed, and attempts to market the scheme to farmers have been resumed. However it can only be non-farm enterprises on a farm that can be supported through NEE. Farming and food-based projects have to go through RES.

A significant barrier to the engagement of the farming community in the programme is a general shortage of innovative ideas linking the environment and the farm business. Many farmers would like funding for mainstream projects such as renovation of farm buildings for holiday accommodation, but few are knowledgeable, adaptable or interested enough to really develop the environmental link.

2.11 Tourism

“When you hear the tourists saying that the countryside is beautiful, you feel like going up to them and saying “Yes – we made it like that””. Farmer, Chapel-en-le-Frith

“Agriculture is now a small percentage of GDP, but the maintenance of the landscape is a result of the work of hill farming. Without it there would be degradation and a loss of tourism.” Economic Development Officer

The Peak District National Park receives an average of 22 million visitors a year, the majority of whom are day visitors from adjacent urban centres such as Sheffield, Derby, Stoke-on-Trent and Manchester. The park is highly accessible to large numbers of people, with nearly 16 million (32% of England’s population) living within an hour’s drive. Much of the farm diversification activity is therefore capitalising on tourism to supplement farm incomes.

Because of the predominance of day trips, there is strong interest in increasing the value that the area gets from tourism, and promoting overnight stays and quality tourism. Local authorities are therefore seeking to promote the area more widely, and to offer packages offering outdoor pursuits, heritage, stately homes and all weather attractions.

Visitor surveys have identified the landscape of the area as the predominant attraction for visitors, but accessibility, tranquillity, particular visitor attractions and the ability to engage in outdoor pursuits are also factors.

Several interviewees reported an oversupply of accommodation in the area, especially mass-market holiday accommodation on farms. There does, however, appear to be strong demand for the provision of high quality accommodation and a quality service. There is also a strong demand for a tourism product that seeks to offer an enhanced visitor experience. For example, members of the Peak District Farm Holidays Group, which promotes a product that goes beyond simple provision of accommodation to enhance awareness of agriculture and provides farm trails, local produce and interpretation, report that their accommodation is occupied by an average of 48 weeks per year.

Foot and Mouth Disease had a major impact on the tourism industry, even though there were no confirmed cases in the area, and drastically reduced mobility in the area. It focused people’s attention on the links between agriculture and tourism.

There is a widespread perception that agriculture plays a very significant role in managing the landscape enjoyed by tourists, and that agricultural abandonment would affect the tourism industry adversely. However, this is based largely on agreement about the attractiveness of the current landscape rather than evidence of its attractiveness relative to alternatives such as woodland.
Tourism marketing has suffered in the past from fragmented effort by individual local authorities, but there is now more co-ordinated branding of the Peak District as a tourism destination.

2.12 Off-farm income earned by farmers and their resident families

During times of recent low incomes, off-farm income has been increasingly important to keep farms in business. Although there are no official figures, it is apparent that a large number of farms rely on wives and other family members working to bring in income to support the farm. One farmer from Edale stated that without his wife’s income (she is a nurse at Sheffield Children’s Hospital) he would be unable to continue to farm.

2.13 Farm incomes

“In the past, it was not what you earned but what you could manage on. Now farmers don’t want to just manage and shouldn’t have to just manage.” Farmer, Castleton

“Up to 1960 there were 12 farms on the Abney estate, all full-time, and fifty per cent employed a lad. Not one wife worked off the farm. Now there are two full-time farms and a couple of part-time labouring jobs. These farms are heavily reliant on wife’s off-farm income, and only one farm hasn’t diversified. The rest of the village is commuters” Farmer, Abney

“The last ten years have seen a very significant reduction in farming due to low incomes... Farmers have low morale and feel themselves to be part of a minority which is oppressed.” Hathersage Parish Councillor.

A study commissioned by the Peak District Rural Deprivation Forum estimated that net farm incomes in the Peak District National Park in 2002 averaged £19,840 for dairy farms, £7,482 for beef and sheep farms of less than 100 hectares, and £17,222 for beef and sheep farms of more than 100 hectares. These figures were respectively 38% lower, 24% lower and 2% higher than 1997 levels.

Foot and Mouth Disease had a significant impact on farm incomes in the area. Though there were no confirmed cases in the Peak District, restrictions on livestock movements reduced sales and forced farmers to keep and feed stock for longer time periods.

A number of farms are on income support, and the introduction of family credit has helped many farming families. Some farmers would like to quit but are unable to, because of their levels of debt.
3. Environmental issues

3.1 The intensity of land management

“The Peak District is not a wilderness but a managed landscape which is unique, and which depends on farmers for maintenance. It is this managed landscape that makes the Peak District such an important National Park and brings in the visitors to sustain the economy.” Hathersage Parish Councillor.

A recent condition assessment by English Nature found that most SSSI land in the Dark Peak (predominantly moorland) was either over-grazed or showing signs of over-grazing, according to ecological definitions of over-grazing relating to reductions in vegetation communities. Furthermore, there are localised instances of over-grazing according to agricultural definitions (Schedule 17 of the Agriculture Act).

English Nature suggested that average grazing rates on SSSI land in the Dark Peak Natural Area are between 0.1 and 0.15 livestock units per hectare, having reduced significantly in recent years. However, livestock numbers are difficult to estimate with certainty, and official figures are considered misleading. Livestock have been removed from substantial areas in an attempt to regenerate heather, and substantial progress has been made relative to other areas. However, EN would like to see further reductions in stocking density, estimating that 0.05-0.07 LU/ha is required to stimulate recovery of heather moorlands, and rates of 0.1 LU/ha will maintain them in reasonable condition. Ideally, EN would like to see all sheep removed from the moors over the winter period. Farmers are resistant to this, and consider that stocking rates below 0.1 LU/ha (around two thirds of a ewe per hectare) are unviable.

3.2 Impacts on natural resources

Because of the area’s importance for water catchment, the impacts of moorland degradation on water supply are a significant issue. Levels of carbon in the water supply are a problem, affecting colour and necessitating treatment. This is caused by peat degradation, resulting from a variety of factors, especially historic interruption of hydrological systems, and affected by drainage, burning, erosion, grazing and pollution. Farming is only a contributory factor to these problems – heather burning, primarily for grouse management, is also very significant.

River water quality in the Peak District National Park is better than national averages – with nearly 94% classified as very good or good. Water quality improved in 36% of river length and declined in 12% between 1990 and 1998. Factors adversely affecting the quality of rivers and streams include agricultural fertiliser, farmyard run off, erosion and water abstraction.

3.3 Impacts on biodiversity

3.3.1 General

“If you want biodiversity, you have to have labour input, but you can’t have that without profitability” Farmer

The study area is located within the Dark Peak Natural Area. 50-60% of the Natural Area and 35% of the National Park as a whole are SSSI, and the major part of the study area itself is designated as SAC (Special Areas of Conservation) and SPA (Special Protection Areas) as well as SSSI. More than 90% of the moorland areas are SSSI. These designations largely reflect the quality of upland habitats and populations of breeding birds, although other habitats are also important.
English Nature’s Natural Area Profile identifies the following habitats and landscapes as being important in the Dark Peak:

- **High Plateau Moorland.** Large tracts of blanket bog have been degraded by air pollution and previous management, but support nationally important numbers of dunlin and golden plover. Drier heather moors on mineral soils support nationally important numbers of merlin, twite and short-eared owl. Over-grazing and peat cutting have caused replacement of moorland with acid grassland, which supports breeding whinchat and twite.

- **Gritstone tors and edges with boulder-strewn slopes and screes.** Important landscape features, and support breeding peregrine, ring ouzel, wheatear and whinchat.

- **Steep-sided valley heads or cloughs, cut by fast flowing streams,** supporting a rich mixture of dwarf shrubs (bilberry, heather and cowberry) plus breeding dipper, grey wagtail and common sandpiper. Numerous small springs and flushes support some of the most botanically rich communities of the Dark Peak.

- **Semi-Natural Woodland –** largely confined to cloughs and moorland fringes. Oak and birch woodlands are often open to grazing and suffer from lack of regeneration. Some species-rich woodlands support pied flycatcher, wood warbler, redstart and tree pipit. Most of the woodland cover is now conifer plantation, which supports crossbill, goshawk and a few remaining red squirrels.

- **Valley Reservoirs –** filling the main valleys of Chew, Longendale and Derwent Dale - are a characteristic landscape feature, largely surrounded by conifer plantations.

Clearly agriculture plays a key role in shaping and maintaining these habitats. Key issues identified by the Natural Area profile that are relevant to farming include:

- **Impacts of grazing pressure on heather stand structure and species composition.** While grazing and burning are fundamental to maintaining heathland structure, inappropriate management has led in places to loss of heath, to poor acid grassland, reduced species diversity and poor structure. The North Peak ESA is seen as important in redressing the balance.

- **Localised drainage of wet heath**

- **Localised drainage of blanket bog in the past,** interrupting its hydrological intensity and causing it to dry out.

- **Past drainage and current over-grazing of in-byre land,** reducing the interest of flushes.

- **Open grazing prevents regeneration of semi natural woodlands**

- **Loss of species-rich grassland through agricultural improvement,** including drainage, over-grazing, use of fertiliser and pesticides, cultivation and reseeding. Many remaining small fields are ecologically isolated.

- **The switch from hay to silage,** affecting botanical diversity and ground nesting birds.

- **Degradation of species-rich acid grassland through liming, fertiliser application, mucking, reseeding, over-grazing and inappropriate stocking.**

- **Reduced water quality in rivers and streams through agricultural fertiliser, farmyard run off and water abstraction**

- **Agricultural improvement and bankside grazing leading to loss of habitats beside rivers and streams**
Increased scale of farm holdings and fields, as well as loss of mixed farming, reducing the diversity of agricultural habitats and features

Lack of management of hedgerows leading to declining habitat quality and loss of trees

Bracken encroachment is a significant issue on the slopes, and is hard to control. Clearing it is labour-intensive, although some farmers have tried helicopter spraying. English Nature’s Natural Area profile states that bracken control may be desirable in many areas, but notes the importance of bracken to some breeding birds and points out that the general negative perception and lack of appreciation of its wildlife value is not always justified.

Moorland birds such as ring ouzel, whinchat and black grouse have been affected by over-grazing and excessive burning of heather, reducing the diversity of vegetation structure and species composition. Hen harriers have nested in the Peak District in the past, and could return if longer heather was encouraged and persecution avoided. Black Grouse are extinct in the Peak District. Severn Trent is attempting to reintroduce them in the Upper Derwent Valley, though many conservationists believe that this is unlikely to succeed without changes in habitat management.

Woodland cover in the Peak District is low. Expansion of woodland has the ability to benefit species such as pied flycatcher, wood warbler and redstart, and is encouraged by PDNPA in the right places especially clough woodlands. Woodland expansion in some areas, e.g. open moors and in-bye land with potential for breeding waders, is generally seen as detrimental to biodiversity.

The Peak District has a Local Biodiversity Action Plan (LBAP), which covers 15 habitats and seven species.

3.3.2 Peak Birds Project

The Peak Birds Project was started in October 2001 as a partnership by PDNPA and RSPB, and is targeting three species of birds: lapwing, curlew and twite, and their associated habitats, on in-bye land. The project works with farmers and uses agri-environment schemes – the ESA schemes for the North Peak and SW Peak and CSS - to aim to meet targets for these species under the Biodiversity Action Plan for the park. Training days are also organised by farmers.

The reasons for decline of lapwing are believed to be:

- Loss of spring cereals in the early 1980s, followed by eventual loss of arable land altogether from most farms
- More intensive grassland management, especially shift from hay to silage and increased use of fertilisers and reseeding
- Fewer root crops, which were grown for autumn finishing of lambs
- Improvements in drainage and loss of wetness
- Invasion of rushes, encouraged by loss of cattle
- Increased predator numbers, with fewer gamekeepers

Activities to encourage them include:

- Control of rushes, by cutting and weed wiping
- Putting in scrapes – wet areas for lapwings and other wading birds
- Encouraging cattle grazing
- Encouraging arable management
- Improving management of hay meadows
Curlew tend to nest on the moorland fringe but often feed on the in-bye land, and have therefore been affected by similar factors. There is evidence that their population has started to increase in recent years.

Twite nest on moorland but feed on in-bye land, and are thought to have been affected by the decline in hay meadow management. The project is aiming to enhance their numbers by restoring hay meadows and improving their management, including later cutting to encourage sorrel, a key food plant. Twite also nest in bracken beds, so there is a need to check applications to spray bracken to ensure that they do not affect nesting birds. There is also concern that their decline may be affected by shortage of food in wintering grounds outside the area, so the RSPB has been feeding birds in the Peak District in winter to encourage them to stay and feed.

Increasing numbers of people keeping horses on the fringes of the Dark Peak area (often incomers or residents from the surrounding urban areas) are a problem, since horse pastures generally offer few ecological benefits and are often over-grazed. EIA regulations do not cover horse grazing, so it is difficult for authorities such as the NPA to impose any kind of restrictions on this increasingly popular land use. One benefit, however, is that horses cannot normally be fed silage, and require hay (or haylage – a mixture of hay and silage), so one of the effects of increased horse numbers is to stimulate the local market for hay from local meadows (although incentives for hay meadow management through agri-environment schemes are more significant).

### 3.4 Impacts on the landscape

“If our neighbour took over our farm, the first thing they’d do would be to take all the walls out”  Farmer, Chapel-en-le-Frith

“Without farming the Peak District would lose its identity – the stone walls and hedges would decay and the land would revert to natural scrub. Sheep farming and grouse shooting have maintained the high places as they now are for many generations.”  Hathersage Parish Council.

Stone walls are seen as representing an important part of the farmed landscape, and many farmers take great pride in maintaining them. They often refer to badly maintained walls as being a sign of an untidy farm. Maintenance of dry stone walls is labour intensive, but has been greatly assisted by agri-environment schemes, though there is some dissatisfaction with the differential rates available under the ESA and CSS. There has also been some loss of traditional walls in the area. As well as the cost and effort of maintaining them, small walled fields are seen as a barrier to more modern, intensive farming methods, providing an obstacle to machinery and a hindrance to silage production.

Given the proximity of the area to major conurbations, and its desirability to commuters, there has been a recent increase in the number of horses. The gradual spread of ’ponyland’ is seen as a threat to the landscape – intensively grazed horse paddocks with associated sheds, fences and jumps are seen as visually unattractive compared to traditional fields.

### 3.5 Impacts on the historic environment

The cultural heritage is an important feature of the Peak District National Park. The archaeological resource remains largely unsurveyed and poorly understood. However, farming related trends affecting heritage features have included:

- Loss of stone walls
3.6 Involvement of hill farmers in agri-environment schemes

“The best people to know how to manage the land are the farmers. There is too much interference with how to run the farm” Farmer

“Farming only really survives because of the subsidy system. Change the subsidy system and the farming pattern will change and the environment will change as a result” Director of National Projects, PDNPA

“Subsidies have bought the land and subsidies will put the walls back up again” Farmer

The North Peak Environmentally Sensitive Area (ESA) covers the majority of the case study area; particularly the high moors. Areas outside the ESA are the southern half of Hathersage and Eyam ward (e.g. Grindleford, Froggatt, Eyam), Bradwell ward and the southern area of the Hope Valley (including Castleton, Brough and Shatton and the southern parts of Aston, Thornhill and Bamford parishes). The far western section of Hayfield ward is also beyond the ESA boundary. Annual payments in the ESA currently total £2.5 million. Take-up is high - 88% of the land area of the ESA has been entered into the scheme, with an estimated 60% of the moorland in the higher tiers and therefore subject to prescriptions that require change.

Remaining areas are eligible for the Countryside Stewardship scheme (CSS). CSS has been oversubscribed in the past and good applications have had to be rejected. However, increased resources now mean that demand for entry can be met. There are currently 500 agreements across Derbyshire, with an annual value of £1.5 million, about half of which are in the Peak Park, and many of which are for small sums of money.

There is widespread concern among the farming community at differential levels of payments available to farmers. CSS is seen to offer insufficient payments – e.g. £12/metre for maintaining dry stone walls compared to £20 under ESA and £30 offered by Severn Trent. The CSS upland pasture option is hard to sell to farmers since payments of £60 per hectare are insufficient to compensate them for the reductions in livestock required – variations in the carrying capacity of pasture across LFAs mean that this payment is more attractive in some other areas than in the Peak.

The ESA is generally popular with farmers in that most are able to comply with it relatively easily. Tier 1 aims primarily to maintain environmental quality and does not demand significant enhancement. It is viewed as having been highly successful in preventing further habitat and landscape degradation during the 15 years of its operation. Defra commented that there has been a substantial increase in environmental knowledge among farmers since the scheme began.

Because they often aim to buy change rather than to maintain the status quo, higher ESA tiers and CSS are sometimes seen as discriminating against farmers who have maintained their environmental assets.

Most of the North Peak ESA is also SSSI. ESA agreements are currently being renewed, and English Nature is looking to tighten them to increase the contribution they make to meeting Defra’s Public Service Agreement for favourable condition for SSSIs. There has been significant resistance from farmers, who see EN’s demands as too onerous. EN also reports difficulties in securing change, partly as a result of uncertainty caused by agricultural subsidy reform. While the general prescriptions are standard and cannot be varied from one farm to
another, EN is seeking to modify the management plans that deliver them, e.g. to impose additional conditions regarding shepherding, burning and bog management. There is some concern that disputes could lead to some agreements not being renewed.

A concern with CSS is that rules are set nationally or regionally and do not take account of local needs and issues. Restrictions on liming, local stocking rates, frequency of cutting hay meadows, for example, are unpopular with local farmers. One farmer argued that local farmers should have more of a say on how the rules for environmental schemes should be set.

Changes in CSS rules over the years have also caused difficulties. Several farmers remarked that the demands of the ‘bird lobby’ are inconsistent with good stewardship of the land.

Farmers often see agri-environment schemes as a vital additional source of income that has helped to sustain their businesses. In more remote areas such as the Snake Pass, ESA payments are seen by farmers as especially important for the survival of their businesses. Though schemes are designed to compensate for income forgone, they can be profitable where they correspond with a farmer’s plans. For example, a farmer quitting dairying has been able to access an annual income of £17,000 through Countryside Stewardship. Though his costs are largely unaffected, the payment is compensating him for the income forgone from not farming more intensively. Nevertheless, Defra is keen to point out that agri-environment schemes often do not compensate for all of the costs incurred, and should not therefore be seen as an additional source of net income.

Financial motives are important to many farmers entering schemes. For example, the Peak Birds Officer estimated that perhaps only 12 of 220 agri-environment scheme participants he deals with are motivated primarily by an interest in the environment – most see the schemes as a useful additional source of income that complements their farming activities.

The PDNPA Farm and Countryside Service offers additional payments to farmers to supplement those available through national agri-environment schemes. These include prescriptions targeted at former mining works, and top-ups for ESA agreements for hay meadows. The scheme has been temporarily frozen pending an application to the European Commission under state aid rules.

3.7 Abandonment

Abandonment is not seen as a widespread threat, in that there is plenty of demand for land from the agricultural community. There is a feeling that even if financial conditions deteriorate further, people would farm land, albeit more extensively through ranching type operations, perhaps checking the stock once per week. However, this extensive management may lead to some areas, e.g. steeper slopes, becoming ungrazed and covered in scrub. There are existing localised examples of land being affected by scrub invasion, particularly on some of the thinner soils and steeper slopes in areas like the Snake Valley. There are also examples of land being bought by non-farmers and neglected. The land market is currently buoyant and there is no shortage of buyers for any land that comes on the market.

Farmers commented that without the ESA scheme in the area, the land would have already succumbed to ranch-style farming. The problems perceived would be the inability to pay for labour to look after sheep on large tracts of land, and the loss of biodiversity – there would be no difference between land uses.

There is a debate about the extent to which regeneration of scrub and woodland is desirable. English Nature and PDNPA see some benefits of allowing natural regeneration in the right places, whereas local people tend to prefer the retention of an open landscape.
4. Social issues

4.1 Cultural Identity of the Area

“Many of the urban population are incomers, with high incomes to afford the housing, but correspondingly high work commitments which allow no time for community involvement. Such people do not shop locally, nor do they use local services such as schools.” Hathersage Parish Councillor.

“Farmers are the continuity – without them the community will die.” Farmer

Most interviewees felt that, though its role in the economy and society had declined, farming still plays an important role in the cultural identity and way of life of the area, especially in shaping the living landscape enjoyed by both locals and visitors. Market day continues to have a profound impact on Bakewell, and agricultural fairs and shows are an important part of the annual calendar.

Communities in the area are changing, as the number of people engaged in agriculture declines, and as more land and buildings are taken on by non-farmers.

4.2 Community activities and institutions

“Farming families are important to the community in many ways – there are long family histories and an affinity with the land. They have cared for the village and countryside over the generations and bring knowledge, understanding and continuity to our activities.” Hathersage Parish Councillor.

“You find farmers on all the main local organisations, they organise the shows and provide continuity on the committees” Farmer

We received mixed messages about the role of farmers in community activities. On the one hand, farmers are often seen as being central to communities and providing continuity for community events and organisations. On the other, they are declining in number, and many report very little spare time to engage in community activities, social events, leisure activities or holidays.

Derbyshire Rural Community Council stages social events for farmers at the Agricultural Business Centre in Bakewell. There are various Young Farmers groups in the area, which appear to be active and well supported.

Derbyshire Dales District Council has experienced difficulties in engaging farmers in its social and community strategy. This is thought to be because of the low regard that the farming community has for local authorities.

The Peak District National Park has a population of 38,000, with the case study area itself having a population of 11,536. The low population density over much of the study area makes it difficult to sustain local services, although tourism plays an important role in boosting the population and hence the viability of service provision (the National Park as a whole has a population density of 0.27 people per hectare compared with 3.6 for England – 1991). A survey by the Rural Development Commission recorded a general decline in services in the area in the 1990s, and particularly a loss of pubs, GPs and bus services.

4.3 Social inclusion and integration

“The Peak District is unique in the East Midlands” - Farmer
Farmers are not well represented in the area – most are poorly represented by the NFU. There is a perception that NFU does not represent the interests of smaller farmers. Also its regional structure is unhelpful – Peak District farmers feel remote from the East Midlands region, which they see as dominated by lowland issues in the south and east of the region (PDRDF).

PDRDF, with the support of Oxfam, is attempting to establish a network of farmers in the Peak District, and has signed up 160. This network aims to publicise and tackle the problems faced by small hill farmers in the area.

Transport is an important issue – many farms have only one vehicle.

Though social exclusion does exist, there is no evidence to suggest that the problems of the farming community are greater than those of other sections of society. For example, the LEADER+ programme aims to promote social inclusion, with an emphasis on the needs of women and young people. Though this includes farming families, they are not prioritised, and it is believed that there is greater social exclusion among other groups such as single mothers and housewives. The priorities for LEADER+ were developed following an extensive period of consultation with local communities and stakeholders.

The area does not score highly against indices of multiple deprivation, with none of the wards in the study area falling within the most 50% deprived wards in the country.

The Agricultural Business centre at Bakewell plays an important role as a focus for farmers’ networks, serving as a meeting point and providing a variety of services to farmers on market days. The closure of the market during the Foot and Mouth Disease crisis had a significant social impact, increasing the feeling of social isolation.

“You can come into Bakewell market, sell a sheep, buy a calf, get advice about whether you need an artificial knee, and also hear about whether Uncle Ernie has dropped off his perch” Auctioneer.

“The social aspect has changed. In the past people didn’t have a Land Rover and trailer – they engaged a haulier. A chap would finish milking, put on his glad rags, go to market and leave the lads to shovel muck. He’d roll home after a few pints and a game of dominoes. That day has gone. Now people bring their own stock with their own transport, early in the morning, see it sold, take the money and go. It’s important that the stock don’t hang around.” Auctioneer

Affordable housing is a significant issue in the Peak District, since the area is an attractive place to live for professionals in the surrounding conurbations, yet local jobs are often relatively poorly paid.
4.4 Recreational provision by farmers

“You need to make the general public aware that farming preserves the countryside it loves”
Farmer, Abney

Most of the study area is open moorland, accessible to the public under Access Agreements, whilst the remaining farmland is well covered by public rights of way. Several farmers interviewed expressed annoyance at the number of people using their land, with some suggesting that this disturbs wildlife – even more than farming activities that are now discouraged or removed through agri-environment schemes. Erosion is a significant problem in some areas. Other farmers saw public access as a market opportunity for diversification enterprises. Upper Booth Farm in Hope for example is located in close proximity of the Pennine Way and Kinder Scout. Walkers passing through can stay on their campsite or in their camping barn be provided with bacon sandwiches or buy farm produce. A public right of way also passes through the farmyard so the farmer has seized this opportunity by setting up an ice cream stall (with local ice cream) and information boards about the area and farming in a farm building. At sheep shearing time he opens the doors of the shearing sheds that are adjacent to the path and answers any questions people may have. In this way he is supplementing his farm income as well as providing opportunities for the public to understand more about the linkages between farming and the environment in the Dark Peak area.

4.5 Health, safety and quality of life

“We’re frightened of the knock on the door, the medicine books and the movement books.”
Farmer

“I farm because there is nothing better than being on the hills.” Farmer

Health issues are of increasing concern, with a perception that farmers are subject to increased levels of stress (low incomes, increasing bureaucracy, concern about the future) and are also less likely to seek medical attention than the population as a whole. These concerns have been reflected in development of local initiatives and support services such as:

- Rural Health Information Centre, based at the Agricultural Business Centre, Bakewell;
Farm Out – new initiative to employ a public health nurse to work with the agricultural community
Derbyshire Rural Helpline – part of the Farm Crisis Network – offering confidential advice to farmers facing problems
Rural Stress Information Network – helping farmers and rural communities deal with stress

The Farm Out project was set up by the High Peak and Dales Primary Care Trust to respond to health impacts caused by agricultural decline and associated deprivation. It included a health needs assessment of the agricultural community, centred on Tideswell. Its conclusions were:

- The agricultural community has a poor health profile compared to non-farmers
- Mental health is a significant problem. Levels of depression among farmers are twice as high as among non-farmers. It is caused by isolation, financial worries, occupational problems, and, overwhelmingly, the burden of paperwork
- 9% of farmers have considered suicide – among the 18-34 age group the rate was double this
- There are significant levels of musculo-skeletal problems such as arthritis, with even young farmers reporting chronic joint problems
- Occupational health problems included musculo-skeletal injuries, problems attributed to agri-chemical usage and zoonoses
- Despite greater need, use of health services is less than the population as a whole, due to cultural and social factors as well as distance
- The special needs of the farming community are not reflected in healthcare structures and mechanisms

A contributory factor to ill health is the poor state of repair of many farm houses, many of which have inadequate heating and sanitary facilities. A report by Derbyshire Dales District Council in 2001 noted that there was a low take up of housing renovation grants among the farming community, and made recommendations about how the problem could be tackled. Insecurity of housing tenure is also a significant cause of stress among many tenant farmers, who face uncertainties about whether they will find a home on retirement.

The Peak District Rural Deprivation Forum (PDRDF) was established in the early 1990s in response to increased recognition of the widespread rural deprivation in the area. PDRDF has commissioned research into deprivation among hill farming communities, as well as assessing issues such as rural transport, health and community care.

Farmers talk about the difficulties and hardships associated with farming, but also of the enjoyment that it gives them as a way of life.

### 4.6 Skills and training needs of farmers

Computer skills were mentioned by several farmers as an area where training would be beneficial, and this demand is reflected in training provision in the area. Other basic business skills such as bookkeeping are important.

Farming decline has been reflected in the courses provided by Derby College at Broomfield Hall (formerly known as Broomfield College), which has closed some of its agricultural courses in favour of new courses in horse and dog management, and closed its hill farm near Hathersage.
The LEADER+ programme is promoting a new ‘College of the Peak’ that aims to bring together different training provision in the area. There is an emphasis on the needs of women and young people, but also locally distinctive skills such as dry stone walling.

The Amethyst Project – set up by the Peak District Rural Deprivation Forum – provides training for women - see section 4.8.

The Bakewell project introduced training and networking projects for young farmers, some of which are still in operation.

### 4.7 Succession of holdings

“It’s a way of life. In what other industries do you see kids helping their parents?” Young farmer

“My parents wanted me to do something else. My dad says he’d be in the South of France now if it wasn’t for me, but it’s what I wanted to do. All I’ve wanted to do is shepherd sheep.” Young farmer.

“I’ve got three, and none of them want to go into farming. I don’t want to force them down that road.” Farmer

“In 1956, that farm was farmed by three people including the gaffer. It’s got bigger since then, but now its farmed part-time by one of the sons, and none of his sons wants to take it on.” Farmer, Abney

The farming community is ageing, with the average age of a farmer in the High Peak and Dales estimated at 58. The economic decline in agriculture is a key barrier to young people choosing a career in agriculture. Along with the low uptake of farming by young people, farmers also continue to farm into old age because high house prices mean that moving away is very difficult on current incomes.

Many farming parents do not want their children to take on the farm, encouraging them to take up more lucrative opportunities elsewhere. This is having a significant impact on the structure of farming communities and the support networks available to farming families.

Where farms do not support both a father and son, sons often take up contracting to supplement their income. Agri-environment schemes in the area provide contracting opportunities – e.g. dry stone walling, haymaking; also silaging.

Agri-environment schemes may help to keep farmers’ sons involved in the family business. According to a Defra adviser, a relatively high proportion of farms in the ESA are father and son operations. As well as opportunities for contracting, the ESA provides a bedrock of income that helps to sustain the farming business and fund additional employment on the farm.

Of the 14 National Trust farms on the High Peak estate, five have children interested in farming. These aspire to be good efficient farmers, producing quality stock on a tidy farm. Interest in the environment and tourism come second.

### 4.8 The role of women

Women play an important role in the sustainability of agricultural communities. A small number of women farm in their own names, and some of these have come together to form the local Women in Farming group, meeting to provide social support to one another.
Farming wives have a number of important roles as home-makers, parents, carers, farm workers, book-keepers and completers of paperwork, and are increasingly taking on work away from the farm in order to help to sustain it financially.

The Peak District Rural Deprivation Forum has established the Amethyst Project to work with women in rural areas, using a community development approach to make contact with individuals and groups. It promotes rural activities and community enterprises, and provides technical, financial and mentoring support to help women develop ideas and bring them to fruition. One of the groups set up as part of the Amethyst Project is ‘Farm Secretary Focus’. The grant enabled a group of women with an interest in farming to get together and hold training sessions towards gaining the skills and qualifications that will make this a viable employment option for them, or just make life on the farm a bit easier. Follow on sessions are planned and work to set up an accredited course locally is ongoing.
5. The scenarios

Scenario 1.
This situation is fairly close to current trends with declining numbers of farmers, increasing farm size, increased hobby farming and acquisition by non farmers, a shift from beef and dairy into sheep, some diversification and reliance on off-farm income. Thus it is seen by farmers as a realistic scenario and one that can be tolerated to keep them farming, though the overall trend of a gradual decline in farming in the economy and society is seen as negative. Environmentalists would prefer to see a greater shift towards agri-environment activity.

Scenario 2.
This is a less realistic scenario than 1, largely because farmers and other stakeholders expect agri-environment schemes to play an increasing, rather than declining role, and to be fundamental to the future of farming. As a result, significant land abandonment is not expected, though substantial extensification, resulting in some areas becoming ungrazed, and some neglect through acquisition by non-farmers, can be expected. Significant reductions in stock may be expected, but more because of agri-environment schemes and responses to policy change rather than forced decline. Although generally seen as unlikely, there is some concern amongst the farming community about this type of scenario, because of concern about individual farms. However, there is a general feeling that other, bigger farms will take up any land given up.

Farmers, the park authority, environmental groups and tourism interests see this scenario as highly undesirable.

Scenario 3.
Some aspects of this scenario are realistic in the area – e.g. uptake of agri-environment schemes is already widespread, and they are seen as offering a way forward. However, the emphasis on diversification is seen by many as being unrealistic – it is only an option for some, and many farmers see it as undesirable. Diversification into agri-environmental activity is widely accepted, but other farm businesses are seen as offering only a limited role, even in an area that receives large numbers of visitors. Significant changes in land use are also seen as unrealistic – forestry offers few opportunities, though there is likely to be some additional woodland creation and habitat management as part of a largely farmed landscape.

Scenario 3 is also mixed in terms of its appeal to local farmers and stakeholders. Most prefer to see farming as the dominant land use, and diversification as having a limited role to play, though few oppose an extension of agri-environment activity within the farming sector.
1. Introduction to the study area

This case study area was the furthest south of all the areas chosen. It lies off the north western edge of the granite Dartmoor massif on the heavy soils of the Culm measures. The area was chosen as a case study to represent the more intensive land use with a higher proportion of dairy farming and arable cropping associated with Disadvantaged Areas, compared to the more extensive moorland dominated land use in the Severely Disadvantaged Areas.

The area is bounded physically by the Dartmoor Forest Common to the south east (coinciding roughly with the A386), running from the towns of Tavistock in the south, to Hatherleigh in the north and Okehampton in the east. It encompasses all of the wards of Mary Tavy (the parishes of Mary Tavy, Peter Tavy and Brentor), Bridestowe (the parishes of Bridestowe, Sourton, Bratton Clovelly and Germansweek), Lew Valley (the parishes of Beaworthy, Northlew and Inwardleigh) and a small part of Dartmoor Forest (the parish of Lydford) – See Figure 1. The area lies within the West Devon Borough.

View south across the area to Dartmoor

Most of the area is within the Culm Joint Countryside Character Area, with the southern part lying in the South Devon Joint Countryside Character Area. The landscape consists of rolling, locally steeply-undulating open, pasture separated by many small valleys over heavy, poorly-drained soil supporting rushy pastures of low agricultural quality, but high nature conservation interest. The land falls from a height of around 300m at the edge of the Dartmoor Forest Common to 70m in the bottom of the valleys. On the higher more open ground, tree cover is limited to occasional large blocks of conifers with wind-shaped hedgerow and farmstead trees elsewhere. In the valleys, especially of the rivers Lyd and Lew there is a more intricate landscape of small fields carved out of woodland. On the poorest soils there are occasional unenclosed commons such as Hollow Moor near Halwill, most of which are designated as SSSIs for their botanical interest.

The population of the area is 4,657 (2001 Census) split almost equally between the three wards. The towns providing the main services to the area are Tavistock to the south
Dartmoor fringe

(population 11,081) and Okehampton to the east (6,237). Launceston lies 5 miles to the west in Cornwall (population 7,135).

The area was severely affected by the Foot and Mouth Disease (FMD) epidemic of 2001. The first case in the region occurred at Highhampton, just to the north of the case study area, on 24 February, four days after the first UK case was discovered in Durham. The area around Highhampton rapidly developed into a hot spot of the disease, with cases recurring until late May. In total, the disease was confirmed on around 20 farms in the case study area and many more farms lost their livestock to the contiguous cull of at risk farms. It is thought that well over half of cattle and sheep in the area were culled. However, while the social scars of the disease continue, the physical impacts are less obvious. Most of the larger farms have restocked. The financial compensation paid for lost stock, and to recompense farmers for the cleaning and disinfection of their premises, led to a significant injection of capital to the area.
Figure 1: Location of the case study area, showing ward boundaries
2. Economic issues

2.1 Characteristics of the local economy

The economic profile produced by West Devon Borough Council in 2000 shows that, for the Borough as a whole, real estate (19%), distribution (16%) and manufacturing (15%) were the largest sectors. Agriculture and forestry accounted for 5% of GDP in 2000 and had fallen sharply during the previous nine years (from 12% in 1991). The hotels and catering sector accounted for 9% of GDP in 2000 and although its overall position within the local economy is relative static, the output of hotels and bars increased during the previous 9 years at the expense of other forms of accommodation and catering. Relative to other areas in the region, particularly the coastal areas, the tourism sector is less significant in the economy.

Per capita income was significantly less than that for the UK as a whole, largely as a result of high levels of women, part-timers and self employed in the workforce, but the gap is narrowing.

For the case study wards, the agriculture and forestry sector employs more, at 16%, of the workforce, than any other single sector (Table 1).

Adjoining the case study area, economic activity is concentrated in the towns of Okehampton and Tavistock, with Okehampton in particular accounting for the majority of manufacturing activity. Food and drink processing and packaging is particularly strong in Okehampton with Heinz (making cheesecakes) and Kerry Foods (jams) having large plants in the town. The farmer-owned Pensinsula Milk has a milk pasteurising and bottling plant in Okehampton. Outside Okehampton, there are large dairy processing plants at Lifton (where Ambrosia Creamed Rice is made by Premier Foods) and at North Tawton (where cheddar cheese is made by Glanbia Foods Ltd). Although both these plants are just outside the case study area, they both provide employment to residents in the area and source milk from the area. The army, which maintains a firing range on northern Dartmoor, is another significant economic presence in Okehampton, with a camp above the town on the edge of the moor.

Further away, the administrative and service centres are the cities of Exeter (to the East along the A30 dual carriageway) and Plymouth (to the south). There is significant commuting to work from the case study area to both these cities.

Table 1. Employment by industrial sector in the case study wards, 2001

<table>
<thead>
<tr>
<th>Industrial Sector</th>
<th>Number of people</th>
<th>Proportion of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture; hunting and forestry</td>
<td>352</td>
<td>16%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>240</td>
<td>11%</td>
</tr>
<tr>
<td>Wholesale and retail trade; repairs</td>
<td>265</td>
<td>12%</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>190</td>
<td>9%</td>
</tr>
<tr>
<td>Real estate; renting and business activities</td>
<td>243</td>
<td>11%</td>
</tr>
<tr>
<td>Education</td>
<td>155</td>
<td>7%</td>
</tr>
<tr>
<td>Health and social work</td>
<td>210</td>
<td>10%</td>
</tr>
<tr>
<td>Others sectors</td>
<td>525</td>
<td>24%</td>
</tr>
</tbody>
</table>

Source: ONS Neighbourhood Statistics, based on 2001 Census
2.2 Agricultural production systems

While land quality is relatively poor (the large majority of the area is grade 4), the area’s mild wet climate (with rainfall of around 1300 mm) is well suited for growing grass. Land use is dominated by beef and sheep production on relatively small holdings, though with a significant number of larger dairy businesses. A small number of farms grow barley and oats, mostly for home consumption by livestock, while a few also grow fodder crops (stubble turnips and fodder rape, with a few dairy farmers growing maize) in rotation with grass on the better land.

Beef and sheep farms tend to breed and finish their own stock, with breeding ewes bought from north country and Welsh breeders. The local breed of South Devon cattle is common on the lower land. Prior to the introduction of the Over Thirty Month (OTM) rule for cattle in 1996, most beef cattle were finished extensively on grass, with many suckler cows being finished for slaughter at around 4 years. Following the OTM rule, beef cattle have been finished more intensively, with few being entirely grass finished.

The number of dairy farmers has fallen significantly (from 114 in 1990 to 62 in 2002) but those who remain have become larger (average herd size increasing from 50 to 64 milking cows). These enlarging dairy farms are increasingly taking on land adjacent to, and sometimes at a distance from, their main holding for forage production or for grazing of dry cows and replacements. Where this land is taken over from beef and sheep production, the intensity of management tends to increase. Increasing numbers of dairy farmers are specialising in milk production, leaving the rearing of beef offspring and the breeding of dairy replacements to others.

A significant number of farmers on the eastern side of the area have moorland grazing rights on the Dartmoor Forest Common, though not all of these are exercised for historical reasons. Moorland livestock tend to be of hardier breeds than those kept in the case study area off the moor. In the last century Welsh Black and Belted Galloway cattle were favoured, being overwintered on the moor. Recent years have seen a move towards Aberdeen Angus, responding to market demand as well as the requirement in the ESA to remove stock from the moor in the winter (Aberdeen Angus respond better to winter housing than the heavy coated Welsh Blacks and Galloways).

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2 From Defra June Census, using EC robust farming types.
Dartmoor fringe

Figure 2. Distribution of LFA land in the Dartmoor fringe area
Table 2. Key farming statistics for the Dartmoor fringe, 2002

| Farmland area (ha) (excludes common grazing) | 17,163 | Rented | 16% |
| Number of holdings | 515 | Owned | 84% |

<table>
<thead>
<tr>
<th>No. of holdings by type</th>
<th>No. of holdings by size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and sheep (LFA)</td>
<td>192</td>
</tr>
<tr>
<td>Cattle and sheep (lowland)</td>
<td>4 (est.)</td>
</tr>
<tr>
<td>Dairy</td>
<td>62</td>
</tr>
<tr>
<td>Mixed</td>
<td>10 (est.)</td>
</tr>
<tr>
<td>Cereals</td>
<td>3 (est.)</td>
</tr>
<tr>
<td>General cropping</td>
<td>0</td>
</tr>
<tr>
<td>All other holding types</td>
<td>244</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main land uses (ha)</th>
<th>Livestock (head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crops and fallow</td>
<td>##</td>
</tr>
<tr>
<td>Temporary grass</td>
<td>1,497</td>
</tr>
<tr>
<td>Permanent grass (&gt; 5 years)</td>
<td>12,779</td>
</tr>
<tr>
<td>Rough grazing</td>
<td>1,468</td>
</tr>
<tr>
<td>Woodland</td>
<td>723</td>
</tr>
<tr>
<td>Setaside</td>
<td>##</td>
</tr>
<tr>
<td>All other land</td>
<td>##</td>
</tr>
<tr>
<td>Cattle under 1 year</td>
<td>5,602</td>
</tr>
</tbody>
</table>

* Woodland refers to woodland on farm holdings only, not total woodland.

Note: These figures are taken from Defra’s June 2002 Agricultural Census and use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as 'est.'). Where this is not possible, withheld data is shown as ##.

2.3 Non agricultural land use

The case study area includes significant areas of plantation forestry in large blocks, such as Lydford Forest, Highermoor Plantations, Northcombe Plantation and Cookworthy Moor. Much of this is either owned or leased by the Forestry Commission. While there are smaller areas of woodland on farms, much of it broadleaved, especially on the steeper valley sides and wetter valley bottoms, most farm businesses have little involvement or experience of forestry management. The South West Forest initiative, based at Cookworthy Moor, is seeking to double the woodland cover in the area (it now stands at 9%) over the next two generations and to encourage more active multi-purpose use of existing woodland and forestry. However, there was evidence of resistance from farmers to converting agricultural land to woodland. The comment “Forestry gives a good return for the first 15 years based on the grant payments, but after that you have devalued the ground” was typical.

There is growing debate in the area about the potential role for energy crops, particularly miscanthus (field trials have been held nearby in Devon and the crop seems well suited to the area) and short rotation coppice (also well suited to the mild wet climate). The debate has been heightened by proposals to establish a large renewable energy plant on a disused airfield at Winkleigh to the north of the area. This would require around 10,000 acres of miscanthus or short rotation coppice to supply it. Opposition to the plant comes from environmental groups (concerned about the landscape impact of such a large area of an unfamiliar crop and damage to soils during winter harvesting), existing woodland owners (who believe the
Dartmoor fringe

Priority should be to use low grade timber from existing woodland) and the NFU (who see no long term economic future in using relatively expensive agricultural land for a marginally viable use). The South West Forest however, see energy crops has having a place within a mixed farming economy.

The area has one large area of open water: the man-made Roadford Reservoir (368 ha), which supplies drinking water and is owned by South West Water.

An increasing area of farmland is now managed for recreational rather than agricultural uses, with many non-farming landowners keeping horses for riding.

2.4 Patterns of land tenure

The Defra June census (Table 2) shows that the majority of farm land is owner occupied, with tenant farms being significantly less common than is nationally the case (16% in the case study area compared to 34% for England as a whole). However, this figure is likely to hide a significant increase in short term letting of land and contract farming.

Farm sizes are relatively small, though there are a number of large estates such as the Fishleigh Estate near Okehampton. Several of the farms on the edge of Dartmoor are also large (such as Meldon Farm, Okehampton) and are based around an extensive moorland grazing area.

The County Council owns seven farms in the case study area, with a further six on the fringe. All are dairy farms and are relatively small. Other significant landowners are the Duchy of Cornwall and, in the south of the area, Lord Roborough.

Strong anecdotal evidence suggests a gradual increase in the number of holdings owned by people whose primary interest in the land is not commercial (i.e. deriving an income from the land) as existing farmers retire and let the land to others to farm or, less frequently, sell to ‘residential’ landowners who either manage the land extensively themselves or let it to others. Defra’s June 2002 census records that the majority (54%) of holdings are run part-time. However it is likely that, with the increase in contracting, the declining number of commercial holdings are becoming larger.

2.5 Land values and trends in marketing of holdings

Many of the consultees, particularly farmers, had a perception that there was an increasing amount of land being marketed and that purchases of small farms by non-farmers was leading to a significant change in the make up of the landowning community. However, discussions with a property agent, and with business advisers, suggested that the number of farms offered for sale is not increasing significantly and remains relatively low. There is however a high demand for rural property with land. The property agent stated that his firm routinely markets all vacant holdings up to 80 ha in size to the non-farming residential market, though such properties come onto the market relatively infrequently (in the order of one or two per year in the case study area).

It would appear that the most common reason for the sale of farms is the death, or less frequently the retirement, of the farmer, where he or she has no successors within the family. Even where successors do not wish to commercially farm the land, they often retain the ownership of the property, letting the property to a neighbouring commercial farmer. With the current low levels of interest rates, farmers are rarely forced to sell for financial reasons.

There would appear to be a different market operating for rural housing without agricultural land (for instance old farmhouses and cottages in the villages). Here turnover is more rapid
and a high proportion of vacant properties in the villages on the edge of Dartmoor are sold as holiday lets, either for renting by the new owner or retaining as a second home (a resident of Brentor estimated that 30% of properties are holiday homes). While demand for holiday homes is lower away from Dartmoor, the price of property for rural workers is still a major issue, often requiring young people to live in towns such as Tavistock and to drive to work in rural areas.

Several consultees remarked that the market for land and rural properties changes east of Okehampton, particularly in the parishes on the edge of Dartmoor, such as Chagford. Here demand for holiday homes is particularly strong, with a relatively high proportion of properties bought by ‘weekend’ residents from areas as far away as the South East of England. Farmers in particular were concerned about the economic and social impacts of temporary residents who they felt tended to shop outside the area and took little constructive part in community groups. One farmer referred to these weekend residents as “the killer community”, while accepting that there were relatively few in his area.

2.6 Sources and uses of farm labour

Most labour on farms is provided from within the farming family. Out of a total agricultural workforce of around 750 recorded in the June 2002 census, only 17% were employed (5% full-time and the remainder on a part-time or casual basis). There has been a rapid decline in the number of employed staff (the 1990 June census shows a total workforce of around 890 people, of whom 29% were employed).

Consultees described an ageing workforce generally, but with most of the larger farms having younger family members coming into the business. The increasing availability of contracting work, both for the larger businesses that have shed employed labour and for non-farming landowners who often do not have the land management skills, is providing an opportunity for family members on smaller farms that would otherwise not make a living from farming. Some of these businesses now provide whole farm contracts and undertake the full range of agricultural operations (an example being CropMech at Merton near Okehampton where the contracting business is now far larger than the farm-based business).

Table 3. Agricultural employment data for the Dartmoor fringe, 2002

<table>
<thead>
<tr>
<th></th>
<th>Full-time</th>
<th>Part-time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>288</td>
<td>339</td>
<td>627</td>
</tr>
<tr>
<td>Managers</td>
<td>1 (est.)</td>
<td>1 (est.)</td>
<td>2 (est.)</td>
</tr>
<tr>
<td>Employees</td>
<td>33 (est.)</td>
<td>51 (est.)</td>
<td>84 (est.)</td>
</tr>
<tr>
<td>Casual workers</td>
<td>n.a.</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Total</td>
<td>322 (est.)</td>
<td>432 (est.)</td>
<td>754 (est.)</td>
</tr>
</tbody>
</table>

Note: These figures, taken from Defra’s June 2002 Agricultural Census, use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shown as ‘est.’).
2.7 The agricultural products and services purchased by farmers

In general, farmers are well serviced by a wide range of different businesses specialising in beef, sheep and dairy farming. There are three farmer-owned suppliers of farm requisites in the area. These are: Mole Avon Farmers with a store in Okehampton; Cornwall Farmers in Hatherleigh and Launceston; and Mole Valley Farmers (the largest business with outlets throughout the South West) in Holsworthy. All of these supply the range of agricultural inputs such as animal feeds, fertiliser, fencing, animal health products and tools and collectively are thought to be responsible for the large majority of sales to farmers. Larger nationally or internationally based companies such as BOCM Pauls and Dalgety Agriculture (the latter servicing the arable sector) are present in the area. Specialist animal feed mills include Mole Valley Farmer’s mill at Risdon, Bibby’s mill at Lifton (both in the case study area) and the Crediton Milling Company to the east of the area. Agricultural engineers include Agrispares, based in Okehampton.

There are several veterinary practices in the area treating farm animals, with the Okeford Veterinary Practice in Okehampton being the most significant. The practice reported that the last 20 years has seen a significant rise in demand for small animal veterinary care, and farm animal care now makes up a minority, though a significant one, of their income. They anticipate this trend continuing.

The Hatherleigh Area Project has investigated the potential for co-operative sourcing by farmers – particularly a labour exchange and machinery ring. However, there has been little enthusiasm in this from traditional farmers (there has been more interest from in-coming landowners). The project director, Charles Coffin, suggested this traditional antipathy towards co-operation at the level of individual businesses (as opposed to the more successful ‘institutional’ co-operation through bodies like the NFU and commercial co-operation through large marketing co-ops) is due to the innate conservatism of most farmers, itself born out of a feeling of “struggling to survive”.

An interesting perspective between the purchasing habits of different types of farmers and landowners was provided by the manager of Mole Avon’s farm supply store in Okehampton. He suggested that most farmers purchase on price rather than quality or service and that larger farmers are increasingly shopping around, using the internet and national distributors to purchase bulk communities such as fertiliser and animal feeds. These farmers are increasingly trading a long way outside the area, purchasing inputs from outside the region. Smaller farmers are continuing to purchase through local suppliers like Mole Avon but expect their prices to be competitive. In contrast, non-commercial landowners, particularly those without experience of farming, tend to purchase on service and quality first rather than price. They tend to be more loyal to their suppliers and to like to develop a long term relationship with local businesses.

2.8 Quality assurance and branding schemes

Membership of the baseline farm assurance schemes (the British Farm Standard schemes) varies between dairy farming, where all those supplying the major first purchasers need to be members of the National Dairy Farm Assurance Scheme, to the arable sector where the proportion of farmers growing arable crops (many for their own use) in the Assured Combinable Crops Scheme is thought to be lower. Membership of Farm Assured British Beef and Lamb amongst beef and sheep producers was thought to be significant, but less than for the dairy scheme. The attitude of many farmers towards these baseline quality assurance schemes was somewhat jaundiced. The comment, “quality assurance is a con pushed by the
supermarkets” was typical of the view of many farmers. The lack of any benefit in terms of a price premium over non-assured products was the main reason for farmers not supporting any enhancement of these schemes to further differentiate them in the market place.

The County Council-based Devon Food Links is keen to develop a Devon brand, for which it believes there is sufficient demand from consumers locally and nationally. This brand would be of benefit to the increasing number of producers who are selling their produce direct to the public. This is discussed in further detail in the next section.

There has been a sharp rise in the number of organic farmers in the South West as a whole (which now accounts for around 40% of UK organic farms). There are several organic holdings in the case study area producing milk, beef and lamb and vegetables. While non-organic farmers consulted were generally well disposed towards organic farming, they argued that the organic market is still young and prone to unstable prices, quoting the low prices being received by many organic dairy farmers as a result of supply exceeding demand for organic liquid milk.

2.9 The sale of agricultural products and services by farmers

The majority of sales from farms are made into undifferentiated ‘commodity’ markets, such as milk into the regional milk purchasers Milk Link (a farmer owned co-op) and Dairy Crest, and beef and lamb to the Cornwall-based abattoir St Merryn Meat.

The exceptions to this are Peninsula Milk, a farmer owned co-operative (recently purchased by regional co-op Milk Link) with its own bottling plant in Okehampton that supplies branded cartons of milk and cream to local garages and stores, and Triple S Ranch, a farmer owned meat processing and marketing group with its own cutting plant at Newton Abbot in Devon. There are also a significant number of individual businesses processing and retailing their own produce such as the Stephens family at Jacobstowe producing their own Curworthy Cheese, Leigh Farm Poultry at Beaworthy and small direct meat sales businesses such as Traditional Devonshire Meats.
Devon Food Links sees significant scope to increase opportunities for farmers in the area to sell direct to the public, principally through an improved and co-ordinated processing and distribution system. They accept that the benefits of local supply chains in terms of traceability, freshness and lower environmental impacts of transport costs would need to be promoted to the public and see Government taking a lead role in this. They state that an unwillingness of some farmers selling direct is a constraint on future development.

Small producers who are adding value to their own produce by processing and selling direct to the public were keen to stress the high investment risk, and broad range of skills they need to succeed. They were also concerned that the recent increase in new landowners with capital to invest in new facilities leads to competition for existing traditional farmers who are trying to sell to the same market and often “inhibits ‘real farmers’ who are looking to survive”. The typically small holdings in the area found it difficult to provide the continuity of supply and justify the investment needed to successfully process and sell direct at an economically viable scale. Again they stated there appeared to be little willingness in farmers to co-operate.

The role of livestock markets has declined significantly in the last ten years, with most finished stock now sold direct to abattoirs. The majority of store cattle and lambs are still sold through the livestock ring (although the imposition of livestock movement restrictions after FMD has decreased this) and markets are used to lot together Over Thirty Month cattle being dispatched for destruction. The livestock markets serving the case study area are at Exeter (operated by Exeter Market Auctioneers), Hatherleigh (Vicks) and Tavistock (Ward and Chowen).

2.10 Diversification

Analysis of the applications to the England Rural Development Programme project-based schemes for farm diversification initiatives shows a predominance of interest in establishing new serviced tourism accommodation enterprises. Of the ten applications to the Rural Enterprise Scheme in the area in the last three years, six have been to establish new bed and breakfast accommodation, with almost all of the others being tourism related (such as establishing new equine tourism accommodation). Of these only two applications have been accepted, both of them involving the addition of value to existing self catering enterprises on farms. RDS’ experience in the region suggests that new tourism accommodation enterprises on farms tend to have a high capital cost in relation to the low revenue and low employment generation. These schemes are now not generally supported by the Rural Enterprise Scheme.

While farm-based tourism accommodation appears to be the most popular form of diversification, there are examples of other non-farming enterprises, including commercial sport shooting (two in particular were given as examples at Beaworthy and Lewdown, both of which have used FMD compensation to enlarge more modest businesses to attract international clients) and fishing lakes (such as at Week Farm, Bridestowe).

Haulage is another sector that farmers have traditionally diversified into. West Devon Borough Council suggested that the largest diversified farm business in the area is Bryan’s Haulage based at Northlew, where the transport business has now taken over from the former traditional farming business.

The NFU and most of the individual farmers were concerned about the emphasis being placed by some public agencies on diversification as a solution to farming’s ills. They suggested that the commercial opportunities for farmers to diversify were limited and that in many areas, such as tourism, the market was already saturated. The underlying climatic advantages
of the land, in terms of high quality grass production for cattle and sheep, was felt to be the foundation on which the large majority of farm businesses would continue to rely. The comment by a farmer, “We produce some of the best beef, lamb and milk in the country. We need to get better at doing this, not diversify into areas we have no talent for”, was typical of many.

2.11 Tourism

In tourism terms, the case study area lies between the far more popular and well known destinations of Dartmoor to the south east, the north Cornwall coast to the north west and Exmoor to the north east. Several consultees referred to the area as ‘the empty quarter of Devon’, a phrase believed to have been coined by South West Tourism. While the area provides a significant amount of tourism accommodation, there are relatively few attractions and most visitors travel to the moors or coast during the day, returning to the area in the evening. Several consultees commented that bed occupancy rates and the length of the season tend to decline with distance from the moors and coast. West Devon Borough Council record bed occupancy rate for the Borough as a whole peaking at 60% in the high season, but they report that the profile for the case study area is flatter than in coastal areas (i.e. occupancy rates out of the main season are higher than on the coast).

This lack of tourism development is seen as a strength by many people and several initiatives, such as the Ruby Country Project and Devon Wildlife Trust’s green tourism project are seeking to promote the area’s tranquillity and rustic lack of sophistication as a means of attracting limited numbers of higher spending visitors. There is growing demand for rural activity-based holidays in the area, particularly over shorter breaks (3-5 days) out of the main summer season and this is starting to be met by businesses such as Little Bidlake Farm which is providing equine accommodation to go with more traditional (but high quality) bed and breakfast accommodation. Part of Sustran’s national cycle route runs through the area (mostly along the old railway line from Exbourne to Tavistock) and it is hoped that this will provide an attraction for tourists during an extended season.

David Leach, from the Devon Wildlife Trust’s Green Tourism Project, drew an important distinction, in terms of business skills and aspirations, between ‘farmers doing a bit of tourism’ (where the main priority remains the agricultural business and income from tourism is seen as a means of supporting this) and ‘tourism businesses on farms’ where farming activity was seen as an adjunct to the more important tourism enterprise, often as an attraction that will encourage visitors. The first category represents the traditional form of agricultural diversification for traditional family farms, with lack of business management skills, time and capital to devote to the tourism enterprise being the main factors limiting the development of the tourism business.

The second category has more varied origins. Some ‘tourism businesses on farms’ have developed from the first category, others involve people with a background in the leisure sector but not farming and a few involve retiring or ‘downsizing’ farmers who have moved to the area with the intention of running a tourism business, while continuing to farm in a small way. Higher Cadham Farm at Jacobstowe was suggested as typical of many in this category, the tourism accommodation being originally set-up by the farmer, but now sold to an incoming non-farmer to develop primarily as a tourism business.

It would appear that women play the primary role in both of these types of farm tourism businesses, particularly the first type.
2.12 Off-farm income earned by farmers and their resident families

Evidence on the extent and character of income earned by farmers and their resident families away from the farm was hard to come by. It is clear that falling farm incomes and a lack of obvious diversification opportunities have encouraged farmers to seek employment off the farm. Agricultural contracting has already been referred to above, and is essentially farm-based.

On the larger farms it appears to be women in the farming family that take employment away from the farm more frequently than men and this employment is often in an unrelated sector (such as office work). The increasing likelihood that wives and daughters will work off the farm appeared to be something that some of the older generation of farmers resent, or regard as unfortunate, but which many women regard as an opportunity to gain experience and interests, as well as income, not related to agriculture.

2.13 Farm Incomes

Regional data from the Farm Business Survey produced annually by Exeter University shows that all the sectors present in the case study area have had low incomes for many years, with the sharpest fall being seen by the dairy sector following a peak in 1996/97, in common with national trends.

No hard data was available specifically for the case study area. However, the farmers visited were clear that most of the trends in land management and employment on farms have been driven by the declining level of farm incomes over the last eight or so years.

While CAP subsidies make up a significant proportion of farm incomes, as is the case across the LFA, the larger size of the dairy sector in this area compared to other case study areas (which currently receives no direct payments and is not eligible for the Hill Farm Allowance) and the absence of an ESA scheme for most of the area, probably mean that public subsidy makes up a lower proportion of farm incomes than other areas. The compensation paid to those farmers who lost stock during the FMD epidemic, as well as public expenditure in the local economy (on professional services, accommodation, etc) was however very significant in 2001.
3. Environmental issues

3.1 The intensity of land management

Of the four case studies examined in this study, the intensity of agricultural production is highest in this area. This is a function of the more favourable climate, soils and topography and the smaller farm sizes. All consultees drew a sharp division between the generally extensive and low input beef and sheep production and more intensive dairy and arable production. Not only are these systems intrinsically different in the level of fertiliser and pesticide and soil cultivations, but there is evidence of increasing divergence. Under the MacSharry and Agenda 2000 reforms of the CAP, including the introduction of the Extensification Scheme in 1994 and the Hill Farm Allowance in 2001, inputs to beef and sheep production have declined and stocking levels fallen (a trend that is likely to increase with the replacement of the livestock premium schemes with the Single Farm Payment in 2005). Conversely, falling output prices and rising unit costs have encouraged dairy farmers in the area to increase yields per cow and the intensity of land management has risen.

Dairy farming has been subject to various fashions in grassland management from the extremes of zero grazing (where all the forage is cut and fed to housed cows) to the New Zealand system where cows are kept outside all year. However, it would appear that these fashions have had little impact in the area and most dairy farms continue to following traditional grazing patterns of winter housing and summer grazing, albeit seeking to increase yields of grassland from ley pastures.

Ultimately, the scale and topography of the landscape, with a dense road pattern and small fields as well as relatively steep slopes, places a limit on the opportunity to intensify production. Farmers were adamant that their understanding and acceptance of agriculture’s impact on the environment is now far higher than it was and there is no desire to pursue unbridled intensification that would damage the environment.

3.2 Impacts on natural resources

The Environment Agency is clear that it is the dairy sector that has the greatest potential impact on soil and water quality in the area. This is primarily through the general intensity of land management (stocking densities and fertiliser use) and through the storage and disposal of manures and dirty water (particularly slurry and silage liquor). They report a decline in point source pollution incidents during the 1990s but are concerned about a recent increase which is likely to be due to the ageing stock of waste handling plant and machinery, to farms increasing production without a corresponding increase in new facilities, and to farms increasing the stocking density on land (producing an increased amount of waste for disposal on the same land area). The NFU also mentioned these concerns, particularly the lack of re-investment in dirty water storage and handling equipment.

Other management activities with a potential to impact negatively on natural resources are outside winter feeding and high stocking levels (leading to soil compaction and erosion).

They reported that it is often the medium-sized dairy herds (70-120 cow herds) that cause the greatest problems since they are often the ones that are most stretched in terms of labour and investment.
3.3 Impacts on biodiversity

The main nature conservation interest in the case study area is culm grassland, also called Rhôs pasture. Botanically, these are species-rich pastures supporting a suite of purple moor-grass and rush communities which are internationally rare. The Culm Natural Area has 8% of the UK resource and 80% of the England resource. The rate of loss has been particularly acute during the last two decades, with overall some 48% by land area lost between 1984-89, of which 87% was due to agricultural improvement. Most of the remaining area is designated SSSI, with much of this (769 ha) being a Special Area of Conservation.3

Early summer grazing with beef cattle is important to maintain an open sward and ensure the purple moor grass does not dominate. High levels of winter grazing, particularly from sheep, can lead to changes in the plant communities and a loss of invertebrate interest. Equally, lack of grazing quickly leads to scrub encroachment and eventual succession to woodland.

English Nature has also identified species-rich hedgerows as of particular biodiversity interest in the case study area. Typically consisting of a stone and earth bank topped by up to ten species of shrub, with occasional trees, these hedges support a range of bird and insect species. The enlargement of fields to improve agricultural efficiency involved the removal of large numbers of hedges in the 1970s, 1980s and early 1990s, although this is now rare.

Tractor-mounted flail cutting is the most common management technique but is often too intensely applied leading to damage of the hedge structure. The stone and earth banks are subject to erosion, made worse by high stocking densities or poor stock fencing, and require periodic ‘steeping’, an expensive operation which many farmers find it hard to justify. Drift from fertiliser and manures into the hedge can also damage the vegetation.

3.4 Impacts on the landscape

The main trends affecting the landscape of the area are the polarisation of holdings into small farm, where land management often changes from dairy to beef and sheep or to horses, and to larger specialising commercial farms, at the expense of medium-sized more mixed enterprise farms. While hedgerow removal had now ceased, there was evidence of ‘block grazing’ where several small fields were treated as one, increasing the scale of the patchwork of different landuses.

The objective of the South West Forest project to double woodland cover in the area was not universally supported, though it received more support on the grounds of landscape change from organisations such as the Countryside Agency.

3.5 Impacts on the historic environment

The County Archaeologist stated that the field archaeology resource of the case study area is not well researched. Whereas prehistoric structures on Dartmoor were often made of stone and remain evident, structures in the study area tended to be of wood and settlement sites are largely invisible now. Recent studies on specific areas (such as around the Roadford Reservoir) had revealed much of interest and this was likely to be repeated in other areas that had not be adequately surveyed.

The best form of land management to preserve buried archaeological features is lightly stocked permanent pasture. Under-grazing, which leads to scrub encroachment and corresponding root damage and over-grazing, which leads to surface damage to the soil, are

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3 English Nature, Natural Area Profile for the Culm
both minor threats. Of greater concern are soil cultivation and land drainage, suggesting that ecological restoration of semi-natural grassland, which usually involves breaking up the existing sward, can be damaging. The County Archaeologist was also concerned about the creation of woodland, by planting or natural regeneration, because of the impact of soil disturbance and root damage. Energy crops are also likely to be damaging, with regular soil damage during harvesting operations an additional concern.

Ancient pre-enclosure field boundaries act as the skeleton to the historic landscape and are particularly important in this area. Increased ranching of livestock may lead to less investment in fencing to protect these features.

Traditional farm buildings, constructed of ‘cob’ (a mixture of mud, cattle manure and straw), are another historical feature of the area and a strong visual element in the landscape. With many of these buildings losing their agricultural function (small shipens being rarely used to house cattle and many traditional grain stores failing to meet quality assurance requirements), they are either being converted to other uses (especially housing) or allowed to decline.

3.6 Involvement of hill farmers in agri-environment schemes

The Dartmoor ESA lies just outside the study area (though see below for the implications of the ESA on farming in the study area). Culm grassland within the area has been targeted through the Countryside Stewardship Scheme (CSS) for seven years and the majority of the larger blocks are now under agreement. Other landscape types targeted by the schemes are ancient species rich hedgerows and old meadows and pastures.

Interest in the scheme has always been high, with demand exceeding the available budget almost every year. In recent years, demand has increased from all types of farms, but particularly from traditional beef and sheep farms and from new landowners with relatively small areas of the land.

RDS reported that around a third of CSS applications are made directly by farmers, a third by ‘partners’, of which FWAG and the Devon Wildlife Trust account for the majority, and a third from private agents. In so far as it is possible to generalise, RDS commented that applications from farmers are often of a higher quality than those from agents since there is a greater personal commitment and ownership of the agreement.

While a few areas of Culm grassland under CSS agreement are large sites and are either managed as common land or part of a larger farm, many are small in themselves and also part of small holdings that are not commercially farmed. On these sites, the availability of livestock to graze the site is critical. This had become an issue before the FMD epidemic, but has become more acute since. “A lot of our Stewardship agreements rely on graziers – and if they give up their stock, the agreement holder often finds it difficult to find another grazier willing to take the site”. It is the availability of beef cattle during the period May to September that is most critical. On some sites, RDS have agreed to allow sheep grazing, or in a few cases, mechanical cutting (though this is not possible on many sites). RDS staff suggested that a flying conservation flock of hardy cattle or ponies may be justified on environmental management grounds in coming years if current trends continue.

RDS commented that as the larger culm grassland sites have been accepted into agreement, their priority has moved to smaller sites (though the application scoring system tends to favour large diverse sites over smaller simpler sites). They commented that smaller sites generally require proportionately more administration and advice, especially to non-farming agreement holders who may not be familiar with the management needs of the site.
Dartmoor fringe

RDS detected a difference in the employment impacts of CSS agreements between larger landowners, who tend to use their own staff to undertake capital and management works, and smaller non-farming landowners who tend to employ contractors. They gave an example of a contractor from Tavistock who employs six full-time staff, a significant part of whose business is generated by CSS agreements (‘steeping’ hedgebanks, fencing, clearing scrub, stone walling, etc), RDS commented that the anticipated increase in the rates of grant for capital works under CSS was likely to lead to a significant increase in the higher value work such as restoration of traditional buildings and stone walls.

Several of the farmers in the case study area commented on the impact that payments received by farmers in the ESA was having on the agricultural economy – particularly in the value of land. Farmers in the ESA who have been required to cut stocking levels have tended to acquire, by renting or purchasing whole farms, better quality land outside the ESA. This tended to inflate prices which the smaller farmers in the case study area who were not in receipt of ESA payments were unable to compete with. The same was also reported to be true for beef and sheep farmers cutting stocking levels following the introduction of the Hill Farm Allowance in 2001, out competing dairy farmers, who were not in receipt of HFA payments, for the rent of land.

Discussion with the NT, DNPA and with an ESA farmer suggests a more complex relationship. In several quoted situations, large farmers higher up the hill, in receipt of ESA and HFA payments have purchased lowland farms to complement their less productive hill farms. However, these new farms tended to be outside the case study area in the more productive non-LFA land, such as in the Tamar valley. In these cases, the hill farmers were in competition with large dairy farmers for the land, rather than with the generally less affluent DA beef and sheep or small dairy farmers in the case study area.

A large ESA agreement has recently been signed with commoners of the Dartmoor Forest common which will involve annual payments of around £1 million. Previous experience suggests that this will have a significant impact on the land economy in the case study area.

3.7 Abandonment

The study saw no evidence of abandonment at a landscape scale, nor did consultees consider this likely in the foreseeable future. Demand for land from existing farmers and in-coming non-farmers remains high and, while the intensity of land management and numbers of livestock are likely to decline, particularly on land purchased by non-farmers, it is unlikely that grazing will cease on whole farms or large areas within farms.

However, there is already evidence that active management of individual parcels of less productive land is declining relatively fast. As stated earlier, RDS CSS advisors are aware of a small, but increasing, number of agreements on culm grassland where the agreement holder is unable to get the site grazed. English Nature also reported concern about inadequate levels of grazing on some SSSIs. This appears to be due to lack of hardy livestock suitable to graze poor quality land (particularly suckler cows) and to the lack of land management skills held by non-farming landowners. The FMD epidemic resulted in a major loss of livestock and, although many of the larger farms have restocked, anecdotal evidence suggests that some of the smaller more extensively run farms, who had livestock more suitable to graze less productive areas, have not done so.

English Nature and the Environment Agency saw benefits to managed withdrawal of agricultural management on the most marginal areas on farms. However, they were less keen on widespread abandonment and were particularly concerned about existing farmers, with a
good track record of environmental management, relinquishing land to landowners with no experience or with the intention of ranching livestock with little investment in stock management.

4. Social issues

4.1 The cultural identity of area

All consultees recognised the central position of farming to the cultural identity of the area. In terms of the tourism profile and market for properties, the perception of a strong land-based community is seen as an attractive feature.

However, it is also clear that many farmers perceive themselves as part of a community under siege, a feeling magnified during the FMD epidemic. Many consultees characterised the farming community as a whole as traditional, averse to risk and therefore resistant to change (though accepting there were many exceptions to this description). Farmers themselves felt that the old certainties in the farming economy and social structures that had guided their lives for many decades were no longer there. A lack of understanding of the pressures facing farmers and the role of farming in maintaining the environment of the area was undermining the self-worth of many farmers. The relative affluence and social ambition of some incomers was seen as a threat by some farmers.

However, several consultees saw benefits in the changing social structure of the rural community. The Countryside Agency stated, “We mustn’t see incomers as blank slates – they come with their own life experiences and we need to tap these for the benefit of the whole community.” Nevertheless, it would appear that most of the incomers to the area value, and wish to reinforce, the sense of a community rooted to the land and its farmed environment.

4.2 Community activities and institutions

There was felt to be a declining reservoir of individuals in communities with the time and long-term commitment to volunteer their time and skills to community activities. The manager of a local community regeneration project commented that farmers and their families were traditionally seen as at the heart of rural communities but demands on their time (arising from lower labour levels on farms and the need to take on work off the farm) were reducing their input into community institutions.

Nevertheless, discussion with several parish councillors suggests that farmer involvement with key institutions such as the parish council remains strong. For instance in Bridestowe parish all but two of the 11 parish councillors have a connection to farms in the parish (one a full-time farmer, eight part-time farmers, and two people who are related to farmers in the parish).

Social capital within rural communities is a concept being developed by several publicly funded projects in the area (the Hatherleigh Area Project and South West Forest Project, in particular). The Countryside Agency is funding the production of a Local Land Management Strategy for the Culm Character Area (in preparation at the time of writing) and this has involved extensive community consultation over the public objectives for land management.

4.3 Social inclusion and integration

The perception amongst farmers that they are a community under siege, with diminishing links to other people in the local community or with society as a whole, is reinforced by a report undertaken for the Countryside Agency by the Universities of Plymouth and Exeter (Reed, Lobley et al.). Drawing on interviews with farmers in the case study area and across
mid Devon as a whole, it found that “Farm family members have often withdrawn from participation in civic society. Few know the names of non-farming neighbours. Membership of the NFU has seen a dramatic fall. Contemporary debates such as the future and legitimacy of hunting with dogs is causing division within farming society. These changes point to a breakdown of collective identity”.

While there is a strong perception that links between farmers, particularly those longstanding farmers in the area, and the rest of the community are becoming weaker, this study found contradictory evidence. Ironically, the FMD crisis in 2001 brought communities together. The Hatherleigh Area Project, started by the County Council following FMD and now supported by the Countryside Agency’s Market Towns Initiative, found that the traumatic experience felt by all members of the community resulted in increased awareness and sympathy for the problems faced by farmers. The example of Bridestowe Parish Council cited above, thought to be typical of many, also suggests continuing high levels of farmer involvement. The RDS reported increasing levels of interest from farmers in the educational access agreement option of the Countryside Stewardship Scheme (referred to again below). The South West Forest project also described a community-based project in the village of High Bickington (north of the case study area) where the village residents and local farmers are developing a scheme to use the County Council tenanted farm for a variety of community related uses. Clearly, positive developments involving greater integration are taking place against a backdrop of low perceptions.

4.4 Recreational provision by farmers

The RDS gave several examples of where educational access agreements under the CSS were introducing liaison between local schools and community groups (such as scout groups, Women’s Institutes and local history clubs) and farms. Transport to the farm and the requirement for a health and safety assessment are constraints on the school. In recognition of this, CSS now requires (and provides guidance to) farmers to undertake the risk assessment. RDS quoted one situation where a farmer had borne the cost of coach transport for the school children in order to enable him to claim the educational access agreement.

The Ruby Country Initiative is developing a series of circular trails for walkers, riders and cyclists on country lanes and existing public rights of way, including three in the case study area. These trails are being marketed as taking the visitor to “Devon’s deepest secrets in places you would not otherwise find”. Previous initiatives (such as the development of the Tarka Trail, which runs to the west of the area) had created antipathy with farmers because of insufficient consultation. In contrast, the Ruby Country Initiative seems to be well supported and is working in partnership with farmers to develop suitable economic benefits from increased quiet tourism.

4.5 Health, safety and quality of life

There was a strongly held view amongst farmers and others, such as the NFU, that the economic pressures reducing investment and labour on farms and requiring family members to take on extra work was having a significant impact on the health of farmers and their families. It was suggested that this was manifested in rising levels of mental health problems (depression and stress) and that physical injury and accidents were also likely to be increasing (though no evidence was available to the study to confirm this). The NFU made the comment “What is perceived to be a healthy lifestyle in a healthy environment is increasingly full of stress and anxiety”.

4.6 Skills and training needs of farmers
A lack of business skills, coupled with an unwillingness to adopt an analytical approach to business management, was cited as a weakness of many farms. Stewart Horne from West Devon Business Information Point confirmed that many traditional farmers lack, or do not use, business management skills (the use of cash flow forecasting and the routine recording and analysis of costs and performance). Charles Coffin, from the Hatherleigh Area Project commented that the business management skills available within farming families should not be underestimated, particularly amongst women, but David Hinshelwood, a farm business consultant, stated that farmers are not untypical amongst many small businesses in not having the time, or giving sufficient priority, to business management. His work with other rural businesses such as shops and garages suggested that farmers were not untypical in their somewhat haphazard approach to business planning.

Some consultees suggested that the increasing educational aspirations and qualifications of younger members of farming families was inevitably leading to a breakdown in the structure of small family farms. The NFU commented “the fastest way to eradicate subsistence farming is to educate the farmers’ children”, but agreed that improving educational attainment was desirable and this change therefore inevitable.

Several consultees saw signs of farmers wanting to take control of their future in ways that have been less evident in the recent past (again the trauma of FMD may be the cause of this). As one business consultant stated “Most farmers have come to realise that there is no great white knight coming over the hill to save them – it’s up to them to make their own businesses”. The study was unable to find evidence of this being translated into farmers acquiring new skills and training.

### 4.7 Succession of holdings

As stated earlier, many farmers are reluctant to sell their property, even if they cease to farm it themselves. The decision to sell is often made when control passes on to the younger generation. Though opinions varied, it would appear that between a quarter and a half of commercial farm holdings have a younger generation willing to take over active farming of the land. For Devon as a whole, the National Trust report that they expect most of their tenancies to pass to a family successor.

Devon County Council have adopted a new strategy for their county farms estate, choosing to amalgamate holdings (from 110 in 2002 to 60 in 2012) to increase the average size and viability, while maintaining a ladder from ‘starter holdings’ of around 100 ha to ‘progression holdings’ of around 200 ha. They stated that this followed a general trend amongst major landlords to increase the size of tenanted farms. The increased use of Farm Business Tenancies (which replaced successional tenancies in 1995) has increased the supply of tenanted land, providing more opportunities for new and expanding farmers.

Both the County Council and the National Trust (which are major landowners in Devon, but have no tenanted farms in the case study area) reported a generally high level of demand for tenanted farms. Most interest is shown by young families (aged between 25 and 35 years) who expect to have another income (on two out of the three County Council farms recently let in the case study area, the wives worked off the farm). Interest in dairy farming is declining while interest in mixed organic farming is increasing. While both landlords require their tenants to have experience of farming, the National Trust in particular is keen to find tenants with additional experience outside farming because this brings a willingness to consider new options. Both landlords reported no shortage of suitable tenants for the more attractive and better situated holdings. While demand for less desirable holdings was
declining, they do not consider it likely that farms will not be let because of lack of interest, although they accept they may need to work harder to find suitable tenants.

4.8 The role of women

The central role of women in many farm tourism businesses has already been referred to. It was also significant that four of the value adding and direct selling farm businesses contacted were run by women (Paula Wolton, Rachel Stephens, Jo Down and Wendy Wills).

Many consultees commented that the role of women on farms in the area is changing significantly, coming “out of the kitchen and into the office” (though this may underestimate the historical business input by women). Much of the administration and record keeping on farm - an increasingly important role on the business - is undertaken by women.

There were suggestions that on some farms it is now the women who take the lead in developing the long-term development of the business. Consultees suggested that many men are too involved in the day to day management of the farm to be able to stand back and take a long term strategic view of the business. It was also suggested that the increasing tendency for women to take employment off the farm in other business environments gave them a valuable, often more objective, perspective.

There is an active branch of the Women’s Food and Farming Union (WFU) in Devon with a number of members (including the recent Chair) in the case study area. Though their membership represents a small proportion of women on farms, they were felt to provide good leadership to others, particularly in their championing of the community links between farmers and the wider public.

The study by the Universities of Plymouth and Exeter for the Countryside Agency (Reed, Lobley et al) on family farms in mid Devon stated “Women working off the farm appears particularly important to the survival of a number of farms but their role is under-acknowledged. Even the women themselves can down-play the significance of their role. This reflects the continuing strong commitment to farming. Non-farming income does not carry the same weight as income earned through farming.”
5. The scenarios

Where the scenarios where discussed in detail with consultees, they tended to comment that all were equally unrealistic as a general model for the area. Most could see examples of each of the scenarios taking place at the moment, and while the implications of the recent CAP reforms were still unclear, suggested that these trends in divergent directions on different farms would continue. The following is an attempt to summarise the range of views expressed.

Scenario 1.

Despite a perception of rapid change in the scale and type of farming and the demography and origins of the farming community, the evidence from this study suggests that the pace of change is slow. With the majority of farms being owner-occupied, many already being part-time, with low interest rates on borrowed money and significant capital injection to many farms following the FMD epidemic, it is suggested that the large majority of farms in the area will be able to resist major change.

The critical issue is whether farmers and their families will wish to carry on farming, or (if they have contracted this to others) will wish to continue to own the land. While it is clear that many farming families have a strong cultural attachment to the land and the farming way of life, it is during the transfer of control between generations that fundamental decisions about the future of the holding are usually made. While some consultees stated their perception that the majority of farms did not have a successor willing to take over the farm, the study found evidence that, at least on National Trust tenant farms and on the larger owner-occupied farms, most farms do have successors in place.

Employment on farms has declined sharply in the last ten years and it seems likely that, while the amalgamation of some holdings and increased use of contracting will allow further falls, the rate of decline in the total size of the farm workforce is unlikely to increase. Indeed, it is possible that the number of employed staff on farms could start to rise as the growing commercial farms need to take on staff (the declining number of smaller farms not having any employed staff to shed).

Given the relatively limited opportunities for farm-based diversification, most farmers and consultees therefore see agricultural production continuing as the mainstay of farm-based activity, and wish to see the quality of this production improve. It is likely that the levels of off-farm employment, particularly by women many of whom see this as a welcome opportunity, will continue to increase and perhaps accelerate as generations change.

This study was not asked to examine the detailed implications of CAP reform. However, discussion with the NFU in the area suggests that the decoupling of subsidies, particularly from suckler cow production, could lead to a decline in beef cow numbers. If the option of regional averaging for the calculation of the Single Farm Payment is chosen there is likely to be significant redistribution from intensive beef and sheep producers to dairy farmers which could accelerate the reduction in beef cattle and the enlargement of remaining dairy holdings.

Scenario 2.

As stated above, it seems unlikely that there will be a dramatic reduction in the number of farmers. Strong demand for residential properties with land and for tenant farms suggests that land abandonment or ranch farming at the scale of whole holdings is most unlikely.
As stated above, it would appear that the economic opportunities to establish new diversified enterprises on farms are relatively limited. Provision of tourism accommodation has been the most popular option but, without a significant increase in the number of visitors (which most people do not wish to see) most new enterprises are not considered viable. Increasing the quality of existing accommodation and adding small scale farm based attractions and trails are seen as the priority.

**Scenario 3.**
Many consultees were keen to point out that there has always been change in rural communities and that it is the pace of change and the ability of individuals and communities to manage it that is important. The current changes are bringing opportunities for farmers in terms of addressing new markets for high quality and locally sold products and for servicing the needs of other landowners who have the capital, but not the skills, to devote to land management.

While there will be growing opportunities for farmers in the area to develop their businesses and address environmental and social objectives, the extent of change will be limited. The aversion of many traditional farmers to risk and their resistance to change, coupled with their unwillingness to co-operate, will constrain business development and diversification.

Farmers already engaged in value adding were also keen to point out that, while the market for speciality farm products is relatively small, competition between producers can quickly erode any premium and, with high levels of capital investment, remove profitability. This suggests that developments should be market led, with attention paid to promoting and marketing the sector.

It seems likely that interest of farmers in agri-environment schemes will remain high and that access to the higher tier options are likely to be limited by the scoring criteria and scheme budget. It is likely that uptake of the proposed Entry Level Scheme when it is launched in 2005 will be high. The implications to the area of the proposed restructuring of the agri-environment schemes into a new Higher Level Scheme are not yet clear, but it seems unlikely that the targeting of culm grassland will receive less priority than it currently does.
CONSULTEES

SW Lakes case study

- Rachel Bland, Lake District National Park Authority
- Geoff Brown, LEADER+
- Jonathan Brunyee, National Trust, Regional team
- Katy Burton, Cumbria Tourist Board
- James Catstick, Farmer
- Sam Douglas, NFU Group Secretary, Broughton in Furness
- Mervyn Edwards, ESA Project Officer, RDS, Penrith
- Neville Elstone, Rural Development Officer, Cumbria Woodlands Project
- General manager, Furness and South Cumberland Farmers Supply
- Anne Hall, South Lakeland District Councillor, Coniston
- George Harryman, Broughton in Furness Livestock Market
- David Hartley, Conservation Manager, Cumbria Wildlife Trust
- Nick Hill, National Trust, Cumbria
- David Hoggarth, Farmer
- David Johnson, Agricultural Engineer, Broughton Mills
- Denise Lowton, National Trust, Cumbria
- Tracy Macdonald, Project based schemes, RDS, Penrith
- Alastair Mackintosh, Farmer and NFU County Deputy Chairman
- Bill McKinney, Vet, Rushton Browne McKinney Practice, Broughton in Furness
- Robert Morris-Eyton, Property agent
- Linda Nicholson, Farmer and Subberthwaite & Blawith Parish Council
- John Pfifer, Farmer and NFU Group Chairman
- Rev. Simon Paul, Vicar, Broughton in Furness
- Ian Soane, English Nature, Kendal
- Judith Sykes, NFU Group Secretary, Broughton in Furness
- Robert Thornton, Farmer
- Mark Wallsingham, National Trust, HQ
North York Moors case study

- Peter Barfoot, North York Moors National Park Authority
- Andrew Herbert, North York Moors National Park Authority
- Bill Breakell, North York Moors National Park Authority
- R Foster, Farmer, Rosedale
- R Dring, Farmer, Hartoft
- C Read, Farmer, Hartoft
- J Swiers, Farmer, Farndale
- R Potter, Farmer, Farndale
- B Potter, Farmer, Farndale
- T Dunn, Farmer, Bransdale
- R Flintoft, Farmer, Bransdale
- B Nicholson, Farmer, Hawnby
- F Fairburn, Farmer, Rievaulx
- C Leckenby, Farmer, Pockley
- R Garbutt, Farmer, Hawnby
- P Smith, Farmer, Hawnby
- Bob Dicker, National Trust
- Judy Richmond, National Trust
- Fiona Tweedie, National Trust
- Sam Mellor, National Trust
- Katherine Hearn, National Trust
- Sarah Metcalfe, Environment Agency
- Louise Webb, Environment Agency
- Robert Brotherton, Environment Agency
- David Clayden, English Nature
- Nick White, North Yorkshire County Council
- Carol Renehan, North Yorkshire County Council
- Paul Arnold, Defra Rural Development Service
- Lesley Blainey, Defra Rural Development Service
- James Hodgson, Defra Rural Development Service
- Sarah Broadnorth, Defra Rural Development Service
- Corina Inverno, Ryedale District Council
- Keith Gavins, Chairman, Lastingham Parish Council
- R Wood, Chairman, Hawnby Parish Council
- D A Wood, Hawnby Parish Council and School Governor
- D Wilson, Farndale East Parish Council
- Elisabeth Castle, Farndale East Parish Council
- K Wilson, Farndale East Parish Council
- Robin Nicholson, Hawnby Parish Council
- Barry Nicholson, Hawnby Parish Council (Clerk)
- Andrew Smith, Forest Enterprise
- The Organic Farm Shop, Pickering
- BATA (agricultural suppliers), Kirkbymoorside
- Angela Palliser, North Yorkshire Rural Community Council
- George Winn-Darley, landowner
- GM Magson Feeds Ltd, Pickering
- George Thompson, Gamekeepers Association
Dark Peak case study

- Paul Stuart, Business Link
- Christine Marshall, Business Link
- Critchlow's Farm Shop, Bakewell
- Carole Evans, Peak District Rural Deprivation Forum
- Dorothy Hitch, Chair of Derwent and Hope Woodlands Parish Council
- Hathersage Parish Council
- Jean Hodgkinson, Outseats Parish Council
- Ron Priestley, Castleton Parish Council and farmer
- Andrew Chadwick, Abney Parish Council and farmer
- David Smith, Grindleford Parish Council
- Hayley O’Neill, New Environmental Economy Project Officer, PDNPA
- Matthew Croney, PDNPA
- Sharon Hewer, LEADER+ Project Officer, PDNPA
- Chris Thompson, Peak Birds Project Officer, PDNPA
- Ken Parker, Director of National Projects, PDNPA
- Jane Chapman, Head of Conservation, PDNPA
- Rebecca Newman, Ecologist, PDNPA
- Tammy Shirley, Rural Economy Advisor, Defra
- Jonathan Marsden, Senior Agriculture Environment Scheme Advisor for Derbyshire, Defra
- Richard Pollitt, Conservation Officer for Dark Peak Natural Area, English Nature
- Jonathan Brunyee, National Trust
- Alastair Sneddon, Auctioneer, Bagshaws
- Andrew Critchlow, Farmer
- Robert Helliwell, Farmer
- Ian Taylor, Farmer
- Peter Atkin, Farmer
- Richard Cotterill, Farmer
- David Gregory, Farmer
- Steven Wainwright, Farmer
- Terry Jackson, Farmer
- Bob Price, Economic Development Department, Derbyshire Dales District Council
- Geoff Eyre, farmer, agricultural supplier, agronomist
Dartmoor fringe case study

- Catherine Backway, Countryside Agency
- Sue Eberle, Dartmoor National Park Authority
- Dan Meek, Devon County Council, Assistant Land Agent
- Frances Griffith, Devon County Council, County Archaeologist
- Jonathan Smyth, Devon Food Links
- Rebecca Matthews-Joyce, Devon Food Links
- David Leach, Devon Wildlife Trust Tourism Project
- David Appleton, English Nature, Conservation Officer
- James Diamond, English Nature, Conservation Officer
- Matthew Low, English Nature, Conservation Officer
- Richard Smith, Environment Agency
- David Hinshelwood, farm business consultant
- Graham England, farmer
- John Dawe, farmer and NFU County Chairman
- Trevor Dawe, farmer and parish councillor
- Paul Griffiths, farmer and NFU Group Chairman
- Margeret Hockridge, farmer
- Rachel Stephens, farmer and manager, Curworthy Cheese
- Paula Wolton, farmer and manager, Traditional Devonshire Meats
- David Vick, Gordon Vick (property agent), Partner
- Charles Coffin, Hatherleigh Area Project
- Jo Down, Little Bidlake Farm (tourism provider)
- Richard Sampson, Mole Avon Store, Manager Okehampton depot
- Alex Raeder, National Trust, land agent
- Julia Procter, National Trust, Farm and Countryside Advisor
- Kim Scott, NFU, Group Secretary
- Melanie Hall, NFU Policy Advisor
- Anthony Gibson, NFU Regional Director
- Peter Hardy, Okeford Veterinary Practice, Practice Manager
- Allison Wallis, RDS, Project Based Schemes
- Maggie Savoury, RDS Countryside Stewardship Scheme and members of her team
- Rosie Austin, Ruby Country, Project Officer
- David Rickwood, South West Forest, Rural Development Forestry Adviser
- Ian Mercer, South West Forest, President
- Jim Skelton, South West Forest, Director
- Jim White, South West Forest, Woodland Projects Officer
- James McInnes, West Devon Borough Council, Councillor
- Tim Beavon, West Devon Borough Council, Economic Development Officer
- Stewart Horne, West Devon Business Information Point, Director
- Postmistress, Bridestowe Post Office
- Postmistress, Northlew Post Office
REFERENCES


High Peak and Dales NHS Primary Care Trust (2003) *Farm Out Health Project – A Participatory Health Needs Assessment of the Local Agricultural Community.*


Peak District Rural Deprivation Forum (undated) *Hard Times – A Research Report into Hill Farming and Farming Families in the Peak District.* Unpublished draft, PDRDF, Hope


South West Forest Project (2001) *South West Forest Development Plan, SW Forest, Cookworthy, Devon*
### APPENDIX 1. SUMMARY OF KEY STATISTICS FOR EACH CASE STUDY AREA

| Farmland area excl. commonland (ha) | 19,170 | 15,304 | 20,512 | 17,163 |
| Number of holdings | 371 | 262 | 262 | 515 |

#### Farmland tenure (proportion of area)

<table>
<thead>
<tr>
<th></th>
<th>SW Lake District</th>
<th>North York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rented</td>
<td>49%</td>
<td>62%</td>
<td>25%</td>
<td>16%</td>
</tr>
<tr>
<td>Owned</td>
<td>51%</td>
<td>38%</td>
<td>75%</td>
<td>84%</td>
</tr>
</tbody>
</table>

#### No. of holdings by type (proportion of total holdings)

<table>
<thead>
<tr>
<th>Type</th>
<th>SW Lake District</th>
<th>North York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle and sheep (LFA)</td>
<td>38%</td>
<td>30%</td>
<td>50%</td>
<td>37%</td>
</tr>
<tr>
<td>Cattle and sheep (lowland)</td>
<td>13%</td>
<td>19%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Dairy</td>
<td>12%</td>
<td>3%</td>
<td>6%</td>
<td>12%</td>
</tr>
<tr>
<td>Mixed</td>
<td>1%</td>
<td>12%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Cereals</td>
<td>0%</td>
<td>9%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>General cropping</td>
<td>0.3%</td>
<td>3%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>All other holding types</td>
<td>35%</td>
<td>24%</td>
<td>41%</td>
<td>47%</td>
</tr>
</tbody>
</table>

#### No. of holdings by size (proportion of total holdings)

<table>
<thead>
<tr>
<th>Size</th>
<th>SW Lake District</th>
<th>North York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 ha</td>
<td>39%</td>
<td>30%</td>
<td>43%</td>
<td>43%</td>
</tr>
<tr>
<td>5 ha to &lt; 20 ha</td>
<td>22%</td>
<td>16%</td>
<td>22%</td>
<td>17%</td>
</tr>
<tr>
<td>20 ha to &lt; 50 ha</td>
<td>18%</td>
<td>19%</td>
<td>14%</td>
<td>20%</td>
</tr>
<tr>
<td>50 ha to &lt; 100 ha</td>
<td>14%</td>
<td>21%</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>100 ha or greater</td>
<td>7%</td>
<td>13%</td>
<td>6%</td>
<td>7%</td>
</tr>
</tbody>
</table>

#### Main land uses (proportion of farmland area)

<table>
<thead>
<tr>
<th>Land use</th>
<th>SW Lake District</th>
<th>North York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crops and fallow</td>
<td>##</td>
<td>26%</td>
<td>##</td>
<td>##</td>
</tr>
<tr>
<td>Temporary grass</td>
<td>3%</td>
<td>6%</td>
<td>2%</td>
<td>9%</td>
</tr>
<tr>
<td>Permanent grass (&gt; 5 years)</td>
<td>52%</td>
<td>43%</td>
<td>39%</td>
<td>74%</td>
</tr>
<tr>
<td>Rough grazing</td>
<td>40%</td>
<td>18%</td>
<td>58%</td>
<td>9%</td>
</tr>
<tr>
<td>Woodland*</td>
<td>4%</td>
<td>2%</td>
<td>1%</td>
<td>4%</td>
</tr>
<tr>
<td>Setaside</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
<td>##</td>
</tr>
<tr>
<td>All other land</td>
<td>##</td>
<td>3%</td>
<td>0%</td>
<td>##</td>
</tr>
</tbody>
</table>

#### Livestock (head)

<table>
<thead>
<tr>
<th>Category</th>
<th>SW Lake District</th>
<th>North York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total sheep</strong></td>
<td>104,512</td>
<td>80,360</td>
<td>76,859</td>
<td>79,828</td>
</tr>
<tr>
<td>Breeding ewes</td>
<td>53,761</td>
<td>39,261</td>
<td>40,036</td>
<td>39,747</td>
</tr>
<tr>
<td>Lambs under 1 year</td>
<td>44,760</td>
<td>39,528</td>
<td>35,166</td>
<td>38,020</td>
</tr>
<tr>
<td><strong>Total cattle</strong></td>
<td>13,715</td>
<td>10,120</td>
<td>5,802</td>
<td>22,000</td>
</tr>
<tr>
<td>Beef breeding herd</td>
<td>1,558</td>
<td>2,592</td>
<td>1,291</td>
<td>3,746</td>
</tr>
<tr>
<td>Dairy herd</td>
<td>2,975</td>
<td>830</td>
<td>936</td>
<td>3,820</td>
</tr>
<tr>
<td>Cattle herd replacements</td>
<td>2,523</td>
<td>767</td>
<td>874</td>
<td>3,312</td>
</tr>
<tr>
<td>Cattle under 1 year</td>
<td>3,480</td>
<td>3,224</td>
<td>1,577</td>
<td>5,602</td>
</tr>
</tbody>
</table>
The agricultural workforce (head)

<table>
<thead>
<tr>
<th></th>
<th>SW Lake District</th>
<th>North York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time farmers</td>
<td>87%</td>
<td>78%</td>
<td>91%</td>
<td>89%</td>
</tr>
<tr>
<td>Full-time managers</td>
<td>1%</td>
<td>2%</td>
<td>0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Full-time employees</td>
<td>13%</td>
<td>21%</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Part-time farmers</td>
<td>69%</td>
<td>65%</td>
<td>65%</td>
<td>78%</td>
</tr>
<tr>
<td>Part-time managers</td>
<td>0%</td>
<td>1%</td>
<td>0.4%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Part-time employees</td>
<td>11%</td>
<td>15%</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Casual workers</td>
<td>20%</td>
<td>19%</td>
<td>21%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Employment by main sectors (head)

<table>
<thead>
<tr>
<th></th>
<th>SW Lake District</th>
<th>North York Moors</th>
<th>Dark Peak</th>
<th>Dartmoor fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture; hunting and forestry</td>
<td>10%</td>
<td>16%</td>
<td>4%</td>
<td>16%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>15%</td>
<td>12%</td>
<td>15%</td>
<td>11%</td>
</tr>
<tr>
<td>Wholesale and retail trade; repairs</td>
<td>13%</td>
<td>14%</td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Hotels and restaurants</td>
<td>10%</td>
<td>12%</td>
<td>6%</td>
<td>9%</td>
</tr>
<tr>
<td>Real estate; renting and business activities</td>
<td>8%</td>
<td>9%</td>
<td>14%</td>
<td>11%</td>
</tr>
<tr>
<td>Education</td>
<td>11%</td>
<td>9%</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>Health and social work</td>
<td>10%</td>
<td>7%</td>
<td>11%</td>
<td>10%</td>
</tr>
<tr>
<td>Others sectors</td>
<td>24%</td>
<td>21%</td>
<td>25%</td>
<td>24%</td>
</tr>
</tbody>
</table>

* Woodland refers to woodland on farm holdings only, not total woodland.

Note: Agricultural data are taken from Defra’s June 2002 Agricultural Census and use the publicly available data, in which information that could be used to identify individual holdings is suppressed. Estimates have been made by repopulating the data where this can be done reasonably accurately (shaded data). Where this is not possible, withheld data is shown as ##.

'Employment by main sector’ data is taken from the Office for National Statistics’ ‘Neighbourhood Statistics’ dataset which is based on the 2001 census.
APPENDIX 2. RESEARCH TOPICS ADDRESSED DURING CASE STUDY VISITS

This appendix lists the checklist of topics and research questions, together with sources of information, which were used by the consultancy team to gather evidence during the case study visits. These research questions were not generally circulated in advance to consultees, but they were available on request.

1. INTRODUCTION TO THE CASE STUDY AREA

Background information: Countryside Agency Countryside Character Area descriptions; local authority information sheets; Defra’s MAGIC database of geographic data.

A brief description of the location, key landscape features and administrative areas within the chosen area.

2. ECONOMIC ISSUES

2.1 Characteristics of the local economy

*Background information:* Annual Business Inquiry; Population census

*Sources:* Economic development officers

What are the main industries and sources of employment locally?

Where do people work, and what are patterns of commuting?

Does agriculture play a marginal or central role in the local economy?

2.2 Agricultural production systems

*Background information:* Defra June Census data on land cover and livestock numbers

*Sources:* NFU, farmers, RDS, NPAs

What are the typical farming systems in the area (production cycles, crop rotations, etc.)?

How does farming contribute to a geographically stratified farming system operating outside the area (sale of breeding or store stock, purchasing of feeds grown elsewhere, etc.)?

What changes have taken place in recent years?

What are the main growth areas in terms of agricultural production (for instance developing markets accessible to farmers in the area)?

2.3 Non-agricultural land uses

*Note:* Non-agricultural enterprises on farms are covered under Topic 1.14

*Sources:* Forestry Commission, woodland projects, RDS, NPAs, National Trust, landowners, specialist businesses

What is the distribution and type of woodland in the area and what relationship is there with farmland and farm businesses? What do farmers use their woodlands for (shooting, stock shelter, timber, etc).
What is the economic impact of forestry and woodland management and how much of this is related to farming businesses?

What are the constraints on farmers increasing the sustainable management of their farm woods, including bringing unmanaged woods back into management and creating new woodland on farmland?

What would the impacts for woodland and forestry be of a retrenchment of farming activity from parts of the area?

What contribution does grouse shooting make to the local economy? Which are the main shooting estates? What are the recent trends in income from grouse shooting?

What other non-agricultural land uses are there in the area? What are the recent trends and current opportunities?

2.4 Patterns of land tenure

*Background information:* Defra June Census data on land tenure

*Sources:* NFU, farmers, RDS, National Trust

What is the current distribution and recent trends in farm sizes?

What proportion of land is owned, tenanted and held as common land by farmers?

Who are the major landlords? Which of these also farm land in hand?

How significant are non-farming landowners in terms of land management? How is their influence felt?

Is there an active commons association representing the rights of commoners? What are the issues that are currently of most concern to commoners and any association?

What proportion of registered commoners actively exercise their rights? To what extent do inactive commoners affect the way the common is managed?

2.5 Land values and trends in marketing of holdings

*Sources:* Land agency firms, National Trust, NPAs, farmers, NFU

How has the quantity and value of rural property that has been marketed changed in recent years, for each of the following categories?

- Agricultural holdings (entire viable businesses)
- Residential properties with attached land
- Agricultural workers dwellings and other small properties without land
- Bare land

What have been the trends in Farm Business Tenancies in recent years (number, size, length of time and value of tenancies)?

What are the characteristics of the people purchasing or taking tenancies of rural properties and land? For what purposes are these properties and land being bought (for instance retirement, second homes, buy to let, expanding existing holding, etc)?

How robust is the market (number of competing purchasers or tenants) in the different categories? What factors are likely to influence future demand for properties and land?
2.6 Sources and uses of farm labour

Background information: Defra June Census data on agricultural employment. Population census.

Sources: NFU, farmers, Local Authority EDOs

What proportion of employment in the area is provided on farms?

What patterns of commuting in and out of the area take place? Where are the main centres of employment?

Other than farming, which sectors provide employment in the area?

To what extent do farmers use family labour, employed staff or self employed contactors?

What are the main tasks undertaken by employed or contracted labour on farms?

How do farmers source new employed or contracted labour?

Is there much sharing of labour between farms? What contractual arrangements are used?

What trends have occurred in the level and types of farming employment?

2.7 The agricultural products and services purchased by farmers

Sources: Businesses supplying farmers (general requisite suppliers, animal feed mills, veterinary practices, agricultural engineers), land agents, NFU, farmers.

How do farmers source their physical farm inputs (through a farmer buying group, from a locally based requisite supplier, from a national conglomerate, etc)? Who are the main suppliers in the area (name, location and characteristics)?

- Livestock – breeding and store
- Crop inputs – fertiliser, pesticides, seed, etc
- Livestock feed and medicines
- Machinery

What sources of expertise and advice do farmers use? Again, who are the main suppliers in the area (name, location and characteristics)?

- Vets
- Livestock fieldsmen (selecting stock for slaughter)
- Dairy consultants
- Agronomists
- Business advisers / accountants
- Environmental advisors

Which of these businesses, if any, are highly reliant on trade with hill farmers, as opposed to lowland farmers or non-farming purchasers?

Is there much sharing of machinery between farms? What contractual arrangements are used?
2.8 Quality assurance and branding schemes

Sources: NFU, farmers, food links initiatives, farmers’ market organisers, regional speciality food group

Which quality assurance and branding schemes are used by farmers? What level and type of assurance (food quality, environmental, etc) and identity (national, regional or local brand) do they provide?

What proportion of production goes through the different schemes? What are the characteristics of the farmers using the different schemes?

What are the constraints holding back greater involvement in these schemes and the raising of the standards in them?

2.9 The sale of agricultural products and services by farmers

Sources: NFU, farmers, NPA, local authority EDO

How do farmers sell their agricultural products (through forward contracts, farmer-controlled marketing groups, auction markets, direct to other businesses, etc)? Who are the main purchasers in each category?

- Breeding livestock
- Finished livestock
- Dairy products
- Arable crops

Which of these businesses, if any, are highly reliant on trade with hill farmers, as opposed to lowland farmers or non-farming suppliers?

What effect does the sale, processing and marketing of this produce have on the local economy?

2.10 Processing of farm produce on farms

Background information: Membership lists of the Farm Retail Association, regional speciality food group and any food links group.

Sources: As for background information, plus NFU, farmers, NPA

How significant is the processing and packing of produce by farmers (in terms of the proportion of farms, and the volume and value of production in each sector)?

To whom do farmers engage in processing and/or packing to sell their produce?

Which are the most notable or significant farm businesses that process or pack produce?

How does this activity contribute to employment (Is all the labour provided by family members or do some businesses take on staff specifically for this)?

2.11 Retailing by farmers

Background information: Membership lists of the Farm Retail Association, regional speciality food group and any food links group.

Sources: As for background information, plus NFU, farmers, NPA

Do any of the farmers in the area sell their produce direct to the public (farm shops, mail order, internet, etc)?
What products do they sell (lamb, beef, dairy products, etc) and who are they selling to (local people, visitors, distant customers, etc)?

How significant is the income derived from this to the farm businesses? What extra costs (labour and capital investment) do these farmers incur?

2.12 Tourism

*Background information:* Data available from the Regional Tourism Board or Local Authority

*Sources:* Regional Tourism Board, Local Authority EDO, NPA

How important is tourism to the local economy in relation to other sectors?

What are the characteristics of current tourism demand in the area (origin of visitors, length of stay, type of accommodation, means of travel, etc)?

What are the characteristics of tourism provision in the area? Where are the main tourism centres and attractions?

How important are farmers and agricultural land management to the tourism ‘product’?

How significant are farmers in providing accommodation for visitors? What proportion of bed spaces in the area are on farms?

Are there farm-based visitor attractions run by farmers?

Are there catering facilities run by farmers (cafes, restaurants, etc)?

What other income-generating tourism services do farmers provide (livery, venue for fetes, etc)?

How significant is the income derived from tourism accommodation and attractions to the farm businesses providing them? What extra costs (labour and capital investment) do these farmers incur?

Who else, other than farmers, provides land-based tourism attractions and facilities (Forestry Commission, National Trust, etc)?

2.13 Other non-agricultural enterprises on farms

*Sources:* Local authority EDO, NPA, farmers, land agents, National Trust

What other farm-based enterprises are there in the area (use of buildings for offices, industry or storage, wind turbines, residential lets of cottages, etc)?

How significant is income derived from these enterprises to the farm businesses providing them? What extra costs (labour and capital investment) do these farmers incur?

How significant are these businesses to the local economy and community (labour provided, impact on capacity of local services such as post)?

2.14 Off-farm income earned by farmers and their resident families

*Sources:* Farmers

What proportion of the employable farming population (the farmer and his/her resident family) earns money away from the farm?

What are the main economic sectors that farmers and their families are engaged?
How important is off-farm income to maintaining the viability of the farm? Does this differ between types and sizes of farm?

What are the main constraints to farmers and their families increasing their off-farm income (skills, lack of time, travel to employment)

2.15 Non-farming purchasing by farmers

Sources: Farmers

How significant to the local economy is the purchasing undertaken by farmers, their resident families, staff and allied businesses?
- Food
- Fuel (including agricultural diesel bought from garages)
- Entertainment (including eating and drinking out)

How does this spending compare to other sections of the rural community, and to visitors?

Are there any non-agricultural businesses that are heavily reliant on spending by farmers? What would happen to these businesses if they received significantly less income from farmers?

2.16 Farm incomes

Background information: Defra’s regional Farm Business Survey data (University agricultural department).

Sources: Farmers, NFU

What is the current state of farm incomes?

How has this changed recently?

Can farmers continue to farm at current levels of income?

3. ENVIRONMENTAL ISSUES

3.1 The intensity of agricultural land management

Background information: Estimate of stocking density (grazing LUs/ha of grassland) from Defra June Census data

Sources: NFU, farmers, NPA, English Nature, Environment Agency, RDS, National Trust, FWAG, County Archaeologist

What is the current relationship between the level of livestock stocking / cropping and the environment?

How have the farming systems in the area changed in respect of the way land is managed (overwintering of livestock, breeds of livestock, balance of sheep to cattle, use of forage crops, shepherding, crop rotations, etc)?

3.2 The relationship between environmental conservation and farming

Sources: English Nature, Countryside Agency, Environment Agency, RDS, NFU, farmers, NPA, National Trust, FWAG, County Archaeologist
How do most farmers regard the environmental agenda? Do they see it as a threat to their businesses or as an asset?

Looking back over the last 5-10 years, how have UK and EU farming policies contributed to the protection, enhancement or damage to the environment in the area?

Similarly, over the last 5-10 years, what impact has environmental designations, legislation and incentive schemes had on the economic and social contribution of farming in the area?

### 3.3 Impacts on natural resources

*Background information:* Environment Agency’s Local Environmental Action Plans (LEAPs)

*Sources:* Environment Agency, NPA, farmers, RDS

What are the main threats to the quality of water (surface and ground), soil and air in the area? What role does farming play in these threats and actions needed to overcome them?

What changes to farming practice are needed to overcome these threats and to improve the quality of natural resources (perhaps ameliorating damage caused by others)? What constraints limit the adoption of these changes to farming practice?

What would the impacts on the quality of natural resources be of a withdrawal of agricultural land management from parts of the area? What impact would alternative land uses (forestry, recreational management, novel crops, etc.) have on natural resources?

### 3.4 Impacts on biodiversity

*Background information:* Local Biodiversity Action Plan. Site Management Statements or Management Plans for designated sites (SACs etc). English Nature data on SSSI condition monitoring. ESA monitoring reports.

*Sources:* English Nature, NPA, Wildlife Trust, RDS

What are the current threats to biodiversity, especially to priority habitats and species? What role does farming play in these threats and the actions needed to overcome them?

What changes to farming practice are needed to overcome these threats and to enhance biodiversity? What constraints limit the adoption of these changes to farming practice?

What would the impacts on biodiversity be of a withdrawal of agricultural land management from parts of the area?

What is the nature of the link between farming and grouse moor management? To what extent does sustainable management of grouse moorland currently rely on agricultural practices?

### 3.5 Impacts on the landscape

*Background information:* Countryside Agency Countryside Character Area descriptions. AONB or NP Management Plans. ESA monitoring reports.

*Sources:* Countryside Agency, NPA, RDS, National Trust

What are the main threats to the existing landscape character of the area? What role does farming play in these threats and the actions needed to overcome them?

What changes to farming practice are needed to overcome these threats and to enhance the landscape? What constraints limit the adoption of these changes to farming practice?
What would the impacts on landscape character be of a withdrawal of agricultural land management from parts of the area?

3.6 **Impacts on the historic environment**

*Background information:* ESA monitoring reports.

*Sources:* English Heritage, County Archaeologist, NPA, National Trust

What are the current main threats to the historic environment of the area? What role does farming play in these threats and the actions needed to overcome them?

What changes to farming practice are needed to overcome these threats? What constraints limit the adoption of these changes to farming practice?

What would the impacts on the historic environment be of a withdrawal of agricultural land management from parts of the area?

3.7 **Involvement of hill farmers in agri-environment schemes**

*Background information:* Scheme uptake statistics from RDS

*Sources:* RDS, NFU, farmers, National Trust

What is the current level of involvement by farmers in ESA, CSS and OFS?

What are the constraints preventing greater involvement (both in terms of the numbers of farmers with agreements and the level of the management tiers/options involved)?

What new incentives and management prescriptions should be introduced to address the environmental threats and opportunities outlined above?

3.8 **Involvement in farmers in renewable energy generation**

*Sources:* Farmers, NPA, NFU, local authority Agenda 21 advisor

What interest from farmers has there been in renewable energy generation (wind, biomass or biogas)?

What is limiting greater interest and involvement?

3.9 **Involvement of farmers in waste recycling**

*Sources:* Farmers, NPA, NFU, local authority Agenda 21 advisor

What interest from farmers has there been in composting and recycling green wastes?

What initiatives are there for farmers to recycle waste (such as silage wrap)?

What is limiting greater interest and involvement?

4. **SOCIAL ISSUES**

4.1. **The cultural identity of the area**

*Sources:* Parish councils, community regeneration projects, farmers

How important is farming for the way of life, identity and culture of the area?

Do farming activities and the farming calendar impact on the life of the wider population?
To what extent does the local population understand and relate to the farming sector?

4.2 Community activities and institutions

Sources: Parish councils, farmers

What proportion of farming families play a significant role in community activities and institutions?

Which are the community activities and institutions that farmers and their families are most involved in?

What skills and experience do farmers and their families bring to these activities and institutions?

How does the role of farmers and their families in these institutions compare with other groups of local residents?

If farmers and their families were to reduce their role, what would happen to the activities and institutions?

How important is farming for the maintenance of infrastructure and services (shops, schools, churches, transport, health services etc)?

4.3 Social inclusion and integration

Sources: Farmers, community institutions, community regeneration project,

Do farmers, their families and staff feel themselves to be at the heart or the periphery of the local community? How do other members of the community view farmers?

What do farmers currently do to communicate their activities and way of life to other residents and to visitors?

What opportunities are there for farmers to increase their contact with the wider population, especially with schools and colleges and with socially disadvantaged people?

What constraints are there on improved social integration between farmers and other sections of the community?

4.4 Recreational provision by farmers

Sources: NPA, local authority PROW officer, farmers, NFU

What facilities are farmers providing for recreation and enjoyment in the countryside (public access on foot, horse back and bicycle on PROWs and permissive routes)?

To what extent does the public’s enjoyment of the countryside depend on active agricultural management?

Are there any frictions between farmers and the public in the countryside?

How could the public’s access to, and quiet enjoyment of, the countryside be increased? What impact would this have on farmers and agricultural land management?

4.5 Health, safety and quality of life

Sources: Farmers, NFU, NPA, T&GWU

How have the changes in farming practice in recent years affected the safety at work of farmers and their staff?
What changes in farming practice or the structure of farming should take place to improve health and safety on farms and the quality of life for farmers, their families and staff? What are the constraints to these changes occurring?

Are there aspects of the way land is managed by farmers that affect the health and safety of the wider population?

4.6 Skills and training needs of farmers

*Sources:* Farmers, local (agricultural) college

What initiatives have there been to assess the training needs of farmers?

What new knowledge, experience or skills do farmers need to develop their farming businesses (IT, business management, market intelligence, new husbandry techniques, etc.)?

What new knowledge, experience or skills do farmers, their resident families and staff need to diversify their businesses or to take on off-farm employment?

Who are the main providers of training and skills to farmers? How reliant are they on farmers for their business?

4.7 Succession of holdings

*Sources:* Land agents, National Trust, farmers, NFU, farmers

On what proportion of farms is a younger member of the family planning to take on the farm?

What aspirations do the younger generation of farmers (i.e. those planning to stay in farming) have for their businesses and themselves?

What factors are influencing the decision of people to leave farming?

What are the characteristics of ‘new entrants’ taking on agricultural holdings? What are their aspirations?

4.8 The role of women

*Sources:* WFU, women farmers and farmers’ wives, local initiatives

How is the role of women on hill farms different from that of men?

What role do women occupy in relation to the running of the farming business, involvement in diversified and off-farm employment and in community activities?

How are women’s role in the running of the business and in the family changing? Is there a difference between the role of younger and older women?