

# Greening LFA payments: the environmental dimension of agricultural support in disadvantaged areas of the United Kingdom<sup>†</sup>

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## Summary

The European Union's support for farming in Less Favoured Areas (LFAs) is implemented in the United Kingdom through headage payments for cattle and sheep. These payments cause environmental concern since, although formally social in nature, they are implicated in processes of agricultural intensification and management practices that reduce ecosystem integrity and landscape interest. In this paper, we examine the extent to which enhancement of the current policy mix could take such concerns into account. Initially, we review the evidence of environmental change, also taking into account afforestation and increasing recreational demands on the hills and uplands. An analysis of the environmental perspective is interwoven with current economic, cultural and social difficulties, based on summaries of farmer attitudes drawn from a range of inquiries. We then examine options proposed for change, particularly the conversion of the HLCA livestock headage payments to an area-based compensation, and greater cross-compliance with environmental preconditions. We conclude that scope exists for improved integration of social support for farming with measures to conserve and enhance the environment in hill and upland areas. However, more coherent policies that encompass marketing to pro-ecological, pro-social consumers, education and research, community and infrastructure could strike a more effective balance in attaining objectives for farming and society as a whole, by according a pivotal role to organic farming as a standard for low-input agriculture.

## Introduction

As part of the accession arrangements for the United Kingdom's adoption of the Common Agricultural Policy (CAP), Directive 75/268 on "mountain and hill farming and farming in certain less-favoured areas" provided the framework for a continuation of social support to agriculture established by the Hill Farming Act of 1946. The implementation of this Directive in Britain is through the Hill Livestock Compensatory Allowances (HLCA) scheme, which provides headage payments to eligible cattle and sheep within designated Less Favoured Areas (LFAs), the less fertile, elevated, humid and peripheral farming regions of Europe. Despite several revisions of the framework through which it is delivered, the wording of the original Directive has remained the basis of policy aims, which are

... to ensure the continuation of farming, thereby maintaining a minimum population level or conserving the countryside.

(Article 1, EEC, 1975)<sup>1</sup>

It could be argued that, in 1975, conservation of the countryside was almost a nominal consideration, identical to or, at least, closely connected with the continuation of farming itself. Since then, of course, environmental issues have increased enormously in political potency, but there has also

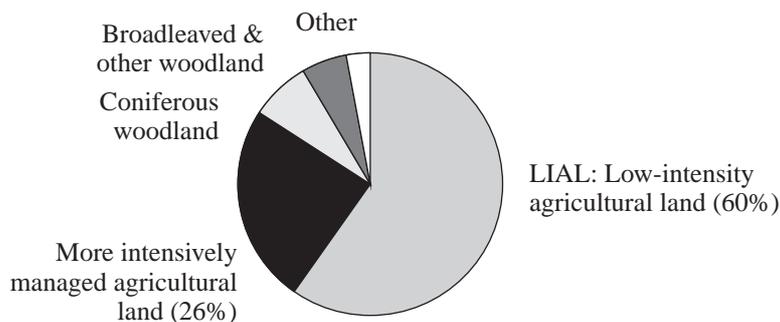
been substantial change in the nature of farming in the uplands of the UK, particularly in enterprise mix and holding structure, mechanisation and intensity. Whilst structural change has transformed the environmental impact of hill and upland farming, environmental scrutiny has concentrated attention on the broad coincidence between the LFAs and vulnerable landscapes and habitats. Their boundaries contain, in addition to improved land, virtually all of hill and upland semi-natural vegetation.

This importance is reflected in the extent of overlapping designation. LFAs incorporate a high proportion of National Nature Reserves and Sites of Special Scientific Interest, and the more recent categories of Environmentally Sensitive Areas (ESAs), Special Protection Areas and Special Areas of Conservation. They also overlap, to some extent, with protected landscape zones in National Parks and Areas of Outstanding Natural Beauty. Although more will be said in the following section on the impact of farming on these valued areas, it is notable that MAFF felt it necessary to tighten the definition of overgrazing in the LFAs in 1992. Pressures on these areas were also reviewed in the House of Commons Agriculture Committee's investigation of support to the hills and uplands in 1993 (HCAC, 1993). Its report expressed particular criticism of the lack of clarity of the objectives of the HLCA scheme, including that relating to conservation of the countryside.

<sup>1</sup> EEC Directive 75/268: Council Directive of 28 April 1975 on mountain and hill farming and farming in certain less favoured areas.

<sup>†</sup> The paper draws on four separate studies commissioned by MAFF, and the Scottish, Northern Ireland and Welsh Offices, to provide an economic evaluation of the HLCA scheme in, respectively, England, Scotland Northern Ireland and Wales (Drew Associates Ltd & The Agricultural Economics Unit, University of Exeter, 1997; Wilson et al., 1997; Davis et al., 1998; Midmore et al., 1998).

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**Figure 1.** Land Use in the Less Favoured Areas of Britain. Source: Wilson *et al.* (1991).

Coupled with very considerable recent falls in farming incomes,<sup>2</sup> the status of the HLCA scheme has thus changed from relatively uncontested, to hotly contested. The EU Commission, in its Agenda 2000 document, has published an indication of the reform options under consideration. This notes the considerable overlap between LFAs and areas of high nature value and considers whether the relevant support schemes could be transformed into a basic instrument to maintain and promote low-input farming systems (EC, 1997). Others consider that direct payments, such as HLCAs, continue support to farming systems that have been responsible for environmental damage; they would prefer a more extensive agri-environment scheme with any transitional direct payments subject to environmental cross-compliance conditions (see, for example, Birdlife International, 1997).

This paper explores the environmental dimension of agricultural support in the hills and uplands, assessing ecological and social evidence and critically considering options for policy reform that seek to minimise damage to the upland conservation interest. The substance of the paper is divided into three major sections. The first reviews the scientific evidence of environmental damage and the links that can be made between this and agricultural practice. This is followed, in the second section, by an analysis of further links between evidence of LFA farmer attitudes, management practice and perceptions of environmental change. The paper concludes with a consideration of this evidence in terms of potential policy shifts and their wider implications for regional and social policy.

### **The environmental impact of agriculture in the hills and uplands: a review of the evidence**

LFAs are estimated to account for around 48 per cent of the total land area<sup>3</sup> and 89 per cent of low-intensity agricultural land (LIAL) in Britain (Wilson *et al.*, 1991). In Northern Ireland, they cover about 40 per cent of the total agricultural area (Davis *et al.*, 1998). Across the UK, LFAs correspond largely

with the hills and uplands, and agriculture is the predominant land use (see Figure 1). Consequently, their landscape characteristics and ecology have developed largely as a result of agricultural activity. In addition to improved inbye farmland, with associated hedgerows, walls and other features, vegetation includes a mosaic of habitat types incorporating grassland, heathland, bogs, springs and gills, flush and marshland, montane cliff and native woodland (see, for example, Barr, 1997; NCC, 1990). Many of these semi-natural communities are considered to be of international significance, and maintenance of their conservation value is dependent upon low intensity agricultural management (Ratcliffe & Thompson, 1988). In particular, unenclosed agricultural land in the LFAs, farmed at low or very low intensity, is composed almost entirely of semi-natural habitats of nature conservation interest.

The hill and uplands also support particular plant and animal communities that are at the limits of their geographical range, as well as some that are unique to Britain (Bignal & McCracken, 1993; Ratcliffe, 1991; Bardgett *et al.*, 1995).<sup>4</sup> Their importance has been recognised by the production of statements and costed action programmes under the UK Biodiversity Action Plan, in response to the 1992 UNCED/Convention on Biological Diversity (Drewitt & Manley 1997). The bird assemblage of over one hundred species, breeding and feeding across the hills and uplands, includes many of international and European significance, including Red Data Book species such as the hen harrier, golden eagle and merlin.<sup>5</sup> Invertebrate fauna may also be of importance, though limited study precludes international comparison (Thompson *et al.*, 1995b; Ratcliffe & Thompson, 1988).

Landscape quality and recreational value of the LFAs are particularly prized as a result of the combination of topography with these natural characteristics, recognised in the extent and range of designations. Heather moorland vegetation is considered to be of special landscape value (see, for example, Wathern, 1992), and naturalness and colour variation in the

<sup>2</sup> For example, the most recently published statistics of Occupier's Net Income for the smallest size of LFA cattle and sheep farms show a decline of 22 per cent in Wales between 1995/6 and 1996/7 (MAFF, 1998). Later falls in prices will have substantially worsened the income position.

<sup>3</sup> This figure, based on the Institute of Terrestrial Ecology (ITE) Land Classes, may be an over-estimate (Wilson *et al.*, 1991).

<sup>4</sup> Of the 90 National Vegetation Classification communities (see Rodwell, 1991 a;b) typically found in the uplands: it has been shown that 30% have no equivalent outside Britain, 42% are of international importance and 13% are listed under EC Directive on the Conservation of Natural Habitats and Wild Fauna and Flora, 92/43/EEC (Thompson *et al.*, 1995b).

<sup>5</sup> These and other species are listed on Annex 1 of the EC Directive on the Conservation of Wild Birds, 79/409/EEC.

hills have been shown to be highly valued by the public (Bullen *et al.*, 1998). 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; Bullen *et al.*, 1998).

#### *Land use and management changes*

Changes in both the broad types and intensity of LFA land use can affect valuable environmental features, the visual quality of the landscape and its recreational scope. In overall terms, agricultural activity has been implicated both directly and indirectly in some (though not all) aspects of environmental change and it has been argued that the process of intensification has resulted in the loss of both wildlife and landscape interest (Alcock, 1992). The scale of intensification in enclosed pastures in the LFAs accelerated rapidly in the early 1980s (RSPB, 1986), as grant aid and new technology offered farmers the opportunity to upgrade land that had previously been considered unimprovable (Wathern, 1992). Land improvement and reclamation involved drainage, ploughing or rotovation, reseeding, the application of lime and fertiliser, or a selection of these operations. Traditionally, agricultural production in the LFAs has concentrated on producing store livestock for finishing in the lowlands but, since 1947, production incentives have resulted in a relative shift in terms of this stratification (Bignal & McCracken, 1993). Livestock subsidies, including HLCAs, may have also encouraged intensification (Hester, 1996) though the evidence for this is inconclusive.

Land improvements have been accompanied by increased stocking rates, particularly in the case of sheep pastures (Alcock, 1992), encouraged by the use of supplementary feeding to maintain numbers through periods of low forage production (Wathern, 1992). Thompson *et al.* (1988) estimated that there was a 31 per cent loss of agricultural rough grassland between 1949 and 1981 in the LFAs of England and Wales, with heavy grazing by sheep accounting for 67 per cent of the total change of moorland cover. In Scotland, the area of heather moorland declined by an estimated 23 per cent between the 1940s and 1980s, with notable regional variation (Winter *et al.*, 1998). It has been argued, however, that the most important cause of net loss in the case of Scotland has been afforestation. More generally, the expansion of forest cover across the UK since the 1940s reflects the poor economic circumstances of agriculture relative to past inducements for investment in forestry (Maxwell, 1991),<sup>6</sup> and has increased the fragility of the remaining vegetation mosaic. In addition to the loss of typical upland communities, particularly with regard to the fragmentation of both heather moorland and rough pasture, valuable habitats occurring at the fringes of moorland have also been affected. Other changes within the LFAs have included the decline in moorland management for game, the

effects of peat extraction, and recreational pressures that cause highly localised erosion, which exacerbates the effects of heavy grazing pressure.

Although recreational pressures have become an important non-agricultural influence on the hills and upland environment (see, for example, Smith, 1985; Bayfield *et al.*, 1988), some researchers consider that such localised impacts are of far less significance than those of agriculture and forestry (Sidaway & Thompson, 1991). Nevertheless, erosion can be severe on popular routes: it has been estimated, for example, that 20 per cent of the Pennine Way is badly eroded, with implications for the cost of restoration and continuing annual maintenance (Edwards, 1991). In relation to countryside access and disturbance to bird life, however, the work of Sidaway (1990) shows that research evidence is mixed and that the traditional view of recreational use being in widespread conflict with conservation interests may be an ambiguous one.

Changes in agricultural land use have also resulted from developments in management and husbandry practices<sup>7</sup> and, in combination with technological and financial incentives, farmers are now able to keep more livestock on the hills. The general increase in stocking densities within LFAs is illustrated by an analysis of MAFF June Census data (Thompson *et al.*, 1995b). This suggests that, whereas nearly half of moorland rough grazing in England and Wales was stocked at rates of less than 1 ewe per hectare in 1977, this proportion had shrunk to just 7 per cent by 1989. Conversely, the area of moorland supporting more than 2 ewes per hectare increased by almost 250 per cent over the same period. By 1989, an estimated 10 per cent carried stocking rates of 5–6 ewes per hectare. These changes have been attributed to the payments of both HLCAs and Sheep Annual Premia (SAP) (Thompson *et al.*, 1995b; Fuller, 1996; Baldock, 1994). Overall, however, it is difficult to measure the effective increase in stocking, as evidence is fragmentary and there is a lack of fine-scale knowledge of where and when increased numbers are accommodated (Fuller, 1996).

Cadbury (1992) suggests that the HLCA ceilings on stocking densities, of 6 ewes per hectare in Severely Disadvantaged Areas (SDAs) and 9 ewes per hectare in Disadvantaged Areas (DAs), have been set far higher than ecological carrying capacity. Other aspects of management change also add weight to this concern. Wathern (1992) has argued that, on their own, stocking rates are too crude a measure, and may underestimate actual grazing intensity, given trends towards larger ewes and higher lambing percentages. Fuller (1996) observes that average stocking densities provide no differentiation or detail regarding the distribution of grazing density between improved land and unenclosed moorland. Within increased overall stocking rates, there has been a shift of emphasis from cattle to sheep production, and to young and larger ewes, consequent on changes in agricultural policy support. These changes are thought to have had a dramatic effect on vegetation, because of variations in dietary preference and trampling patterns. They

<sup>6</sup> Since reform of the tax arrangements for forestry in 1988, the rate at which new coniferous plantations have been introduced has declined considerably (Alcock, 1992).

<sup>7</sup> See Hester (1996) for an extensive review of evidence in the case of Wales.

are widely considered to have contributed to an expansion of species, such as purple moor-grass, mat-grass, heath rush and bracken (Hester, 1996; Torvell *et al.*, 1988).

Common land represents a last reservoir of semi-natural rough grazings in the hills and uplands, but its status has given rise to special problems in the LFAs (Fuller, 1996; Usher & Thompson, 1988).<sup>8</sup> As a consequence of the decline in freehold rough grazing, the commons are growing in importance for nature conservation, particularly in the case of upland birds. They have been largely protected from afforestation and agricultural improvement because of legal restrictions on fencing and the difficulty of achieving consensus for change from all commoners (RSPB, 1986; Penford & Francis, 1990). Nevertheless, there are indications that many commons may be suffering from severe overgrazing (Cadbury, 1992; Drew Assoc. *et al.*, 1997; Midmore *et al.*, 1998). It is suggested that grazing rights have not been adjusted to take account of changes in agricultural practice, including year-round grazing and supplementary feeding.

Registered grazing rights do not prevail over the maximum stocking rates allowed under the latest HLCA regulations and, in theory, overgrazing may be penalised in exactly the same way as if it had occurred on land with sole grazing rights. In this context, there is provision for withholding or reducing both HLCAs and SAP where land is overgrazed or in danger of significant environmental damage through supplementary feeding. However, the difficulties of defining overgrazing have been well-documented and there is particular debate regarding its definition in an agricultural, as opposed to ecological, context.

English Nature's Grazing Index has been a useful tool in aiding the objective assessment of overgrazing, and methods for assessing the condition of semi-natural habitats in the English uplands are in the process of being developed further (Jerram & Drewitt, 1997). There has also been increased MAFF activity in dealing with suspected cases of overgrazing but this is hampered by lack of baseline data and performance indicators. Where management plans cannot be agreed with graziers or the commoners association, MAFF can insist on a blanket reduction based on registered rights or on stock actually grazed (DoETR, 1998). In North Wales, for example, the Llanllechid Common on the Carneddau has been identified by WOAD as having a significant overgrazing problem and a 50 per cent reduction in sheep numbers has been recommended.<sup>9</sup> However, overgrazing rules are notoriously difficult to implement, especially in cases of gradual degradation of semi-natural vegetation (Drew Assoc. *et al.*, 1997). There is clearly a need for new regulatory mechanisms in order to reflect changes in agricultural practice, including the establishment of management groups with the ability to adjust grazing to levels that ensure long-term ecological integrity.

#### *Evidence of environmental change*

Since the 1940s, these developments in land use and farming practices have led to a number of environmental changes in

the LFAs. Direct effects on vegetation include changes in species diversity; changes in community structures leading to the dominance of new species; and the creation of more uniform habitat structures. In turn, there has been an impact on the numbers and types of animal species, with effects on bird life being of particular concern (RSPB, 1995).

Vegetation changes result from a combination of factors, which sometimes interact in complex ways. Three key aspects in the hills and uplands are: loss of vegetation through pasture improvement and afforestation; the lowering of rough grazing quality in terms of species and structural diversity; and the loss of heather moorland to rough grazing (see, for example, Stevenson & Thompson, 1993; Armstrong, 1990; Thompson *et al.*, 1995b; Ratcliffe, 1991; Huntings Surveys, 1986). Since the incentives for both afforestation and land improvement have declined significantly, heavy grazing pressure has now become widely documented as the most significant factor affecting vegetation change. Grazing pressure has been pinpointed as the main cause of a decline in the quality of rough grazing and, where heather moorland existed, its conversion to grassland. In addition to the visible loss of heather and other dwarf-shrub dominated moorland, there have also been unquantifiable modifications to the proportions of existing species and to vegetation structure. It is difficult to monitor these finer-scale changes, but they are considered to be widespread and to have contributed to a decline in nature conservation interest (Hester, 1996; Wathern, 1992; Wilson *et al.*, 1997). Furthermore, such changes are attributed to HLCA payments by many authors (Thompson *et al.*, 1995b; Stevenson & Thompson, 1993; NCC, 1990; Wathern, 1992).

It is argued that the semi-natural vegetation of the LFAs is incapable of sustaining present livestock numbers without continued deterioration in nature conservation value (Wathern, 1992). At the local level, however, patterns of vegetation change relating directly to stocking densities are complex and there can be substantial variation in both the distribution and the extent of environmental impact. Concern has been expressed, for example, regarding the impact of stocking rates on bilberry (*Vaccinium myrtillus*) - dominated moorland, where the dynamics of grass/bilberry/heather relationships are not clearly understood (Welch, 1998). Across the UK, there is a paucity of data that link precise stocking rates with the various vegetation changes documented. Furthermore, it is difficult to attribute changes from broad stocking data due to a number of other influences, such as shepherding, supplementary feeding practices, and the time of year (Cadbury, 1992; Hester, 1996). However, the general decline in heather condition in relation to stocking densities has been well-documented by Bardgett *et al.* (1995), using the results of a sample survey conducted in England and Wales. It was found that 38 per cent of heather cover showed signs of overgrazing and that, when stocked at more than 3 ewes per hectare, nearly three-quarters of heather plants had growth forms typical of chronic damage.

Table 1 presents a synopsis of the many factors involved in processes of ecological change. These interact to provide local

<sup>8</sup> For example, commons represent about 36% of remaining semi-natural rough grazings in Wales.

<sup>9</sup> At the *Common Land Management in Upland Wales* conference held in Llandovery, Wales in May 1998, Welsh Office officials were reported to be investigating 17 cases of alleged overgrazing and were preparing to impose penalties. Most cases involved grazing abuses on common land.

**Table 1.** Factors affecting the impact of high stocking densities on vegetation.

Previous management history	this can effect the response of the vegetation to changes in management (Nolan <i>et al.</i> , 1995). <i>Calluna</i> decline is greater in those areas that have had a longer tradition of intensive grazing, as in Wales (Stevenson & Thompson, 1993).
Vegetation community	different plant species and communities will vary in their responses to increased stocking rates according to their avoidance mechanisms, tolerance mechanisms and threshold values (Briske, 1995).
Burning regimes	herbivores are attracted to the young regrowth on recently burned areas. The balance between grazing pressure and the size of area burnt will influence post fire succession (Thompson <i>et al.</i> , 1995a).
Foraging behaviour and dietary preference	stocking data is not available at the plant community level in most cases, yet it is at this scale that animal selection operates (Armstrong & Milne, 1995; Cadbury, 1992; Hester, 1996).
Off-take of vegetation	where sheep remove more than a certain proportion of heather productivity, there is a shift away from heather cover to competing grasses. This is well documented (Miles, 1988; Sydes & Miller, 1988). Sheep grazing is not too damaging to vigorous heather if less than 40 per cent of the current season's heather growth is removed (Thompson <i>et al.</i> , 1995b).
Wild herbivores	other herbivores, such as rabbits, hares, grouse and deer, particularly in Scotland (Evans & Felton, 1987), may remove a significant proportion of vegetation (Wilson <i>et al.</i> , 1997; Hope <i>et al.</i> , 1996).
Trampling damage	trampling can weaken some species, making them more prone to removal.
Supplementary feeding or fothering	these sites result in increased damage to adjacent vegetation (Hudson, 1995; Cadbury, 1992; Hester, 1996).
Shepherding	the decline of shepherding has prevented mitigation of the effects of supplementary feeding and heavier pressure on land closest to improved fields, as well as allowing sheep to exercise greater selectivity between plant communities (Fuller, 1996).
Time of year	productivity is greatest in July but it is during winter that most losses of <i>Calluna</i> to heavy grazing pressures by sheep occur (Thompson <i>et al.</i> , 1995b; Hudson, 1995).
Soil type/fertility	dung and urine deposition may influence soil fertility and nutrient status which can affect species composition.
Vegetation structure, age of heather	young heather, for example, tolerates grazing more readily than old heather (Thompson <i>et al.</i> , 1995b).
Altitude aspect and climate	it has been suggested that Wales has shown a faster transition to grassland possibly because of differences in climate in addition to very high stocking levels (Fuller, 1996).

differences in both species composition and habitat structures and, consequently, the same stocking rate may cause ecological damage in one area whilst leaving another relatively undisturbed. Carrying capacities vary across the LFAs and, when combined with the variation in farming practices, this suggests that locally-specific grazing controls will result in the most efficient use of the land and the least ecological damage.

Other kinds of vegetation change have also been associated with changing upland management. Bracken is widespread, particularly in Wales and, although evidence is mixed, it has been estimated to be advancing at an annual rate of 1-3 per cent (Marrs & Pakeman, 1995). Infestation is held to be particularly high on common land (Midmore *et al.*, 1998) and can lead to financial losses through a reduction of grazing resources and an increase in tick-borne disease problems.

Woodlands in the hills and uplands are also under threat, since there is clear evidence that current grazing levels are too high for regeneration to occur. Most are now small, highly fragmented and frequently confined to steeper, less accessible ground (Hester, 1996; Alcock, 1992; Smith, 1985; Mitchell, 1990). Although removal of hedgerows in the LFAs has been far less than in other areas of the UK, there has been a significant decline in hedgerow quality. Despite the valuable contribution of field boundaries to the visual character of the LFA landscape, flailing and heavy browsing has resulted in poor hedge structure, impoverished ground flora and relatively low wildlife value (Alcock, 1992).

The interaction of upland bird populations with changing management practices and patterns of land use in the LFAs is complex. Drainage and other land improvements, grazing

pressures, afforestation, persecution and predation have all been implicated in the decline of some species. These pressures work through affecting the balance of preferred vegetation types or structure, and altering plant and invertebrate food supplies. Management changes associated with re-seeding and increased fertiliser use, together with the shift from hay-to-silage-making, are also associated with the relative decline of some species. Although some species may benefit temporarily from the first 10-15 years of conifer plantations, it has been argued that grazing removal may also lead to a substantial loss of upland birds in the longer term (Ratcliffe, 1991).

Although more detailed research is necessary, there is considerable circumstantial evidence in support of a link between increased grazing pressure and declining bird populations (Fuller, 1996; RSPB, 1986). Thompson *et al.* (1995b) have identified particular moorland species in this respect, such as hen harrier and golden plover. Heavy grazing is also thought to have had direct and indirect impacts on game bird populations (Hudson, 1995). A comparison of the summed distribution of selected indicator species of birds with available data on the distribution of LIAL in Britain, suggests that, as sheep livestock units per hectare increases, the mean number of species declines (Pain *et al.*, 1997). Heavy grazing by sheep across the LFAs has resulted in extremely uniform, short swards and, since these are favoured feeding sites for starlings and corvid populations, this factor may also have contributed to greater rates of predation on ground-nesting birds (Fuller, 1996).

Overgrazing may also exacerbate the impacts of pollution, acidification and climatic change on upland vegetation and some authors suggest that these are likely to be less severe under light grazing pressure (see, for example, Ratcliffe, 1991; Fuller, 1996; Hester, 1996). Acidification poses a particular threat in the LFAs, and it is likely that both this and pollution have added to the losses of semi-natural vegetation from other causes (Stevenson & Thompson, 1993; Lee *et al.*, 1988). The localised concentration of excreta in latrine areas, for example, may lead to water pollution from nutrient leaching (Wilson *et al.*, 1997). In addition, the flashier nature of run-offs, associated with short swards, result in less opportunity to recharge groundwater supplies. High grazing pressure in the uplands has also been linked with soil erosion although there have been relatively few studies providing direct evidence (Hester 1996; Wilson *et al.*, 1997). Ratcliffe (1991) argues that loss of vegetation cover intensifies soil erosion and scree formation in some areas, a finding corroborated by the Royal Commission on Environmental Pollution (1996), who recommend that Agriculture Departments make full use of their discretionary powers to prevent overstocking in vulnerable areas.

In purely visual terms, the combined effects of land use and environmental change have been mixed. Over the past fifty years, farming appears to have successfully maintained the broad structure of the landscape in the LFAs but this has been achieved against a background of dramatic and large-scale

developments. The scenic impact of afforestation and reduced heather moorland has been considerable, whilst scars created by new farm roads and footpath erosion, together with farm building developments (associated, for example, with the increased over-wintering of livestock) have also caused controversy. It is important to emphasise, however, that many of the finer scale changes of ecological significance go unnoticed at the landscape level.

#### *Assessing the significance of environmental issues*

The hills and uplands, however, still represent the majority of LIAL in the UK. There has been increasing awareness of the conservation value associated with many of these remaining extensive, traditional farming systems in LFAs, and it is important that their maintenance and enhancement be given the highest priority. If agricultural activity declines in these areas, as has happened in other parts of Europe, the likely result will be further afforestation or abandonment, accompanied by an overall loss of conservation interest (Wilson *et al.*, 1991; Pain *et al.*, 1997; Tubbs, 1996; Bullock & Kay, 1997). Consequently, it is argued that future policy support be focused on ecologically sustainable low-intensity farming practices and areas of high conservation value, rather than on those which have already lost much of their conservation interest (see, for example, Bignal & McCracken, 1996).

It is, however, difficult to predict the impacts of reducing sheep grazing on upland vegetation. 'Suppressed heather', for example, requires more complex management prescriptions than vigorous heather and successful regeneration is less certain (Thompson *et al.*, 1995b). It is also complicated by the heterogeneous nature vegetation, including wetland, grassland and woodland, particularly at the local level (Hunt *et al.*, 1997). Their modelling work supports the hypothesis that relatively unproductive vegetation of the uplands is likely to be unresponsive to changing agricultural management and environmental conditions in the short term. Therefore crude, generalised regulation of grazing intensity is unlikely to lead to improved environmental quality. Before considering more sophisticated policy approaches, however, the often-overlooked dimension of farmer attitudes to the hill and upland environment is examined in the following section.

#### **Farmers' attitudes towards the hill and upland environment in the context of LFA policy in the UK**

The four regional evaluation studies of the HLCA scheme provided a variety of evidence on farmers' attitudes towards the greening of support for farming in disadvantaged areas of the UK. Because they were conducted independently, the qualitative and quantitative methods of investigation differed, and whilst this section attempts to synthesise their results, caution is obviously needed in interpretation and assessment of the overall impression gained from them. Nevertheless, a number of important themes emerge, which we have summarised under the following headings: countryside conservation and environmental change; stocking and other management issues in the hills; support for agri-environment measures in the

<sup>10</sup> Whilst the authors of this paper were responsible, with co-workers, for the findings of the Welsh evaluation of HLCAs (Midmore *et al.*, 1998), we acknowledge the other authors (Davis *et al.*, 1998; Drew Associates Ltd. & The Agricultural Economics Unit, University of Exeter, 1997; and Wilson *et al.*, 1997) for the insights of this section of the paper.

LFAs; and developing the link between farm policy and environmental outcomes.<sup>10</sup>

#### *Countryside conservation and environmental change*

Farmers in general feel that they are “doing a reasonable job” contributing to countryside conservation in the hills. Most interviews in England reflected this, particularly in relation to preserving traditional field boundaries. Evidence, drawn from the Welsh case studies, indicated only modest rationalisation of hedgerows, the lengths and widths of boundaries remaining generally unchanged. Welsh farmers also felt that there had been considerable hedgerow maintenance and tree planting for shelterbelts, whilst financial support for pond creation had been widely taken up some years ago. Some farmers in England and Wales would like to do more conservation work, but were discouraged by poor returns from which to undertake work without grant aid; the survey in England also suggested qualified success in maintaining traditional buildings and retaining natural vegetation.

In terms of observed environmental changes in the hills and uplands, the Welsh case studies identified considerable agreement in some areas and widely differing opinion in others, conceivably reflecting local diversity of conditions in the LFAs, as well as variation in individual perceptions. Welsh farmers highlighted a severe problem of bracken encroachment in some localities, with patches of common land badly affected. However, disagreement exists about the nature and extent of grazing damage in the hills. Some felt it to be very localised, mainly confined to livestock feeding areas; others saw it as a more widespread problem, particularly associated with abuse of common grazing rights. The majority of those interviewed, however, reported recent dramatic changes in bird life in their localities. The number and variety of small birds had declined considerably, including ground-nesting birds such as the lapwing. Accompanying increases were suggested in the numbers of hawks, magpies and other livestock predator species, together with fears that the impact on farming of this imbalance was being ignored, particularly by environmentalists. Crows and ravens were noted as particular menaces, together with reported significant increases in numbers of grey squirrels and foxes. Mention was also made of a considerable decline in river wildlife in one of the case study areas.

Frustration with the environmental lobby also emerged in other regions of the UK. Conservation agencies were criticised by some farmers for not understanding the implications of traditional countryside management. The Scottish study detected strong resentment towards interference from environmentalists in the north-west, where farmers claimed that environmental support not only discouraged agriculture but also led to the non-optimum use of available land. Here, it was suggested that the crofting system would deliver environmental benefits anyway, given sufficient resources. This view was echoed in Northern Ireland, where focus groups concluded that good environmental management “came naturally” to most farmers who, therefore, played a vital role in managing the countryside. Similarly, 90 per cent of the LFA postal survey respondents in England felt that HLCA policy helped to

maintain traditional farming systems. There was a fear that, without support, ranching would predominate, with negative consequences for both landscape value and the viability of rural communities.

The effect of ranch-style outcomes on scenic attraction was also identified as being an issue of concern in Scotland, where the disappearance of traditionally-farmed landscapes, together with increased afforestation, were seen as posing a particular threat to tourism in some areas. Scottish respondents felt that local farming communities were best placed to provide environmental outcomes through agricultural support, rather than through payments for conservation. In overall UK terms, the investigations suggest that many LFA farmers feel that there is a lack of appreciation for the countryside conservation work that they believe is integral with day-to-day farming practice. There also appears to be some concern about non-agricultural impacts in the hill and uplands, and a suspicion that these are not being fully taken into consideration.

#### *Stocking levels and other management issues in the hills*

There were particular difficulties in forming an aggregate perspective in relation to these issues, since survey methods and the focus of individual questioning varied considerably. However, interviews undertaken in England suggest factors most likely to influence farm stocking-rates in the hills. Overwhelmingly, farmers asserted that the most significant determinant was the carrying capacity of the land, with quota restrictions and the requirements of the beef extensification scheme ranking second and third. HLCA stocking limits featured fifth in priority, suggesting a minor role. Comments of a number of respondents to the postal questionnaire, who claimed that SAP and Suckler Cow Premia (SCP) provided “the driving force” behind hill farming, support this conclusion.

On the basis of this evidence, the English study estimates that about three-quarters of HLCA claimants may be operating within prescribed limits by coincidence rather than design. Two possible reasons were given for this: the complexities of the scheme simply deter farmers from actively attempting to comply with HLCA limits; and the limits are set higher than those which might be normally achieved by hill farmers. Some support for this view was evident during Irish focus group work, where it was claimed that HLCA stocking restrictions posed no problem for hill farmers since the land “cannot carry the maximum anyway” and since “other subsidies already limit numbers”. The Scottish report also noted that farming interests believe that SAP and SCP, together with inherent stock carrying capacity, overwhelmingly determine stocking levels. These findings add some weight to the argument that there is a strong link between levels of stocking in the hills and availability of headage payments.

Some farmers in all regions suggested that HLCA payments encourage overstocking: 22 per cent of postal respondents in England also felt that they encouraged higher overall stock numbers. In this context, mention was made of difficulties in detecting and policing overgrazing, though lack of unanimity evident in relation to the degree of overgrazing in the Welsh hill and uplands suggests that opinion across all the LFA regions is likely to diverge. More agreement, however, was

<sup>11</sup> See footnote 9.

apparent in relation to the significance of overgrazing on common land.<sup>11</sup> Some Welsh farmers claimed that their own reductions in stocking on common grazings had simply encouraged others to raise stock numbers. In the absence of effective regulation, there was support for rest periods during which livestock should be prevented from grazing. English farmers also indicated that the problem most frequently encountered on common land was one of overgrazing, their evidence suggesting that one third of commons in England may be inadequately managed.

An increase in the numbers of animals being finished in the hills (that is, animals retained in the hills over a longer time, and sold for slaughter) was reported by the English study. It was suggested that this could be one way in which hill farming has become more intensive without actually increasing stock numbers. Little detail on the extent of land improvement emerged from any of the survey work. Case studies in Wales, however, indicated that where rough grazings still exist, there are now fewer tendencies to carry out the improvements previously supported by grant assistance.

The English interviews also revealed attitudes to the environmental conditions (concerning overgrazing and unsuitable feeding practices) attached to HLCA payments. Only a handful of farmers claimed that their management practices had been influenced by these, and more than three-quarters of those interviewed thought that HLCAs were either effective, or posed no difficulties at all in addressing landscape, habitat or conservation problems. In contrast, very few Welsh survey respondents believed that the environmental objectives of LFA policy were successfully met by the HLCA scheme. Furthermore, it was suspected that payments inflated the cost of grass keep.

Some Irish farmers believed that all livestock payment schemes may have a detrimental impact on overall management, given that they offer little incentive regarding quality. In this context, although the English study found most farmers to be aware of MAFF's *Code of Good Upland Management* and followed it in practice, 21 per cent had not heard of it at all. The implication is that significant parts of the LFAs are being farmed without reference to good practice. An interesting strand of opinion in the Irish study concerned the trend towards part-time farming and the assertion that this might have a damaging effect on hill landscape and habitats, especially in the absence of adequate environmental incentives. It was suggested that, since part-time farmers tend to devote much of their time to essential husbandry activities, full-time farmers are more likely to undertake both general farm maintenance and longer-term investments in environmental quality.

#### *Support for agri-environment measures in the LFAs*

Agri-environment schemes are significant in the context of the conservation objective of LFA policy since, as participation requires lower stocking levels, savings occur in the number of HLCAs paid. Attitudes towards agri-environment measures were explored separately in the English evaluation, where 40 per cent of respondents to the postal survey already participated in existing schemes. Uptake was, in fact, surprisingly high at over 80 per cent of those eligible, with particular support for the ESA scheme. Participation appeared to increase with enterprise size, probably because the area basis of most agri-environment payments provides more financial incentive to larger farmers.

These English respondents suggested a number of reasons for not joining agri-environment schemes. That given most frequently was that participation involved too many restrictions on farming practice, a justification which was also noted in Welsh case studies. In both regions, there was a strong indication that decisions to join were wholly economic: farmers had decided against joining because "it would not make economic sense to do so". Apart from low payment levels, farmers were also unhappy, in more general terms, about being told how to run their farms. Similar considerations were aired in Wales, where some concern existed about being caught out by 'small print'. Welsh critics also complained of bureaucracy; unfair boundary designations (referring to the LFAs, as well as the ESA scheme); and inequitable distribution of benefits. However, more positively, English evidence suggests that three-quarters of farmers ineligible for agri-environment schemes would be prepared to consider joining a scheme compensating them for environmentally-friendly farming.

In Scotland, particularly in the north-west, it was argued that large landowners and absentee landlords stood to benefit most from environmental payments. However, there was a generally positive attitude towards the local ESA scheme and acceptance that such payments made a modest contribution to local incomes. Conversely, some Scottish farmers believed that payments for conservation work were tantamount to accepting income for doing very little, and considered this an unattractive prospect for most working farmers. The feeling arising from focus group discussions was that the emphasis of policy support should be on farming rather than on environmental projects. There was an underlying conviction that local farmers and gamekeepers are best placed to deliver countryside benefits. One perception noted amongst Irish farmers was that environmental schemes are not "real farming". A degree of scepticism also emerged amongst English respondents, concerned about their potential role as "glorified park-keepers".

#### *Developing the link between farm policy and environmental outcomes*

The regional studies provide clear evidence of attitudes towards developing the link between environmental outcomes and farm support policy in the LFAs. Whilst there was some evidence of support for further greening of HLCAs amongst a minority of farmers, opinion was far from unanimous and in some cases there was positive hostility towards any increased emphasis on conservation objectives. The following paragraphs examine the findings of each of the regions separately, since there are considerable variations in the analytical basis of each set of results.

In England, a postal survey explored the acceptability of just three alternative methods of support to hill farming: area payments; direct payments, for example, based on the number of workers; and payment for agreed environmental activities. An analysis of the responses indicated that about one in three farmers were in favour of payments linked to environmental outcomes: unsurprisingly, this proportion increased to 45 per cent amongst those already involved in agri-environmental schemes. Across the whole sample however, opinion was equally divided, since the remaining respondents were roughly split between those who were against such a move and those who were unsure. The result with regard to area payments was more or less the same as that for the environmental alternative,

whilst direct payments received a more emphatic negative response from 60 per cent of those questioned.

In terms of farm size, very small farms in England showed the strongest support for greening (at 40 per cent), compared to only 25 per cent of the largest farms. This evidence appears to be somewhat contradictory, since it suggests that acceptability of environmental conditions decrease – yet participation in agri-environment schemes was found to increase – with increasing farm size. However, the interviews with English farmers further supported this conclusion: 75 per cent of larger farms would not link HLCA payments to specific agri-environmental outcomes.

The Scottish telephone survey sought opinion on a range of potential changes to the HLCA scheme and the most positive response (from 40 per cent of farms) was recorded in the case of making payments through SAP and SCP. Again, direct links with employment attracted the least support (only 17 per cent). Only one in five farmers agreed with the option of linking HLCA payments to environmental outcomes and there was similar support for switching to payments on an area basis. Even a suggestion that the level of farm income might determine HLCAs was felt to be more acceptable than the environmental alternative: 30 per cent of the sample agreed with this option.

Given that applications outran available funds when the Countryside Premium Scheme was introduced in Scotland in 1997, the strength of rejection in the case of linking HLCAs to environmental conditions is, perhaps, particularly unexpected. During the Scottish focus group work, however, a more positive attitude was noted and some farmers warned against fighting public opinion on matters of conservation. It was held that farmers were more likely to be “shut out” of the hills by sporting, as opposed to environmental, interests. Notably, there was some acceptance of the link between HLCAs and environmental benefits in the context of maintaining landscape attraction, particularly where ‘blanket’ forestry is seen as a threat to tourism.

By comparison, surprisingly little was made of the significance of landscape quality and its scenic value during interviews in Wales. The Welsh study reported that the environmental aspects of HLCA payments were perceived to be the least significant of the overall objectives of LFA policy and were only sketchily visible to Welsh farmers. The issue of stocking rates did not appear to be uppermost in considerations of the scheme, nor did matters of conservation figure highly in attitudes towards payment. A small minority of farmers believed that the scheme, as presently operated, is successful in maintaining the hill and upland environment, although there was some modest support for policy changes that might fulfil this objective more effectively. Of those farmers who believed that HLCA policy could be made more effective at all in the future, just one in five agreed that linking payments to environmental conservation might help to achieve this.

In this sample of farmers, tapering HLCA payments according to farm size proved to be the most frequently considered option for potential policy change (35 per cent of farms),

being particularly popular amongst the smaller holdings. Area payments ranked second, attracting the support of 27 per cent of respondents, whereas links with farm employment occupied third place alongside the environmental alternative. Farmers’ attitudes displayed differing strengths of conviction, as well as mixed feelings, about the merits of alternative methods of payment. Overall, opinion was guarded, reflecting the extent of concern about levels of likely policy support and Government commitment to the hills and uplands in the future. Although the Welsh study reported some support for the introduction of a national agri-environment scheme, the underlying impression given was one of uncertainty.

In line with the findings of the other three regions, farmers participating in the qualitative evaluation of the HLCA scheme in Northern Ireland were also generally not in favour of payments tied to environmental conditions. Neither was there much support for payments on an area basis. However, it is interesting that, as the discussions with farmers developed, the Irish study reports a more pragmatic acceptance of the likely shift towards environmental policies, particularly given the support for these amongst the tax-paying public. Nevertheless, a main conclusion of the focus group sessions was that environmental-type schemes should remain additional to, rather than replace, existing livestock headage payments. This being the case, a paradox arises where agri-environment measures designed to correct overgrazing in the hills, may encourage LFA farmers to reduce stocking, yet the existing HLCA scheme provides an underlying incentive to increase it.

#### *The importance of farmer perceptions*

Compared with lowland areas, the relative disadvantage faced by LFA farmers is all but indisputable, given the daily hardships of farming in a comparatively harsh physical environment. There are specific management difficulties (and higher costs) associated with the need to over-winter livestock for a longer period in the hills and the purchase of additional winter feed or grass keep. Many farmers believe that the level of HLCA payments has become insufficient to meet these needs, particularly in relation to winter feed costs. Their evidence also highlights criticism of the scheme in terms of inefficient administrative and operational procedures. However, farmers throughout the hills and uplands appear to generally support and understand the significance of the population objective of LFA policy. In this context, the issue of farm succession emerged as a matter of immediate concern, suggesting that appropriate integrated strategies must be developed in order to address the growing structural problems in the hills.<sup>12</sup> The important impact of hill farming on the local rural economy also seems to be widely appreciated by farmers, yet the environmental dimension of subsidy continues to capture rather less attention. Nevertheless, the comments of some of those involved in the recent HLCA surveys reported in this section, suggest that these views are beginning to change.

#### **Policies to improve environmental performance**

Clearly, the form in which policies support the conservation interest and the community structure in the hill and upland

<sup>12</sup> Evidence drawn from the HLCA interviews with English farmers suggests that some 20 per cent of farms have no successor. On the basis of survey results, the Scottish evaluation also concludes that levels of expected succession “should give cause for concern”.

areas are in need of urgent change. Whilst the two previous sections drew on studies that sought to assess the effectiveness and impact of headage payments on the natural and social structure of the hills and uplands, they can nevertheless provide a base for proposals for reform. LFA headage payments are increasingly viewed as contributing to environmental damage, even if the empirical evidence is limited and fragmentary. The fact that the wide-ranging environmental changes described have been researched in such detail is at least partly due to the interest and pressure of the environmental lobby: much of this work was either commissioned or stimulated by the major protagonists. Conservationists have blamed overgrazing and other changes on the expansionist effect of headage payments (see, for example, RSPB, 1995). Farming organisations, on the other hand, believe that agricultural activity continues to contribute to conservation and that the HLCA is the correct instrument, albeit requiring some modification to counter occasional abuses (see, for example, the views of those reported in Drew Assoc. *et al.*, (1997) and Wilson *et al.*, (1997)). It is clear, therefore, that a difficult balance has to be achieved in the hills and uplands, between social and environmental sustainability. Hitherto, it may be accepted from evidence presented here, that the environmental interest has been neglected and a more sophisticated set of policies is required. However, the balance between human community viability and environmental quality is critical, since farmers' evidence suggests that further cumbersome bureaucracy may lead to undergrazing<sup>13</sup> or even abandonment, resulting in the difficulties occurring in many LIAL areas in continental Europe. The present, inconclusive debate amongst nature conservationists, concerning the extent to which natural succession to woodland is desirable in the uplands (Jerram & Drewitt 1997), is mirrored to an extent by mixed public perceptions of landscape change (Bullen *et al.*, 1998; Bullock & Kay, 1997; Edwards-Jones *et al.*, 1995).

The European Commission's proposals for overall policy reform, including agriculture, regional policy objectives, enlargement and preparation for further trade liberalisation negotiations (EC, 1997) include a revised approach to the LFAs. Overall, the principles of Agenda 2000 extend the shift away from market intervention and price support for commodities; develop flexibility for individual member states in applying policies; and introduce a new emphasis on the sustainability of relationships between agriculture and the natural environment. With stronger environmental cross-compliance conditions and scope within the "national envelope" payments for individual member states to channel support into agri-environment schemes, the proposals formulate a consolidated framework of rural development, including a new system of support for LFAs. The aims of LFA policy would still include the continuation of agriculture and the preservation of the countryside in the hills and uplands, but would add the objectives of maintenance and promotion of

farming systems, and the fulfilment of environmental requirements. In Agenda 2000, it is argued that

... a possibility which deserves further consideration is to take into account the considerable overlap between LFAs and areas of high nature value, and to gradually transform the related support scheme into a basic instrument to maintain and promote low-input farming systems. Such systems, because of specific geographic conditions or just as the result of centuries of traditional farming, often have a high landscape and nature value.  
(EC, 1997: 30)

The reform of LFA policy, set out in more detail in the draft rural development regulation (EC, 1998), is regarded as a pilot for the overall "European Model of Agriculture". It would extend the scope of LFAs to cover ESAs, where farmers are exposed to specific environmental constraints, and add a further cross-compliance requirement that, to be eligible for base area payments, farmers must adhere to sustainable agricultural practices. Most importantly, the Commissioner responsible for agriculture has declared his aspiration for an end to the link between payments and livestock numbers.

... This is a major step towards linking environmental concerns with direct payments under the Common Agricultural Policy. This should help to avoid certain environmental problems such as overgrazing. The premia ceilings have been increased significantly and the idea of avoiding overcompensation is made explicit.  
(Fischler, 1998)

However, area payments will discriminate against smaller farmers, for whom the headage payment system represents an implicit modulation, since they are more intensive. The general consequences of Agenda 2000 would be greater competition for farming in the uplands. Given the farmers' evidence presented earlier, concerning the difficulty of ensuring succession for present LFA holdings (particularly in the context of the process of continued labour outflow from agriculture), these influences imply a continuing increase in size of farming units, and a linked incentive to seek cost reductions. Neither will contribute to enhanced environmental interest. There is also evidence that HLCAs are being eclipsed by other "horizontal" headage payments for ewes and suckler cows (Drew Assoc. *et al.*, 1997; Midmore *et al.*, 1998). The further shift of mainstream commodity support into direct payments, and the linking of LFA payments to farm area, will intensify these effects.

It might be possible to modulate payments on the basis of farm size: scope exists for member states to do this within the national envelope, although considerable pressures for alternative uses will also exist. Whilst modulation appears attractive

<sup>13</sup> Although scientific evidence on undergrazing is limited, research carried out in the Scottish Highlands by Hope *et al.*, (1995) compared open, unfenced moorland sites where sheep had been removed for up to 25 years, with sites where stocking rates had remained unchanged. They concluded that reduced sheep grazing can quickly result in taller vegetation, possibly followed by a slower shift from grassy vegetation to dwarf shrubs and trees on unburned rangeland. Most of the sites showed relatively few changes in floristic composition, with only one being invaded by birch woodland. They concluded that sheep removal may only cause significant changes in vegetation composition and structure where red deer numbers are low.

in some respects, in essence it would be a short-term, *ad hoc* modification of an essentially flawed approach to promoting sustainability, ill-suited to the potentially more open global trading environment. Importantly, administrative difficulties would be created in ensuring that holdings are not artificially split to qualify for higher levels of payment. Adding an additional, costly layer of bureaucratisation, would again be at variance (as in the case of more forceful environmental regulations) with the compelling need to simplify policy delivery mechanisms (Midmore *et al.*, 1998).

Evidence of the attitudes of the principal beneficiaries of LFA support suggests that more fundamental policy reform than that outlined in the *Agenda 2000* proposals is required. Whilst there is a need to develop a shared consensus between the farming community and the wider public, there are indications that the lack of assurance of adequate and sustained compensation levels to farmers acts as a deterrent to any long-term commitment to more environmentally-friendly farming. Acceptance of a changing focus of policy and delivery mechanisms may be forthcoming only reluctantly, and only, at least initially, from a small section of the farming community in the hills. Farmers' support for developing the link between LFA policy and environmental outcomes is relatively weak, and general attitudes towards environmental measures remain ambiguous, despite the imperatives of reform and increasing emphasis on the value of environmental assets. There is also enduring support, in some sections of the LFA farming community, for traditional approaches to farm policy in the hills. Significantly, many farmers feel that their daily conservation activities go unrecognised by the public and that their contribution to the environment is not highly valued: neither do they feel their efforts to be fully appreciated by the environmental lobby.<sup>14</sup>

However, the LFA farming community displays a general understanding of the impact of their agricultural activities on the wider rural economy, and a desire to see hill and upland areas prosper for future generations. This attitude is one worth building upon. The reconciliation of the complex pressures involved in the longer term, especially the need to improve the economic performance of farming systems whilst at the same time enhancing environmental quality, thus suggests a more ambitious integration than that so far proposed by the European Commission. Agricultural production remains, first and foremost, the core activity in the hills, and the potentially beneficial links between this, tourism opportunities, and other environmentally-oriented activities are strong, though currently under-exploited.<sup>15</sup>

In relation to the food sector, consumers are certainly willing to pay more for food produced safely in terms of both health and environmental acceptability (Hammit, 1993; Baker & Crosbie, 1993; Wessells & Anderson, 1995). More relevantly, however, structural change might take more account of the changing characteristics of demand, and of the new phenomenon of the 'post-materialist' consumer. The neo-classical economic view of consumption, focusing on rational, self-interested actors, is increasingly being challenged by evidence

of the incorporation of non-market considerations into consumption decisions (Cogoy, 1995). Evidence from the United States (Roberts, 1996) suggests that one of the principal determinants of ecologically-conscious consumer behaviour is a belief that they, as individuals, can help solve environmental problems. This perspective is beginning to manifest itself in many ways: from community participation in environmental decision-making to growing support for organic "farmers markets", both in the United States and, more recently, in the UK (Jenkins & Midmore, 1998; Chubb, 1998).

Contemporary perspectives on consumer behaviour imply that market demand is embedded in a cultural and institutional setting: this framework is increasingly exhibiting a tension between shared social values concerning the protection of nature, and the individual pursuit of material consumption. In the Netherlands, sociological research suggests that social prestige among higher status groups is gained from more austere lifestyles, moderating use of private transport, fuel and other materials that have implications for the environment (Schmidt, 1993; Librova, 1994). Whilst health concerns partly explain the embodiment of pro-ecological consumer behaviour in the purchasing of organic products, it stems from a lifestyle ideology, connected to values that influence overall consumption behaviour among high-status, high-income groups (Schifferstein & Ophuis, 1998). In other ways, it is manifesting itself in an almost whimsical fragmentation, so that, in Sweden for example, "... the same consumers can be seen drinking champagne and buying things second-hand" (Wikstrom, 1997).

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 & Loble, 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 for incorporation of shared social values (so-called 'pro-social' consumer behaviour) into characteristics of the products of LFAs, not simply of agriculture, but also in diversified tourism and other cultural products. However, such scope only exists whilst there is a sufficient base of environmental and cultural assets to utilise (see, for example, Hughes *et al.*, 1996): given the evidence in preceding sections of environmental degradation, coupled with the present socio-economic depression in the hills, the resulting cultural fragility may increasingly constrain such possibilities.

Construction of these cultural attributes needs to be developed upon existing, rather than completely novel frameworks. A cautionary example of an attempt to incorporate ethics into economic behaviour (the USDA Soil Conservation Service's "Harmony" campaign in the early 1990s), whilst demonstrating the attractiveness of the principle involved, also illustrates the need for careful design, and cultural relevance. This promotional effort sought to raise public awareness of conservation issues through the environmental ethics of

<sup>14</sup> This is paradoxical considering that many conservation agencies now regard farming as an essential pre-requisite for maintaining environmental quality (see, for example, RSPB, 1995).

<sup>15</sup> Such opportunities, particularly those which focus on regional identity, are explored in, for example, Parrott *et al.* (forthcoming).

Native American culture. Whilst successful in public relation terms, Rikoon's (1996) assessment was that, as a result of decontextualisation and popularisation, it failed to bridge the gap between Native and Euro-American assumptions about nature and human-nature relationships. Consequently, the campaign had little impact, either on patterns of behaviour or on the dominant cultural ethos. In a more general context, Osterhuis (1997) has found that consumer trust in the marketing source and identification of the consumer responsibility interest are essential for success, otherwise pro-social product positioning strategies may backfire.

In the present case, we suggest that the emerging pro-environmental, pro-social characteristics of consumers would be best served through emphasis on, and the development of, existing strengths. There is a compelling case for greater integration of organic farming standards into the impending combined framework of LFA and agri-environmental policies, and its use in consolidating and reinforcing all of the issues raised so far in this section (see Lampkin *et al.*, (1998)), for further discussion). The pivotal position that organic farming could play derives from its ability to reconcile all of the divergent influences discussed in this paper.

In the first instance, it is a *farming* system which, although a critique of conventional forms of agriculture (Tovey, 1997), is nevertheless rapidly gaining acceptance as organic premium prices have strengthened, relative to falling conventional levels. In particular, organic livestock farming has become highly profitable following the collapse of beef and lamb prices. In combination with new Organic Aid payments due in 1999 and modifications to standards (currently under discussion) which will shorten conversion periods for beef from, effectively, 5 to 3 years, the economic potential for organic farming in the hills is increasingly clear (Lampkin, 1998). Further, the UK organic market is under-supplied in all sectors (Soil Association, 1998) and, as a long-established quality assurance scheme, the organic standard is easily recognised by consumers. More importantly, its structure encompasses social as well as environmental ethics, including food safety, social integrity and animal welfare.<sup>16</sup> Finally, it wholly fulfils the European Commission's aspirations for low-input, low environmental impact farming systems with market-oriented output.

The long-term policy objective, in the light of this reasoning, ought to be that a high proportion of the combined hill and upland and ESAs should be farmed organically, to satisfy the diverse obligations that individual strands of society impose. Nevertheless, there are a number of difficulties, and the co-operation and participation of the farming community may take some time to develop. Questions are also raised concerning the ability of the lowlands to finish hill-reared livestock within an organic framework, since derived demand may not be adequate to ensure capture of the full benefits. Finally, there are unresolved technical difficulties in implementing organic systems in hill areas, especially with regard

to parasite control (Keatinge, various years). Hence, policy mechanisms need to evolve to allow for this: we set out a suggested strategic framework of action below, which addresses these prevailing limitations through a three-tier agri-environmental programme, integrated with additional support for marketing infrastructure and research.

An important, symbolic, indication of policy development would be to abandon the negative connotation of "Less Favoured Areas": if they are to be combined with current ESAs, then some more positive description, such as "Favoured Environmental Areas" (FEAs) would be appropriate. The focus needs to be shifted from stocking rate reduction, since equally serious threats, such as burning, agricultural improvements including drainage, reclamation and fertiliser applications affect the quality of conservation resources. In order to realise the benefits of an integrated approach, the FEA scheme should be of adequate length: Andrews (1998) suggests that effective schemes should have duration of 10 years, at least. Because of the complex and diverse nature of farm holdings, eligibility would be subject to development of a multi-annual, whole farm environment and business management plan, established on a baseline assessment, identifying which payment tier is being aimed for (each being subject to having qualified for the subordinate tier). The hierarchy might be as follows<sup>17</sup>:

- **tier one**, primary payments for adopting husbandry methods appropriate to the carrying capacity of the farm, and avoiding damage to any unusual habitat identified in the assessment (because there are significant differences between management requirements and stock carrying capacity on enclosed and unenclosed landscape, particularly the commons,<sup>18</sup> and because unenclosed areas may adapt to more extensive management, special supporting arrangements are required);
- **tier two**, intermediate payments for accepting specified restrictions to farming practices for conservation objectives, or for making capital improvements to environmental quality; and
- **tier three**, higher level payments for converting to or maintaining (augmented) organic standards of production and marketing through a framework which specifically identified the pro-social, pro-ecological characteristics of the output.

To complement the farm-based agri-environmental programme, each FEA should draw up a farming development plan, financed by FEOGA through structural funds support (or the alternative rural development programme, if FEAs are outside Objective 1 areas). This would encompass food marketing; quality improvement (reduced stocking levels should result in better quality meat animals and also require less supplementary feeding); liaison with lowland stock finishers; and the development of other products based on natural resources, such as timber. It should include the development of tourism (including access to upland areas, through management agreements that

<sup>16</sup> Social issues are already included in the International Federation of Organic Agriculture Movements standards (IFOAM) and organic animal welfare provision is, in most cases, tighter than that of the RSPCA *Freedom Foods*, though there is room for upgrading in some aspects (see, for example, Lampkin, 1997).

<sup>17</sup> See, also, Buckwell *et al.* (1997: 67-75), whose approach is similar.

<sup>18</sup> Within the UK, this is a problem that needs to be resolved through new legislation to establish common land management bodies with effective powers to regulate grazing.

limit erosion damage), culture and education, in order to amplify the fundamental product characteristics identified above. Finally, it should incorporate the development of local community participation with respect to environmental management, promoting both involvement and a sense of ownership amongst the FEA farming community.<sup>19</sup>

Corresponding action would be required to fund research, aiming to improve the identification of appropriate grazing management regimes for specific farms. Wilson et al. (1997) argue that predictive models of vegetation change are not sufficiently developed for effective decision-making in this respect. There are also clear gaps in the measurement and monitoring of overall environmental performance, and greater research and educational effort is needed to promote better understanding of the impact of agriculture, and particularly changes in grazing pressure, on the upland environment.<sup>20</sup> In accordance with the principles of community participation in environmental action, this research should be farmer-focused, in the sense of taking place on ordinary farms. It should likewise fully involve their managers in the design, implementation, interpretation and applications of the results, to demonstrate the value of, and support for, using local knowledge and experience. In the context of the FEAs, involvement of the human community is indispensable to the achievement of environmental objectives. Given problems of defining ecological criteria and of enforcement (particularly in the light of farmers' overall attitudes to 'interference'), other, less prescriptive, approaches to environmental management have enabled farmers to develop a keen sense of ownership. It is regrettable that the UK did not adopt the educational provisions of the Agri-environment regulation;<sup>21</sup> the Irish Rural Environmental Protection Scheme (REPS) requires all beneficiaries to attend appropriate training courses, having the effect of helping to merge farmers' own objectives with those of the agri-environment scheme.

## Conclusions

This paper has argued that, in order to attain a more sustainable rural economy in the hills and uplands, as well as in other areas considered of high natural value, an approach that integrates emerging consumer trends, farming community involvement, research and education in a self-contained package is essential. The balance between regulation and enforcement, on one hand, and long-term economic viability on the other, cannot be achieved without farmers and other land managers having a sense of ownership in the environmental assets of the uplands: education and awareness are essential prerequisites for the effectiveness of environmental protection (see, for example, Uphoff & Langholz, 1998). The framework of policy development proposed here offers a more relevant means of support to low input farming in the FEAs, in relation to conservation objectives. Without change, policies are likely to become increasingly expensive, inefficient and bureaucratic.

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<sup>19</sup> The benefits of participatory approaches have been well documented in, for example, Asby & Midmore, (1995).

<sup>20</sup> Drew Assoc. et al., (1997). Research commissioned by the DoE in 1992 (Barr, 1997) provides a useful baseline for long-term monitoring of ecological changes in England. This will be important for evaluation of future policy effects and it is hoped that such research will be extended to the rest of the UK.

<sup>21</sup> Council Regulation (EEC) No. 2078/92 of 30 June 1992 on agricultural production methods compatible with the requirements of the protection of the environment and maintenance of the countryside, *Official Journal of the European Communities*, L215, 85.

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