



3. The Peak District - a Special Place

3.1 The Nature of the Peak District

From the purple heather moors and “featherbed” bogs of Kinder and Bleaklow to the verdant woodlands, sparkling rivers and dramatic limestone cliffs of Dove Dale, the Peak District has long been recognised as a special place. Lying at the southern tip of the Pennines, it is at the crossroads where the uplands of north-west Britain meet the lowlands of the south-east. It is also one of the most accessible areas of upland Britain, with over 20 million people living within an hour’s drive, giving people a unique opportunity to enjoy the upland landscapes and the extraordinary wealth of associated wildlife.

Part of the Peak District’s attraction is its diversity, the product of its distinctive climate, geology and topography overlain by centuries of land management by people. There is probably no part of the area which remains uninfluenced by human activity and most habitats are the product of traditional farming and other land management.

The Peak District essentially comprises three distinct areas each with its own characteristic landscape and wildlife - the Carboniferous limestone area of the White Peak, and the gritstone and shale areas of the Dark Peak and South West Peak.

The White Peak consists of a gently rolling limestone plateau, largely overlain by acidic wind-blown soils and dissected by limestone dales cut by glacial meltwater following successive Ice Ages. In many places the dales are steep-sided and contrast sharply with the plateau land above, whilst in other places the plateau grades more gently into shallow dales.

The limestone plateau was completely cleared of its natural woodland by people thousands of years ago and not a single example of this original woodland appears to remain today. Until the late 18th and early 19th century much of the limestone plateau was therefore “wastes and commons” - a mosaic of open heathland, scrub and unimproved grasslands - with enclosed cultivated land around villages and settlements. Nearly all of this “limestone heathland” has long since disappeared under the plough and only about 100 hectares now remain as relics of the medieval landscape of the White Peak plateau.

Today most of the plateau comprises highly productive meadows and permanent pastures divided up by the characteristic network of limestone walls and occasional linear shelterbelts. However, despite the predominance of intensively managed species-poor grassland important areas of interest remain. Extensive areas of rough grazing land occur on the higher unenclosed limestone hills around Castleton and Bradwell in the north, and in the west above Dove Dale and the Manifold Valley and around Earl Sterndale. Flower-rich hay meadows, unimproved pastures, road verges and steeper slopes, although only a small and increasingly isolated proportion of the area of farmland on the plateau, provide essential refuges for many species such as skylarks and brown hares. They also make a significant contribution to the landscape with contrasting colours and flower-rich swards, with the wonderful displays of meadow cranesbill being a particular feature of the road verges. The network of dewponds, created to provide a source of drinking water



for livestock, provides an important habitat for species such as water-crowfoot and the protected great crested newt.

Several features of wildlife importance on the plateau are associated with past mineral extraction. Centuries of lead mining have left hillocks of waste material and accompanying mineshaft hollows which stretch as linear features across the landscape. These lead rakes support specialised plant communities of considerable conservation importance which are adapted to the metalliferous soils. The extraction of limestone has also been an important industry with a significant effect on wildlife. Whilst this has undoubtedly led to the loss of important and irreplaceable habitats in the past, such quarries can colonise in time with a rich flora and the rock faces provide nesting sites for birds. A number of small areas of silica sand and clay were deposited in pockets in the limestone during glacial periods and have provided a source of material for brick making. These now support a characteristic mosaic of ponds, heathland and grassland and associated wildlife.



The limestone dales are one of the jewels of the Peak District, supporting a varied mosaic of habitats of exceptionally high quality. The Ash woodlands of the dales are amongst the finest in Europe and include the most extensive examples of this habitat in Britain. They are particularly important for their rich flora and invertebrate life. Despite Dutch Elm Disease wych elm remains in many of these woodlands, supporting small colonies of white-letter hairstreak butterflies. Small- and large-leaved lime and lily-of-the-valley occur very locally on relic sites where the ancient woodlands have

Habitats and Species of European Community Importance in the White Peak

The Peak District Dales Special Area of Conservation (SAC) has been put forward for the following habitats and species (the equivalent Peak District Biodiversity Action Plan habitats are shown in red):

Habitats (listed in Annex 1 of the European Habitats Directive)

- Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)
Calcareous grassland and dales scrub
- *Tilio-Acerion* forests of slopes, screes and ravines (listed as a priority habitat)
Upland ashwoods
- Alkaline fens
Wetlands (certain types)
- Calaminarian grasslands of the *Violetia calaminariae*
Lead rakes (metalliferous communities only)
- Calcareous and calcshist screes of the montane to alpine levels (*Thlaspietea rotundifolii*)
Limestone scree
- Calcareous rocky slopes with chasmophytic vegetation
Limestone cliffs
- European dry heaths
Limestone heath

Species (listed in Annex 2 of the European Habitats Directive)

- Brook Lamprey
- Bullhead
- White-clawed Crayfish

probably never been cleared. The ground flora shows considerable diversity, with ramsons tending to dominate in damper dale bottoms and dog's mercury or wood false-brome on screes. Invertebrates include a rich moth fauna. In a few places small fragments of wet woodland occur in dale bottoms and vestiges of oak, birch and holly woodland occur on the upper dales slopes.

Areas of scrub provide an important habitat in the dales, particularly in those areas where it forms part of a transition from woodland to open grassland and where habitat mosaics occur. These areas can be very rich botanically, with species such as globeflower, aspen and stone bramble, and they provide important habitat for birds like the whitethroat.

The grasslands of the dales are very varied, reflecting factors such as different soil types and whether they are



north- or south-facing. The most species-rich are the calcareous grasslands with their characteristic colourful displays of early purple orchids and cowslips in the spring. These calcareous grasslands are a habitat of European importance and the Peak District is a meeting point between northern and southern types. On south-facing slopes species characteristic of warmer southern areas such as dwarf thistle are found, whilst more northerly limestone grassland types with species such as mountain everlasting and flea sedge can be found on the north-facing slopes. On the upper slopes where soil has been washed down from the plateau more acid grassland tends to occur, often including mountain pansy, whilst extensive areas of species-rich neutral grassland occur on deeper soils. A specialised type of tall neutral grassland has developed in places, supporting Jacob's ladder for which the Peak District holds a considerable proportion of the national population. All of these grasslands are again of particular value for their flora and invertebrates, the latter including the local brown argus and dark green fritillary butterflies.

Limestone cliffs, rock outcrops and screes often form dramatic landscape features in the dales. Several important plants, including the nationally scarce hutchinsia and rock whitebeam, are adapted to these habitats and the rockfaces are often very rich in mosses, liverworts and lichens, including some very scarce species. Amongst these is Appleyard's feather-moss, known from several sites in the White Peak on shaded limestone cliffs and for which the Peak District may be the world stronghold. Limestone screes support a specialised flora and fauna of importance, notably red hemp-nettle and limestone fern, whilst the extensive network of caves and lead mines provides a habitat for hibernating bats and cave-dwelling invertebrates such as the cave spider.

Rivers and streams run through some of the dales and can hold populations of white-clawed crayfish and water voles, both of which have suffered significant declines throughout Britain over the last two decades. Fish include bullhead and brook lamprey, both regarded as of European conservation importance, as well as the more widespread brown trout. Dippers are particularly characteristic of White Peak rivers. This is also the habitat of Derbyshire feather-moss for which the single Peak District site, comprising a few square metres of wet rock, is the only known site in the world. In a few dales small springs and flushes arise on the daleside just above river level and these are rich in scarce plants and invertebrates including specialised species of soldierflies, craneflies and snails.

The Dark Peak is characterised by extensive areas of moorland with steep-sided valleys or cloughs cut by fast-flowing streams. Below the moorland edge the enclosed land comprises pastures and meadows extending down into the bottoms of wide shale valleys. Oak woodland occurs particularly in cloughs and on valley-sides, whilst reservoirs have been constructed in some valleys and the surrounding land planted with conifer forest.

On the moorlands the high plateaux have developed deep peat dominated by extensive areas of blanket bog where cottongrass predominates. Blanket bogs are an internationally rare habitat confined to areas where the climate allows extensive peat development. They can be found in Norway, Newfoundland, Alaska, Kamchatka and Japan in the northern hemisphere, and Tierra del Fuego, the Falkland Islands, Tasmania and New Zealand in the south. Britain supports about 2 million hectares - some 10-15% of the world total. Together with heather moorland this is one of the most extensive habitats in



the Peak District, dominating the areas of moorland on deep peat. The abundance of crowberry on the blanket bogs of the Peak District is unique to the southern Pennines, whilst the northern arctic species cloudberry can be locally abundant on these high moors. Some of this blanket bog has suffered from severe gullying and erosion with up to 33km² of bare or eroding peat present. Together with the drier heather moorlands they are of particular importance for breeding Golden Plover, whilst Dunlin occur in the vicinity of bog pools.

Below the watershed upland heath dominated by heather occurs with other dwarf shrubs such as bilberry and cowberry occurring locally. Heather- or bilberry-dominated moorland habitats are mainly confined to the UK, Ireland and the western seaboard of Europe due to the dependence of plants such as heather on the relatively mild “Atlantic” climate of this region. Britain and Ireland therefore support a substantial proportion of the world’s heather moorland and it is a habitat of global conservation importance. Some types, such as heathlands with western gorse which occur locally on some of the lower moors in the Peak District, are particularly rare outside the UK. These moorland areas are of considerable importance for breeding birds, notably merlin, golden plover and short-eared owl. There are also significant populations of red grouse and curlew, the former being of particular economic importance and providing the financial incentive for much current moorland management. The Peak District moors are also home to the only English population of mountain hares, which particularly favour the boulder-strewn slopes below scarps and gritstone edges.

Characteristic insects include the northern eggar and emperor moths, and the green tiger beetle.

Several wetland habitats are found in association with areas of heather moorland. These areas support large quantities of invertebrates which are a vital food source for many moorland birds. They include acidic flushes characterised by bog mosses, star sedge and rushes, a type of vegetation which is rare outside the UK, and “transition mires” characterised by bottle sedge and bog mosses. Local plants include sundew, bog asphodel and cranberry.

Bracken is extensive on some moorland areas, providing an important habitat for birds like whinchat and nightjar, but its spread at the expense of other important habitats such as heather moorland is a serious problem. Gritstone cliffs (the “Edges”) and boulder slopes are a dramatic feature of the moorland fringe in many places with gritstone or shale outcrops occurring in other sites, particularly along streamsides. These rocky habitats are important for breeding peregrine and ring ouzel and, despite historically high levels of air pollution, unusual lichen communities including nationally scarce species can be found locally.

The moorland valleys or cloughs support fast-flowing acidic streams, often with interesting lichens, mosses, liverworts and invertebrates, whilst on the clough slopes springs and flushes emerge at the junction of different rock layers. These small wetlands are often very rich in plantlife and can support uncommon species including marsh arrowgrass, ivy-leaved bellflower and bog pimpernel.

Oak and birch woodland is local in the Dark Peak, occurring principally on valley sides and as patches of relic woodland in moorland or farmland cloughs. Small areas of wet woodland occur within these woods along streams and in valley bottoms. The ground flora can range from frequent bilberry on more acid soils to bluebell-dominated woodland on deeper, more neutral soils. The bluebell is a particularly striking example of a relatively common species in this country, but which is nevertheless of major conservation importance. Although fairly widespread and common in British woodlands it is very dependent on the mild Atlantic climate of the Western European seaboard and between a quarter to a half of the world population is to be found in the UK. The oakwoods are also important for local bird species such as pied flycatcher and wood warbler and support a rich invertebrate community including the purple hairstreak butterfly.

On the enclosed land of the Dark Peak rush pasture, hay meadows and unimproved acid and neutral grasslands can be found amongst a mosaic of more agriculturally improved fields. The unimproved hay meadows can be rich in species such as yellow rattle, eyebright and common knapweed, and are a vital habitat for twite. This small moorland finch, for which the Peak District may support about 25% of the English population, is dependent on seed from such meadows for feeding. Alder-lined rivers such as the Derwent and Noe are characteristic of the larger valleys, providing habitat for fish and invertebrates, whilst goosander and common sandpiper nest along some stretches.

The South West Peak supports a similar range of habitats to the Dark Peak, but generally in a much more intimate mosaic. The largest expanses of blanket bog and heather moorland occur around the Goyt Valley and Axe Edge. To the south of Axe Edge the landscape comprises moorland on the hilltops and upper slopes in a mosaic with rush pasture, hay meadows and more improved grasslands on the lower hillsides and valley bottoms. This pattern can be seen, for example, along the main ridges which dominate the area such as the Roaches, Morridge, Lum Edge and the Ipstones Ridge.

Habitats and Species of European Community Importance in the Dark Peak and South West Peak

Habitats (listed in Annex 1 of the European Habitats Directive)

The South Pennine Moors Special Area of Conservation (SAC) has been put forward for the following habitats (the equivalent Peak District Biodiversity Action Plan habitats are shown in red):

- Blanket bogs (listed as a priority habitat)
Blanket bog
- European dry heaths
Heather moor and dry mixed moor
- Northern Atlantic wet heaths with *Erica tetralix*
Wet heath
- Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles
Upland oak/birchwoods
- Transition mires and quaking bogs
Moorland flushes (certain types)

Species (listed in Annex 1 of the European Birds Directive)

The South Pennine Moors Special Protection Area (SPA) has been classified for the following species:

- Golden Plover
- Merlin
- Short-eared Owl

In some areas, particularly in Cheshire, continuous grazing over many years has led to replacement of the hilltop moorland by rough acid grassland. Towards the eastern and western edges of the area the land is more intensively farmed. It is the intimate mosaic of habitats in particular which contribute to the character and wildlife interest of the area. Moorland edge species,



dependent on both moorland and adjacent farmland, are particularly characteristic. The persistence of black grouse in this area until recently reflects the well-developed mosaic of habitats on which such species depend.

The moorlands are generally lower lying than most of the Dark Peak moors, comprising smaller blocks of blanket bog and heathland. Bilberry is abundant on some moors, as at Back Forest, and provides an important nectar source for the bilberry bumblebee which is dependent on a mosaic of moorland and flower-rich grasslands. The moorlands also provide some of the most southerly sites in Britain for arctic or northern species such as cloudberry and the rare rove beetle *Atheta arctica*. Rock outcrops include the dramatic crags of the Roaches and Ramshaw Rocks and the Killarney fern, a species of global conservation concern, occurs at one site. Areas of wet heath can be found locally, particularly in lower-lying moorland basins. Such habitat, which is rare outside the UK, is the only remaining site in the Peak District for the delicate lesser butterfly orchid. A wide range of moorland flushes (spring-fed wetlands) occur, supporting plants like marsh valerian, greater tussock sedge, marsh hawksbeard, bottle sedge and bog asphodel. Small areas of willow scrub are a particular feature of some moorlands and these can be rich in wetland plants.

The largest blocks of woodland in the area are the extensive plantations (mainly coniferous) around the Macclesfield Forest and Goyt Valley reservoirs. The former include fragments of clough woodland with relic populations of bay willow, aspen and bird cherry. Elsewhere semi-natural woodland is generally scarce, but with important concentrations along the Dane Valley near Danebridge and the Shell Brook near Wincle.

Buzzards have recolonised several of these woodlands in the South West Peak and both pied flycatchers and wood warblers occur.

The rivers and streams of the area generally comprise fast-flowing upland streams with the largest of these being the rivers Goyt and Dane. These provide an important habitat for aquatic and bankside invertebrates, whilst some of the reservoirs support nationally scarce mosses and local plants such as shoreweed on the drawdown zones.

The enclosed grasslands of the South West Peak tend to be rather more varied than in the Dark Peak, with a greater concentration of rush pasture and hay meadows in particular. The wetter and more botanically rich rush pastures are another example of a habitat which is rare outside the UK, and the large expanses of this habitat in the South West Peak are of particular importance for breeding birds such as snipe, curlew, lapwing and reed bunting. In addition to the breeding birds the plantlife can be diverse, with local species including bogbean and marsh cinquefoil. Some of the hay meadows in the area are intermediate between those typical of lowland Britain and the very rare upland type of meadow found in the Yorkshire Dales. Great burnet and lady's mantle are characteristic of these meadows, whilst the uncommon melancholy thistle and marsh orchids can be found locally. Up until the late 1970s this was the habitat of the corncrake, a globally threatened bird which declined substantially in Britain during the latter half of the 20th century. The richest pastures support flower-rich swards with plants such as mountain pansy, adderstongue fern and the extraordinary miniature fern moonwort. The importance of acid grasslands for fungi is also increasingly being recognised.



3.2 The Shaping of the Landscape

Centuries of human activity, together with the influences of climate, geology and topography, have made the Peak District what it is today - a place of special importance which is one of Britain's best loved landscapes. People and nature together have created a truly "living landscape" and many important habitats, species, landscape and historic features have flourished because of traditional activities. Very few of these habitats can be described as truly natural and land-use by people has a fundamental effect on virtually every corner of the area. Seven land uses in particular have been important in shaping the area's landscape and wildlife:

- Farming - Perhaps more than any other land-use activity the wildlife of the Peak District has been influenced by farming practice. Habitats such as the flower-rich grasslands of the limestone dales and the extensive areas of heather moorland, both highly valued wildlife habitats, largely owe their current extent to farming practices, and habitats such as flower-rich hay meadows are entirely the product of agricultural management. However, the last 50 years in particular has seen radical changes in farming at an unprecedented pace, encouraged by the Common Agricultural Policy, successive Government policies and technological developments. This in turn has led to significant loss of irreplaceable wildlife habitats. More recently agri-environment schemes, such as the North Peak and South West Peak Environmentally Sensitive Areas and the Countryside Stewardship Scheme, have brought both economic and conservation benefits to the area. Organic farming, if not carried out intensively, also has the potential to benefit wildlife. However, farming continues to go through a very difficult period and pressures on wildlife habitats inevitably remain in a difficult economic climate. The future of a healthy farming industry, with the will and economic incentive to manage land in a sustainable and environmentally friendly manner, is of considerable importance in order to maintain some of our most valued habitats and species
- Forestry - The extent of traditional woodland management such as coppicing in the Peak District is unclear, but charcoal production may have been an



important factor in the retention of some upland oakwoods. More recent planting of conifers up to the mid-1980s has sometimes resulted in the significant loss of valuable wildlife habitat whilst benefiting a few individual species. Many plantations are now being restructured to incorporate native woodland and open spaces of benefit to wildlife and the establishment of new native woodland is being encouraged

- Mineral working - Lead mining has been an important economic activity in the Peak District for many centuries. The resulting spoil heaps have developed a rich mosaic of vegetation including specialised plant communities adapted to metalliferous soils. More recent reworking of such spoil heaps for other minerals, however, and the subsequent restoration of these sites, enables agricultural improvement and consequent loss of all wildlife and historical value. Quarrying, whatever its landscape and other environmental impacts, has also had both positive and negative effects on wildlife. It destroys the original habitat but in some cases can result in the development of others of some value when working ceases, particularly where sensitive restoration can be achieved
- Grouse moor management - Management of moorlands for grouse shooting is essentially a 19th century development and has been an important influence on preserving areas of heather moorland and maintaining them in good condition. A

reduction in gamekeeping last century has probably had an adverse effect on much moorland wildlife, whilst benefiting other species of conservation importance

- Industrial activity in the surrounding cities - Past industrial activity resulted in the Peak District receiving particularly high levels of air pollution. This has left a legacy of moorland lacking the capacity to revegetate once erosion starts, and the extinction or decline of pollution-sensitive species such as some lichens and mosses. Today industrial pollution has been substantially reduced and the main source of emissions is probably from vehicles
- Water catchment - The demand for water in the surrounding cities led to the construction of a number of reservoirs in the Peak District. The original construction in the 19th and early 20th centuries often resulted in the loss of irreplaceable habitat such as valley woodlands and species-rich grasslands. Conversely new habitat has been created for some breeding and wintering birds and the drawdown zones can support distinctive vegetation including rare species not previously present in the Peak District such as Shoreweed
- Tourism and recreation - With over 22 million visits to the Peak District each year, visitors are having an increasing impact on the area. This brings more opportunities for people to enjoy and appreciate the wildlife of the Peak District, and greater economic incentive to conserve the rich variety of wildlife and habitats which attracts many people to the area. The increased disturbance, erosion and road traffic that results, on the other hand, can have a negative impact in sensitive locations



3.3 The Implications of Climate Change

Current climate change predictions suggest that the Peak District is likely to experience warmer wetter winters and hotter summers, possibly with longer drought spells. This is likely to have direct effects on wildlife such as increases in southern species and decreases in northern ones. It is the indirect effects, however, which are likely to be far more significant. If summers are warmer and drier these effects might include reduced summer river flows and prolonged periods of drying out, increased risk of accidental moorland fires, changes in agricultural management, increased peat erosion on the moors and increased recreational pressure. Warmer wetter winters could mean reduction in frosts, encouraging bracken spread.

The indirect effects are generally pressures that already exist to some extent anyway and in these cases it may be a matter of stepping up the level of actions which are already in the Action Plans (such as increasing firefighting capability and moorland firebreak creation). For the direct climatic effects on individual species it is likely to be extremely difficult to maintain sensitive populations in the face of widespread climate change, other than ensuring that there are adequate habitat refuges into which such species can “retreat” rather than face extinction. Some losses may therefore be inevitable.

The most important strategies for mitigating the effects of likely climate change will be to ensure that existing habitats are in the best possible condition so that they are more resilient to change (e.g. revegetating eroding blanket bog to minimise peat erosion), maximising the area and diversity of semi-natural habitat so that some areas are affected less and maintaining and enhancing a linked network of habitats to provide opportunities for dispersal and “retreat” of sensitive species.

3.4 Wildlife Gains and Losses

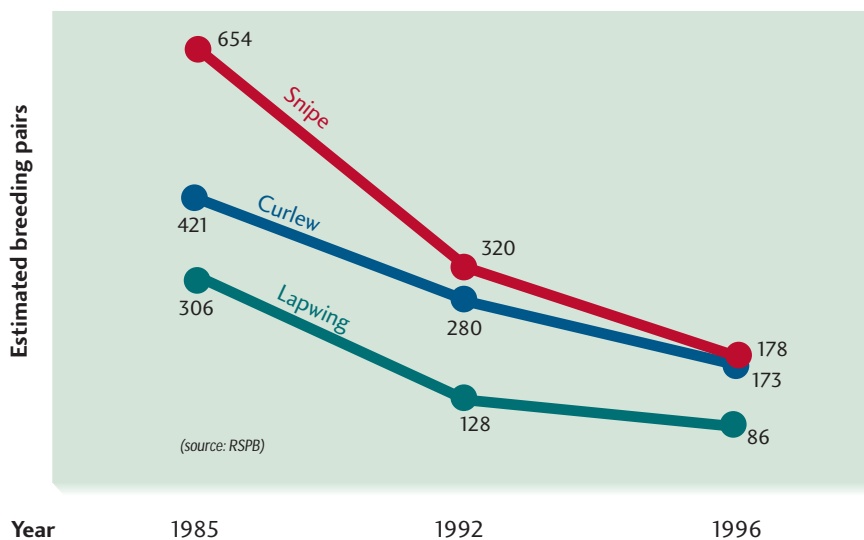
Three groups of species of conservation value have been increasing in the Peak District over the last decade or more and continue to spread. The first group comprises species which have declined because of air or water pollution in the past and are now recovering due to improved pollution control measures. These include many lichens which are sensitive to air pollution and there are also signs that bog mosses (*Sphagna*) may now be more widespread on the Peak District moors than they were earlier last century. The otter is another species that declined substantially in Britain due to water pollution in the 1960s but is making a recovery and may be recolonising the Peak District. Amongst the second group are species which have benefited from legal protection from persecution. Buzzards, ravens and peregrines, for example, are all doing well in the Peak

District and polecats appear to be colonising. The third group are southern species which have spread northwards with warmer weather. This includes several butterflies such as the speckled wood and comma which have been increasingly spreading into the Peak District.

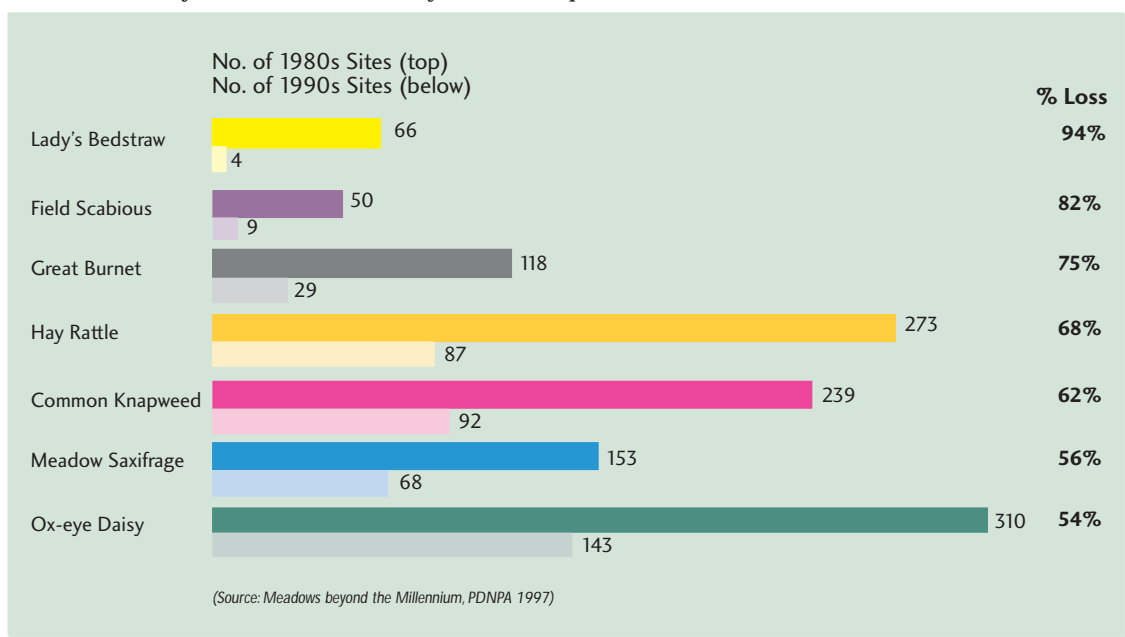
In contrast to these gains surveys by conservation organisations and local naturalists have confirmed the continuing scale of wildlife losses in the Peak District in recent years. They have revealed, for example, the following:

- 50% complete loss of flower-rich hay meadows within the National Park, and a significant decline in conservation value of a further 26%, between the mid-1980s and mid-1990s. Only some 410 flower-rich hay meadows still remain

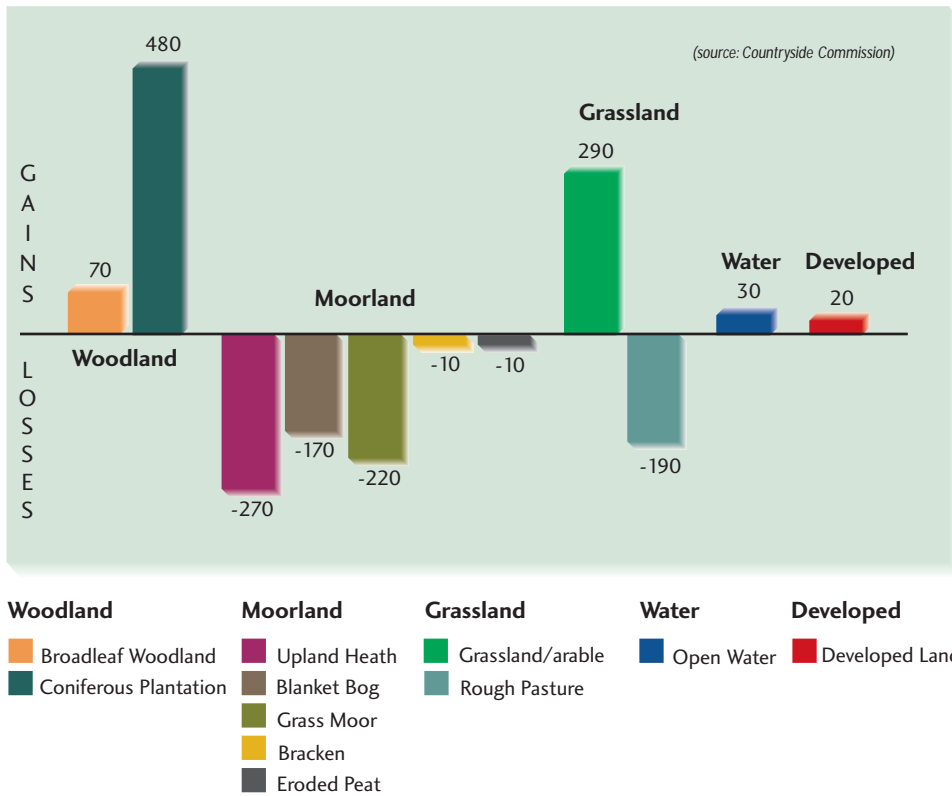
Declines in Breeding Waders in the North Staffordshire Moors, 1985-1996



The Loss of Hay Meadow Sites for Key Indicator Species in the National Park



Changes in Land Cover Types within the National Park from the 1970s to the 1990s
(figures = hectares)



- loss of up to 75% of lead rakes in parts of the National Park - the disappearance of a landscape that reflects one of the most important historical economic activities in the Peak District and one that supports special flower-rich grasslands of international importance
- loss of an estimated 50% of dewponds and their associated wildlife such as newts and dragonflies in the White Peak between 1970 and 1985 and with many others in a state of dereliction
- loss of 42.1 km of hedgerows from the 1970s to the 1980s
- loss of 270 ha of upland heath from the 1970s to the 1980s

- steep declines in breeding birds of wet grasslands in the Staffordshire Moors between 1985 and 1996 including 59% decline in curlews, 72% decline in Lapwings and 73% decline in snipe
- declines of up to 75% in water vole populations in some parts of the Peak District
- the extinction of black grouse

Such figures illustrate the massive shortfall in meeting environmental conservation objectives at the present time and the need for a joint approach to conservation targeted on priority features.

