

The project looked retrospectively at the changes that have affected the Parks in the 1970s and 1980s. In this period the effects of a reasonably buoyant hill farming economy would have led to some of the intensification of farming that is apparent. The economic climate is now much changed. The situation is therefore not static, and change may have speeded up or slowed down since the latest aerial photographs were taken. Awareness of undesirable changes that could undermine the special qualities of the landscape also means that a number of steps have already been taken to limit their effects. Examples of such measures include the following.

- The introduction of 'Environmentally Sensitive Areas', with incentive payments to farmers to retain and manage key landscape features in:
 - the Yorkshire Dales, where payment is designed to retain unimproved hay meadows and stone walls;
 - the Peak District's northern moorland, where payment is aimed at securing appropriate management of moorland vegetation, and reducing stocking levels;
 - the Broads, where payment is directed at retaining grazing marshes in the face of pressure for improvement and cultivation.
- The introduction of 'Farm Conservation Schemes' by some of the Parks, including the Peak District, Exmoor and the North York Moors, which aim to maintain and enhance the landscape.
- The National Park authorities' responses to consultation on forestry planting proposals and the government statement indicating that there will be no more predominantly coniferous planting in the English uplands.
- The identification by the National Park authorities of some of the main landscape features to be conserved, through preparation initially of Section 43 (of the Wildlife and Countryside Act 1981) Maps of Moor or Heath, and subsequently Section 3 (of the Wildlife and Countryside (Amendment) Act 1985) Maps, which identify mountain, moor, heath, woodland, down, cliff or foreshore whose natural beauty is considered to be particularly important to conserve.
- The introduction of a consultation procedure allowing the National Park authorities to comment on proposed agricultural improvements involving MAFF grants, and to enter into management agreements under Section 39 of the Wildlife and Countryside Act 1981.

These and many other related initiatives should mean that some of the more undesirable trends in the National Parks will have been slowed or even halted.

On the other hand, some intensification of farmland may continue if existing policies remain unchanged. New initiatives will also have an effect, especially the recent introduction of the Countryside Stewardship scheme in England (11), to encourage positive conservation management of important landscape features, and especially limestone grasslands, lowland heath, waterside landscapes, coastal land and upland areas. Many Countryside Stewardship agreements are likely to be in National Parks.

Future studies of this type will show how things have actually changed in the Parks in response to these varying influences.

Changes in quality

Even if the view is taken that the overall changes in the National Parks are not of great significance, there is no reason for complacency. The nature of the monitoring exercise means that it has measured losses and gains only. It has not addressed the question of the condition or quality of the landscape features. This can be equally significant in affecting the landscapes we see, and evidence of degradation can be particularly critical in the high-quality landscapes of the National Parks. However, one of the advantages of the present survey is that it provides much better understanding of the size and distribution of the total population of different components of the landscape. To assess quality, say, in terms of the condition of walls, there is now a good basis on which to plan a sample survey.

A number of such changes in quality in landscape features have been identified by the National Park authorities themselves, as follows.

- Although broadleaved woodland has not declined in extent, much of it suffers from lack of appropriate management and is often not regenerating because it is grazed by stock. Problems like this are being tackled by woodland management initiatives in the Parks, and by wider schemes such as the 'Coed Cymru' woodland management project in Wales and Project Silvanus in South West England.
- Stone walls, which are so important to the character of Snowdonia, the Yorkshire Dales and the Peak District and other upland Parks, are often poorly maintained. In the worst cases they may have collapsed. This survey only recorded walls as lost if they had actually disappeared. However, partial or complete collapse of walls can also have an effect on the character of the landscape. Schemes to encourage maintenance and repair of walls by grant payment have been introduced in the Parks to tackle this problem. Some of the Park authorities, e.g. Snowdonia National Park Authority, have been providing top-up grants for dry-stone walling, supplementing the Ministry of Agriculture's grants. The Yorkshire Dales National Park has a 'Barns and

Walls' scheme in Upper Swaledale and Arkengarthdale, and the Peak District National Park has assisted with wall conservation and maintenance through its Integrated Rural Development Project and through voluntary management agreements in the area of the Chelmorton Historic Landscape. Under the Farm Conservation Scheme in Exmoor standard payments are available for traditional hedgerow maintenance and, in the Peak District, for rebuilding walls.

- There is widespread concern about changes in the composition of moor and heath and the condition of heather moorland in particular. Only major changes between types of moorland will show up in this survey, but other much more subtle changes are of equal concern. Parks such as the North York Moors, the Peak District and Exmoor have introduced special moorland management programmes or projects to tackle these problems. In Exmoor, for example, experiments on moorland reversion are under way, and standard payments are available for reducing stocking levels on moorland.
- The species diversity of grasslands, such as the limestone pastures and hay meadows of the Yorkshire Dales and the Peak District, is declining as a result of agricultural improvement. Incentives under schemes such as the Pennine Dales ESA are designed to maintain traditional management.

Monitoring for the future

This study is unique in providing the first complete census of the main features of our National Park landscapes. In fact there has been no similar census on such a large scale anywhere in Britain. Changes in individual areas, notably in the Mid Wales uplands (2), have been mapped and measured, and large-scale monitoring of changes in land cover are now being carried out by the Ministry of Agriculture, Fisheries and Food in Environmentally Sensitive Areas. But the National Park survey is a first.

The work has been particularly useful in testing the use of a geographic information system (GIS) in monitoring of this type. The results show how flexible this can be in allowing change to be analysed in different ways and at varying scales, and to be presented in a variety of different ways.

Fit for the future: Report of the National Parks Review Panel (12), proposed that each Park authority should produce an environmental inventory, to be updated every five years, and forming the basis for a periodic audit of the environmental assets of the National Park. The report also envisaged extensive use being made of aerial photography and satellite imagery in compiling such inventories. It also commented on the

need for: a more structured approach to research in the National Parks; research relating to the family of National Parks as a whole; and the coordinated development of computer systems able to handle an increasing range of management requirements and which would be compatible across the Parks.

This monitoring project is an invaluable first step in meeting some of these requirements. The results should provide the basis for an environmental inventory and for a monitoring programme that can be repeated at regular intervals. Further opportunities to use and develop both the information base and the GIS are already being investigated by Snowdonia National Park and by the Lake District National Park, which is working jointly with Northumberland, the North York Moors and the Yorkshire Dales National Parks.

In the longer term the idea of environmental inventories means that information collected during this, and follow-up monitoring surveys, can be linked with other information through a GIS. This might include mapped information on the following:

- land capability for agriculture and forestry;
- areas of special importance, including nature conservation, archaeological and historical areas;
- recreation characteristics;
- common land;
- rights of way;
- areas receiving grants for conservation measures;
- settlement patterns;
- planning applications;
- landscape character.

The ability to combine and manipulate information of this type could be of great value in assisting with the future management of the Parks.

The monitoring project has been an important stepping stone for the future in understanding and managing the National Parks. It has provided unique snapshots of some of our most valued landscapes in the 1970s and the 1980s and a wealth of detailed information on the way in which they have evolved in recent years. On the technical side, it has pioneered new techniques for recording, manipulating and analysing complex information about large-scale landscapes. It has shown that the approach has the potential to be applied in many different areas and for many different purposes. The way is open for significant new developments of this type of work, as GIS and remote sensing techniques become more accessible and more sophisticated. In the meantime, this study provides an invaluable tool for National Park management.

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| Volume VIII | <i>Northumberland</i> |
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APPENDIX I. THE METHOD OF MONITORING

There are five main elements to the method, namely:

- aerial photographic interpretation,
- ground survey,
- data capture,
- data analysis and outputs,
- accuracy assessment.

Aerial photographic interpretation

The aerial photographs of the Parks have been interpreted, using the one kilometre Ordnance Survey grid squares on transparencies laid over the photographs, to identify and record three main types of features — areas, linears and points.

Area features

These include all of the main categories of land cover found in the Parks, covering the six main classes of: woods and forests; moor and heath; agro-pastoral land (enclosed farmland); water and wetland; rock and coastal areas; developed land. Each of these were subdivided into more detailed groupings, giving a total of 37 mapped classes which are described in Appendix 2. Overlays were prepared for the 1970s and 1980s photographs, showing the full extent of all of these land cover classes in both years.

Linear features

These incorporate all of the main boundary features in the Parks, including hedges, walls, fences, banks, ditches and woodland edges. They also include other linear features typical of certain land cover types, notably moorland grips. They were recorded as lengths in kilometre squares, apart from grips, which were just recorded as present or absent from each kilometre square.

Point features

Individual trees, trees in boundaries, groups of trees, and ponds were all treated as point features and were recorded by counting rather than measuring. These features were counted in all kilometre squares, except in the case of individual trees, which were only counted for a sample of squares.

Ground survey

As a complement to the aerial photographic interpretation, ground survey served two important functions. Firstly, it allowed for familiarisation with the features of the Parks; this helped with subsequent aerial photographic interpretation work. Secondly, it allowed for cross-checking, to assess the accuracy of the aerial photographic interpretation. A minimum of two per cent of the one kilometre grid squares in each Park were randomly selected for ground survey. The land cover, linear and point features found in the area were mapped on 1:10,000 overlays. A further subsample of about five per cent of these squares were surveyed twice to assess differences in interpretation on the ground. All of the ground survey results were used to check the overall accuracy of the aerial photographic interpretation.

Data capture

A GIS known as SPANS (Tydac Technology's Spatial Analysis System) was used to link mapped data to the Ordnance Survey national grid, and to county, district and community or parish boundaries. Area features were digitised from the 1:10,000 overlays and converted into 'pixels', which are units or cells equivalent to a 20 metre by 20 metre grid on the ground and which provide the basic unit for all subsequent calculations of areas or for map presentation of data. Database software called FoxBase+ was used to link the linear and point information to the grid square system, so that this, too, could be mapped and analysed.

Data analysis and outputs

The results of the project can be presented as a combination of maps and tabular numerical information, as follows.

- **Maps**, using the area data, can be produced to show the extent of different types of land cover in the 1970s and the 1980s or the change between these dates, for any area from the whole Park down to an individual parish or 10 kilometre grid square. The classes can be mapped in any combinations that are required, from the six main classes to the 37 sub-categories defined in Appendix 2.
- **Tabular information** allows the actual extent of different features to be presented and the amount

and nature of change to be quantified. Area features are presented in the form of correlation tables that are based on the pixel data and show the area of each land cover class in the 1970s and the 1980s, the area that is unchanged at each date, and, where there has been change, the class that each piece of land has changed from or to. This is critical to any conclusions about the nature of change, and its implications need to be carefully understood.

Point and linear features can also be shown in tabular form, with tables showing the total length or number of features at each of the two dates, and the change in between. These tables, and those for the area information, can be produced for the whole park, for counties, districts, communities, parishes or ten kilometre squares.

Tabular information can be converted into pie charts, bar charts or other graphic ways of presenting numerical information. However, this is not an option available with the GIS system. Data must be fed into suitable integrated word processing and graphics systems to produce such displays.

Net change and gross change

Change in area features can be expressed in two ways:

- **net change** is the difference in the total area of land cover class in the 1970s and the 1980s and is based on the pixel totals for that class;
- **gross change** is a measure of the total movement from, or to, a land cover class between the 1970s and the 1980s, and is based on the total pixels lost or gained in that class.

The significance of these two measures of change is that, for example, when net change in one class is small — indicating that there is little difference in

overall area between the two periods — gross change may be large, showing that there has been considerable change in the distribution of this class. For example, in considering enclosed farmland there may be a great deal of movement from year to year between improved grassland, cultivated land and rough pasture as land is improved and reverts, or is rotated between crop land and grassland. This would show up as a high level of gross change, even though the total area of each type remains roughly constant and the net change is therefore small. Gross change is therefore a measure of the dynamics of the landscape features, while net change is a measure of overall loss or gain.

Accuracy assessment

There are three potential sources of error in the project:

- in identifying landscape features in aerial photographic interpretation;
- in the measurement of lengths or areas where approximations are involved in the process of digitising and calculations of extent;
- in the complex processes involved in compiling all the data.

The method was designed to minimise these sources of error. The classification of land cover types, linear and point features; the use of ground survey to help in interpretation of aerial photographs and to check on accuracy; and repeated checking at the data capture stage, all helped to reduce error. The detailed reports (1) summarise accuracy assessments for each park, although overall it seems that the results of the study fall within acceptable confidence limits, and that the results compare favourably with other studies of this type.

APPENDIX 2. DETAILED DEFINITION OF CLASSES

Boundary and other linear features

A1 Hedgerows

Any amount of hedge, however discontinuous and in any condition, is classified as hedgerow unless it can be classified as point features B2, B3 or B4 (below). Characteristically found as field boundaries, they may have been replaced or supplemented by fences for stock control purposes.

A2 Fences and insubstantial field boundaries

Field boundaries formed by fences, not associated with other linear features. They are not visible on the aerial photography and their presence is inferred from tonal differences between adjacent land parcels.

A3 Walls

A wall in any condition where the stone line is still visible. They may have been supplemented by fences for stock control purposes. No attempt is made to assess the condition of the wall from aerial photography as this has proved to be very unreliable.

A4 Banks

Banks which in themselves form the main part of field boundaries. Low banks, such as those along root lines of hedges are not included, and banks with hedgerows on top (as defined in A1) are classified as hedgerows. Banks may have been replaced or supplemented by fences alongside or on top for stock control purposes.

A5 Open ditches

Substantial man-made ditches that form field boundaries. Ditches beside hedges or walls are not included. Ditches may have been supplemented by fences for stock control purposes. If a fence exists beside the ditch it is still classified as A5.

A6 Woodland edge

Boundaries around wood and forest land. The types of boundaries (hedge, wall, etc) are not defined since they are usually obscured on aerial photography by tree canopies.

A8 Strip woodland

Isolated strips of woody vegetation with more than a single line of trees, which are more than 50 metres long, but less than 20 metres wide.

A9 Grips

Open drainage channels in moorland. Recorded on the basis of presence or absence in each kilometre grid square.

Small or isolated (point) features

B1 Individual trees inside linear features

All trees that can be distinguished as individuals that occur along a linear feature and are not included in the wood or forest categories. Counted from aerial photography only for the sample areas used for ground survey.

B2 Individual trees outside linear features

As B1 for trees outside linear features. Large bushes are also included.

B3 Groups of trees, all species

Groups of trees covering an area of less than 0.25 hectares.

B6 Inland water

Farmland ponds, small reservoirs, natural water bodies, etc, which are less than 0.25 hectares in area.

Area features

Woodland and forests

C1 Broadleaved high forest

Areas greater than 0.25 hectares, wider than 20 metres and having a tree canopy cover of at least 20 per cent by area. At least 80 per cent of the canopy should be of broadleaved species.

C2 Coniferous high forest

Areas greater than 0.25 hectares, wider than 20 metres, and having a tree canopy cover of at least 20 per cent. At least 80 per cent of the canopy should be of coniferous species.

C3 Mixed high forest

Areas greater than 0.25 hectares that are wider than 20 metres and have a tree canopy of at least 20 per cent by area. Composed of an intimate mixture of broadleaved and coniferous species, where the minority group comprises more than 20 per cent.

C4 Scrub

Areas with diffuse boundaries with less than 20 per cent cover by area of mature timber species with a rough understory of shrubs and grasses. Trees such as birch, alder, willow and hazel must be less than 3.5 metres high, although shrubs such as Blackthorn and Hawthorn may be higher.

C5 Clear felled/new plantings in forest areas

Areas with distinct boundaries, generally integral with stands of high forest, that have recently been felled or planted. Evidence of logging, rowing up of trash and drainage may be present.

Moor and heath

D1 Upland heath

Areas with greater than 80 per cent cover of heather and/or bilberry species. Characteristically found on acid heathland soils, steep rocky hillsides and crags, and peat covered moorlands, this type may be burned in patches or strips for grouse moor. Areas that have been burnt, but which it can be assumed will regenerate as heath, are included.

D2 Upland grass moor

Unenclosed upland areas with greater than 80 per cent cover of grass species. Two sub-categories are identified:

D2a Grass moor — which may include fescues, bents, purple moor grass, and matt grass.

D2b Blanket peat grass moor — overlying a peat substrate, usually found on plateaux, dominated by cotton-grass. These areas are in general unenclosed for the purpose of controlling livestock grazing, although property boundaries around large areas may be present.

D3 Bracken

Areas having at least an 80 per cent cover of bracken, which is an invasive species characteristically found on steep slopes extending along valley sides. Bracken is very variable in appearance depending on the time of year. Up to June it is identifiable from the presence of last years residue of dead plant material, having a characteristic russet-brown colour. After June it appears green and bushy.

D4 Unenclosed lowland areas

Lowland areas that are not enclosed for stock control purposes. Two sub-categories are identified:

D4a Rough grassland — unenclosed lowland areas dominated by grass species.

D4b Heath — unenclosed lowland areas dominated by mixed heath species, eg gorse.

Both sub-categories are likely to contain some scattered trees, rushes and bracken, and may be grazed. D4 categories occur on land with elevation that is equal to or below that of the surrounding farmland.

D6 Upland mosaics

Areas of transition between upland heath (D1) and other moor and heath categories. Three sub-categories are identified:

D6a Heath/upland grass moor;

D6b Heath/bracken;

D6c Heath/blanket peat grassland.

The boundary with heath will be drawn where heath species comprise more than 80 per cent of the cover and with the other categories where they in turn constitute more than 80 per cent of the cover.

D7 Eroded areas

Two sub-categories are identified:

D7a Areas of eroding peat, in upland situations where bare peat is the dominant cover type, or where there is heavy dissection by eroding channels to give a mosaic appearance. The associated cover types are variable.

D7b Areas of eroding mineral soils.

D8 Coastal heath

Areas of mixed heath species along coastal slopes and exposed headlands. The lower limits of coastal heath are G2b or G3 categories, or the sea. The upper limits are C and E categories or when the change to D1 can be interpreted. The upper limits may be somewhat subjective in the transition to D1.

Agro-pastoral land (enclosed farmland)

E1 Cultivated land

Areas of ploughed and cropped land, including cereals, ley grasses, legumes, field vegetables, potatoes and root crops, rape and fodder crops. The category also covers market gardens, orchards, etc. Ley grasses are difficult to discern and impossible after the first year when they will be classified as E2A (Improved pasture). They are indicated by drilling rows, uniformity of species composition and are usually to be found in situations where there is arable cropping.

E2 Grassland

Areas that show evidence of being enclosed for stock control purposes. Two sub-categories are identified:

E2a Improved pasture — grassland that is intensively managed for grazing and/or fodder production. Characterised by significantly modified swards produced by the use of fertilisers, herbicides, drainage and/or occasional reseeded. Species such as rushes, thistles and bracken are normally eradicated but could be present in small quantities. However, daisies, buttercups, etc, may be present. It does not cover grass leys and generally occurs within the limits of mechanical operations. The sward may be lumpy due to uneven fertilisation from cow pats, and may have artificial boundaries caused by strip grazing. From spring to late summer cutting for hay or silage may occur.

E2b Rough pasture — enclosed areas subject to little or no management. Characterised by a high density of native grasses and often containing invasive species such as bracken, bramble, thistle, rushes and scattered

trees. Tussocks may also be in evidence. Generally occurs on steep slopes, poorly drained sites and soils of low fertility. Frequently includes areas that can be accessed by farm machinery, indicating that it may have been managed in the past.

Both categories can and do exist within the same field and in such cases they are separated.

Water and wetland

F1 Open water, coastal

The boundary of this category will be taken as the mean low water mark. If photography coincides with high tide the area between the low tide mark and the water boundary on the photography will be mapped as F1.

F2 Open water, inland

Natural and man-made water bodies greater than 0.25 hectares in extent. This category does not include rivers.

F3 Wetland vegetation

Areas of vegetation that are controlled by the permanent or frequent periodic presence of water. Three sub-categories are identified:

F3a Peat bog;

F3b Freshwater marsh;

F3c Saltmarsh.

Rock and coastal land

G2 Bare rock

Any significant areas of bare rocks, such as scree, cliffs and limestone pavements. Only the plan area is mapped, so large but near-vertical cliffs may cover a small area when mapped, or even be missed. The sub-categories are:

G2a Inland bare rock;

G2b Coastal bare rock — when it is sea cliffs or rock exposed to coastal erosion.

G3 Other coastal features

This category includes a variety of coastal features. These may not be mapped if photography coincides with high tide. As in the case of category F1, the solution will be to map areas visible on the photography

and to subsequently interpret changes with caution, depending on the tidal state of the two sets of photography. The sub-categories are:

G3a Dunes (bare or vegetated with coastal grasses);

G3b Sand beach;

G3c Shingle beach;

G3d Mudflats.

Developed land

H1 Built-up land

Two sub-categories are identified.

H1a Urban land — areas of buildings, including gardens, car parks, etc, and urban open spaces such as parks, playing fields, etc. Any settlement consisting of more than one group of buildings will be included.

H1b Major transport routes — transport routes that cover a significant area, defined as multi-carriageway roads, functioning multi-track railways, railyards, and airports. Grass verges obviously associated with the transport routes are included.

H2 Quarries, mineral working and derelict land

Two sub categories are identified.

H2a Quarries and mineral workings — where these are active and still in regular use.

H2b Derelict land — disused quarries and mineral workings, and other significantly disturbed land that would need reclamation before it could be used.

H3 Isolated rural developments

Developments consisting of only one group of buildings but covering an area greater than 0.25 hectares. Two sub-categories are identified:

H3a Farmsteads — a farmhouse and associated farm buildings.

H3b Other — any other type of isolated rural development eg garages and public houses, etc.

I Unclassified land

Areas that cannot be legitimately included in any other category, eg rivers, or areas that cannot be reliably identified on the photographs due to cloud, shadow, military restrictions, lack of photographic coverage etc.

| Amalgamated class | Land cover classes included | Amalgamated class | Land cover classes included |
|--------------------------------------|---|--------------------------------------|--|
| North York Moors | | | |
| Broadleaf woodland | Broadleaved high forest (C1) Mixed high forest (C3) Scrub (C4) | Coniferous forest | Coniferous high forest (C2) Clear felled/newly planted land (C5) |
| Coniferous forest | Coniferous high forest (C2) Clear felled/newly planted land (C5) | Upland heath | Upland heath (D1) Heath/upland grass moor mosaic (D6a) |
| Heath | Upland heath (D1) Heath/upland grass moor (D6a) Coastal heath (D8) | Grass moor | Upland grass moor (D2b) |
| Grass moor | Upland grass moor (D2b) | Bracken | Bracken (D3) Heath/bracken mosaic (D6b) |
| Bracken | Bracken (D3) Heath/bracken mosaic (D6b) | Blanket peat moor | Blanket peat grass moor (D2d) Heath/blanket peat grassland (D6c) |
| Cultivated land | Cultivated land (E1) | Eroded peat | Eroded peat (D7a) Eroded mineral soils (D7b) |
| Improved pasture | Grassland — improved pasture (E2a) | Cultivated land and improved pasture | Cultivated land (E1) Grassland — improved pasture (E2a) |
| Rough pasture | Grassland — rough pasture (E2b) | Rough pasture | Grassland — rough pasture (E2b) |
| Developed land | Built-up land — urban (H1a) Major transport routes (H1b) Quarries and mineral workings that are still in use (H2a) Derelict land (H2b) Isolated rural developments (H3) | Open water | Open water — inland (F2) |
| | | Developed land | Built-up land — urban (H1a) Major transport routes (H1b) Quarries and mineral workings that are still in use (H2a) Derelict land (H2b) Isolated rural developments (H3) |
| Northumberland | | | |
| Broadleaf woodland | Broadleaved high forest (C1) Mixed high forest (C3) | Snowdonia | |
| Coniferous forest | Coniferous high forest (C2) Clear felled/newly planted land (C5) | Broadleaf woodland | Broadleaved high forest (C1) Mixed high forest (C3) Scrub (C4) |
| Upland heath | Upland heath (D1) Heath/upland grass moor mosaic (D6a) Heath/blanket peat grassland mosaic (D6c) | Coniferous forest | Coniferous high forest (C2) Clear felled/newly planted land (C5) |
| Grass moor | Upland grass moor (D2b) Blanket peat grass moor (D2d) | Upland heath | Upland heath (D1) Heath/upland grass moor mosaic (D6a) Heath/blanket peat grassland mosaic (D6c) |
| Bracken | Bracken (D3) Heath/bracken mosaic (D6b) | Grass moor | Upland grass moor (D2b) Blanket peat grass moor (D2d) Unenclosed lowland areas — rough grassland (D4a) |
| Cultivated land and improved pasture | Cultivated land (E1) Grassland — improved pasture (E2a) | Bracken | Bracken (D3) Heath/bracken mosaic (D6b) |
| Rough pasture | Grassland — rough pasture (E2b) | Improved pasture | Grassland — improved pasture (E2a) |
| Water and wetland | Open water — coastal (F1) Open water — inland (F2) Wetland vegetation (F3) | Rough pasture | Grassland — rough pasture (E2b) |
| Developed land | Built-up land — urban (H1a) Major transport routes (H1b) Quarries and mineral workings that are still in use (H2a) Derelict land (H2b) Isolated rural developments (H3) | Water and wetland | Open water — coastal (F1) Open water — inland (F2) Wetland vegetation (F3) |
| | | Rock and coastal | Bare rock — inland (G2a) Bare rock — coastal (G2b) Coastal features — dunes (G3a) Coastal features — sand beach (G3b) Coastal features — shingle beach (G3c) Coastal features — mud flats (G3d) |
| Pembrokeshire Coast | | | |
| Woodland and forest | Broadleaved high forest (C1) Coniferous high forest (C2) Mixed high forest (C3) Scrub (C4) Clear felled/newly planted land (C5) | Developed land | Built-up land — urban (H1a) Major transport routes (H1b) Quarries and mineral workings that are still in use (H2a) Derelict land (H2b) Isolated rural developments (H3) |
| Upland heath and grass moor | Upland heath (D1) Upland grass moor (D2b) Heath/upland grass moor mosaic (D6a) | | |
| Bracken | Bracken (D3) | Yorkshire Dales | |
| Unenclosed lowland grass | Rough grassland (D4a) | Broadleaf woodland | Broadleaved high forest (C1) Mixed high forest (C3) Scrub (C4) |
| Coastal heath | Coastal heath (D8) Unenclosed lowland areas - heath (D4b) | Coniferous forest | Coniferous high forest (C2) Clear felled/newly planted land (C5) |
| Cultivated land and improved pasture | Cultivated land (E1) Grassland — improved pasture (E2a) | Upland heath | Upland heath (D1) Heath/upland grass moor mosaic (D6a) Heath/blanket peat grassland mosaic (D6c) |
| Rough pasture | Grassland — rough pasture (E2b) | Grass moor | Upland grass moor (D2b) Blanket peat grass moor (D2d) |
| Water and wetland | Open water — coastal (F1) Open water — inland (F2) Wetland vegetation (F3) | Bracken | Bracken (D3) Heath/bracken mosaic (D6b) |
| Hard coastal | Sea cliff or rock exposed to coastal erosion (G2b) | Improved pasture | Grassland — improved pasture (E2a) |
| Soft coastal | Coastal features — dunes (G3a) Coastal features — sand beach (G3b) Coastal features — shingle beach (G3c) Coastal features — mud flats (G3d) | Rough pasture | Grassland — rough pasture (E2b) |
| Developed land | Built-up land — urban (H1a) Major transport routes (H1b) Quarries and mineral workings that are still in use (H2a) Derelict land (H2b) Isolated rural developments (H3) | Water and wetland | Open water — coastal (F1) Open water — inland (F2) Wetland vegetation (F3) |
| | | Bare rock and eroded land | Bare rock — inland (G2a) Eroded peat (D7a) Eroded mineral soils (D7b) |
| Peak District | | Developed land | Built-up land — urban (H1a) Major transport routes (H1b) Quarries and mineral workings that are still in use (H2a) Derelict land (H2b) isolated rural developments (H3) |
| Broadleaf woodland | Broadleaved high forest (C1) Mixed high forest (C3) Scrub (C4) | | |

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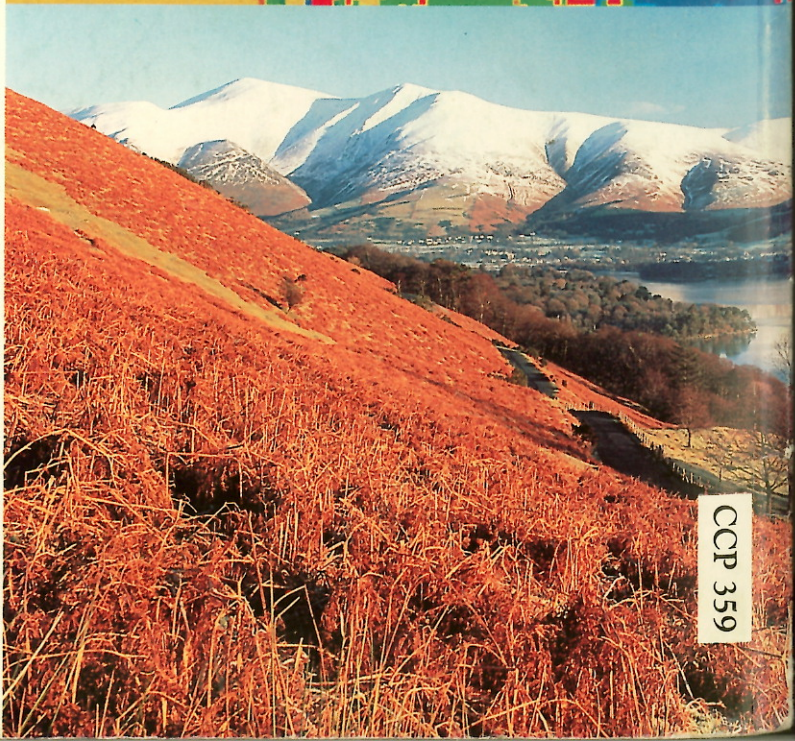
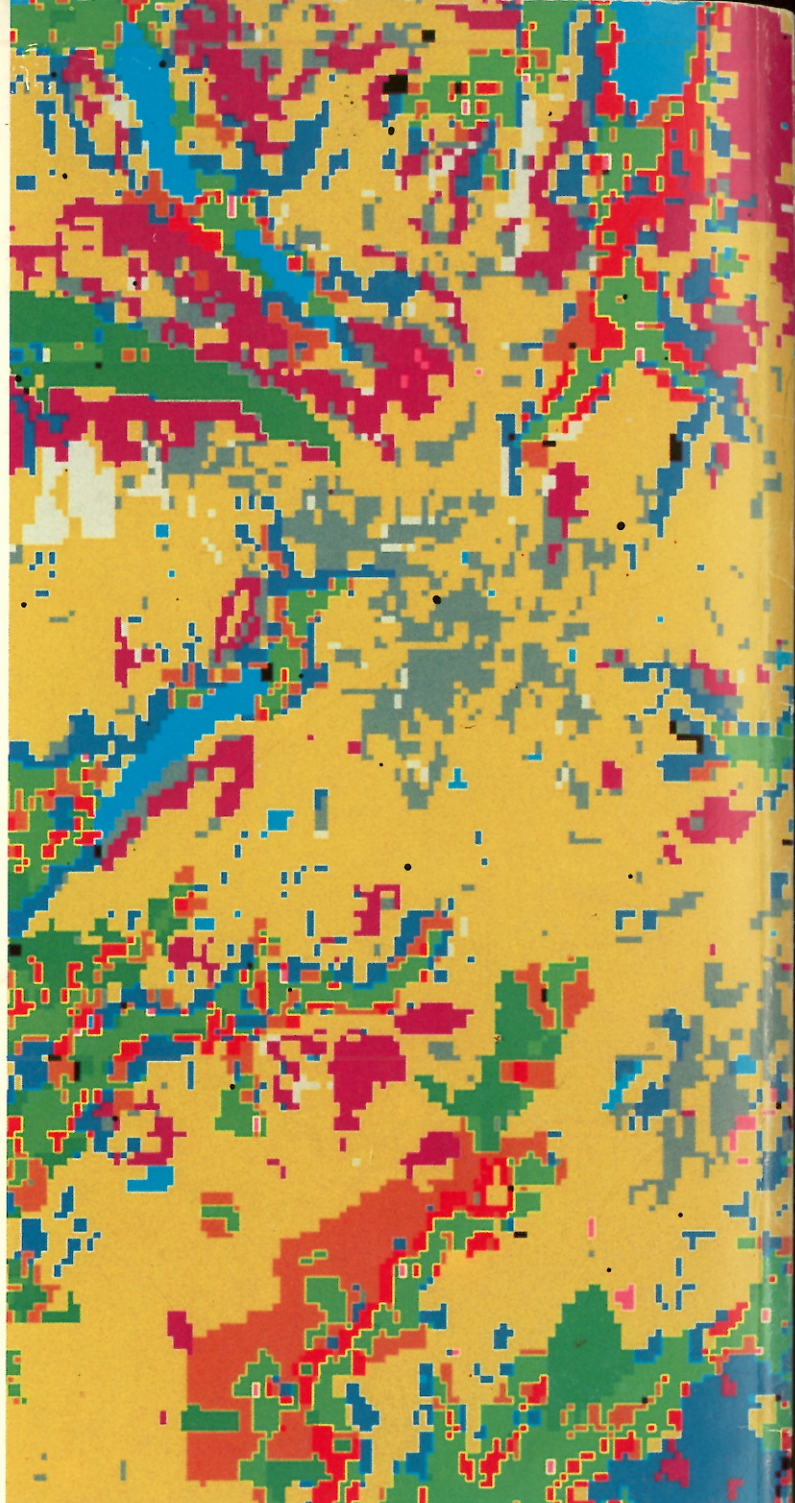
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