Farmland
Farm types by agricultural parish, 2000
# Farmland

## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>NATURAL HERITAGE FUTURES</td>
<td>2</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>4</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>6</td>
</tr>
<tr>
<td>KEY INFLUENCES</td>
<td>12</td>
</tr>
<tr>
<td>VISION</td>
<td>20</td>
</tr>
<tr>
<td>OBJECTIVES</td>
<td>24</td>
</tr>
<tr>
<td>STAKEHOLDERS</td>
<td>36</td>
</tr>
</tbody>
</table>
This is one of a suite of publications which Scottish Natural Heritage has prepared to guide the future management of the natural heritage towards 2025, within the wider context of sustainable development. Our landscapes and wildlife are highly valued assets which have often been shaped by human activity. Under sensitive management, the natural heritage also has the potential to enhance people’s lives and provide substantial economic benefits, of particular value to fragile rural populations. As far as possible, these documents aim to identify common goals and encourage an integrated approach in which all sectors work together to achieve them.

This document details national objectives for the natural heritage of Farmland. Five complementary documents cover Forests and Woodlands, Settlements, Hills and Moors, Coasts and Seas, and Fresh Waters. There are also 21 local documents which together cover the whole of Scotland, each presenting a vision for sustainable use of the local natural heritage and the action required to achieve it. The 21 areas each have their own identity resulting from the interaction of geology, landforms, landscapes, wildlife and land use – and hence are affected by distinct issues. Data underpinning these local and national objectives are provided in a series of National Assessments which are available on CD-ROM.

This suite of publications is intended to assist all organisations and individuals which have an influence on the natural heritage and the decisions which affect it. The priorities presented will be used to inform SNH’s input to plans and strategies for various sectors and geographical areas such as Development Plans, Community Planning, Indicative Forestry Strategies, access, tourism and renewable energy strategies, local...
and national Biodiversity Action Plans, integrated catchment management, integrated coastal zone management and National Park Plans.

The documents take account of the views of a wide range of partner organisations, which were sought through consultation carried out during 2001. Consultees included local authorities, public agencies, representatives of private interests and voluntary bodies concerned with conservation, rural development, recreation and land management. There was considerable agreement with the visions, objectives and actions, but SNH recognises that there are also some issues where further discussion is needed: the roles of different parties in taking action and the ability to agree a shared vision being examples. We will be working with partners to achieve agreement and to identify any actions which are not currently being taken forward.

The vision statements and associated objectives set out through this programme remain essentially those of SNH, although shared to a greater or lesser extent by a wide range of partners. A key function of these published documents is to stimulate the wider debate necessary to establish a broader vision for sustainable development in Scotland, and to translate it into action.

The objectives for the natural heritage set out through this programme link to a wide range of other plans, strategies and initiatives including A Forward Strategy for Scottish Agriculture, Rural Scotland: a New Approach, and Biodiversity Action Plans, as well as local initiatives such as National Park plans. The wider policy context also includes the Scottish Forestry Strategy, land reform, the Habitats and Birds Directives, the Water Framework Directive and the Common Agricultural Policy.

Natural Heritage Futures does not seek to replace existing administrative boundaries. It does, however, emphasise the need for flexibility across all systems of governance in order to work towards sustainable development, acknowledging that natural systems do not recognise administrative boundaries and that integrated action across those boundaries is essential.

The framework of 21 areas is intended to be used to promote integrated approaches to the natural heritage at the local scale; it is a means to facilitate discussion on areas that share essentially similar natural heritage. The boundaries should be viewed as indicative, with places lying close to a boundary having transitional character between the approaches/issues in adjacent areas.

The objectives and actions in these documents will be refined and translated into detailed targets through the plans and strategies which will take them forward. Local Biodiversity Action Plans (LBAPs), for example, will identify detailed targets for species and habitats. Also the framework provided through Natural Heritage Futures can help determine spatial priorities in, e.g. development plans and community plans. SNH will also review its own work programmes against the objectives and actions in these documents, and make the necessary adjustments.
The natural heritage is the product both of natural processes and a long history of land management. A wide variety of different types and sizes of farms has given rise to different kinds of landscapes and is associated with different kinds of wildlife. In much of the uplands farming has remained relatively extensive, although it has changed significantly in other ways.

The overriding agricultural policies of the past 50 years have been a major influence on the Scottish countryside. It is now clear that these policies are no longer sustainable in either agricultural or environmental terms. Current trends appear to be heading towards a situation where farming will become polarised between relatively few large highly productive farms capable of surviving without production subsidies and a larger number of smaller farms incapable of deriving sufficient income from the production of food. This could result in a segregated countryside where the natural heritage is restricted to protected sites or to the remoter areas of north and west Scotland, and where the intensively farmed areas of the south and east are more or less devoid of biodiversity and landscape interest.

The vision is based on a comprehensive agenda for the natural heritage covering all types of farmland. Achieving this vision will require a reorientation of agricultural policy in Scotland with the aim of creating:

- a confident agricultural sector willing to meet the challenges of sustainable development;
- an industry committed to farm assurance, for health, animal welfare and the natural heritage;
- agriculture’s multi-objectivity reflected in subsidies and incomes, particularly in relation to the wise management of the natural heritage;
- more integration of agriculture into wider rural policy and more secure land-based employment in rural areas;
- efforts to ensure positive environmental outcomes from agricultural restructuring;
- a competitive, innovative, locally based food processing industry, and greater added value based on landscape and natural heritage associations;
- the involvement of farmers and local communities in policy, with the aim of increasing their responsibility for natural heritage stewardship;
- increased public understanding of the linkage between agriculture and the environment; and
- an industry committed to encouraging public access to farmland.

The vision will depend on co-ordinated action by a wide range of farming, crofting and other rural interests to meet the key objectives for the natural heritage.
A description of the main features of the natural heritage and its enjoyment
More than three-quarters of Scotland (roughly 5.75 million ha) is in agricultural use either for arable production or as improved grassland or rough grazing, and this land is managed in the form of over 30,000 major agricultural units. Both agriculture and the natural heritage ultimately depend upon the soil, sunlight, water and air and the natural processes driven by these resources. Land management, particularly farming, has been modifying Scotland’s environment since the time of the first Neolithic farmers more than 6,000 years ago. The natural heritage as we now see it is therefore the product both of natural processes and a long history of land management.

Through the interaction of land use and nature a wide variety of habitats and landscapes has developed, valued for their scenic qualities and their wildlife. Despite the fact that so much of Scotland is farmed, three-quarters of the land stands at more than 300m above sea level, rendering it difficult for agricultural use; agricultural activities are still largely constrained by the harsh conditions of the upland environment.

Scottish farmland can be divided into four broad types: hill livestock, crofting, lowland livestock and dairy production, and arable cropping. These all interact with the natural heritage in different ways, giving rise to different types of landscapes and each associated with different kinds of wildlife.

**Hill Livestock Farms**

Much upland farming is severely limited by climate and soil. Sheep farming predominates in the hills and this, together with mixed sheep and beef cattle on the lower ground, extends over 55% of Scotland. A typical hill sheep farm comprises large areas of hill land and little or no inbye, relying heavily on away-wintering and on imported concentrated feeds to supplement the diet of ewes before lambing. The main output is the production of store lambs for lowland fattening.

![Hill farm](image)
Mixed livestock farms on the upland fringe will have areas of rough grazing and a substantial area for forage or improved pasture, typically supporting sheep and suckler cows. This category also includes mixed farms which rear suckler calves and store lambs using some home-grown cereal and winter keep. These farms represent a significant proportion of farms in the Less Favoured Area (land disadvantaged in terms of agricultural production). Characteristically they comprise a mixture of permanent grassland, spring cereals, winter forage (turnips, rape), hay and single-cut silage which supports much of the biodiversity of such areas.

The extensive farming methods of the core hill areas rely largely on more-or-less natural vegetation and natural processes such as nutrient cycling and plant competition. These methods maintain populations of wild plants and animals, their habitats and the characteristic scenery of the upland landscape.

### CROFTING

**Crofting** retains a significant place in Scottish agriculture, extending across one tenth of the agricultural area. It is a characteristic feature of many coastal and upland areas such as Shetland, the Outer Hebrides, Skye, Tiree, Wester Ross and Sutherland. A typical croft consists of a small area of enclosed land close to the farm steading and a share of more extensive, common hill or machair pasture. Livestock rearing is the main activity and sheep predominate. Significant cattle numbers remain in only a few areas. Some hay, silage and fodder may be grown on inbye land or on the machair but cropping is no longer widespread.

Crofting, like many small farms held under other kinds of tenure, typically represents a **less intensive** form of farming which has created and maintained valuable wildlife habitats and landscapes. It has been relatively uninfluenced by developments in agricultural technology and depends less on chemical inputs than many other forms of farming. It has responded to production-led subsidies by increasing stock numbers however, with the result that grazing pressures have increased and the quality of many habitats has deteriorated.

The **risks of pollution** associated with livestock and dairy farms are considerable. They arise from four main sources: slurry, silage effluent, fertiliser run-off and from detergents and disinfectants used for dairy hygiene.

### ARABLE CROPPING

**Arable cropping** is largely restricted to the eastern lowlands. Specialist cereal farms range from less than 100ha to well over 250ha. Most of the largest farms are found in Lothian and the Borders. Winter wheat and winter barley are the main crops, with smaller areas of oilseed rape, potatoes and other root crops.
Small arable farms are also found on the lower slopes of the hills, particularly in Grampian Region. These are often more mixed, with cereals and swedes in addition to suckler cows and sheep.

Arable cropping is now highly technological, depending on the use of inorganic fertilisers, pesticides, herbicides, fungicides and growth regulators.

Arable soils are generally drained and regularly cultivated. In areas with low rainfall and on lighter soils, potatoes and high value crops are often irrigated. This type of farming, represents a highly specialised system maintained by high levels of inputs.

**LANDSCAPE**

Landscapes are dynamic, shaped over time by a combination of natural forces and human activities. Changes in land ownership, land use, society and policies all produce new landscape features which, in time, come to be accepted as characteristic, and ultimately become part of the archaeology of the landscape. Agriculture continues to be one of the principal influences on the evolution of the Scottish landscape.

Hill farming determines much of the character of the Scottish uplands through its patterns of enclosed inbye and features such as steadings, sheepfolds, and stone dykes. Often these landscapes fulfil the sense of wilderness and exposure that many people seek as an escape from life in towns and cities. The landcover mosaic is dominated by large areas of heather moor, grassland, plantation woodland and water, with small patches of native tree cover and a mosaic of bracken and rushes on lower ground.

These landscapes contrast with those of the lowlands. Richly coloured soils, flat or gently sloping ground, bold field patterns and varied cropping give lowland areas wide horizons and a seasonal variety of colours and textures. The concentration of hedged pastures, hedgerow trees and avenues associated with dairying in the south-west make a significant contribution to local landscape character. In eastern Scotland, mixed and arable farming have created a pattern of larger, more open fields.

Drystone dykes are also a key feature: variations in materials and style reflect local variations in geology and the availability of river-washed or glacial boulders. Estate walls are particularly important features in parts of the lowlands, distinguished by their height, use of mortar, dressed stone and copings.

A feature of many lowland areas is the small policy woodlands, which were frequently planted as cover for game and are commonly associated with designed landscapes. Many of the older surviving farm buildings date from the 17th century. Byres, mills, cheese presses, dairies and ancillary buildings reflect the colours, textures and qualities of local stone, design and construction methods. They remain integral to the character and history of their farmland setting.

The crofting areas of north and west Scotland show a small-scale patchwork of pasture, meadow and cultivated land, walls and scattered dwellings. They vary from gently sloping linear fields with rocky boulder outcrops to expansive sea views or glacial sculpted landforms and moorland beyond. Historically many crofts were set close to the coast, either dispersed or grouped around a small harbour or sheltered glen.

Traditional croft houses are simple in character, reflecting local stone and building methods and reinforcing the local distinctiveness of individual crofting townships. On inbye land visual diversity is largely derived from the land-use management patterns. Differing grazing and cropping regimes on strong rectangular field patterns produce a range of colours and textures throughout the year. Common machair grazing is unenclosed; its character changes dramatically when the...
machair comes into flower in May and June. Machair shares sub-divide the machair plain into linear strips oriented towards the sea. The land-use patterns of hay, silage and fallow create diverse patterns of colour and texture which change both seasonally and annually, breaking down the machair into smaller units.

**BIODIVERSITY**

There is a close relationship between the structure and diversity of farmland and its wildlife value. Features associated with agricultural land management, which are important to wildlife, include farm woodlands, hedges and trees, stone dykes, ponds, ditches, track corridors and verges. A long history of cultivation, land improvement, grazing and clearance has at various times created, modified or replaced many of these habitats.

The typically high-input management of lowland arable and dairy farms produces a uniform crop structure and low species diversity, but it does provide a limited habitat for wildlife. Cultivated fields can support a flora of annual weeds, which provide seeds and attracts insects for bird-life while stubble fields offer winter feeding. Improved grassland provides feeding for geese and some hunting for raptors. The area in between the crops provides a wider range of habitats and in some cases these can be highly significant for wildlife. Approximately a quarter of lowland farmland birds nest in woodland and a further fifth in hedges and trees. Deciduous woodland supports about one and a half times as many species as coniferous or mixed woodland.

**Unimproved grassland** is an important farmland habitat. The sward can include a wide variety of plants such as orchids, devil’s-bit scabious, and hawkbit. Unimproved grassland can support good populations of voles which are important food for sparrowhawks and barn owls. The insect populations support birds such as grey partridges and skylarks. Many of the UK Biodiversity Action Plan priority species of invertebrates in Scotland depend upon unimproved grassland. These include the marsh fritillary butterfly and the narrow-bordered bee hawk moth and several species of snails and flies.

**Hedges and dykes** provide a refuge for plants, insects and small mammals that were once widespread in the countryside; these also act as corridors along which wildlife may travel to disperse or colonise new areas. Boundary habitats can also act as a buffer against or compensate for the negative impacts of some agricultural practice. Good examples are conservation headlands, where the outermost strip of the crop is managed to control weeds rather than eradicate them, and grass margins, where a grass strip is grown around the field edge with no inputs. Beetle banks, ridges created in large arable fields and sown with grasses as a refuge for overwintering invertebrates, offer similar advantages for biodiversity but also contribute to the natural control of insect pests.

**Ditches and streams** provide rich habitats of flowering plants and for invertebrates such as butterflies and beetles. Many of the watercourses that run through farmland are modified so as to improve drainage and are affected by agricultural activity on adjoining land. Nutrient enrichment from fertilisers and siltation, due to erosion, can cause problems far beyond the farm boundary. The removal of natural meanders increases water flows, and excessive sediment may smother the spawning beds of salmon, trout or lampreys. Land-use change, drainage, conversion to production of crops or livestock, and the clearance of floodplain woodland have modified rivers and increased the run-off of nutrients and sediment into fresh water.

**Wetlands** are important for the life cycles of many species, particularly for birds and invertebrates. Wetlands occur on many farms – they vary in size and character, from rushy low-spots in pastures to river-valley meadows, lowland raised bogs and coastal dune slacks. Although it is uncommon in Scotland,
grazing marsh is important for a number of breeding waders and wintering wildfowl. This periodically inundated grassland is characterised by ditches that maintain water levels and these ditches are especially rich in plants and invertebrates. Saltmarshes and sand dunes have traditionally been used for grazing but, more recently, coastal habitats have been converted to improved grassland (through land claim, drainage and fertilisation). Wetlands and marshes often play an important role on the farm because of their capacity to control floodwaters and to act as coastal defences.

There is a close association between the way agricultural land is managed and the wildlife it supports. For example, the corncrake depends on traditional management of machair grassland, which is unique to the north and west of Scotland and Ireland. Machair is also a key habitat for some arable weeds and a rich invertebrate fauna, including rarities like the great yellow bumblebee and the northern colletes bee.

Moorland, bogs and upland grasslands cover a considerable area of the north and west of Scotland. They are an important habitat for many highly specialised plants and animals including bees, beetles and spiders, more than 40 bird species, 21 of which have moorland as their sole or major breeding habitat. Small variations in soil type and topography produce habitat niches that are exploited by a variety of plants, which in turn attract insects and birds. Agriculture in these areas largely relies upon this semi-natural habitat, which is interspersed only with relatively small areas of inbye land for cropping and cattle. In the absence of agricultural management, burning (muirburn) and grazing by sheep and deer, much of upland Scotland would ultimately be colonised by trees and scrub.

Most of Scotland’s raised bogs are set within farmed landscapes. They are a particular feature of the eastern lowlands and the Central Belt where many have been affected by drainage for agricultural use, forestry and open-cast mining.

RECREATION AND ACCESS

Scotland’s natural heritage provides great enjoyment for the people of Scotland and visitors alike. It is the home and workplace for rural communities and provides attractive settings for many of our towns and cities. Increasing numbers of people seek release from the pressures of modern life and work through outdoor pursuits and enjoyment of the landscapes and wildlife of the countryside. In this way the natural heritage contributes to the health and well-being of millions of individuals.

Scotland’s scenery is acclaimed throughout the world and the quality of the countryside has long attracted visitors. The rural economy benefits greatly from tourism (more than 4.5 million visitors every year), indeed services associated with tourism now dominate the economy of many areas.

The tracks, paths and to a lesser extent field margins of farmland have traditionally been used for recreational walking. Tracks around farms are also used by horse riders and cyclists. While access is generally tolerated by farmers, very little of the land is covered by rights of way, and many lowland areas lack good networks of footpaths. The proximity of much of Scotland’s intensively managed land to centres of population makes it of prime importance in terms of local access and recreation.

Much of the ground that has become so important to climbers and walkers is hill-farm and croft land, not necessarily as a destination in itself, but in providing routes to the higher ground. Improved roads now make these areas more accessible and their value is increasingly recognised by visitors from abroad.

While the economic and social importance of enjoyment of the countryside is widely recognised there remains a deficit in terms of planning, management and investment in access. Many areas of the countryside, particularly in the lowlands, are not yet accessible.
Key influences on the Natural Heritage

An outline of how the natural heritage has changed, how it is changing and the key factors influencing change. The changes described are both positive and negative and together with the Description, provide the basis for the Vision.
The overriding agricultural policies and the main support mechanisms of the past 50 years have been based on post-war needs for food production and self-sufficiency. These policies, driven by changing social expectations, European and world markets, and supported by spectacular advances in technology, are still a major influence on the Scottish countryside. It has become clear however that these policies are no longer sustainable either in agricultural or environmental terms. Over recent years the over-supply of European markets (partly the result of more imports), the increasing strength of the pound and a number of other factors have combined to create a climate in which the nature and function of farming is increasingly questioned.

Farming in Scotland is currently incapable of providing an adequate income for many farmers, is uncompetitive in world markets, a declining contributor to rural employment and the national economy, is limited in its response to market signals, and exerts a significant cost on the environment.

Over the past ten years or so new policies have begun to address the wider environmental and social responsibilities of agriculture. Nevertheless, further change in this direction is required, both in policy at the European level, and in the willingness to implement these policies for the long-term benefit of farming and the natural heritage in Scotland.

In the current economic circumstances, the natural heritage will either be established as holding an important place on the agenda of agricultural, economic and rural policy, or will be increasingly marginalised in the face of competing demands.

The Agricultural Landscape

Changes in agriculture over the past 50 years have resulted in a reduction in the variety of Scotland’s farm landscapes. The scale and intensity of farming has increased and former marginal and unimproved land has been brought into production. Fields in the lowlands are larger, with many traditional boundaries either removed or neglected. Apportionment and afforestation have detracted from the open character of upland rough grazings. Patterns of cropping have changed and traditional rotations have been simplified or eliminated – over the past 20 years there has been a gradual decline in the growing of oats and a marked increase in oilseed rape. Three-quarters of the arable area in Scotland is now given over to barley.

Despite the problems faced by the industry in recent years the number of farmers leaving farming is relatively small. Employment in agriculture has declined significantly, however, and farming is increasingly a part-time occupation with income supplemented by other employment off the farm.

Traditional farm management – cutting hay

Economic and social pressures on hill farms and crofts have led to reduced management and, particularly in crofting areas, the loss of cattle and cessation of cropping. In some areas there are clear signs of abandonment of buildings and machinery and in others neglect or new uses (particularly forestry) have led to a loss of the archaeological heritage. Wetland areas, natural grasslands, farm ponds, small woodlands and boundary habitats such as hedges have all declined, simplifying the landscape mosaic.
Key influences on the Natural Heritage

14

Traditional farm buildings

Traditional farm buildings are often unsuitable for new uses and may be converted or replaced by larger, modern structures. Traditional croft houses have been replaced by bigger and more weather-proof houses built with materials that may be out of keeping with the landscape.

Farm woodlands planted for timber, for shelter or as cover for game have enhanced the character of many landscapes. However, some plantations established before the present Woodland Grant Scheme, were out of keeping with the scale of the landscape and inappropriately sited so as to obscure drystone dykes and other features that are essential to the character of the uplands.

WILDLIFE AND BIODIVERSITY

The overall diversity of farmland wildlife has declined along with the diversity of domestic stock and crop varieties. Mixed farming was the key to the former richness and variety of much agricultural land.

What was once mixed farming has tended towards arable in the south and east, and dairying in the west, resulting in a loss of diversity in the structure of the countryside and wildlife. In the lowlands, where mechanisation and the drive for efficiency have reduced the need for farm labour, a feature of the 1990s has been the growth in contract farming and the increasing use of consultants and agronomists by arable producers. These changes could run counter to the inherited traditions of land management and stewardship of the land.

As the farm workforce has declined, labour-intensive management of dykes and other features used by wildlife has been neglected. The area of hay has declined while silage production has increased nearly five-fold over the last fifteen years, creating increased effluent and pollution risks. The earlier cutting of silage prevents the successful nesting of ground-nesting birds. The decline in livestock and economies of scale in arable areas have led to many hedgerows being removed or left unmanaged. Up to half the hedges have been removed since the war in parts of southern Scotland.
A gradual change from spring to autumn sowing of cereals has resulted in a lack of winter stubble important to many farmland birds. Fields are increasingly ploughed within a few weeks of harvesting in order to establish a following crop as early as possible. The very significant declines in populations of farmland birds, such as corn buntings and yellowhammers, are thought to be due to the much reduced area of stubble left over winter. Stubble provides food sources in the form of spilt grain, weed seeds and insects. The availability of insects in the early part of the year is thought to be a critical factor in the birds’ breeding success.

Changes in the use of agricultural land have fragmented and isolated wildlife habitats, affecting both wildlife and the landscape character. For example, as a result of widespread drainage in the 1960s and 1970s, wetland is now a relatively uncommon habitat in lowland areas. Increased use of fertilisers and herbicides has reduced biodiversity; some arable weeds are now among Scotland’s rarest plants. The widespread use of pesticides is associated with severe decline in populations of farmland birds, largely it is believed because of the effects on their food supply.

There are other developments, however, which have increased the opportunities for wildlife. Set-aside provides cover and feeding and nesting sites for many birds. The intensive management of grass crops for cattle has led to very significant increases in the populations of geese which overwinter in Scotland. Many farmers are aware of the benefits of careful management for wildlife and continue to manage hedgerows and other semi-natural areas. Agri-environmental schemes have been introduced which provide financial support to some farmers for these activities.
Where particular animals or plants have increased as a result of changing farm practices, the changes appear to have benefited very few species. The outcome in most, if not all, cases is an increase in numbers but a loss in overall diversity.

In the uplands, and particularly in crofting regions, the decline in cattle and the associated loss of cropping has reduced the biological diversity of many areas. These changes are particularly evident in the machair areas, where many of the birds and plants formerly associated with cultivated land have declined severely.

Inbye croft land is now likely to be left unworked or sublet, with tenants retiring or moving to other employment. There are increasing levels of apportionment (division and fencing) of both common grazings and machair, often accompanied by the reseeding and fertilising of natural grassland habitats.

Grazing affects the structure of the vegetation, its value as a habitat for birds and other wildlife. Heavy grazing limits the regeneration of woodland and scrub which are important elements in the natural diversity of the uplands; in extreme cases it can lead to soil erosion. High sheep numbers and a decline in the management of grazing on hill land have prevented the recovery of upland vegetation from a long history of overgrazing, though reduced prices and incentives for lower stocking densities may now be reversing this trend. Because of the decline in shepherding overgrazing persists locally, but in other areas there is less grazing than is desirable from a natural heritage point of view, particularly of the kind of selective grazing characteristic of cattle.

The reseeding, drainage and application of fertiliser to grasslands which has taken place over the past few decades has had drastic and lasting effects on the diversity of lowland pasture and the livestock farms of the peripheral upland areas. It has resulted in severe declines in numbers of birds which depend on these grasslands, such as curlew, lapwings and barn owls, and in the abundance of many characteristic pasture plants such as pignut, meadow buttercup, ragged robin and globe flower. The decline in cattle has increased the spread of bracken on lower ground in the uplands.

The use of some broad spectrum anti-parasitic drugs has reduced the number and variety of insects associated with dung such as flies and dung beetles which are important as food for birds, e.g. choughs and starlings.
SOILS

Strategies to improve land accessibility and productivity have modified soil structure and composition over the course of many centuries. The use of heavy machinery and continuous cropping tend to lead to compaction, erosion and a reduction in soil organic matter. Land management practices that leave soil unprotected, e.g. removal of hedges, growing of winter cereals, up-and-down-slope cultivation, over-frequent burning and overgrazing, can significantly increase the risk of erosion. Erosion and run-off affect the aquatic environment through the addition of nutrients, residual pesticides and sediment. Excessive sedimentation can also affect the recreational value of water and significant costs may be involved in its remediation. The Water Framework Directive will provide a new impetus for tackling these problems.

The acidification of soils through atmospheric pollution from various sources and the associated leaching of phosphates and heavy metals also affects fish, plants and soil organisms. The significant acidifying emission from agriculture is ammonia; 80% of all artificially produced ammonia originates from animal waste. The use of fertilisers and agrochemicals, particularly sulphuric acid used as a desiccant, can also contribute to acidification of the soil, as well as groundwater and run-off.

RECREATION AND ACCESS

Most informal recreation in the countryside takes place on privately owned land or water used for a variety of commercial purposes including farming. Outdoor recreation creates opportunities for farm diversification, e.g. in the form of visitor attractions, bed-and-breakfast, or horse riding. Many of these developments are compatible with the conservation of the natural heritage. Other types of development, such as golf courses, caravan sites, chalets and off-road driving, need to be carefully planned in order to maintain wildlife and amenity value.

The demand for public access and for recreation in the countryside is growing rapidly. There is a particular shortage of local access to farmland within easy reach of many built-up areas.

The current reform of access legislation will clarify the rights relating the access, both of the public and of owners and occupiers. Public access can be significant in its effects on farmers. In exercising a right of access the public therefore needs to be aware of its responsibility to respect the fabric of the countryside, to avoid disturbance to livestock by dogs, gates being left open and leaving litter. Most farms with high levels of access and where many of the more acute problems arise are situated within two miles of villages or towns.

Agri-environmental schemes have in the past included payments to farmers for managing areas for public access. These payments have not been popular with farmers, but they have not been well publicised or supported by the necessary advice.

DRIVERS OF CHANGE AND CURRENT TRENDS IN AGRICULTURE

It is important to recognise the forces which are likely to generate significant changes in agriculture, as these forces have implications for the natural heritage too. The justification for the public support of agriculture merely with the aim of maintaining some kind of land use is likely to be increasingly questioned. There is a growing view of the need to adjust the balance of land uses to take into account, alongside requirements for products of the traditional land uses of farming, forestry and sporting management, the need for water, energy and housing, and for the conservation of the natural heritage. Other forces for change include:
Key influences on the Natural Heritage

- **Agricultural policy.** The EU Common Agricultural Policy and the associated system of market controls, grants and subsidies continues to be a major influence on farming in Scotland. For the foreseeable future European policy is likely both to be influenced by and to influence many of the other forces of change listed below.

- **Globalisation and trade liberalisation,** and the need for competitiveness [and fair competition] in food quality and price.

- **Climate change.** Ultimately, this could lead to considerable changes in the farming both of crops and livestock. In the short term however, the effects are most likely to be seen in changes in patterns of pests and diseases and in changing strategies for their control.

- **Changes in the national economy,** which affect both the home and export markets for agricultural produce.

- **Changing public expectations** and their implications for agricultural support particularly in relation to the social and environmental responsibilities of farms and growing public awareness of the need for environmental protection and countryside management [e.g. associated with the introduction of legislation on countryside access].

- Increasingly discerning consumers with high expectations [about food safety, animal welfare and the environment], leading to new markets. This is evident in the expanding market for organic produce, and in the area of e-commerce which creates the opportunity for new direct markets for agricultural produce. Alongside this, however, there is still a strong expectation among many consumers that basic food commodities should be cheap.

- The major supermarkets [with their suppliers and processors] account for a high proportion of the UK market for agricultural produce – they therefore exert a strong influence on prices and standards of production, as well as on the choices made by consumers.

- **Technological developments** particularly those relating to economies of scale and the precise control of farming systems; but also the growing awareness of precision farming techniques to achieve more accurate targeting of chemical inputs.

- The growing influence of biotechnology; over the longer term this could create new roles for agriculture, e.g. in the production of pharmaceuticals and fuels. In the shorter term there is likely to be continuing public concern about the development of genetically-modified (GM) foods and the release of GM crops into the environment.

- The need for increased bio-security to prevent or contain the occurrence and spread of diseases such as BSE and foot-and-mouth disease.

- **Wider rural policy.** Growing recognition of the need to support local communities in remote areas and the potential benefits that can flow from increased land use integration.
The medium- to longer-term prospect for large, predominantly arable farms in the lowlands is that they are likely to continue to increase in productivity in response to the need to compete unprotected and with lower levels of public support in an increasingly liberalised global market. This is likely to be achieved by strategies which involve increased mechanisation and the application of new technology. Dependence on labour is likely to decline, and economies of scale will probably lead to the amalgamation of farms into larger units. By these strategies such farms may be able to adapt to a gradual withdrawal of subsidy payments.

Livestock farms in hill areas, on the other hand, are very heavily dependent on subsidies and even given these levels of subsidy, their viability is in many cases doubtful. If present conditions continue some restructuring is inevitable, leading to farm amalgamation, a continuing trend towards part-time farming, changes in the balance between cattle and sheep and probably some abandonment.

Crofting suffers a similar plight. Many crofts have fallen out of agricultural use altogether, or they are used for little more than rough grazing.

Farmers of various types who lie between these extremes may be forced, in response to increased competition, to increase their production through higher levels of inputs, mechanisation and economies of scale. On the other hand, some may become less and less viable, with the likely result that they would switch to part-time farming; the diversity of management would be lost (i.e. sheep would predominate) along with much of their natural heritage value. Either of these outcomes would be undesirable from a natural heritage point of view, resulting in a situation where farming becomes polarised between a relatively small number of large highly productive farms capable of surviving without high levels of subsidy, and a large number of smaller farms incapable of producing any significant income from the production of food. From a natural heritage point of view this would result in a much more segregated countryside where the ‘natural heritage component’ is restricted to protected sites and to the remoter north and west of Scotland, and the intensively farmed areas of the south-east are largely devoid of biodiversity and landscape interest.

There is a growing awareness among farmers and the wider public of the need to reduce the impact of certain agricultural practices on the environment. There has also been a growing recognition over the past ten years or so of the need to integrate environmental objectives to agricultural policy both at the UK and the EU level. New environmental legislation for the protection of fresh water, soils and the atmosphere has been accompanied by the introduction of a ‘code for the Prevention of Environmental Pollution from Agricultural Activity’. The Scottish Parliament’s agenda for land reform aims to encourage a wider responsibility for stewardship among farmers and other land owners. There are encouraging signs that the industry is responding to environmental concerns through the widespread interest in integrated crop management, and the development of quality assurance (notably for cereals) with an environmental component.

A Forward Strategy for Scottish Agriculture was published by the Scottish Executive in June 2001, based on the work of a steering group representing a wide range of interests. The Strategy recognises that farming cannot continue on the existing basis. Its new vision for Scotland’s farming industry is built substantially around the needs of customers, the property of rural communities and the protection and enhancement of the environment. This vision shares much of the thinking behind Natural Heritage Futures: Farmland. The Objectives and Actions proposed in the following pages are intended to complement and support the actions proposed by the Strategy.

Use of precision-farming techniques
The Vision sets out how the natural heritage of Scotland’s farmland could look based upon sustainable use of natural resources. It is an illustration of a possible scenario based on fulfilling the Objectives and Actions in this document. It is neither a ‘Utopia’ nor a ‘blueprint’, but the basis for developing a shared vision between all parties with a responsibility for, or an interest in, the natural heritage of Scotland’s farmland and a consensus on the way forward.

It is written in the present tense, as if in the year 2025.
Agriculture is widely associated in the public mind with a wide range of benefits alongside its role in producing food. It is responsive to the needs and expectations of consumers who increasingly require produce of certified origin, produced to known environmental and welfare standards. Locally produced food is valued for its quality and distinctiveness, and because of its association with the character of the countryside.

**Environmental standards** are increasingly set by the industry taking account of consumer pressure. Local producer groups set local standards in association with marketing and certification schemes. In many cases these require farmers and crofters to adopt agri-environmental management programmes.

**Consumer awareness** has increased. There is a widespread interest in the relationship between food, farming and the environment. As a result the retail sector exerts less influence both on consumer choice and farm prices. Farmers and crofters are increasingly rewarded through the market for high environmental standards of production.

Considerable progress has been made in ‘internalising’ **environmental costs**, with the result that locally produced food, produced with controlled chemical and energy inputs is cheaper than imported produce or food produced by methods which damage the environment.

Agri-environmental schemes are a mainstay of **public support for agriculture**. Almost all farmers and crofters belong to a scheme and are committed to a long-term programme of management designed to enhance the wildlife and landscape of the farm. These programmes go hand-in-hand with the business management of the farm. Financial support for agriculture rewards farmers for environmental goods and services, it also supports activities and strategies which aim to reinforce the long-term viability of agriculture, such as diversification, local processing and marketing, farm woodlands and capital investment associated with environmentally sustainable business development. The production of agricultural commodities is entirely unsubsidised. Support measures are integrated into locally targeted programmes, offering farmers considerable choice and flexibility. Farmers and crofters are closely involved in drawing up these programmes and in monitoring the outcomes.

**KEY FEATURES OF THE VISION**

Key features of the vision are:

- a confident agricultural sector willing to invest to meet the challenges of sustainable development;
- an industry committed to **farm assurance**, for health, animal welfare and the natural heritage and able to meet environmentally-informed consumer demands, with more understanding among farmers of what the market wants;
- the reflection of agriculture’s **multi-objectivity** in public support for farming and crofting and in farming incomes, particularly relating to the care and management of the natural heritage;
- better integration of agriculture into the wider rural economy, (e.g. through diversification), contributing to secure land-based employment in rural areas;
- efforts to ensure **positive environmental outcomes** from agricultural restructuring;
- a competitive, innovative, locally-based food processing industry and greater value added to Scottish farm produce based on its association with the natural heritage;
- the involvement of farmers and their local communities in policy, with the aim of increasing their responsibility for natural heritage stewardship;
- increased **public understanding** of the linkage between agriculture and the environment; and
- commitment to encouraging access by walkers, cyclists and horse riders.

**THREE STRATEGIES FOR FARMLAND**

Different strategies for the management of farmland reflect the inherent productivity of the land and the potential for outputs associated with the natural heritage.
THE LOWLANDS

Lowland agriculture makes an important contribution to the national economy and to the beauty, amenity and interest of the countryside. Farms are large, highly efficient and production is unsubsidised, but arable and livestock production in the lowlands contributes to Scotland’s international reputation for quality as well as value for money. Significant areas of new wildlife habitats have been created. Non-food crops, trees and other new features have been introduced into arable landscapes and new opportunities have been opened up for public access to farmland, especially close to centres of population.

There are well-managed paths with gates (or, where possible, gaps), stiles and signposts. Extensive Core Path Networks link with safe and convenient local routes for people who live and work in the countryside, and provide access to features of interest for tourists and visitors. Farmers support the principle of public access and the public has a growing awareness of its responsibilities towards landowners and farmers.

At least 15% of all lowland farms is managed mainly for the purpose of increasing its value for wildlife, enhancing the landscape or providing for public recreation. This land includes areas of pre-existing wildlife habitat, newly created wildlife areas, hedgerows, ditches, riverbanks, broadleaved woodland, beetle banks and natural long-term grasslands. Farmers receive much of their total financial support in return for managing this land.

The success of this strategy can be measured particularly in the increase in farmland birds and cornfield weeds. A proportion of the cropped area is now managed to meet their requirements and populations of skylarks, yellowhammers and corn buntings have returned to levels of the mid 19th century. The management of land for environmental purposes also contributes to the high standards for water quality.

A significant area of arable, dairy and livestock farmland is now under organic management. A plan for the active management of the natural heritage is in place for all organic farms.

Conventional farming has been transformed by the use of new technology. As a result of advances in agricultural engineering, the chemistry of plant protection products, and the use of precision-farming software, contamination of the environment both by nutrients and agro-chemicals is steadily falling. Environmental protection has become a primary consideration in the development of genetically modified (GM) crops, with the result that pesticide use has declined significantly. Safeguards ensure that no GM crops are grown which pose any threats to health or to populations of wild plants and animals. There is a strong emphasis in GM research on the potential to reduce impacts on the environment, e.g. by reducing pesticide use.

At the same time, the value of certain traditional management practices is recognised for their benefits to the farmer, and for wildlife. Many farmers have returned to mixed farming and crop rotation, often as a way of maintaining the value of the land for sport shooting.

THE UPLANDS AND CROFTING AREAS

Farming in the uplands and crofting have been affected by inevitable structural change. Despite these changes, however, most of the land is still farmed and the variety of wildlife and landscapes associated with the traditional variety of agricultural and crofting management has been retained. In many areas cattle have been reintroduced, natural grasslands have been reinstated, and arable cropping produces winter keep. There is a renewed interest in traditional livestock breeds, which are generally hardier, depend less on artificial inputs and can add value to local marketing initiatives.

Livestock on hill land is well managed; sheep and cattle graze the vegetation more evenly, so that overgrazing is avoided. Considerable areas of heather and scrub can be seen.

There are new opportunities for marketing the products of mixed farming and crofting, but it is widely accepted that the primary objective of much hill farming is to maintain the character of the natural heritage of these areas, particularly as a resource for tourism.

Beetle banks: grassland strips encourage predatory insects – a contribution to pest control
On-farm use of farm grown timber

Many farmers derive the larger part of their income from the active management of the environment, through environmental payments or through related business initiatives. Farm businesses have diversified into many other projects and activities associated with the natural heritage. These include tourism and recreation projects, farm woodlands, recreation facilities, on-farm or co-operative processing to supply local or wider markets.

As a result of structural change some land has been taken out of agricultural production. Some of this land has been planted with trees or, where stock and deer numbers have been reduced, trees are regenerating naturally. The aim here is principally to enhance the landscape and create new wildlife habitats, but some of this woodland is managed with a view to meeting local needs for firewood and small timber. The value of managing this land as a ‘carbon sink’ is also recognised.

Other larger areas where farming is no longer economically viable have been maintained as open ground and are managed by the original occupants under environmental management schemes.

The uplands accommodate many kinds of outdoor recreation. There is an extensive network of long-distance footpaths which attract walkers from Scotland and further afield. In many cases these are maintained by farmers. Many farmers and crofters provide high quality facilities for fishing, canoeing, cycling and pony-trekking, and this contributes to their income.

THE MIDDLE GROUND

For the many farms which lie between the arable lowlands and the remoter uplands, the nature of farming has greatly changed. Nevertheless, the land is still farmed, and these farms successfully combine food production with a management regime which favours the natural heritage. As in the uplands many farms have diversified into related economic activities, and as a result they contribute more to the local economy. Part-time farming has increased, but part-time farmers derive a significant part of their income from agri-environmental payments and many of them use local labour to undertake environmental management.

These farms epitomise the quality production upon which the reputation of Scotland’s industry has been rebuilt. There is a significant level of organic production, and considerable use of specialised breeds, some of which were once regarded as ‘rare’ or ‘traditional’. There is a strong export market for environmentally accredited Scottish produce. Beef and lamb from these farms commands a market premium, and farmers realise that it is in their interest to reinvest part of the return into the environmental fabric of the farm. Stewardship of the natural heritage is regarded as a cornerstone of the industry. There is a strong inherent disincentive to intensification – in fact many farms are now farmed less intensively than in the past.

Locally branded produce is also marketed locally through farmers’ markets and on-farm sales. This helps to foster a community interest in the sustainable management of the countryside, particularly in areas close to centres of population.

The natural heritage benefits are clear – the variety of agricultural management has been maintained, and the countryside is cared for. Corncrakes, lapwings, curlews, redshanks and many other birds have increased in numbers; wildlife habitats are managed as an asset; traditional buildings are maintained and restored. People increasingly visit the countryside both because it is more accessible, but also because of its association with the quality of food production. As visitors they feel welcome; there is much for them to enjoy and they, in turn, contribute much to the local culture and economy.
Objectives

- priorities for the natural heritage, and action required

These are objectives for the natural heritage and indicate what needs to be done to ensure that we use the natural heritage sustainably. The objectives indicate the priorities relevant to the natural heritage in the light of current changes. Once agreed, these priorities can inform the development of relevant action plans with more specific objectives and resource implications: relevant Actions are identified under each Objective.
APPLICABLE TO ALL FARMLAND

Objective 1

To encourage sustainability in the use of the basic natural resources of the soil, water and the atmosphere

It is essential to achieve a balance in the use of natural resources which reflects the widest possible range of expectations, social, economic and environmental, both for their present and future use. The use of resources must therefore make allowance for growing concerns about the quality of the environment, biodiversity and the amenity of the countryside.

This wider view of the role of agriculture must become the foundation of policies at the national, international and local level. It must also underpin land management at the farm level. It has long been recognised by land managers that agricultural land must be kept in good heart; this involves a responsibility for good stewardship of environmental resources on behalf of society at large.

Farmers will need to make considerable adjustments in order to adapt to these new demands, which will include meeting the requirements of the Water Framework Directive. Many of the following actions are likely to involve a need for training and other extension services. There is overall a need for broader-based training for farmers and land managers, in the conservation of natural resources, sustainable production techniques and the practical aspects of integrated rural development.

ACTIONS

- Encourage a wider understanding by society of the relationship between food, farming and the environment; and a wider sense of responsibility for the stewardship of natural resources.
- Influence national and international policies to ensure that they reflect a better balance between economic, social and environmental objectives, emphasising the need to ensure natural resources as the basis of a sustainable agricultural industry.
- Encourage the setting of clear environmental objectives in agricultural support programmes which reflect the wider role of agriculture.
- Encourage the recycling of farm waste, and the use of recycled alternatives to scarce natural resources such as gravel and peat.

Objective 2

To minimise the impacts of potentially harmful agricultural practices on wildlife and the landscape

Farmers have a key role to play as custodians of the countryside by adopting more benign systems and practices. Ultimately it needs to be recognised as part of good farming practice that it is necessary to protect the countryside because amenity and biodiversity are resources for the farm business, and because they can contribute to farm incomes. Codes of practice supported by training programmes can help to establish a standard of good practice which goes beyond basic regulatory requirements and which over time can change to keep pace with changing public expectations.

It is important, however, that a basic standard of environmental protection is underpinned by effective regulation – particularly in relation to the use of pesticides, the control of pollution and the use of genetically-modified organisms (GMOs). It should also be reinforced through cross-compliance – all ‘direct’ commodity support payments should be subject to environmental conditions (which ideally should be applied throughout the EU). There should be a clear distinction between the role of regulation and cross-compliance in the protecting of the environment however, and the role of incentive payments which as far as possible should be restricted to activities concerned with the active management or enhancement of the natural heritage. We recognise that higher environmental standards may result in higher food prices, and that this has other implications.

Technology can contribute significantly to the protection of the wildlife and habitats of farmland. Many recent technological developments not only help to increase agricultural production, but by improving the targeting of chemical inputs, or increasing the efficiency of management systems, they can also reduce the impact on the farm environment. Examples include the development of air-assisted sprayers which can significantly reduce spray drift, new low-dose or less persistent chemicals, particularly for the control of plant diseases, and a growing range of precision-farming technologies which allow variable rates of application linked to yield records and soil data. Over the longer term, technology which is currently economical only
Objective 3

To manage and enhance existing areas of wildlife habitat

For many wildlife habitats created by farming, such as hay meadows, hedges and field margins, continued management is vital. The value of much farmland in Scotland as a wildlife habitat could be increased by management that can be relatively easily accommodated by the farm business. Many farmers have a keen interest in wildlife and the countryside – it is important to encourage and build on this ethos of caring for the environment.

The foundations for agri-environmental support are already in place. SNH believes that the agri-environmental programme points in the direction that policy should continue to take, and that besides helping to secure a future for the natural heritage, this approach will help to provide a more sustainable basis for farming in the local and national economy.

There are important priorities for the management of protected areas and species, and agri-environmental schemes have a role in supporting this management, for instance on Natura 2000 sites. However, in Scotland, where wildlife and the countryside contribute so much to the national character, areas important for their local natural heritage value, such as the main arable and dairy areas, deserve to receive more policy attention. There is significant potential for the enhancement of the landscape and biodiversity of all types of farmland.

Agri-environmental schemes need to set clear objectives which farmers can recognise and work towards. Serious thought needs to be given to how they can be made less administratively cumbersome and more accessible to the farming community. They need more flexibility to deal with local opportunities and constraints and they should allow more participation by farmers in exchanging expertise and in reporting and monitoring the outcomes.

There are likely to be additional advantages for the natural heritage in making close links, through local integrated programmes, with other types of support for rural development, such as support for marketing and farm business development.

Agri-environmental measures need to be supported by carefully designed advice, training and demonstration projects, which make full use of farmers’ existing knowledge and experience.
Local and regional strategies supported by local and regional support programmes are likely to be more effective in maintaining this diversity and in maintaining local character than national programmes. These strategies should be designed to co-ordinate a wide range of financial support measures and should involve significant local participation. There is likely to be particular value in making closer links between agri-environmental measures, support for marketing, support for forestry and farm woodlands, and initiatives for encouraging ‘green’ tourism.

**Agri-environmental schemes** should give a higher priority to the need to manage elements of the landscape, e.g. by planting landscape trees, managing designed landscapes or restoring field patterns. At the wider scale, there is a need to encourage farmers to co-operate in order to maintain or restore landscapes that comprise a number of farm units. Landscape Character Assessments have an important role to play in identifying and co-ordinating such activities.

Certain types of agricultural **diversification** are likely to reinforce a sense of local distinctiveness and so provide an incentive to maintain the local landscape. In some areas there is scope to develop tourism on farms, or to develop products which can be marketed on the basis of their association with the care of the natural heritage. Diversification can also provide new uses for traditional agricultural buildings.

It is important to inform and influence both agricultural and non-agricultural aspects of development in the countryside that is likely to impact on the natural heritage, including the layout, location and use of materials and the scale and density of any housing. With growing development and diversification on and around farmland, both new developments and conversions should reinforce existing settlement patterns and, through good design, help to emphasise the character of the area.

**ACTIONS**

- Promote a diversity of farm types and agricultural management.
- Develop local strategies for integrated land use.
- Design integrated programmes of incentives to meet local needs and to take advantage of local opportunities.
- Use agri-environmental measures to achieve appropriate management of the landscape.
Objectives

- Support the development and marketing of local products associated with the landscape.
- Encourage a local sense of pride in the natural heritage and participatory approaches.
- Ensure that, as far as possible, traditional buildings are maintained appropriately and that this building enhances the landscape character.
- Secure appropriate controls over the construction of farm tracks across unenclosed land.

Objective 5

To promote the use of farmland for outdoor recreation

Farmland can provide for a wide range of recreational activities in addition to those usually associated with public access, including sport shooting. Many farmers have already diversified their businesses by taking advantage of the increased demand for sports such as horse riding, pony-trekking, golf and angling.

There is also scope in some areas to provide attractions which are more closely linked to farming and the natural heritage - such as visitor centres and farm trails. The potential will depend on the location and the type of farm, though in the right setting these too may provide opportunities for diversifying the farm business.

Developments such as these enable a wide range of people to enjoy the countryside, to experience the natural heritage and to learn more about the environment. Management for recreation can also add to the diversity of the landscape and in many cases provide new wildlife habitats.

ACTIONS

- Encourage farmers to provide facilities for outdoor activities and informal recreation.
- Maximise the opportunity to enhance the natural heritage through well designed recreational developments.
- Create farm trails and visitor centres which will interpret the natural heritage for visitors to the countryside.
- Provide appropriate financial support for diversification associated with public recreation.

Objective 6

To provide appropriate habitats within cropped areas and intensively managed grassland for arable weeds, grassland plants and farmland birds

A high priority for a comprehensive strategy for the natural heritage of farmland must be to reverse the decline in the populations of plants and animals associated with lowland arable and grassland systems. This applies to the common birds of arable and pasture land, such as the yellowhammer, the linnet, the lapwing, the curlew and the redshank, and to common plants of grassland and crops, like the meadow buttercup and the corn marigold.

This objective can only be achieved by significant modifications of existing practices, associated with a high standard of environmental protection. These modifications might include a change from autumn to spring sowing, allowing stubble to remain over winter, the reinstatement of a system of crop rotation, the use of specially managed crop headlands that would not be sprayed and might be left unharvested, or larger areas set aside and managed specifically for their biodiversity.

An increase in the area of arable land under organic management could also contribute significantly to the biodiversity of arable and grassland farms, particularly if associated with the actions proposed here.
Objective 7

To create new wildlife habitats, particularly where habitats have been lost as the result of agricultural activity

It is not sufficient merely to maintain existing remnants of wildlife habitats in the more intensively farmed areas of lowland Scotland. Much of Scotland’s arable farmland is likely, as a result of relatively recent reclamation and improvement, to fall well short of the target of 15% managed mainly for its natural heritage value.

Much of this land is close to towns and cities. Maintaining farming in such areas could help to preserve its rural character but much could be done to enhance the interest and amenity of this relatively accessible countryside.

Priorities for the creation of new habitats include the creation of natural grassland and wet areas, the planting of small-scale woodland and individual trees along field boundaries, the replacement of hedges and the restoration of natural characteristics to stream banks and drains.

Existing agri-environmental schemes have made relatively little progress in creating new habitats. The re-establishment of natural grassland and heath takes a long time, and the characteristic plants and animals are slow to colonise – indications are that it takes longer than the 10-year duration of management agreements under current schemes. More research is needed into the process and techniques of re-establishment.

**ACTIONS**

- Re-establish areas of natural grassland, heath and scrub.
- Restore the natural character of farm watercourses, wetlands and lowland raised mires.
- Encourage the planting of woodland and shelterbelts.
- Give high priority within agri-environmental schemes to the creation of new habitats.
- Undertake further research into methods of habitat creation – develop demonstration and monitoring programmes.
- Re-establish traditional land management skills (such as coppicing and hedge laying).
**Objective 8**

**To enhance the character of impoverished farm landscapes**

**Specialisation in farming** has tended to reduce the features and character that once made areas distinctive. The patchwork of different crops mixed with fields of grazing livestock has been lost, along with the hedges and dykes that divided them. New proposals need to develop patterns of management and features that will restore some of that character and will make the landscape more distinctive and attractive to both residents and visitors.

Many of the actions proposed to restore the biodiversity of arable and intensively managed livestock and dairy farms will also add variety and interest to the landscape. Organic systems generally involve a mix of enterprises and the use of crop rotations, both of which are likely to enhance the character of the landscape.

In many areas there is a need to replace farmland trees and to re-establish field boundaries. Rearing and sheltering birds for sport shooting can provide an important incentive for the establishment and management of small woodlands in the farm landscape.

**ACTIONS**

- Encourage, as far as possible, more diversity in the use of lowland farmland, e.g. through a mixture of crop varieties, crop rotations, agri-environmental measures and use of set-aside land.

- Increase the planting of hedges, small woods, coppices and individual trees in the farm landscape.

**Objective 9**

**To create continuity in the form of a network linking the habitats and landscape features of farmland**

Within the farmed landscapes of lowland Scotland natural habitats have tended to become fragmented and isolated. As hedges have been removed and field boundaries simplified much of the continuity that these linear features once provided has been lost. Continuity is an important aspect of landscape structure — it leads the eye and creates a sense of involvement. It is also important in maintaining viable plant and animal populations. Some animals need to be able to move through the countryside to find new sources of food, to breed and to colonise new habitats. Plants, over a longer period of time, depend on the ability to cross-pollinate and disperse. Such processes become more important in a countryside which is rapidly changing, either as a result of agricultural change, or as the climate changes.

**Continuity** can be improved by expanding the network of linear features — hedges, field margins and ditches; also by creating patches of new habitat within the normal range of farmland birds or animals. This network of linear features and habitat patches can be linked to a larger-scale forest habitat network.

Linear features, particularly field margins or features associated with water, can also provide new opportunities for access.

**ACTIONS**

- Connect existing habitats and features by creating a network of links and stepping stones.

- Promote the creation of these linkages through agri-environmental measures and through a whole-farm or landscape approach to farm management planning.

- Encourage co-operation between farmers in conservation planning and habitat and landscape management.

- Promote further research into landscape ecology and the behaviour and population dynamics of farmland plants and animals.
Objective 10

To facilitate public access to enclosed farmland

Where opportunities for access and recreation close to the larger centres of population are limited, there is an important need that farmers could meet. Particular efforts need to be made to provide access routes that are likely to be well used, either by local people or visitors to the countryside, particularly to provide access routes across adjacent agricultural holdings. In view of the increase in outdoor recreation, particularly walking in the lowlands, it is important that freer access should be subject to a high standard of responsible behaviour.

Better access to farmland could help to increase the knowledge and understanding of farming among the wider public and payments may be available to farmers for providing and maintaining facilities for visitors to the countryside, which could become a new source of income.

Accommodating large numbers of visitors on a working farm presents the farmer with the problem of ‘managing’ access and of providing adequate facilities. It is important that where specific management is required adequate payments are available to support the upkeep of footpaths, and to build and maintain stiles, gates, signs and car parks. Perhaps also for more specialised facilities such as information centres and arrangements for disabled people. Some paths and tracks across farmland will form part of a Core Path Network; their maintenance will then be the responsibility of the local authority.

ACTIONS

- Encourage development of local path networks to provide welcoming access routes over farmland.
- Provide for the upkeep of access routes and footpaths.
- Provide marked access around the margins of arable fields.
- Provide adequate support through agri-environmental or rural development measures for facilities to manage access.
- Raise public awareness of the requirements of responsible access to farmland, e.g. through the Scottish Outdoor Access Code.

Continuity in a landscape is attractive and can help plants and animals move about in response to changing influences including climate change.
Objective 11

To maintain or, where necessary, to restore the natural heritage value of hill vegetation through appropriate agricultural management

Many of the areas of greatest value for the natural heritage are managed both for agriculture and for field sports. Generally, however, although sheep numbers are still high, agricultural management has declined. The result is that some areas are overgrazed, while others are undergrazed. More active management is needed to distribute stock so that grazing is not excessively concentrated on particular sensitive areas. Where burning is part of grazing or sporting management, burning in smaller patches creates more variety, but the cycle must be long enough to allow time for habitats to regenerate between burning. In many cases achieving this will involve close co-operation between farmers and gamekeepers, whose aims and methods are sometimes at odds.

Providing stock can be properly managed in this way, it should be possible to move towards a system where financial support provides a strong incentive to stock at levels determined by natural heritage considerations. At least for the foreseeable future, financial support will also need to take into account the cost of good stock management.

Local marketing schemes have the potential to contribute to the sustainable management of upland vegetation – locally produced lamb, for instance, will have little market appeal, at least locally, if the natural heritage is seen to be deteriorating.

In many areas where sheep are now the main agricultural enterprise, the reintroduction of cattle would provide the basis for a more favourable management regime. This would particularly help in areas where bracken and purple moor-grass have replaced more diverse and agriculturally valuable plant communities. Traditional breeds of cattle are likely to be better adapted to hill conditions and they could contribute significantly to a local or environmental marketing strategy. Other aspects of good environmental practice are equally important in relation to the management of cattle. Arrangements for watering and out-wintering must minimise the risks of poaching, damage to riverbanks, and damage associated with feeding sites.

High sheep numbers can lead to over-grazing

**ACTIONS**

- Encourage sustainable levels of stocking, taking account of natural heritage objectives.
- Provide for adequate levels of management to ensure appropriate distribution of stock and good muirburn practice, and to avoid damage associated with watering and out-wintering of cattle.
- Link financial support for hill farming to environmental objectives.
- Support the reintroduction of cattle in crofting and hill areas.
**Objective 12**

To restore variety in the landscapes of upland and crofting areas associated with traditional agricultural management

Much of the character of hill farming and crofting areas depends on labour-intensive management associated with traditional farming systems and practices which, in many cases, are no longer economically viable. In many areas it will be necessary to support the more traditional kinds of farms financially because of the benefits which they provide for the natural heritage. This should be more explicitly understood as the basis of agricultural support in some areas.

The reintroduction of cattle would bring inbye land back into more varied use, for the production of winter keep. It could also provide a new use for some traditional buildings. The development of environmental or local marketing initiatives for beef and lamb, particularly for organic lamb, might provide an incentive for the investment of labour required to maintain the natural heritage ‘fabric’ of the hill farm. The feasibility of either of these possibilities is largely untested – it will be important also to consider opportunities for enhancing the natural heritage that might be associated with other kinds of diversification, particularly involving tourism.

In addition, it is vital to provide the associated support upon which the survival of the more varied kinds of farming is likely to depend, to invest in small-scale technology, and to support arrangements for local slaughtering, processing and distribution.

**ACTIONS**

- Direct appropriate financial support for environmental outputs towards less intensive farming systems which contribute to biodiversity and the landscape.
- Integrate environmental support measures with support programmes for rural development, to encourage appropriate diversification.
- Support local and environmental marketing initiatives.
- Support the restoration and maintenance of landscape features and traditional buildings associated with hill farming.
- Support the local infrastructure necessary for the support of small-scale and mixed farming.

---

Striking a balance between open ground and new forests may require measures to retain appropriate management.
**Objective 13**

To maintain open ground under traditional hill management in heavily afforested areas, and to manage areas of hill land where agriculture is no longer viable for its natural heritage value

As a result of the restructuring which is likely in agriculture over the next 25 years, it seems inevitable that farming in some areas will no longer be viable. This is particularly so in areas where there are extensive forestry plantations, where farms have become isolated and the local farming infrastructure has been lost. In such cases it is very likely that without deliberate action to prevent it, the remaining open land will be planted or sold for forestry.

To retain open ground in heavily forested areas and in areas which are valued for their wide open landscapes, it is important both for wildlife and the character of the landscape, to retain appropriate management. Where there is scope, public support, rather than encouraging retirement, should support farmers to remain on the land, using appropriate incentives, determined by the requirements of the natural heritage of these areas. The priority areas for targeting such support should be determined through land-use strategies for upland areas, building on the approach developed in indicative forestry strategies.

Recreational uses may have an important role in preventing the total abandonment of agricultural management – particularly in areas such as national parks.

**ACTIONS**

- Provide appropriate incentives for continued agricultural management where farming is essential to the character of the natural heritage.
- Support the development, with appropriate financial support, of new patterns of farm management linked to environmental objectives for areas at risk of abandonment.
- Develop local and regional land-use strategies that maintain a balance between afforestation and the natural heritage value of open ground.
- Support part-time farming where this will enable farmers to stay on the land and to manage it for the benefit of the natural heritage.

**Objective 14**

To encourage the planting and regeneration of native woodland and scrub where it will enhance the natural heritage value of farmland

In areas of traditionally mixed character there are opportunities for the planting or regeneration of woodland and scrub as part of a strategy to enhance the natural heritage value of farmed land. Trees and scrub are likely to be particularly valuable when planted, for example, in association with streams and watercourses and at higher altitudes close to the natural treeline. The establishment of riparian woodland is also important.

Woodland can be important in providing wood for use on the farm and shelter for stock – particularly for hill cattle, allowing them to stay on the land later in the year. Planting along streams, if appropriately sited, can help in the management of fish stocks.

Wherever possible, natural regeneration is preferred to planting. This is likely to involve a new, more integrated approach to the management of deer and livestock so as to allow trees to become established without the need for excessive fencing.

**ACTIONS**

- Provide incentives for the establishment and encouragement of native woodland and scrub on hill farms.
- Encourage planting and regeneration in ravines, along watercourses and at higher altitudes.
- Encourage the use of farm timber for agricultural purposes.
- Encourage farmers to integrate woodland establishment and management into a whole-farm business and environmental plan.
Objective 15

To provide unrestricted access, subject to essential management needs, to unenclosed hill land

The uplands provide opportunities for the enjoyment of remote and wild places and for many different kinds of recreational activities. The tradition of open access to hill land is likely to be confirmed by land reform legislation as a public right subject to responsible conduct.

Farmers can take certain actions individually to facilitate access – e.g. by creating and maintaining well-marked paths across inbye land to the open hill. Joint initiatives involving farmers and land managers, access groups and local authorities, will improve the continuity of access arrangements across wider areas of countryside.

Raising public awareness of the need for responsible access will help to reduce problems for farmers and the risk of damage to the countryside. A closer understanding between users of the countryside and farmers, apart from being a worthwhile objective in itself, is likely to enhance opportunities for income through tourism or local marketing projects. In some areas there may be opportunities to provide a wider range of accommodation including hostels and camping facilities both for individual tourists and educational visits. Capital grants and management agreements may be needed in order to support farmers’ activities in creating and maintaining an infrastructure for access.

**ACTIONS**

- Provide access across enclosed pasture and inbye to open hill land.
- Provide car parks, signposts, stiles (or other appropriate gaps) and gates.
- Maintain paths and, where necessary, provide alternative routes during lambing, etc.
- Provide adequate capital and management payments to support farmers in providing facilities for access.
- Promote the co-operation of a wide range of interests in managing access and in developing long-distance routes (e.g. through local access forums).
- Promote co-operation and understanding between walkers, farmers and other land managers.

Responsible access requires understanding and co-operation between the public and farmers
Stakeholders

The stakeholders listed below all have interests in the natural heritage of Farmland. To work towards the Vision, further work is required with stakeholders to develop more specific objectives linked, where necessary, to action plans.

Note: For categories which encompass a large number of bodies, e.g. non land-managing environmental NGOs, recreational groups and industry, organisations are not listed individually.

National public bodies
Community Learning, Scotland
Crafters Commission
Crown Estate
Defence Estates
Department of the Environment, Food and Rural Affairs (UK)
Forest Enterprise
Forestry Commission
Forward Scotland
Highlands and Islands Enterprise
Historic Scotland
Joint Nature Conservation Committee
Scottish Biodiversity Group
Scottish Enterprise
Scottish Environment Protection Agency
Scottish Executive and Departments
Scottish Natural Heritage
Scottish Parliament
Scottish Water
SportsScotland
VisitScotland

Local authority and other local interests
Community councils, trusts and other groups
Local Authorities
Local Biodiversity Action Plan partnerships
Local Enterprise Companies
Local Record Centres
Local Rural Partnerships
National Park Authorities
Police

Land/water management groups and representatives
District Salmon Fishery Boards
Farming and Wildlife Advisory Groups
National Farmers' Union of Scotland
Paths For All Partnership
Professional institutes
Quality Meat Scotland
Scottish Crofting Foundation
Scottish Landowners’ Federation
Timber Growers Association

Recreation and sporting representative bodies

Industry and their representatives

Non-governmental organisations with direct land management interests
John Muir Trust
National Trust for Scotland
Native woodland initiatives
Royal Society for the Protection of Birds
Scottish Wildlife Trust
Woodland Trust

Other Non-governmental organisations with environmental interests, including Scottish Environment Link

Education, research and advisory organisations
Centre for Ecology and Hydrology
Fisheries Research Services
Fisheries Trusts
Scottish Agricultural College
Research institutes
Universities and colleges
PICTURE CREDITS:

Cover photography: Lorne Gill/SNH
Main photograph: Lorne Gill/SNH
Inset photographs: Alan Aitchison/SNH; Lorne Gill/SNH (2); SILSOE

Alan Aitchison/SNH: p8 (R)
Laurie Campbell: p15 (top)
Peter Jolly/Northpix: p18 (bottom)
George Logan: p6, p11 (top), p17, p18 (top), p21, p35
John MacPherson/SNH: p32 (top)
Glyn Satterly/SNH: p8 (L), p10 (R), p13 (R), p23 (R), p26, p27
SILSOE: p19
SCOTTISH NATURAL HERITAGE

is a government body established by Parliament in 1992, responsible to the Scottish Executive and Scottish Parliament.

Our mission:
Working with Scotland’s people to care for our natural heritage.

Our aim:
Scotland’s natural heritage is a local, national and global asset. We promote its care and improvement, its responsible enjoyment, its greater understanding and appreciation and its sustainable use now and for future generations.

Our operating principles:
We work in partnership, by co-operation, negotiation and consensus, where possible, with all relevant interests in Scotland: public, private and voluntary organisations, and individuals.

We operate in a devolved manner, delegating decision making to the local level within the organisation to encourage and assist SNH to be accessible, sensitive and responsive to local needs and circumstances.

We operate in an open and accountable manner in all our activities.

Further copies are available from:
Publications Section, Scottish Natural Heritage, Battleby, Redgorton, Perth PH1 3EW

T: 01738 444177
F: 01738 458613
E: pubs@snh.gov.uk
W: www.snh.org.uk
Scottish Natural Heritage

is a government body established by Parliament in 1992, responsible to the Scottish Executive and Scottish Parliament.

Our mission:
Working with Scotland’s people to care for our natural heritage.

Our aim:
Scotland’s natural heritage is a local, national and global asset. We promote its care and improvement, its responsible enjoyment, its greater understanding and appreciation and its sustainable use now and for future generations.

Our operating principles:
We work in partnership, by co-operation, negotiation and consensus, where possible, with all relevant interests in Scotland: public, private and voluntary organisations, and individuals.

We operate in a devolved manner, delegating decision making to the local level within the organisation to encourage and assist SNH to be accessible, sensitive and responsive to local needs and circumstances.

We operate in an open and accountable manner in all our activities.

Further copies are available from:
Publications Section, Scottish Natural Heritage,
Battleby, Redgorton, Perth PH1 3EW

T: 01738 444177
F: 01738 458613
E: pubs@snh.gov.uk
W: www.snh.org.uk