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The evaluation of upland habitats

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Dr David Horsfield and Dr D B A Thompson

Research and Advisory Services
Directorate Scottish Natural Heritage

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THE NORTHERN PENNINES: AN EVALUATION OF UPLAND HABITATS

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1. SUMMARY

1.1 This report provides an overview of a vegetation survey of twelve large upland blocks, outwith existing SSSI, in the northern Pennines.

1.2 Forty-one National Vegetation Classification (NVC) communities were recorded. The vegetation consists largely of ericaceous dwarf-shrub heaths dominated by Calluna and Calluna-rich blanket mires. There is a predominance of the relatively undisturbed Calluna-Eriophorum blanket mire (NVC type M19). Acidic grasslands are moderately extensive and there is a high proportion of Carex-Sphagnum flush-mires (M6), bracken community (U20), wet heaths (M16) and valley-mire (M21).

1.3 These moorland plant communities, especially the extensive dwarf-shrub heaths and blanket mire, are of high nature conservation value in national and international contexts. The blocks fill a gap in the biogeographical composition and range of important upland vegetation in England.

1.4 Plant community suites in the survey blocks were analysed by multivariate methods. These gave two main equal-sized groups of blocks. Broadly these are: a) "western" group of high altitude sites with calcareous communities, western flush mires and extensive Calluna-Eriophorum blanket mire (M19); and b) "eastern" group of low altitude sites with extensive Calluna heath, wet heath, valley-mire and relic woodland.

1.5 The comparative nature conservation assessments of the plant communities in the survey blocks, singly and collectively, are based on measures of naturalness, diversity and rarity. Intensity of land-use and management is also examined. The "western" group has broadly higher scores for naturalness, diversity and rarity but higher intensities of land-use and management than the "eastern" group. The best blocks to represent the fullest extent of variation in plant communities are identified.

1.6 The plant communities of the survey blocks are compared both generally with the representation in upland regions of England and in detail with plant communities on SSSI and a few other non-statutory sites in the Pennines, Cheviots, northern Lake District, Bowland Fells and North York Moors. Multivariate analysis was carried out on the suites of plant communities on the sites to place them in context and conservation assessments were applied to the SSSI and non-stats and compared with the survey blocks.

1.7 Multivariate analysis demonstrates that some of the survey blocks (nos 14(ii), 15, 16) are closely related in their suites of plant communities to SSSI, though the majority cluster into their own group. This majority group of survey blocks is characterised by many preferential plant communities, though their complement of communities is largely shared with other closely related groups of sites. The majority group is intermediate in its suites of plant communities between a southern Pennines group, which includes blocks 15 and 16, and a North York Moors group and the more wholly acidic northern Pennine and Cheviot sites. Block 14(ii) (western Gt Whernside) is similar to a large group of northern Pennine SSSI with extensive limestone.

1.8 The survey blocks fill a geographical gap in the representation of a range of communities by SSSI and many of the communities on the survey blocks are demonstrated to be poorly represented on SSSI. The geographical representation of communities that potentially may be filled include northern dwarf-shrub heaths and blanket mire, soligenous mires, and a range of eastern, low-altitude dwarf-shrub heaths, wet heath, valley mire and grassland.

1.9 Conservation assessments of naturalness, diversity and rarity of the survey blocks are compared with the SSSI. In general the survey blocks compare favourably with SSSI while falling short in many respects compared with some SSSI. The naturalness of the survey blocks is generally high compared with SSSI, higher than many SSSI and only a few SSSI have higher values. This is due to a combination on many of the survey blocks of extensive Calluna-Eriophorum blanket mire and Calluna-dominated heath which are extensive together on only a few SSSI. The diversity of the survey blocks lies well within the range of SSSI and some blocks are more diverse than some SSSI. The number and area of rare/relic communities on the survey blocks is modest compared with SSSI, though some blocks are comparable with SSSI.

2.0 Survey blocks of the "western" group (esp. 1, 7 & 12) have higher values for conservation criteria in general than blocks of the "eastern" group though some of the latter (esp. 15 & 16) are comparable with vegetationally similar SSSI. The "western" group have larger tracts of relatively undisturbed blanket mire than the "eastern" group. The "eastern" group have larger stands than the "western" group of many communities which fill gaps in geographical cover of eastern, low-altitude communities.

2. INTRODUCTION

There has been long-standing interest in the uplands and peatlands of the northern Pennines. Much of the land is managed as grouse moor, and the recreational interest and beauty of the area is reflected by the existence of the Yorkshire Dales National Park and the North Pennines Area of Natural Beauty. Upland/peatland habitat scheduled as Sites of Special Scientific Interest (SSSI) is localised mainly in the Geltsdale-Upper Teesdale area and Craven (Map 1).

Knights (1990) originally proposed that the uplands of the northern Pennines represent a highly significant national nature conservation resource, comprising a fairly continuous zone of semi-natural habitat extending over two regions and 7 areas of search within the counties of North Yorkshire, east Lancashire, east Cumbria, Durham, Northumberland and West Yorkshire. He further emphasised that the predominant vegetation of heather moorland and blanket mire was not adequately represented within the current SSSI series and that current habitat survey information was inadequate for an assessment of the vegetation to be carried out.

Most north Pennines SSSI lie along the high Pennine escarpment taking in the montane ground of major summits (e.g. Moor House and Cross Fell, Appleby Fells) or large expanses of limestone (e.g. Ingleborough, Malham-Arncliffe). There is a poor representation within the SSSI series of the rolling, lower altitude areas, chiefly with much deep peat and mineral soils that are mainly acidic. These areas are located mainly on the eastern dip slopes of the Pennines and are characterised by some of the largest tracts in England of Calluna-Eriophorum blanket mire and Calluna vulgaris heath.

These large areas of Calluna-rich moorland are mainly made up of internationally scarce kinds of plant communities which support internationally important concentrations of breeding birds (e.g. Thompson et al, in press). Important vegetation and bird fauna of the northern Pennines is poorly represented in the present SSSI series.

Horsfield & Thompson (1991) gave further details of the gaps in the representation of habitats within the existing north Pennines SSSI series. They put forward proposals for vegetation survey of the most important unsurveyed areas. These areas were selected as being the most Calluna-rich, with both heath on mineral soils and blanket mire on deep peat. The Calluna-rich areas are those which are likely to have the least intensively exploited plant communities, and therefore likely to be the more diverse structurally and floristically.

A satellite photograph of the northern Pennines (Sheffield, 1986) was used to select large Calluna-rich blocks (Map 2 and Table 1). Some small areas may also be locally important and Calluna will be subordinate to Eriophorum in many areas of blanket mire vegetation. However, the main blocks of Calluna-rich moorland remaining outwith SSSI in the northern Pennines were all surveyed, as these were considered to be the most important.

The aims of the project were to map, describe, classify and then evaluate the plant communities on the survey blocks according to the National Vegetation Classification (NVC) (Rodwell 1991a, 1991b, 1992). Management and land-use information were also collected as were data on the condition of Calluna. This enabled an index of land-use intensity to be determined.

An analysis and assessment of the nature conservation interest and management of the habitat areas was then carried out for blocks, either singly or grouped. A method of numerical classification which classifies both the blocks on the basis of their suites of plant communities and also classifies the plant communities themselves on the basis of their co-occurrence across the suite of sites was used to compare the blocks. The method was also used to compare the blocks, on the basis of suites of plant communities, with northern English SSSI (and a few other non-statutory sites) in the Pennines and surrounding areas. Assessments of nature conservation value based on the suites of plant communities were compared.

These assessments of the plant community and management information should assist English Nature in taking decisions about both the conservation value of the survey blocks, selection of areas that best fill gaps in the SSSI series, setting priorities for nature conservation, and determining ensuing management needs.

3. METHODS

Details of the methods of field survey and mapping of the north Pennine survey blocks of ground are given in the 11 reports describing the blocks surveyed (Graham, Webb & Horsfield 1992 a, b, c d; 1993 a, b, c, d, e, f, g). A summary of data on physical features, vegetation and plant community composition, management and land-use from these reports was used in the analysis and assessments.

The following gives an outline of the methods, more details are given in the relevant sections.

Analysis and assessment of the survey blocks

In field survey of north Pennine blocks plant communities were assigned either to NVC communities or sub-communities. For the analysis and assessments the plant community data was standardised to NVC community, except for diversity where the number of sub-communities was used. This maintained consistency across the blocks and made the results easier to interpret than would have been the case (see sections 4, 5 and 6 for details).

Two multivariate analyses of the NVC plant community data for blocks were carried out (TWINSPAN and an agglomerative polythetic analysis) in order to obtain classifications of both the survey blocks based on their suites and areas of plant communities, and of the plant communities based on their distribution across the blocks (section 5).

For assessments of comparative conservation value primary conservation criteria: naturalness, diversity and rarity were applied to the block plant community data together with an assessment of the intensity of management and land-use (section 6).

To place the suites of plant communities on the survey blocks in a wider context plant community information from the SNH Uplands and Peatlands Branch data-base was summarised for 13 upland geographical regions in GB for comparison with the blocks (section 6).

Northern England SSSI and non-statutory sites: analysis and assessment for comparison with survey block data

For comparison with the survey blocks plant community data for upland sites in the following geographical areas were taken:

(i) all of the Pennines and Cheviots from Leek Moors to Kielder Head;
(ii) Bowland Fells;
(iii) North York Moors;
(iv) northern Lake District.

These sites include all the larger upland SSSI within a continuous geographical area and make up over half of the available information on English upland SSSI in the SNH uplands database. 21 of the sites are SSSI and four (Danby High Moor, Fountains/Darnbrook Fells, Lealholm & Roxby Moors, Pockley & East Moors) are non-statutory.

The vegetation on the above sites was mapped by the Upland Survey Project of the NCC largely in the years 1983-87. The vegetation was classified according to Birks & Ratcliffe (1980) types, which were converted to their equivalent National Vegetation Classification types prior to analysis. The conversion tables given in NCC (1989) were used as a basis to find equivalents.

Additional information on the NVC plant communities present on the sites gathered since the original surveys was also used. The plant community data was also summarised into broad habitat categories.

A TWINSPAN was implemented on the plant community data for survey blocks together with the SSSI data and other non-statutory sites. The input data-set was based on Appendix 3, with sites as samples and NVC community types as attributes, as in the initial analysis of the survey blocks alone. There were 37 survey blocks and other sites, and 58 communities in the analysis (see section 5. for details of the method).

Measurements of naturalness, diversity and rarity were calculated from the suites of NVC plant communities in the same way as they were calculated from the plant communities of the survey blocks (section 3., 6.1). Data on land-use and land-management is not as detailed as that available for the survey blocks and has not been used so that for comparisons with the survey blocks reliance is placed wholly on assessments based on the suites of plant communities.

Criteria for naturalness and diversity were applied to the SSSI and non-statutory site data in the same way as with the survey blocks (section 6.).

For diversity both the number of communities (number of sub-communities is the same) is given and the Shannon index of diversity calculated from the areas of plant communities . The latter was calculated from the areas of plant communities but lacked area figures for rock communities (some such as U23 were recorded as present only) and rock habitats such as scree or limestone pavement were not included. These were of little importance on the survey blocks but are important for diversity on many of the SSSI. Therefore the limitations of the Shannon index for some SSSI should be borne in mind when interpreting the results.

For rarity there are many extra rare/relic communities present on these sites (especially the SSSI) compared with the survey blocks. As with the survey blocks (section 6.) a broad interpretation was taken in selecting rare/relic communities incorporating both those which are rare or local nationally and also in the Pennines or northern England.

4. PHYSICAL FEATURES AND VEGETATION ON THE SURVEY BLOCKS

Map 1 gives outline maps of upland SSSI in the northern Pennines, Yorkshire Dales National Park and the North Pennines Area of Outstanding Natural Beauty to help place the north Pennine survey blocks in a geographical context. Map 2 provides outline maps of the survey blocks while Table 1 gives the names of the survey blocks (Appendices 5 & 6) at end are fold-out versions).

4.1 PLANT COMMUNITY COMPOSITION

Table 2 gives a list of all the NVC plant communities and sub-communities found on the survey blocks.

Table 3 gives a summary of the areas of plant communities on each of the blocks together with % area of each community on the block, total area on the blocks and range of % area across the blocks. Table 3 also gives rare communities and naturalness rankings (see section 6). Table 4 summarises the extent of the three predominant types of vegetation: Calluna-dominated dwarf-shrub heath, blanket mire and grassland; and the ratio of different kinds of blanket mire and of Calluna-rich:Calluna-poor vegetation.

A summary of the plant community data, including sub-communities, for the blocks is also given in Appendix 1, while details of the plant community data for all the sites into which the blocks were split for the purposes of survey and mapping is given in Appendix 2.

The plant community tables differ from those presented in the descriptive reports in the omission of area measurements for Burnhope Seat in block 1 because it is part of the Moor House & Cross Fell SSSI and similarly Bowes Moor and Cotherstone Moor SSSI are omitted from the figures for block 8. The block 14 of the descriptive reports is now referred to as block 14(i). The western half (block 14(ii)) was surveyed in 1984 by the Upland Survey Team consisting of Mark Owen and Richard Tapper.

4.2 RELATIONSHIPS OF VEGETATION TO GEOLOGY AND CLIMATE

Table 5 gives data for the blocks on topography, altitudinal range, bioclimatic classes, geology and predominant vegetation (Calluna-dominated heath, blanket mire and grassland). The data provide an aid to the interpretation of the analyses and assessment that follows. Similar data for Pennine SSSI are given by Horsfield & Thompson (1991).

Geology

Except for block 14(ii) where there are extensive outcrops of limestone along the slopes of upper Wharfedale and to a lesser extent block 12, outcrops of limestone are generally small compared with many of the upland SSSI to the west. Outcrops are often on the valley sides or lower slopes. Some apparently large areas of limestone marked on the 1:625,000 solid geology map (e.g. Barningham Moor and Gilmonby Moor on block 8 and Lune Forest on block 6) are largely covered in glacial drift or deep peat and outcrops of limestone are small. Some of the limestone of block 12 is also drift covered.

There is a general correlation between the presence of limestone on a block and calcareous grassland (Sesleria-Galium CG9 and, or Festuca-Agrostis-Thymus CG10) (Tables 2, 4). In the Pennines these grasslands are almost invariably associated with limestone. The only extensive areas of calcareous grassland are on blocks 12 and 14(ii) where there are relatively extensive outcrops of limestone.

Carex-Pinguicula mires (M10) are not restricted to blocks, or parts of blocks, with limestone, though they are only extensive where limestone is extensive. They are developed only rarely on the wholly, or mainly, millstone grit blocks 15 and 16. The only record of the calcareous Cratoneuron communtatum/filicinum-Festuca rubra spring (M37) was on block 8 which has a moderate extent of limestone.

The proportional extent of neutral or mesotrophic Festuca-Agrostis-Galium grassland (U4) correlates well with the extent of limestone outcrops. U4 is extensive on deep soils over limestone e.g. colluvial soils at the foot of limestone crags or on drift over limestone. Blocks 7, 8 and 12 with moderately extensive, or extensive limestone, have about 2-4% U4 while block 14(ii) with the most extensive limestone has 17% U4 mostly developed on the limestone escarpment. Blocks with no limestone, or only small outcrops, have <1% U4 or thereabouts.

Of four blocks with high or moderately high limestone three also have a high proportion of grassland (U4, U5, U6, CG9, CG10). Block 12 is the exception suggesting either that overall, sheep numbers are low in proportion to good grassland in comparison to the other blocks, or sheep are more restricted in their range to the good grasslands. Where there is much limestone with good grassland for grazing (U4, CG9, CG10) then it is expected that sheep will also graze adjacent heath and blanket mire heavily, resulting eventually in the development of Nardus and Juncus squarrosus grasslands (U5, U6). This has apparently occurred on blocks 7, 8 and 14(ii) but not so widely on block 12.

Climate

Map 3 gives outline maps of the survey blocks and northern English SSSI on a map of bioclimatic classes (Bendelow & Hartnup, 1980) and Table 5 gives an estimate of proportional extent of the classes on the survey blocks.

The main bioclimatic groups that the ground of the survey blocks is classified as are B2p and B3p, joined by C3m and C3p on the more southerly blocks. The latter only predominates on the most southerly block 16. The higher blocks also have small areas of harsher bioclimate.

B2p is the chief bioclimate of the high plateaux and high summits (450-600m) and is extensive in the northern Pennines in general on the higher dip slopes in the east. B3p is the bioclimate chiefly of the upper parts of low plateaux and low summits (<450m) and also takes in some of the lower parts of high plateaux and the lower of the high summits.

Below about 350m there is ground classified as the mild C3p and C3m categories taking in low altitude areas of low plateau and low summit. C3p is mainly of low plateau or summit while C3m is mainly in more sheltered valleys or low slopes.

Of the less extensive bioclimates, the harsh A1v occurs on high summits (450-600m) and very high plateaux (>600m). B1v and B1p occur on very high plateaux and very high summits (>600m), respectively. B3m is developed in more sheltered areas of low plateaux and low slopes.

The extensive bioclimatic categories of the blocks are all poorly represented within SSSI (Horsfield & Thompson, 1991).

Where the bioclimate is extensively categorised as B2p, and also with variable representation of B1p on most of these blocks, then the block has a high cover of blanket mire. Where B3p is extensive, either on its own, or with C3p and C3m, there is a high cover of Calluna heath (Tables 4, 5).

On block 12 where ground is extensively assigned to B2p, B3p and C3m the vegetation of the block is exceptional in having both a high proportion of blanket mire and Calluna heath.

There are three other blocks with B2p and B3p both extensive. Two of these (blocks 2 and 3) have a high proportion of Calluna heath but combined with moderately extensive blanket mire (25% and 17% block area respectively) while the other (block 14(i)) has a high proportion of blanket mire with a moderately high proportion of Calluna heath (15% block area).

4.3 BIOCLIMATE ON THE SURVEY BLOCKS COMPARED WITH THE SSSI SERIES IN THE NORTHERN PENNINES

Horsfield & Thompson (1991) identified four gaps in the range of bioclimate in upland areas of the Pennines represented by the SSSI series:

Gap 1.) B1v, B1p;

Gap 2.) B2p;

Gap 3.) B3p (and B3m);

Gap 4.) C3p, C3m.

Gaps 3.) and 4.) are the largest and least well-represented on SSSI.

The vegetation on areas of gap 1, represented by the Howgills and Middleton Fell, has much Nardus grassland and no large areas of Calluna-rich vegetation. The associated soils are poorly represented on Pennine SSSI. However, the bioclimate classes are well-represented by SSSI both on the Pennines and Lake District, and the soils and vegetation in the Lakes as well.

All the survey blocks have a predominance, or at least a large part of their ground classified into bioclimatic classes filling gaps 2, 3 and 4. Roughly moving from west to east and north to south the proportional representation of B2p,m -> B3p,m -> C3p,m increases on the blocks (Map 3, Table 5). The high plateau blocks tend to have a predominance of B2p and a little B2m, while the low plateau blocks have B3p, and B3m to a lesser extent, except for the southerly block 16 which has a predominance of C, as C2p, C3p and C3m. Block 15 also has a substantial area classified as C3p.

All the blocks are potentially important for filling these gaps in biogeographical cover. Blocks 1, 7 and 14(ii) are the best to fill the gap in B2p and B2m. All three belong to the "western" group given by the first division of the TWINSPAN analysis (section 4). Blocks 1 and 7 have the largest areas of Calluna-Eriophorum blanket mire (M19) while block 14(ii) has extensive blanket mire but much of it is the degraded Eriophorum mire (M20). The only similar site in the SSSI series in the northern Pennines is Geltsdale & Glendue Fells.

Other blocks with extensive B2p also have much ground classified as B3p and B3m. The best of these blocks (2, 3, 6, 14(ii)) belong to both the "western" and "eastern" groups of blocks given by the TWINSPAN analysis, though mainly the "eastern" (section 5.). Choosing the best of these is difficult because they are all of high conservation value. However, block 3 is a good all round choice while block 6 is outstanding for blanket mire.

Blocks classified mainly as B3p (5, 8, 12, 15) also belong to

both the "western" and "eastern" groups of blocks. Blocks 12 and 15 are the most outstanding of these on other grounds (and are "western" and "eastern" respectively).

Block 16 is the only block with a large extent of ground classified as C3 (C3p, m) and therefore is the best choice to represent these categories.

5. ANALYSIS: CLASSIFICATION OF THE SURVEY BLOCKS AND THEIR SUITES OF PLANT COMMUNITIES

After field survey and site description the next stage in conservation evaluation is the classification of biological/environmental variation (Ratcliffe, 1986). An analysis of the blocks and communities was made according to the suites of plant communities and their proportional extent on the survey blocks. Two methods of analysis of the suites of plant communities on the blocks were applied.

Firstly, two-way indicator species analysis as implemented by the computer programme TWINSPAN (Hill, 1979) was carried out. This is a widely used method of polythetic divisive classification. The method is based on progressive refinement of a single axis ordination from reciprocal averaging or correspondence analysis (Kent & Coker, 1992). TWINSPAN gives a classification of both sites (or samples) and communities (or attributes) and one of its most useful features is the computer-generated two-way table of sites against communities which greatly facilitates interpretation. Brown et al (1992a, b) used TWINSPAN in their biogeographical classification of the Scottish uplands based on suites of plant communities and proportional area across a range of sites which gave a classification of both sites and of communities.

Secondly, an agglomerative polythetic analysis was carried out involving firstly, the calculation of matrices of Canberra distances between both the blocks, based on their suites of plant communities, and between the plant communities based on their proportional abundance across the blocks. The resulting matrices where then clustered by a range of methods. The one selected as giving the most easily interpretable results was the farthest neighbour method. The analyses and clustering was implemented by the computer programme MVSP (Kovach, 1990).

For both sets of analyses (TWINSPAN, and Canberra distance and clustering) the area data for plant communities was first converted to % (of site area) and then transformed to an octave scale (approx. log2) giving 9 (8 positive since 8 and 9 are combined) abundance classes as below:

	TWINSPAN	CANBERRA
0	0	0
>0-0.5%	2	1
>0.5-1%	3	2
>1-2%	4	3
>2-4%	5	4
>4-8%	6	5
>8-16%	7	6
>16-32%	8	7
>32-64%	9	8
>64-100%	9	8

The classes are the same in the analyses but abundances are represented by different numbers.

The results as expressed by two-way tables of communities against blocks are given in Tables 6 and 7. The latter table also includes dendrograms of the cluster analysis.

Two different analyses were run as a check on each other so the resulting divisions could be compared and the significance of the groups produced assessed. The resulting groupings of the blocks and communities are essentially similar at the higher levels. The first divisions of both TWINSPAN and cluster analysis give two groups of blocks which differ in only one block on each side (blocks 3 and 14(ii)). The second division of TWINSPAN divides off only one block from each of the two initial divisions (blocks 14 (ii) and 16). Similarly, the cluster analysis splits off block 16 into its own group after the initial bisection.

Examination of the two-way tables suggests that further splits are of little significance in terms of difference in suites of plant communities. In conclusion, there are two main divisions into equal sized groups of blocks, with block 16 occupying its own sub-group and block 14(ii) lying somewhere between the two groups or it could be regarded as occupying its own sub-group like block 16.

The blocks show a trend (left to right on Table 6 and right to left on Table 7) roughly west to east and from high plateau blocks with comparatively extensive exposures of limestone and extensive blanket mire (esp. M19) to low plateau blocks with little or no limestone and extensive dwarf-shrub heath (esp. H9). TWINSPAN gives preferential communities for the groups. These can be easily identified on the two-way table. All communities from CG9 to M4 inclusive and higher levels of M19, U4 and U6 are preferential for the first group. The group of communities H10 to W23 inclusive and higher levels of H9, M6, M25 and U20 are preferential for the second group.

The communities characteristic of the first or "western" group of blocks (14(ii), 8, 12, 1, 6, 7) are divisible into the following groups:

Base-rich communities associated with limestone

CG9, CG10, M37, U23, U4 (where extensive)

Western mire communities

M15, M17, M23

Communities making up, or associated with, blanket peat (esp. undisturbed)

M2, M3, M4, M18, and M19 and U6 where extensive

In addition U1 only occurs on the disturbed ground of old lead mine spoil heaps which are associated with limestone. H12 is more extensive on the higher ground of these blocks.

The communities associated with the second or "eastern" group are all acidophilous except for W9 (on block 16 only). These preferential communities divide into two main groups:

Acidophilous heaths, mires and bracken

Where extensive: H9, M6, M25, U20

Where present: M16, M21, M29

Relic woodland and low altitude scrub

W9, W16, W17, W23

H9 and M6 are both extensive on the low altitude slopes on mineral soils on the "eastern" group. M25 and U20 are similar but are only moderately preferential. Other preferential communities are associated with low altitudes either in wet or moist hollows or rills within prevailing dry heath (M16, M21, M29). These mires appear to be favoured by low altitude on the survey blocks and in a wider context are also characteristic of low altitude. The relic woodland is perhaps indicative of the generally lower grazing levels on the "eastern" group.

In conclusion at least one block in each group would have to be selected to represent the range of variation within the two main groups of blocks.

Block 14(ii) would be a poor representative of the "western" group since it lacks many of the characteristic communities of the group which is why it splits off on its own at the second division. However, block 14(ii) is good for its unusually large

extent of calcareous grasslands, CG9 and CG10. The remaining five blocks are all good representatives, except block 1 lacks CG10. The best choice to represent the "western" group is block 12, while 7 and 8 are also good, 7 having a larger extent of M19 than block 12.

The "eastern" group has less consistent preferentials e.g. either M16 or M21 are present on all six blocks of the group, though both are only present on three of the blocks. The best general representatives are blocks 15 and 16. Block 2 is also good though it lacks relic woodland. Block 16 forms its own group in the second division but it is so similar to the others that it can be considered a good representative.

The second divisions of TWINSPAN are not very significant when the suites of preferentials are considered. The most important positive preferentials for block 16 in the second division are W7, W9, W11, W23, and M4 and U20 at higher levels. These are relatively minor differences from the rest of the "eastern" blocks. However, block 16 does differ climatologically from other blocks giving good grounds for considering extra representation from this block.

6. ASSESSMENTS OF CONSERVATION VALUE

6.1 APPLICATION OF PRIMARY CONSERVATION CRITERIA

Primary conservation criteria (Ratcliffe 1977, 1986) have been applied to the plant community information to aid assessments of the relative conservation value of the survey blocks. Three criteria were applied: naturalness, diversity and rarity. The intensity of land-use and management is also considered since it relates to all the criteria but chiefly naturalness.

The values of naturalness, diversity and rarity have been given a ranking on a 1-3 scale (low *, medium **, high ***) to facilitate comparison. The ranks for intensity of land-use and management are also on a 1-3 scale (high *, medium **, low ***) (Table 9).

Naturalness

Naturalness is really a measure of the degree of disturbance, which on moorland is mainly due to burning, grazing and to lesser extent other factors such as draining and bracken spraying. The blocks can be given a rating according to the proportion of the vegetation made up of more or less disturbed plant communities and the rating devised is intended to reflect the degree of intensity of land-use.

All the communities developed on the survey blocks are affected

by man to some extent resulting in increase, decrease or loss of species from the flora. However, the species composition consists of native species with natural processes operating on the communities which are referred to as semi-natural. At the more natural (or near-natural) end of the scale in category 1 ranking are placed woodland and scrub communities, relatively undisturbed blanket mire communities that commonly have much Sphagna, Sphagnum-rich bog-pool and valley-mire, and spring communities. In the intermediate category 2 ranking are placed dwarf-shrub heaths and bracken communities that are derived from woodland ground flora, disturbed Sphagnum-poor blanket mire that is derived from the Sphagnum-rich forms of category 1 by intensive burning and grazing, and graminoid-rich wet heath and mire derived from woodland or scrub. Category 3 ranking is applied to grasslands that are ultimately derived from woodland or scrub, often from an intermediate stage of dwarf-shrub heath (Table 8).

The 1-3 scale of rankings of naturalness are arbitrary to the extent that some grasslands may be derived directly from woodland and scrub and not via an intermediate stage of dwarf-shrub heath but they do sustain a higher intensity of land-use than most category 2 types. This applies especially to mesotrophic or calcareous grasslands (U4, CG9, CG10) which are probably derived from woodland or scrub originally lacking an ericaceous ground flora. However, the more extensive acidophilous grasslands (U5, U6) are probably chiefly derived from prolonged grazing of dwarf-shrub heath, wet heath and blanket mire (see Fig. 1 for probable grazing derivatives of upland woods and Fig. 2 for burning, grazing and draining derivatives of blanket mire and wet heath in the Pennines that help interpret the rankings).

The overall naturalness score is derived as follows:

Overall naturalness score = % area category 1 communities+
% area category 2 communities/2

Overall naturalness thus ranges from 0 (all category 3) to 100 (all category 1), while if all the communities were category 2 the score would be 50. The score is largely dependent on the balance between the proportion of Calluna-Eriophorum blanket mire (M19) which accounts for the bulk of category 1 communities in area, and dwarf-shrub heath which makes up most of category 2 communities in area.

The results are given in Tables 9, 10, 11, 12 & 13 and discussed in the block accounts and section 7.

Diversity

Plant community diversity has two aspects, the number of communities/sub-communities represented and the proportional distribution or evenness of the distribution of areas of the

community types. The former are straightforward measures while an index of diversity gives a combined measure of richness of types and proportional abundance, so that blocks of different sizes can be compared. The Shannon diversity index is commonly used (MacGurran, 1989) and was used by Thompson & Brown (1992) to compare the diversity of plant communities on montane areas in Scotland. Survey blocks that have large tracts of a few communities will have lower indices of diversity than blocks with a more even partition of the ground between communities even though the total number of communities may be the same.

Table 9 gives the number of communities and sub-communities and values of the Shannon index for the survey blocks.

Six blocks have high diversity (ranked ***) and of these four have a high diversity of bioclimatic groups (blocks 5, 7, 12, 14 (ii)). The six high diversity blocks include all four with moderately extensive limestone outcrops and associated grasslands (blocks 7, 8, 12 14(ii)) which gives both more communities and a greater evenness in community proportions. The high Shannon diversity for the other two blocks (5 and 14(i)) is also attributable to a high evenness of the areas of communities.

Sites with low diversity have wholly acidic rocks, or small outcrops with no marked effect on the vegetation, and have a narrower range of bioclimatic types, or both. The block with the lowest diversity is block 6, which is due to the predominance of one kind of blanket mire (Calluna-Eriophorum, M19). Similarly block 16 also has low diversity index because of the predominance of one kind of heath (Calluna-Deschampsia, H9), despite a relatively varied bioclimate and moderately high number of communities.

The results are discussed further in the block accounts.

Rarity

Rarity has been interpreted broadly to include not just those communities given as nationally rare (CG9, CG10, M10) in the Guidelines for selection of biological SSSI (Nature Conservancy Council, 1989), but also those which are local in the uplands as a whole in England and regionally in the northern Pennines. Also included, to save erecting another group, are relic communities of woodland and scrub all of which are regionally local in the northern Pennines (Table 14).

The rare communities of the SSSI guidelines are all calcicolous communities. Due to the extensive outcrops of Carboniferous limestone in the northern Pennines there is a concentration and large extent of calcicolous grasslands (CG9, CG10) of national and international importance and a lesser extent, but also important, representation of calcicolous mires. They are all well-represented on the current SSSI series (Horsfield & Thompson, 1991).

There are two communities local in the uplands of England as a whole (Juniperus-Oxalis woodland, W19 and Cystopteris-Asplenium community, U23). All the larger stands of W19 in the northern Pennines are within SSSI. U23 is restricted to limestone rock outcrops and well-represented within SSSI.

The other communities are local in the northern Pennines but more frequent in other parts of the English (and Welsh) uplands. They include a western group of communities (Calluna-Vaccinium-Sphagnum heath H21, Scirpus-Erica wet heath M15, Scirpus-Eriophorum blanket mire M17, Hypericum-Potamogeton soakway M29, Ranunculus-Montia spring M35, Quercus-Betula-Oxalis woodland W11, Quercus-Betula-Dicranum woodland W17) that are more abundant in western Scotland, the Lake District, North Wales and South-West England. Erica-Sphagnum raised and blanket mire (M18) is more abundant at moderate to low altitudes further north around the Roman Wall and in southern Scotland. Narthecium-Sphagnum valley-mire (M21) is a southern (chiefly western) community well-developed in the uplands of SW England and in Wales to a lesser extent.

The woodland communities are all very local in the northern Pennines though they are more frequent in other parts of the uplands (esp. W11 and W17 in the Lake District and North Wales).

Although the primary aim of the North Pennines Project is to characterise the best areas of open moorland of heath, bog and grassland, giving weight to relic scrub and woodland communities is justified because of the possibility they offer for recolonisation of parts of the open moorland with consequent increase in diversity of flora and fauna.

The results for the blocks are given in Tables 9 & 15 and discussed in the block accounts and section 7.

Management and land-use intensity

Information on land-use and management practices was gathered in the field and details of the methods and results are given in the descriptive reports. The information gives details of vegetation condition, especially of Calluna, which was used as a general index of condition. The information enables generalisations to be made about the condition and make up of the vegetation in relation to land-use and management.

The land-use and management information from the descriptive reports has been summarised for both sites and blocks for ease of comparison (Tables 16). Most of the information has been transferred directly from the descriptive reports.

On the majority of sites land-use is for both sheep and red grouse. Where sheep is recorded as the main land-use a score of three is given for sheep, and a score of one for grouse, as the secondary land-use. Where neither is recorded as the main land-

use both are given a score of two. The scores respectively for sheep grazing and grouse rearing for each site are summed to give a total for the block. The two scores are then summed and a sheep:grouse land-use ratio as a fraction of one calculated (score/total score). The higher the figure for grouse rearing the higher is the likelihood that the intensity of land-use on the block as a whole will be lower.

Similarly, scores were assigned to the grazing density estimates for the sites (L: low, M: medium or H: high, respectively given scores of 1, 2 or 3).

Heather condition was recorded in the field in four categories of lightly grazed, topiary or suppressed, drumstick and dead. Each category was assigned to one of four abundances: none, local (>0-25%), medium (26-75%) and widespread (76-100%). These abundances have been simplified to fit a three point scale of heather condition of generally in good condition (G), locally suppressed (L) and widely suppressed (S). The categories were given scores of 1-3 (G: 1, L: 2, S: 3).

Note that the grazing density estimates are not entirely independent of heather condition since the judgement as to grazing density is at least partially dependent on observations on the condition of the vegetation, especially Calluna. The other main factor taken into account is the proportion of grassland to heather-rich communities estimated in the field. The estimate of sheep grazing density may also be influenced by the numbers of sheep observed on the ground. Altogether the estimate is crude and largely comparative.

Table 17 gives totals for grazing density estimates and heather condition scores on 71 sites. This shows that only on a minority of the sites was grazing density recorded as low (28%) and heather condition as generally good (37%).

Fig. 3 shows plots of the ratios of Calluna heathland area:grassland area and Calluna-poor:Calluna-rich vegetation against five categories of land-use ranging from wholly sheep to wholly red grouse. Fig. 3 demonstrates that a generalisation may be drawn between the use of land primarily for sheep and a high proportion of grassland or Calluna-poor vegetation. This may be taken as implying that grouse management is broadly good for heather but this does not mean that it is good for the vegetation and conservation generally. For example there is a tendency on grouse moor for blanket mire to be degraded to Eriophorum blanket mire (M20), just as on sheep ground, albeit a Calluna-rich form.

The scores for the sites for both grazing density and and heather condition were summed to give a block score. A block index was calculated for each by dividing the total scores by the number of sites on the block. Low scores for grazing density are an indication of low grazing pressure across the block while low scores for Calluna condition indicate that Calluna is in good condition across the block as a whole.

In Table 9 sheep:grouse ratios are assigned a rank on a 3-point scale depending on the proportion of land-use for grouse (high grouse: ***, medium grouse: **, low grouse: *).

The grazing index and heather condition scores are not assigned ranks individually but an overall rank is assigned based on the sheep:grouse ratio, grazing index and heather condition. This overall index of intensity of land-use and management is on a 3-point scale of low: ***, medium: ** and high: *.

Table 18 gives a summary of the overall rankings for of assessment criteria for blocks divided into the two first division TWINSPAN groups.

6.2 ASSESSMENTS OF THE CONSERVATION VALUE OF THE SUITES OF PLANT COMMUNITIES ON THE BLOCKS IN A WIDER CONTEXT

6.2.1 BIOGEOGRAPHICAL RELATIONSHIPS OF THE PLANT COMMUNITIES

Table 19 gives the geographical distribution of commonly occurring NVC communities in the British uplands and indicates those communities that were found on the North Pennines Project survey blocks. Table 19 enables the plant communities of the North Pennines survey blocks to be placed in a GB phytogeographical context so that their importance can be assessed.

There is a good spread of communities from different geographical groups. The only main group from which communities are entirely absent are the Northern: Highlands group which is only barely represented on the very highest hills south of the Scottish Highlands. There is a good representation of Widespread: Generally distributed and of Northern: Widespread communities. There is, as might be expected, a good representation within the broad grouping of Mainly eastern communities found chiefly in the less oceanic (hemioceanic) areas. Surprisingly, since all the North Pennines Project survey area lies within the hemioceanic zone there is also a good representation of Mainly western communities which are chiefly found in hyperoceanic and euoceanic areas, or at least are more extensive there. These western communities have stands only of small extent and are generally of infrequent occurrence on the survey blocks.

Of the nine extensive communities which make up more than 1% of total block area and are present on every block (Table 3), six (NVC types H12, U4, U5, U6, U20, M6), belong to the Widespread: generally distributed group, one (NVC type M19) to the Northern: widespread group and two (NVC types H9, M20) to the Mainly eastern: northern group.

Other communities are much less extensive and only infrequently exceed more than 1% of the total area of any one block. Eleven

of these communities may be described as frequent, occurring on at least half of the blocks (Table 3). Most of these communities are Widespread: generally distributed (NVC types H18, M2, M3, M10, CG10, MG10), while three are Mainly western: widespread communities (NVC types H21, M23, M25) and one each are Northern: widespread (NVC type M18) and Eastern: widespread (NVC type U2).

Communities which occur on five or fewer of the blocks belong to a wide range of the geographical groups. Widespread: generally distributed (NVC types M4, W7, W9, W23) ; Northern: northern England (NVC type CG9); Northern : widespread (NVC types M32, M37); Mainly western (all sub-groups) (NVC types H10, M15, M17, M21, M29, M35, W11, W17) and Mainly eastern (all sub-groups) (NVC types M16, U1, W16, W19). Of these the most frequent, each occurring on five of the blocks, are M4, M16, M21, U1, W7 and W17.

6.2.2 PHYTOGEOGRAPHICAL IMPORTANCE OF THE SURVEY BLOCKS FOR PLANT COMMUNITIES

Appendix 4 gives a brief description of the conservation importance of different upland regions for their plant communities. The survey blocks have elements common to the southern Pennines, northern Pennines and Cheviots, and North York Moors. There are no new elements and biogeographically the survey areas bridge the gap between the higher altitude and more calcareous northern and western Pennines, northern and wholly acidic Cheviots, and the more easterly, almost wholly acidic and lower altitude North York Moors and southern Pennines.

There are extensive eastern dwarf-shrub heath and blanket mire communities (NVC types Calluna-Deschampsia H9, Eriophorum vaginatum M20) characteristic of the more southerly and easterly parts of northern England combined with other mainly eastern wet heath and grassland communities (M16, U1, U2) which are comparatively extensive on the survey blocks. The dwarf-shrub heath descends to relatively low altitudes where it is transitional to lowland heath and where the associations of wet heath (M16) and valley-mire (NVC type M21) are more characteristic of lowland heathland.

There is an extensive development of northern Calluna-Eriophorum blanket mire (M19) on the survey blocks. This reaches its southern limit in England in the southern Pennines. In the geographical area of the survey blocks it is the extensive and the predominant blanket mire. Further south in the Pennines, south of a line Grassington-Pateley Bridge which includes block 16, Calluna-Eriophorum mire is very local and the predominant and extensive blanket mire community is Eriophorum mire (M20).

Also, the widely distributed Calluna-Vaccinium heath (H12) is moderately extensive replacing Calluna-Deschampsia heath (H9) locally at high altitude and on steep slopes.

These parts of the Pennines also have extensive Juncus/Carex-Sphagnum flush mires (NVC type M6).

There is a small component of calcicolous grasslands developed on Carboniferous limestone, mainly the widely distributed Festuca-Agrostis-Thymus grassland (NVC type CG10) and also Sesleria-Galium grassland (NVC type CG9), which is restricted to northern England. There is also a small development of basiphilous mires and springs (NVC types M10, M37).

There are outliers of western communities characteristic of more oceanic areas but here developed locally under a hemioceanic climate (inc. NVC types H10, H21, M23, M25).

There is a small representation of southern, chiefly south-westerly mire communities at their north-easterly edges of their range (M21, M29, M35). The most important of these is Narthecium-Sphagnum valley-mire (M21). M29 and M35 are represented by stands lacking many of the community constants of the NVC diagnostic tables and may represent undescribed eastern variants of these communities.

There are important stands of relic woodland and scrub on the survey blocks which tends to be more local in eastern England than in the west.

6.2.3 GENERAL IMPORTANCE OF THE VEGETATION OF THE SURVEY BLOCKS IN COMPARISON WITH OTHER UPLAND REGIONS

Tables 20 and 21 give summaries of the occurrence and extent of plant communities in 13 upland geographical regions of GB. The area measurements are based on data from 292 upland sites including both SSSI and non-statutory sites with additional occurrences derived from NVC maps and additional survey work by uplands staff. The figures are intended to give an assessment of the importance of regions for their extent and representation of upland plant communities and not to detail exactly their representation on SSSI. The figures for Wales include a large proportion of non-statutory sites and are probably double that on SSSI. Figures for the North York Moors are similarly inflated while SW England and the southern Pennines are under-represented by around 50% compared with SSSI. Under-representation is due to the large increase in the size of SSSI in some regions since vegetation survey was carried out. This has resulted in heaths and blanket mire being under-represented by the available figures for SW England and southern Pennines. There have also been large additions of ground to north Pennine SSSI resulting in increases in some vegetation types, especially blanket mire, and heath to a lesser extent. Scottish figures are probably around 10-15% higher than SSSI alone (except Orkney and Shetland where only SSSI are included).

As expected, the representation of communities and % totals on

the survey blocks are similar to those of north-east England and the southern Pennines. All the communities represented on the North York Moors are also represented on the survey blocks.

Calluna-Deschampsia heath (H9) is the predominant heath in the southern Pennines and on the North York Moors but has only a "presence" recorded from the NE England suite of sites. Like the southern Pennines, H9 is the predominant heath on the survey blocks though there is a much larger contribution from the more upland Calluna-Vaccinium heath (H12) (Table 3) than in the southern Pennines. Vaccinium-Deschampsia heath (H18) is less extensive on the surveyed blocks than either in the southern Pennines or in NE England. There are none of the montane heaths of NE England (Calluna-Cladonia H13, Vaccinium-Deschampsia H18 p.p., Vaccinium-Cladonia H19, Vaccinium-Rubus H22) on the survey blocks, or montane grassland and Racomitrium heath. There is only a tiny representation on the survey blocks of Calluna-Erica heath (H10) which is probably much better represented in northern England in the Lake District. Calluna-Vaccinium-Sphagnum heath (H21) is present as small stands on both the survey blocks and NE England suite where it is known from Kielder Head and Pen-y-Ghent but is more extensive in western regions including NW England. The stands on the survey blocks are of phytogeographical interest as outliers.

The total area of dwarf-shrub heath (H9, H10, H12) mapped on the 12 survey blocks was 38856 ha (Table 3), about 30% of total block area. The figures for the NE England suite, which does not include all SSSI, is only 6963 ha making up 12% of the regional total of vegetation. Almost all of the dwarf-shrub heath is Calluna-Vaccinium (H12) developed chiefly on the more northerly and westerly SSSI (mainly Cheviot group, Geltsdale & Glendue Fells, and Upper Teesdale). By contrast Calluna heath (chiefly Calluna-Deschampsia H9) is well-represented in the southern Pennines with at least 5065 ha, 23% of the vegetation total, with more probably scheduled on the greatly enlarged Dark Peak SSSI. There is little Calluna heath on upland SSSI south of the Cross Fell-Upper Teesdale block and the survey blocks have the potential to fill this large gap in geographic cover between the far northern and southern Pennines.

Sphagnum cuspidatum/recurvum (M2) and Eriophorum angustifolium (M3) bog pools are present on the survey blocks. These are widely distributed including the southern Pennines and NE England. On the survey blocks they are chiefly developed on blocks with extensive Calluna-Eriophorum blanket mire (M19). Carex rostrata-Sphagnum mire (M4) is of small extent on the survey blocks, as on the NE England suite, but it is not known from the southern Pennines.

Carex echinata-Sphagnum mire (mainly Juncus effusus-rich forms) (M6) is one of the most extensive communities on the survey blocks at 5.43% (6832.0 ha) of total block area (range 0.6-13.3%). This is much higher than its representation on the NE England suite (1.03%: 593.4 ha) though representation is higher

in NW England (2.3%: 1183.3 ha). On the survey blocks M6 tends to be developed in association with Calluna heaths on low plateau or gentle slopes. Although this is a common and widespread community in GB, it appears to be under-represented on the current NE England suite.

Base-rich Carex-Pinguicula mires (M10) are only local on the survey blocks (block 14(ii) has the largest area). They are proportionately more extensive on the NE England suite. Other, rarer, base-rich flushes found in NE England were not represented on the survey blocks.

Scirpus-Erica wet heath (M15) which is very local on the survey blocks is much better represented outwith the survey blocks in NW England and elsewhere in the west, as is Scirpus-Eriophorum mire (M17). By contrast, Erica-Sphagnum compactum wet heath (M16), which replaces M15 in the east, is much more extensive on the survey blocks though still only of relatively minor extent. M16 is only extensive on the North York Moors and the southern Pennines in England, and only recorded as "present" on the NE England suite. Representation on SSSI is poor though there are some moderately extensive stands on Fylingdales and Leek Moors. M16 occupies damp hollows within Calluna heath, especially within Calluna-Deschampsia heath (H9) on gentle slopes and has a patchy development on the Calluna heath-rich survey blocks, most extensively on blocks 15, 2 and 16. Representation of M16 on survey blocks as SSSI is recommended.

There are generally small to medium-sized stands of Erica-Sphagnum blanket mire (M18) on the survey blocks and it is not extensive on the NE England suite either, but rather is widely developed below the usual limit of upland around the Roman Wall, Solway and in the Southern Uplands of Scotland. The largest stands are on block 8, where they have been damaged by burning and draining. M18 appears to reach its southern limit in England within the area of the survey blocks.

By far the most extensive blanket mire communities on the survey blocks are Calluna-Eriophorum (M19) (26330.9 ha, 20.9% of total area) and Eriophorum (M20) (18554.4 ha, 14.7% of total area). The area of M19 on the survey blocks is greater than that currently known from the NE England suite (20224 ha: 35.2% of total area), though this figure may be expected to increase with the addition of areas included within extensions to Moor House & Cross Fell and Upper Teesdale SSSI. At 35%, representation is high, mostly lying in the Cheviots and Geltsdale to Upper Teesdale area, leaving a gap in geographic cover in more southern parts of the northern Pennines and on the climatically less harsh easterly plateau. NE England is one of the most important areas in GB for M19 and further representation on the milder and more eastern and southerly slopes ought to be sought for. The largest areas (>3000 ha) on the survey blocks are on blocks 1, 7, 6 and 12. The most southerly moderately extensive tracts are on block 14(i)&(ii) with 2563 ha.

M20, which is a heavily managed and degraded development of M19, is less well-represented than M19 on the NE England suite. However, it is well-represented in the southern Pennines where it is the predominant type of blanket mire. Further representation may be sought of the Calluna-rich form (M20b) which is extensive on blocks 14(i)&(ii) and 16. This community may be regarded as the typical grouse-moor bog community of the more easterly and southerly moors of the survey area.

The two extensive blanket mire communities (Calluna-Eriophorum, M19 and Eriophorum, M20) are also the two most extensive in NE England, NW England and Wales. On the survey blocks the balance is more in favour of M20 with M20 at 41.3% of total M19+M20. However, this does not approach the overwhelming predominance of M20 of the southern Pennines.

Narthecium-Sphagnum valley mire (M21) is present locally on the survey blocks but is otherwise very local in NE England and is not definitely known from upland SSSI in northern England except for Fylingdales (and Fen Bog) on the North Yorks Moors. M21 probably reaches its northern limit in the northern Pennines.

Similarly, the mainly western Juncus-Galium rush-pasture (M23) is very local, chiefly on the more westerly of the survey blocks, as it is in NE England as a whole.

Molinia-Potentilla mire (M25) is only locally extensive on the survey blocks, though widely developed, and only occupies 0.4% overall. M25 is more extensive in other English regions, even on the NE England suite as a whole, which is mainly due to its large extent on sites in the Cheviots.

Philonotis-Saxifraga springs (M32) are local and infrequent on both the survey blocks and on the NE England suite.

Acidic grassland communities on the survey blocks are the same as those on the NE England suite. These grasslands are widespread occurring in all of the upland regions of southern Britain, though some become local in SW England. There is more Festuca-Agrostis-Rumex grassland (U1) recorded from the survey blocks (on mine tips) than is known from the NE England suite (where the community is only recorded as "present") though the proportion of Deschampsia flexuosa grassland (U2) is similar to NE England, while there is more on the southern Pennines suite. The three most extensive acidic-mesotrophic grasslands (Festuca-Agrostis-Galium, U4; Nardus-Galium, U5 and Juncus-Festuca, U6) differ in their proportions between the survey blocks and the NE England suite. There is much less U4 on the survey blocks than on the NE England suite due to its large extent on limestone on various SSSI (e.g. Malham-Arncliffe and Ingleborough). There is proportionately slightly less U5 on the survey blocks than on the NE England suite, though it is similar to the southern Pennines. U6 is much more extensive on the survey blocks compared with NE England (11.99% v. 7.77% of total area). There are only small areas of U6 in the southern Pennines and it is barely represented

on the North Yorks Moors, though it is extensive in Wales and NW England.

Tall-herb communities (Luzula-Vaccinium, U16 and Luzula-Geum, U17), which are very local in NE England, were not recorded on the survey blocks.

Bracken community (U20) is proportionately more extensive on the survey blocks (4.0% of total area) than on the NE England suite (1.7%), a reflection probably of the harsher climate and extensive limestone with unsuitable soils on many of the SSSI.

Calcareous grasslands (Sesleria-Galium, CG9 and Festuca-Agrostis-Thymus, CG10) are extensive and well-represented on the NE England suite due to many SSSI with extensive limestone and this region is the most important area in GB for southerly forms of upland calcareous grassland. By comparison, these grasslands are much less extensive on the mainly acidic survey blocks but are relatively extensive when compared with wholly acidic upland regions.

6.3 BRIEF DESCRIPTIONS OF THE PHYSICAL FEATURES AND VEGETATION OF THE SURVEY BLOCKS WITH COMPARISONS BETWEEN THE BLOCKS BASED ON THE APPLICATION OF CONSERVATION CRITERIA

The blocks are convenient geographical and topographical divisions of the ground for the purposes of field survey and analysis. They were intended to be roughly comparable with large SSSI. The analysis of the results presented here is only intended as a guide to the relative conservation value of the survey blocks based on their suites of plant communities.

Contiguous blocks could be combined and the analyses re-run. For example blocks 7 and 8, separated only partially by Arkengarthdale, could be combined to give both a combined high plateau and low plateau block similar to, though larger than, block 12.

Note that the block 14 of the descriptive reports has been designated as block 14 (i), effectively the eastern half of block 14 as it was originally proposed for survey. Block 14 (ii), which was surveyed as Gt Whernside Block by the Upland Survey Project in 1984, forms the remaining western half of block 14.

Block accounts

Block 1: Whitfield Moor-Stangend Currick

The topography of block 1 consists chiefly of high plateau rising to a little over 600m with much hill-slope running down to minor valleys. Like all the blocks located centrally on the Pennines the bioclimate is classed mainly as B2p with smaller areas of the more severe A1p and B1p classes (Soil Survey, 1980, Map 3, Table 5). The rocks are almost wholly acidic, chiefly sandstones and grits, with only small limestone outcrops (Table 5) which have only a small effect on the vegetation.

There are large tracts of blanket peat with Calluna-Eriophorum blanket mire (M19) predominant on the block to the north on Whitfield Moor and Snope Common and in the east from Acton Moor southwards to Burnhope Seat. These areas are fringed by Calluna heath usually in mosaics with acidic grasslands. Most of the western part of the block overlooking Tynedale has acidic grassland and Eriophorum blanket mire (M20).

The vegetation of the block has a high cover of blanket mire (54.6%), combined with low Calluna heath cover (8.2%) and high grassland cover (31.3%) (Tables 4, 5). A large proportion of the blanket mire is Calluna-Eriophorum (M19: 79.6%) and this block has the highest extent of M19 at 5330.4 ha. There are only three other blocks with a similarly large extent of M19 (block 7: 5232.6 ha, block 6: 4784.7 ha and block 12: 3523.2 ha), all with similarly large proportions of M19 (Tables 4, 5). Most other blocks have around 1000-1500 ha of M19, except for blocks 15 and 16 which have low or very low areas. Blocks 2 and 8 have a similarly high proportion of their blanket bog classified as M19 (87.3 and 70.8% respectively) though both have a low cover of blanket bog compared with the above four blocks (Tables 4, 5).

There is the third lowest extent of dwarf-shrub heath on the survey blocks (1008.6 ha). Most of the heath is Calluna-Deschampsia heath (H9: 84.3% of total heath) with the rest mainly Calluna-Vaccinium (H12) except for tiny areas of Calluna-Erica (H10) and Calluna-Vaccinium-Sphagnum heath (H21).

There is a high score for overall naturalness (56.20), due largely to the high proportion of M19. Blocks 2, 6, 7 and 12 are similar. The score for category 1 communities (the most natural and largely M19) is 43.68 which is the second highest score after block 6 (54.88) and similar to block 7 (Tables 9, 13).

The number of sub-communities and communities recorded was high (respectively 37 and 24) and the Shannon diversity index is moderately high (1.67) (Table 9).

The number of rare or relict communities recorded was also high (7) though they are only moderately extensive (25.5 ha) (Table 9). The most extensive are western blanket mire (M17) and Erica-

Sphagnum mire (M18), both communities which are local in the Pennines but more extensive in other parts of the uplands and northern Britain. There is also a comparatively extensive stand of juniper scrub (W19). Calcareous grasslands and base-rich mires are not represented.

The emphasis of land-use is for sheep grazing and compared with other blocks grazing intensity is relatively high with five out of six sites recorded as having moderate and the other high grazing levels (Table 16). Both the overall grazing score and heather condition scores are >2.0 indicating intensive use generally, though heather condition is variable (Table 9, 16).

As a whole, this large block is important for the large extent and naturalness of the blanket mires. Part of this block combining the best of the blanket mire with dwarf-shrub heath and juniper scrub could be considered for scheduling as SSSI. Importantly, the vegetation would benefit from reductions in grazing levels on most of the sites, especially on the mineral soils.

Block 2: Hexhamshire Common-Blanchland Moor-Nookton Fell

The topography of block 2 consists chiefly of low plateau and the ground rises mostly to around 450m with only a small area rising to a maximum of 590m. The bioclimate is classified about equally as B2p and B3p with smaller areas of milder type (Table 5). This is similar to other mainly low plateau blocks (2 and 6), and also the high plateau/low plateau blocks 3 and 14(i) where there is much ground around the upper limit of low plateau.

The rocks are almost wholly acidic sandstones and grits (Table 5).

Calluna heath is the predominant vegetation on the block except on the high-altitude plateau in the south between Tedham Moss and Nookton Edge where there is a tract of Calluna-Eriophorum blanket mire (M19). The vegetation of the detached Blanchland Moor is almost wholly Calluna heath.

The vegetation has a high cover of heath (48.6%) with moderately low cover of blanket mire (25.7%) and low cover of grassland (10.6%) (Table 4). Blocks 3, 5, 8, 15 and 16 have a similar high cover of heath with low cover of blanket mire, while blocks 15 and 16 have a very low cover of blanket mire, though of these only 15 and 16 have similarly low grassland cover, 15 much lower. These two southern blocks are therefore the most generally similar to block 2.

Dwarf-shrub heath consists overwhelmingly of Calluna-Deschampsia heath (H9: 93.1% of total heath) with Calluna-Vaccinium only subsidiary (6.5% of total heath), though like the adjacent block 3, and to a lesser extent block 1, there is an unusual representation of Calluna-Erica heath (H10: 0.4%).

Blanket mire is chiefly Calluna-Eriophorum (M19: 87.3% total blanket mire) with only a tiny proportion of Calluna-poor Eriophorum mire (M20a: 3.1%), and the rest is Calluna-rich Eriophorum (M20b). Since the area and proportion of blanket mire is fairly low the extent of M19 is comparatively low at 1182.5 ha, though the context of the blanket mire within heath at a relatively low altitude is unusual.

The overall naturalness score (55.92) is high due to a combination of a high proportion of heath, low grassland cover, and a moderately high proportion of M19 (22.5%) of category 1 ranking, giving a high also a moderately high category 1 ranking (22.46) (Table 9).

Block 2 has low diversity. There is both a low number of sub-communities and communities and the Shannon diversity index is low (Table 9). The latter is low not just to the small number of communities but also to the dominance of just two communities (H9, M19).

Narthecium-Sphagnum valley-mire (M21) is the only rare community represented (similar to block 14(i)), and relic scrub and woodland is absent.

Despite the predominance of Calluna-rich vegetation (Table 4) the balance of land-use is in favour of sheep over grouse on two of the five sites and equal on the others. Heather condition is generally only locally suppressed with one site in generally good condition, while grazing intensity is noted as medium on most and high on one. This suggest a medium overall score for intensity of land use.

This is an unusual block in that it is generally similar to the high heath cover blocks 15 and 16 at the southern end of the series but differs from them in that the blanket mire, which is moderately extensive, is mainly M19, rather than M20. Part of the area could be considered for SSSI combining the best of the blanket mire in an unusual context among Calluna heath. Grazing levels over much of the block are too high for the good of the heather and the vegetation would benefit from reductions.

Block 3: Middlehope Moor-Stanhope Common-Wolsingham Park Moor

The topography of block 3 is similar to that of block 2 but rises higher, to around 600m and consists of both high and low plateau. The bioclimate is similar to block 2 (mainly B2p and B3p) and the rocks are chiefly sandstones and grits with only small outcrops of limestone (Table 5).

To the north and east the vegetation is largely Calluna heath in fairly good condition. Areas of Calluna-Eriophorum blanket mire (M19) are scattered and mostly of relatively small extent, interspersed with areas of Eriophorum mire (M20). Some of the

largest and least disturbed areas of blanket mire lie along the high watershed between Middlehope Moor and Nookton Fell. Parts of the blanket mire here were found by the National Peatlands Resource Inventory survey team to be outstanding. They found a most unusual development of hummock-hollow microtopography without pools as might be expected in an eastern, relatively low rainfall area. The bog expanse appears to be relatively undisturbed by burning and there is a high cover of Sphagnum mosses. Areas should be considered for scheduling as SSSI (further details may be obtained from Richard Lindsay, SNH).

The vegetation has a high cover of Calluna heath (48.8%), a low cover of blanket mire (17.4%) and a moderately high cover of grassland (27.7%). These proportions are similar to block 2 except that there is higher grassland and lower blanket mire. The only other blocks to combine high cover of heath and high cover of grassland with a low cover blanket mire are 5 and 8. Blocks 12, 15 and 16 also have high Calluna heath cover though in the case of block 12 this is combined with high cover of blanket mire (and high grassland cover), while blocks 15 and 16 have both low grassland and low blanket mire cover (Table 4).

When both Calluna-rich heath and mire is summed, block 3 has the second largest area of Calluna-rich vegetation at 8598.2 ha compared with the nearest rivals of block 16 (8767.9 ha), block 12 (7384.7 ha) and block 15 (7235.7 ha) (Table 4).

Block 3 with 7000.8 ha of dwarf-shrub heath is only a little short of the 7131.4 ha on block 16 (and the latter is divided between three topographic units), while the only other block to exceed 6000 ha is block 15 with 6424.0 ha (Table 4). Like block 2, Calluna-Deschampsia heath (H9) is the overwhelmingly dominant heath with 98.7% of total heath, Calluna-Vaccinium (H12) is subsidiary with 1.1% and Calluna-Erica (H10) minor with only 0.2%. Block 3 has the second largest area of H9 on the survey blocks.

Although most of the blanket mire is Calluna-rich (M19+M20b) with 1597.4 ha or 63.9% of the total blanket mire there is a substantial component of Calluna-poor bog (M20a) at 903.8 ha or 36.1% of total blanket mire. There is an unusual weighting at either end of the M19:M20b:M20a ratio, similar to block 7. Not only is there a relatively large proportion of poor bog (M20a) but the proportion of M19 is unusually low for a northern block. The extent of Calluna-Eriophorum mire (M19) at 1352 ha, however, is typical of the Calluna-heath rich northern blocks with low cover of blanket mire (Table 4).

The extent of grassland (almost all acidic Nardus-Galium U5 and Juncus-Festuca U6) is high at 3973.9 ha, 27.7% of the block total. There are four other blocks with nearly equal or slightly larger extent (block 14(ii): 4185.0 ha, block 1: 3832.7 ha, block 7: 3775.2 and block 5: 3179.0 ha).

Due to the high proportion of grassland and relatively low

proportion of M19 the overall naturalness rating (40.86) and score for category 1 is low (9.46), similar to 5 and 8 of the northern blocks (block 12 northwards), there being only three out of eight with such low scores (Table 9).

The number of sub-communities and communities is only moderately high and the Shannon diversity index is low, the same as block 2 (Table 9).

The number of rare or relict communities is only moderately high with low area. These include a tiny representation of calcareous grassland (CG10) and woodland fragments (W7, W17) (Table 9).

Land-use is about equally matched between sheep and grouse though there is much variation from place to place. The large extent of grassland suggests that the importance of sheep may have been under-rated. Grazing intensity and heather condition are variable between sites though the overall grazing intensity and heather condition scores are favourable at well below 2 (Tables 9, 16).

This block is difficult to summarise due to its variability. The vegetation is Calluna-rich, mainly heath but also heather-rich blanket mire, though combined with much Calluna-poor vegetation including both grassland and Eriophorum bog. Compared with most northern blocks, though it is similar to block 5, there is a high proportion of degraded blanket mire (M20a+b). The vegetation would benefit from local reductions in grazing pressure and probably of burning intensity.

Block 5: Ireshope Moor-Bollihope Common-Woodland Fell

Like block 3, the topography of block 5 consists of both high and low plateau, together with mainly northerly-facing valley-side slopes. The western part is on the high spine between Weardale and Teesdale forming a northern and eastern continuation of Upper Teesdale SSSI. The block rises to a little over 700m and the topography of the eastern half of the block consists of low plateau.

The bioclimatic classes are similar to those of blocks 2 and 3, with proportionately more ground classified as the mild B3p. The rocks are similar to block 3, mostly acidic sandstones and grits with small exposures of limestone (Table 5).

The eastern half of the site has a predominance of Calluna heath, generally in good condition. The north-facing slopes overlooking Weardale are largely covered in blanket mire, mixed in quality and including both Calluna-Eriophorum (M19) and Eriophorum mire (M20) and extensive soligenous mires. The M19 is locally undisturbed with a high cover of bryophytes.

The proportions of heath, grassland and blanket bog are similar

to those of block 3. There is a high cover of dwarf-shrub heath (33.7%) and high grassland cover (26.1%) combined with relatively low blanket mire (23.7%). Block 8 is similar, while blocks 2, 15 and 16 differ in having a low proportion of grassland, and block 12 has a high cover of blanket bog as well as heath (Table 4).

The proportion of heath:grassland (5.6:4.4) is a little lower than that of block 3 (similar to block 8) and although the block is up with the leaders in extent of Calluna heath, its 4103.7 ha is well below that of block 16 with 7131.4 ha, block 3 with 7000.8 ha and block 15 with 6424.0 ha. The total extent of Calluna-rich vegetation is also high, among the nine blocks with most, however like blocks 1, 3, 6 and 8, about one third of the vegetation of the block is grassland. Blocks 7 and 14(ii) have a similar proportion of grassland, but a much lower proportion of dwarf-shrub heath.

The overwhelmingly dominant type of dwarf-shrub heath is Calluna-Deschampsia (H9) with 95.2% of total heath and Calluna-Vaccinium heath (H12) is subsidiary with 4.8%, which is similar on most of the blocks.

The proportion of Calluna-Eriophorum (M19) of total blanket mire is very low for a northern block at only 40%, the greater part being Eriophorum mire (M20). The total area of M19 is comparatively low at 1153.2 ha, similar to blocks 2 and 8 (Table 4).

Due to the low proportion of M19 and high proportion of grassland, the overall naturalness score is low (41.70) and the category 1 score is very low (9.46), similar to block 3 (Table 9).

The number of sub-communities and communities is moderately high while the Shannon diversity index is high largely as a result of the evenness of plant community areas (Table 9).

Block 5 has a high number of rare or local communities though they have only a small area. These include base-rich flush mire (M10), spring and rill communities (M29, M32) and relic fragments of woodland and scrub (W7, W17, W19) (Table 9).

The sheep:grouse ratio is 0.69:0.31 with five out of eight blocks noted as predominantly used for sheep rearing and none primarily used for grouse and is therefore highly in favour of sheep. Both the grazing score and heather condition score are high indicating that this is an intensively used block on the whole (Tables 9 and 16).

From the available information this block appears to be the most intensively used overall of the seven high Calluna-heath blocks (2, 3, 5, 8, 12, 15, 16). Blocks 2 and 8 are the next most intensively used but with only moderate use overall. Block 8 has a similar heath:grassland ratio (5.8:4.2) as block 5 and locally

there is intensive use for sheep grazing (counter-balanced overall by mainly grouse sites with lighter usage).

In general therefore the vegetation of block 5 is not in the best condition compared with similar blocks. The vegetation would benefit widely from reductions in grazing levels. There are some locally important flush/rill complexes and relic fragments of woodland and scrub.

Block 6: Lune Forest-Stainmore Forest

The topography of block 6 consists mainly of low plateau and gentle slopes in and around the Stainmore Depression and the lower slopes of Mickle Fell in the north. While the descriptive reports have full area measurements for plant communities for the whole of the block, the areas for Bowes Moor and Cotherstone Moor SSSIs have been excluded from this analysis.

The bioclimate is similar to other chiefly low plateau blocks, mainly classified as B2p and B3p, with smaller areas of both milder and harsher categories. The rocks are mainly acidic sandstones and grits with only small exposures of limestone (Table 5).

Calluna-Eriophorum blanket mire (M19) is the predominant plant community. There are small areas of Calluna heath to the north and east on Lune Moor, Currack Rigg, Ravock Moor, Wytham Moor and Seven Hills. Moderately large areas of grassland are developed on the eastern edges.

The vegetation of this block has a very high proportion of blanket mire, indeed the highest proportional cover of all blocks (64.2%), combined with one of the lowest proportions of dwarf-shrub heath (8.0%). Grassland cover is moderately high at (24.2%) (Table 4).

The blanket mire consists mainly of Calluna-Eriophorum (M19) at 85.2% of the total, the second highest proportion on the blocks. The remaining bog is mainly Calluna-poor Eriophorum mire (M20a) (4.4%), indicating small areas of more intensive land-use and management. The area of M19 at 4784.7 ha is the third highest following block 1 with 5330.4 ha and block 7 with 5232.6 ha. Similarly there is the third highest total extent of blanket mire after blocks 1 and 7 (Table 4).

Unusually, the proportions of the 701.7 ha of dwarf-shrub heath, the second lowest of the survey blocks, are about equally split between Calluna-Deschampsia (H9) and Calluna-Vaccinium (H12) heaths.

Due largely to the high proportion of M19 coupled with only moderately high grassland there is a high overall naturalness score, at 65.34 the highest of all the blocks, and the score for ranking 1 at 54.88 is also the highest. Block 12 is the nearest

rival with an overall naturalness score of 59.73, though the ranking 1 score is much lower at 35.3. The nearest rival generally is block 1 with an overall naturalness score of 56.20 and a ranking 1 score of 43.68. The area of ranking 1 communities (largely M19) is only a little short of that for block 1 (Table 9).

Diversity is low with both a low number of sub-communities and communities, and the lowest of the Shannon diversity indices (Table 9).

These results demonstrate that where there are large areas of relatively undisturbed vegetation, diversity may be correspondingly low. More intensive usage leading to a greater evenness or equitability of community areas would increase diversity at the expense of naturalness.

The number and area of rare or relic communities is also low. There are small stands of Erica-Sphagnum mire (M18) and calcareous grassland (CG10).

This is an area where sheep rearing is combined with grouse at about equal emphasis on most of the ground. The sheep:grouse ratio is weighted in favour of sheep but is probably overweighed due to one site where there was no evidence of grouse management. A better indication of the intensity of land-use is given by heather condition which was recorded as generally good on four out of the five sites on the block giving one of the lowest scores (Tables 9 and 16).

Block 6 is clearly one of the most outstanding blocks for M19. The location of the blanket mire spreading down the gentle slopes of the Stainmore Depression contrasts with its more general location on high watersheds on other blocks outstanding for their large extent of M19 (blocks 1, 7, 12).

The results confirm the general importance of the area for blanket mire. This blanket mire is already represented on Bowes Moor and Cotherstone Moor SSSI, though further representation of SSSI for peatland could be sought on this block.

Block 7: Nine Standard's Rigg-Rogan's Seat-Melbeck's Moor

The topography of this block is mainly high plateau rising generally to a little over 610m (maximum 671m) along the high watershed between Swaledale and the Stainmore Depression. The block includes part of the Mallerstang-Swaledale Head SSSI on Birkdale Common.

The bioclimate is categorized as chiefly B1p and B2p and thus has one of the generally more harsh climates of the series. The rocks are chiefly sandstones and grits with small exposures of limestone (Table 5).

There are is a large tract of Calluna-Eriophorum blanket mire (M19) to the west around Nine Standard's Rigg and in the east a large area from Sleightholme Moor in the north to Gunnerside Moor in the south. Much of the blanket mire is relatively undisturbed with a high cover of bryophytes, including Sphagna. The largest area of Calluna heath is on Brownsey Moor overlooking Swaledale.

Block 7 has a high cover of blanket mire (54.7%) with a low cover of dwarf-shrub heath (12.6%) and a high grassland cover (28.7%). The greater part of the blanket mire is Calluna-Eriophorum (M19) with 72.8% of the total. When the ratios of M19:M20b:M20a (7.3:0.1:2.6) are examined a dichotomy (similar to block 3) is apparent between the relatively undisturbed and predominant M19 at one end and the heavily managed M20a at the other. This suggests marked management differences across the block with some areas of blanket bog being hammered by sheep and perhaps more frequently burnt while other areas are relatively untouched.

The block has the second largest extent of M19, at 5232.6 ha close in area to block 1 with 5330.4 ha; the next rivals being block 6 with 4784.7 ha and block 12 with 3523.2 ha (Table 4).

Like block 6 the extent of dwarf-shrub heath (1662.4 ha) is almost equally split between Calluna-Deschampsia (H9) and Calluna-Vaccinium (H12) heaths and this block has one of the largest extent of H12.

Due largely to the large extent of M19, block 7 has a high overall naturalness score (55.52) and a high ranking 1 score (39.81) (Table 9).

The number of sub-communities and communities is moderately high while there is quite a high Shannon diversity index due also to the evenness of the areas of communities.

There is a high number of rare or local communities and they are moderately extensive. These include small areas of western wet heath and blanket mire (M15, M17) and there is a good suite of woodland communities (W7, W11, W17). Most of the extent is made up of 51.0 ha of calcareous grassland (CG10) on limestone.

There is a balance between land-use for sheep and grouse although both the grazing score and heather condition scores are more than 2. There is heavy or moderate grazing densities on most of the site and heather is locally suppressed on four out of five sites and generally suppressed only on one (Table 16).

Generally the block appears to be a more heavily managed and grazed version of the western two-thirds of block 12. There is a much larger extent of grassland and Calluna-poor Eriophorum mire (M20a), though M19 has greater extent and also makes up a larger proportion of block 7 than block 12. Topographically the eastern continuation of block 7 forms block 8, a Calluna-rich block with much Calluna-Deschampsia heath (H9).

This is an outstanding block both for its large extent of undisturbed M19 blanket and also for its variety of dwarf-shrub heath (both H9 and H12). The vegetation is similar to that of block 12 though it is more heavily grazed and the vegetation would benefit widely from reductions in stocking levels.

Block 8: Scargill High Moor-Kexwith Moor-Marske

Block 8 is an eastward continuation of block 7 with a topography mainly of low plateau and gentle slopes rising mainly only to a little over 500m.

The bioclimate is mainly of less harsh categories of B3p, generally characteristic of the higher parts of the low plateau on the more southerly and easterly blocks, and B3m of more sheltered ground and low slopes compared with B3p, with a small area classified as C3m. The rocks are chiefly acidic sandstones and grits with small outcrops of limestone (Table 5).

There are large areas of Calluna heath on Gilmonby Moor and Scargill Low Moor in the north, and Barningham Moor, and Kexwith to Marrick Moor in the east all with Calluna in generally good condition. Calluna-Eriophorum blanket mire (M19) is patchy, the largest areas being developed on Cleasby Hill and Kexwith Moor. There are large areas of poor Eriophorum blanket mire (M20) and acidic grassland in the southern and western parts of the block.

The vegetation of this easterly block has a high cover of Calluna heath (41.4%), though this is coupled with a high cover of grassland (30.3%). Blanket mire cover is low at only 19.3% of block area (Table 4).

Like other easterly blocks the type of heath is mainly Calluna-Deschampsia (H9) with 99.1% of the total dwarf-shrub area of 3303.3 ha, with only a tiny contribution from Calluna-Vaccinium heath (H12).

Although making up a large proportion of the block, the area of dwarf-shrub heath is much less than that of the much larger block 16 with 7131.4 ha, block 3 with 7000.8 ha and or block 15 with 6424.0 ha; though greater than the only other Calluna heath-rich block 2 which has 2557.5 ha.

Calluna-Eriophorum (M19) makes up a large proportion of the total blanket mire (70.8%) though the extent at only 1088.5 ha is not relatively high and similar to the other northern Calluna heath-rich blocks. The residue of bog is split more or less equally between Calluna-rich and Calluna-poor Eriophorum mire (M20b and M20a respectively) (Table 4).

The overall naturalness score is low (41.95) which is attributable to the low proportion of M19 (only 13.6% of block area) and extensive grassland. Similarly, the ranking 1 score is low at only 14.51. These low naturalness scores are

characteristic of high heath cover blocks with high cover of grassland and low cover of M19 (Table 9).

Block 8 has a moderate complement of rare or relic communities, occupying a large area (Table 9). These include a relatively large extent of base-rich flush mire (M10: 5.9 ha), large Erica-Sphagnum mires (M18: 60.0 ha), springs (M32, M37) and moderately extensive calcareous grassland (CG10: 26.4 ha).

There is much variation in intensity of land-use on the block from low, where there is emphasis on grouse to high where there is emphasis on sheep. On balance management is mainly for grouse but a large site (Arkengarthdale) is used primarily for sheep. Although the overall heather condition score is 2.0 this hides much variation and there is widespread suppression of Calluna on two of the five sites of the block (Tables 9 and 16).

Like some other Calluna heath-rich blocks (2, and especially 5) this block is relatively intensively managed with a clear dichotomy emerging in the vegetation between different parts of the block due to different emphasis in land-use and management. There is a split between the heathery (heath and bog) northern and eastern half of the block where land-use is primarily for grouse (or equal sheep and grouse) and the southern and western graminoid-rich (grassland and bog) half where management is primarily for sheep.

The northern and eastern half of the block is the most valuable for Calluna heath and relatively undisturbed M19, both in good condition. The vegetation on large parts of the block (especially the south and west) would benefit from less intensive grazing.

Block 12: Abbotside Common-Askrigg Common-East Bolton-Redmire Moor

The topography of this block consists of both high and low plateau. The ground ascends to over 610m on the high watershed between Swaledale and Wensleydale and gradually descends towards Catterick in the east. The southerly facing slopes of Abbotside Common (to the west) and Great Shunner Fell where the vegetation consists chiefly of acidic grasslands and Eriophorum vaginatum-dominated blanket mire were not surveyed.

There is a wide range of bioclimatic categories though the block is similar to block 8 in extensive B3p, but also includes the harsher B2p and milder C3m categories. The geology is chiefly acidic sandstones and grits but also there are moderately extensive outcrops of limestone, second only to block 14(ii) (Table 5).

The western two-thirds of the block from Abbotside Common to East Bolton Moor are largely covered in Calluna-Eriophorum blanket

mire (M19) which is in generally good condition. To the east of this Calluna heath largely predominates with blanket mire and grassland subordinate.

This is the only block to combine a large proportion of dwarf-shrub heath (31.5%: 3173.0 ha) with extensive blanket mire (45.4%: 4571.0 ha). The nearest rival for both communities is block 2 which has a moderate proportion of blanket mire (25.7%: mostly M19) and 48.6% dwarf-shrub heath. However, since block 12 is a much larger block than block 2 the areas of both heath, and especially bog, are much larger.

The proportion of grassland is low (15.8%: 1595.2 ha) (Table 4).

Dwarf-shrub heath is mainly Calluna-Deschampsia (H9) with 73.2% of the total heath (2325.1 ha) but there is also a substantial contribution from Calluna-Vaccinium heath (H12) (847.9 ha) reflecting the harsh climate of parts of the block.

The blanket mire is mainly Calluna-Eriophorum (M19) (77.1%: 3523.2 ha) which constitutes the third largest extent on the survey blocks (Table 4). Much of the remaining blanket mire on the block is Calluna-rich Eriophorum mire (M20b: 15.0%) leaving only a small residue of Calluna-poor Eriophorum mire (M20a: 7.9%) (Table 4).

The overall naturalness score (59.73) is high, second only to block 6, due largely to the large proportion of M19 and low proportion of grassland. Naturalness ranking 1 score (35.30) is moderately high and is accounted for almost solely by M19 (35.0% of block area) (Table 9).

This block has a high diversity with the highest recorded number of sub-communities and communities and the highest Shannon diversity index. The latter is attributable to the high number of communities and to the evenness of community areas.

Block 12 also has the highest number of rare or relic communities and the largest area of these. Block 14(ii) has a similar area but much fewer communities (Table 9). The communities include base-rich flush mires (M10), western wet heath and blanket mire (M15, M17), calcareous grasslands and rock communities (CG9, CG10, U23). Much of the area is accounted for by calcareous grassland (CG10: 261.6 ha), which is the largest area on the survey blocks, rivalled only by block 14(ii) with 230.1 ha of CG10. The juniper scrub (W19: 10.2 ha) at Harkerside is already included within an SSSI.

All seven sites which make up the block are managed for both grouse and sheep, only one is noted as being managed predominantly for grouse, while none are managed predominantly for sheep. Grazing densities are nearly equally divided on the sites between low and medium, and similarly heather condition is generally good on three sites and only locally suppressed on four (Table 16). These give low grazing scores and good heather

condition scores below 2.0 (Table 9). The intensity of land-use is therefore relatively low and vegetation widely in good condition.

This is an outstanding block combining high naturalness and diversity with a large complement of rare communities including extensive calcareous grasslands. The block is superlative among the blocks for its combination of extensive dwarf-shrub heath and blanket mire, mainly the relatively undisturbed Calluna-Eriophorum mire (M19). Thus it represents both typical high Calluna-heath and high blanket mire in one block.

If only one block could be selected to represent the range of variation within the survey blocks this block would be the first choice. The nearest rival for a combination of heath and M19 is block 2 to the north, which is smaller and more intensively managed. Block 7 is also similar (though it lacks extensive dwarf-shrub heath) forming an alternative to block 12. Blanket mire, especially M19, is represented in larger quantity on blocks 1 and 6, while dwarf-shrub heath (though mainly Calluna-Deschampsia (H9) with little Calluna-Vaccinium (H12).) is more extensive on blocks 15 and 16.

Blocks 14(i) and 14(ii): Buckden Pike-Great Whernside-Heathfield Moor

The vegetation of the eastern half (block 14(i)) was surveyed by the North Pennines team while the western half (block 14(ii)), including Buckden Pike, Gt Whernside summit, Conistone Moor and much of Grassington Moor was mapped by the NCC Upland Survey Team (Mark Owen and Richard Tapper) in 1984. These two parts have been treat separately in the analysis. The descriptive reports give details of block 14(i) as block "14".

The Upland Survey mapping was carried out using Birks & Ratcliffe's (1980) classification of upland vegetation which has been converted to the National Vegetation Classification. The chief difficulties are in converting dry Calluna heath (B1a) to NVC heath where I have had to assume equal areas of Calluna-Deschampsia (H9) and Calluna-Vaccinium (H12) heaths. Similarly, Calluna-Eriophorum blanket mire (G4) could be either M19 or M20 and I have assumed equal areas of M19 and M20. Since the area mapped as G4 is large (1988.4 ha) there is obviously potential for error here if there is a predominance of one or other of the possible types and in particular the area of M19 may have been exaggerated by these conversions. For "typical" Calluna-Eriophorum mire (G4a) I have converted solely to M19 (115.0 ha). "Vaccinium-rich" Calluna-Eriophorum mire (G4e) has been converted to M20b (596.5 ha) and "Eriophorum-dominated" Calluna-Eriophorum mire to M20a (1801.2 ha).

The area of M19 given for block 14(ii) by these conversions is similar to that on block 14(i) surveyed according to the NVC by

the North Pennines' survey team. The proportions of Calluna-poor M20a is much higher on block 14(ii) than on block 14(i), which is expected since it is a much grassier and more heavily grazed.

The plant community areas for the two sub-blocks have been analysed separately although since the two areas make up a single topographic unit they are treat together here.

The topography of 14(ii) consists of high plateau rising to a small area of very high plateau on the summit of Gt Whernside at about 700m. The slopes fall in altitude eastward to give mainly low plateau on 14(i). Block 14(ii) is bounded to the west by a massive stepped limestone escarpment above upper Wharfedale. There are SSSI along this escarpment at Conistone Old Pasture (limestone grassland and pavement) and Bastow & Grass Woods (limestone woodland on pavement). Neither of these areas were surveyed.

There is a wide range of bioclimate. Block 14(ii) has a moderately extensive representation of harsh classes (B1v, B1p). Otherwise the greater part of block 14(ii) is classed as B2p and block 14(i) as B2p and B3p, while the latter also has small areas of the mild C3m of low altitude ground (Table 5). Harsh classes also occur on blocks 1, 5, 6, 7 and 12, most extensively on 1 and 7.

The rocks consist of acidic grits and sandstone together with tiny exposures of limestone on block 14(i) and large outcrops of limestone making up the escarpment slopes of upper Wharfedale on block 14(ii). This limestone constitutes the most easterly massive exposures of Great Scar Limestone.

There is extensive blanket mire on the higher, western parts of the block. This mire is of mixed quality consisting of Calluna-Eriophorum mire (M19) interspersed with Eriophorum mire (M20) though some of the latter has much Calluna. Undisturbed blanket mire is very local and Sphagna generally are patchy even in M19. Calluna heath occurs along the eastern and southern edges of the block, mainly in the south.

The block as a whole has a large proportion and extent of blanket mire (respectively for blocks 14(i)/14(ii): 55.9/48.6%, total 9465.5 ha). The proportion of blanket mire is similar to blocks 1, 7 and 12 and is exceeded only by block 6 (64.2%). All these other blocks with high cover of blanket mire (and 8 too) have a high proportion of Calluna-Eriophorum (M19) (range 87.3-70.8% of total blanket mire), block 14 by contrast has a very low proportion of M19 (29.3/24.6%). Block 14 has large areas of Calluna-rich Eriophorum mire (M20b) (4939.4 ha: 52.2% of total mire), which predominates on block 14(i) (Table 4). Large areas of M20b are otherwise only developed on block 5 (1733.3 ha: 60.0% of total mire) and block 16 (1631.4 ha: 75.3% of total mire). Field observations suggest that Calluna-rich M20b is indicative of low grazing levels coupled with intensive management by frequent burning for the benefit of red grouse.

Block 14(ii) has a much higher proportion of Calluna-poor M20a than block 14(i) (19.0 and 1.7 respectively), an indication of higher grazing levels on the western side of block 14.

High cover of blanket mire is combined with low cover of dwarf-shrub heath, especially on block 14(ii) (16.4/3.6%). The proportion of grassland differs on the two parts of the block: 10.8% on 14(i) and is exceptionally high at 45.2% on 14(ii). There is an exceptionally large extent of mesotrophic species-poor Festuca-Agrostis-Galium grassland (U4) on block 14(ii), developed largely on the limestone escarpment (1581.6 ha: 17.1% of block area). This large area of mesotrophic grassland is not rivalled by any other block, though block 12, with moderately extensive limestone, has moderately extensive U4 (357.2 ha: 3.6%) making up a large proportion of its grassland (blocks 7 and 8 are similar) (Table 3).

Dwarf-shrub heath is mainly Calluna-Deschampsia (H9) (81.1% of total heath: 1450.8 ha) with the remainder Calluna-Vaccinium (H12). Most of the heath is on the eastern fringes of block 14(i).

The overall naturalness score is higher for block 14(i) (52.71) than 14(ii) (33.42) due to the much lower proportion of grassland and higher proportion of M19 on the former than on the latter. The score for block 14(ii) is the lowest of all the blocks. Overall, block 14 has low naturalness, similar to block 16, though with a higher ranking 1 score due to the higher proportion of M19 (Table 9).

The number of sub-communities and communities on the blocks is low or only moderately high (Table 9). Combining block 14(i) and (ii) gives 24 sub-communities and 19 communities, giving this huge block an intermediate overall score. The Shannon diversity index is high for both blocks. These high scores are due to an evenness of community area produced by a high intensity of land-use and management.

On block 14(i) the only rare community is Narthecium-Sphagnum valley-mire (M21), of tiny extent, while on block 14(ii) there are only three rare communities recorded, base-rich flush mire (M10) and calcareous grasslands (CG9, CG10). The total extent of the latter is a little larger than that on block 12.

The suites of vegetation on block 14 make it transitional between the more grassy upland areas lying to the west and the more heathy areas to the east and north. Although the proportion of Calluna heath is low there is much more than is likely to be present on the unsurveyed grassy blocks lying to the west (blocks 10, 11 and 13 - see Horsfield & Thompson, 1991). The proportion of Calluna-Eriophorum blanket mire (M19) of total blanket mire is much smaller than on topographically comparable blocks to the north though on topographically similar areas in the southern Pennines such as Haworth Moors SSSI and The Dark Peak SSSI only fragments of M19 remain among large tracts of predominant M20.

On block 14 about three-quarters of the blanket mire is M20, which is also developed extensively on block 5 in the north. Further south on block 16 and in the southern Pennines it becomes the overwhelmingly predominant blanket mire community. Around two-thirds of M20 is Calluna-rich M20b (inc. some Vaccinium-rich). Pockets of M19 with high bryophyte cover including bulky pleurocarpous mosses and Sphagna - especially Sphagnum papillosum and Sphagnum capillifolium occur through much of the M20b in wet hollows where there is protection from fire and there is an obvious gradation in floristics between these two communities.

S. papillosum and S. capillifolium also occur scattered through M20 and are not uncommon on the block. This is different from the southern Pennines where virtually no S. papillosum or S. capillifolium survives probably due to burning coupled with heavy acidic deposition. On block 14 reductions in grazing and burning intensities, perhaps the latter alone, could potentially result in significant recovery to a more Sphagnum-rich blanket mire. This is probably not possible in the southern Pennines where Sphagna are held in check by high levels of acidic deposition.

Land-use and management is only recorded in detail for block 14(i) where sites tend to be mainly used either for sheep or grouse rearing. Heather condition is equally variable though grazing levels are noted as only medium on most sites (6 out of 9), or low (2 out of 9) and high on only one. On block 14(i) most of the Calluna-rich blanket mire is chiefly used for grouse rearing. On the mineral soils the heath:grassland ratio at 6.0:4.0 is in favour of heath. Similarly, the overall sheep:grouse is in favour of grouse and the overall grazing/heather condition score is intermediate, though this conceals much variation.

No detail is available on land-use and management for block 14(ii) though Upland Survey reports state that sheep rearing predominates with grouse shot locally. The large proportion of grassland and Calluna-poor Eriophorum bog indicates a relatively intensive land-use.

Clearly the quality of the vegetation, especially the blanket mires, on this block is variable. This is a large block with high diversity, though naturalness is relatively low. The block is contiguous with the Calluna-heath rich block 15 to the east, the two being only partially separated by Nidderdale. The predominant vegetation of blocks 14 and 15 differs and taken together forms a massive tract of continuous moorland. The large size of the area and remoteness of much of the block are important and this coupled with high diversity, despite low naturalness (due to comparatively low proportion of M19), gives the block a high value for nature conservation.

Block 15: Colsterdale Moor-Hambleton Hill-Pateley Moor

This block is an easterly continuation of block 14. Although the ground rises to 540m at its junction with block 14 the topography of the block consists almost wholly of low plateau and gentle slopes below 450m, with most of the ground lying below 400m.

The bioclimate is relatively mild, chiefly classified as B3p which is characteristic of the higher parts of low plateau and C3p and C3m of the lower parts of low plateau and valleys.

The rocks are almost all acidic, chiefly sandstones and grits, with very small exposures of limestone (Table 5).

Calluna heath predominates except on the plateau to the west overlooking Nidderdale where there is Calluna-rich Eriophorum mire (M20).

The vegetation of the block is predominantly dwarf-shrub heath with the highest proportion (66.3%) of all the survey blocks. Both grassland (5.1%) and blanket mire (9.3%) are very low proportionately and in extent, being the lowest of all the survey blocks.

The extent of dwarf-shrub heath (6424.0 ha) is the third largest of the survey blocks after block 16 (7131.4 ha) and block 3 (7000.8 ha). There are no other close rivals even among other dwarf-shrub rich blocks (Table 4).

Most of the heath is Calluna-Deschampsia (H9) (67.6%) with Calluna-Vaccinium (H12) making up the remainder.

Most of the blanket mire is Eriophorum mire (M20) (87.1% of total mire) and most of that is Calluna-rich M20b, with only a minor contribution from M19 (12.9%) (Table 4).

Due to the preponderance of dwarf-shrub heath but low representation of Calluna-Eriophorum mire (M19) compared with other blocks, overall naturalness is only moderately high, at a level a little below 50%. The very low proportion of M19 is responsible for the very low ranking 1 score, though it is higher than the vegetationally similar block 16 (Table 9).

Diversity as measured both by the number of sub-communities and communities, and by the Shannon diversity index is only moderately high. The nearest generally similar block in proportions and range of vegetation is block 16 which has a lower number of communities but a higher Shannon diversity index (Table 9).

The number of rare or local communities and their area is only moderately high (Table 9). These are base-rich flush mire (M10), Erica-Sphagnum mire (M18), Narthecium-Sphagnum valley mire (M21), spring and rill communities (M32, M35) and a fragment of woodland (W17).

Land-use across most of the block (on 6 out of 9 sites, Table 16) is primarily for red grouse while grazing densities are recorded as low also for six of the sites and medium for the other three. Heather condition is generally good on the six sites with low grazing pressure and locally suppressed where grazing density is medium. This gives the lowest overall sheep to grouse ratio for the blocks and the lowest grazing scores and heather condition score (Tables 9, 16).

The block is important for having the second largest tract of Calluna heath (6424.0 ha) on a single topographic area. Block 15 is second to block 3 in area of heath, though the management on block 3 is not quite so strongly in favour of grouse as block 15. Block 16 has 7131.4 ha of heath, the largest area of heath in total, but it is divided between three topographic sub-blocks.

Block 15 has the largest area of Erica-Sphagnum wet heath (M16) of all the blocks. Observations suggest that M16 is susceptible to moderately heavy grazing by sheep which converts it to Juncus-Festuca grassland (U6). This appeared to be occurring even on block 15 where there were locally moderately high grazing levels operating at the edges of the moor. M16 perhaps deserves relict status and is a community that may be expected to virtually disappear from areas with sustained high grazing levels.

Block 15, along with parts of block 16, may be regarded as the best representative of the northern English grouse moor landscape.

Block 16: Embsay Moor-Barden Fell-Round Hill-Ilkley Moor

Block 16 consists of three detached topographic areas of moorland (Ilkley Moor (or Rombalds Moor), Barden Fell and Embsay Moor). Their topography consists of tilted tablelands while Rombalds Moor is stepped on the northern side. The topography of all may be classed as low plateau with mainly gentle slopes and escarpments bordering the raised edges to the north and west. The maximum altitude of the three sub-blocks rises (402->485->506m) and the general plateau height is about 300-400m with little ground above 450m.

The climate is varied and this is the mildest of the blocks (Table 5). The bioclimatic classes include those characteristic of the lower parts of low plateau and low slopes (C2p, C3p, C3m) while higher parts are classed as B3p which is represented on most blocks as the bioclimate of the upper parts of the low plateau (and on to the high plateau on some blocks as well).

The rocks are mostly acidic, chiefly sandstones and grits with limestone confined to a small area in the north near Stump Cross (Table 5).

Like block 15, block 16 has a high cover of dwarf-shrub heath (50.6%) together with low grassland cover (12.7%) and low blanket

bog cover (15.4%).

In total the three topographic areas in which the block is divided have the largest area of Calluna-dominated dwarf-shrub heath of the survey blocks (7131.4 ha compared with block 3: 7000.8 ha and block 15: 6424.0 ha, Table 4). The dwarf-shrub heath is almost all Calluna-Deschampsia (H9) (99.97%) with only a tiny contribution from Calluna-Vaccinium heath (H12) and Calluna-Vaccinium-Sphagnum heath (H21). At high altitude on all the sub-blocks, but especially well developed on Embsay Moor and Barden Fell around gritstone outcrops, there is a form of H9 rich in dwarf-shrub species with an abundance of Vaccinium vitis-idaea, Vaccinium myrtillus and Empetrum nigrum. This community is the closest approach floristically of Calluna-Deshampsia heath to Myrtillion heaths, which include Calluna-Vaccinium heath. The best representation of this species-rich upland form of Calluna-Deschampsia heath is here and on block 15.

This is one of the largest blocks (at 14,093.1 ha only a little short of block 3 with 14,337.2 ha) and although blanket mire is proportionately low there is 2166.3 ha, mainly on the northern part of Barden Fell. Almost all the blanket mire is Eriophorum mire (M20) (2161.2 ha: 99.8%) with only a tiny contribution from Calluna-Eriophorum (M19), which has apparently been reduced to relic status, presumably by prolonged burning and grazing. The bulk of the M20 is Calluna-rich M20b (locally Vaccinium-rich) (75.5% of M20), with the remainder Calluna-poor M20a (Table 4).

The vegetation of block 16 has other distinguishing developments. There is the largest proportion and extent of bracken community (U20: 1867.5 ha, 13.3%) of all the blocks. This may be attributed to the mild climate and presence of suitable steep-sided well-drained gullies and escarpment slopes at low altitude. On most parts of the sub-blocks there has been an intensive effort to eradicate bracken by application of herbicide. Little growth of grass was seen on the exposed soils of sprayed areas. Restoration to broadleaved woodland or scrub would be a better ecological use of these stands of bracken.

Like other southerly blocks the extent of Vaccinium-Deschampsia heath (H18) is moderately high (chiefly along the steep north-west escarpment of Embsay Moor). H18 develops chiefly on steep rocky escarpments and steep, sheltered gullies and is most extensive on blocks 12, 14, 15 and 16 where grazing levels are generally low. It is probably derived mainly from Calluna-Vaccinium heath at moderate grazing levels, or survives high stocking levels on very steep, rocky, excessively drained ground, which is difficult of access to sheep. On other blocks Vaccinium heath may have given way to grassland under heavy grazing pressure.

Like other Calluna heath-rich blocks 2 and 15, Erica-Sphagnum wet heath is comparatively extensive (15.4 ha) and perhaps only persists where there are relatively low grazing intensities. The largest stands of the mainly southern Narthecium-Sphagnum valley-

mire (M21) are developed on block 16.

Like the similar block 15 (and also 1, 2, 6 and 14) only a small proportion of grassland is of the mesotrophic Festuca-Agrostis-Galium (U4) (74.6 ha: 4.2% of grassland). This is due to the prevailing poor soils developed on the grits and sandstones underlying most of these sites.

Due to the minuscule representation of Calluna-Eriophorum blanket mire (M19) and other communities ranking 1 on the naturalness scale, the overall naturalness score is low (43.86), similar to other Calluna heath-rich blocks (3, 5, 8), which also have a low proportion of M19 blanket mire. The other Calluna heath-rich block 2 has a moderately low cover of blanket mire (much of it M19) and low grassland cover like block 16, but unlike blocks 3, 5 and 8, has a much higher overall naturalness score. Block 15 has a higher naturalness rating than block 16 which is attributed to greater proportion of dwarf-shrub heath (66.3 v. 50.6%) coupled with an even lower proportion of grassland.

Compared with other Calluna-heath rich blocks, block 16 is distinguished by a high number of sub-communities and communities, higher than the generally most closely similar block 15. The Shannon diversity index is low, the lowest of the surveyed blocks except for block 6 (Table 9). Like block 6 the low index may be attributable to unevenness produced by the dominance of a single community (H9 in the case of block 16).

The number of rare or local communities is high, though they are only moderately extensive (Table 9). These include the most southerly definitely known stand of Calluna-Vaccinium-Sphagnum heath (H21) in England, a type with its headquarters in the north-west Highlands, and most extensive in England in the Lake District. There are a few tiny stands of base-rich flushes (M10), a few examples of Narthecium-Sphagnum valley-mire (M21) and woodland fragments (W7, W9, W11, W17). Most of the area is accounted for by the 61.3 ha of W17 of Guisecliff Wood.

For the purposes of recording management details (Table 16), the heavily grazed and graminoid dominated area of the northern part of the Barden Fell site has been separated as "Pock Stones Moor" (see Barden Fell site in the descriptive report). This area lies within the boundary walls and fences north from Lord's Seat to High Lathe, then the northern edge of the site; and east from Lord's Seat to Little Pock Stones then to Eller Edge Nook, across to Washburn Head, down the River Washburn to the edge of the site and across to the boundary between Braithewaite Moor and Redlish to the fence around the course of Greenhow Sike to the northern Edge of the site. In contrast to most of the rest of the block, this area (which includes the only limestone on the block) is heavily grazed with a preponderance of grassland and Calluna-poor Eriophorum blanket mire (M20a). This part of the block forms a southward continuation of the intensively used parts of block 14(ii).

Pock Stones Moor is an area of heavy sheep grazing where management and land-use is for sheep only, and heather condition is poor (Calluna is virtually absent). Disregarding this area the sheep:grouse ratio, grazing score and heather condition score of block is similar to that of block 15 (Table 9).

The southern half of Embsay Moor and the northern half of Ilkley Moor sustain localised moderately heavy grazing which is resulting in suppression and loss of Calluna. Blubberhouses Moor is rated as moderate grazing density but Calluna is still in generally good condition. Grazing levels are low and Calluna in generally good condition on all the other sites and is in especially good condition on Barden Fell. The latter area taking in all ground north of the A59 road to Pock Stones Moor is the largest area on the block with Calluna in generally good condition.

Individually and collectively the separate sub-blocks are of high value for nature conservation because of their large extent of Calluna-dominated heath and all these areas ought to be conserved. Calluna heath is extensive down to relatively low altitudes and is associated with a range of other communities. These include Erica-Sphagnum wet heath (M16), Narthecium-Sphagnum valley-mire (M21) and extensive Juncus-Sphagnum flush-mires (M6). These all, and especially the first two, can be regarded as relic communities being gradually eliminated or modified by moderately heavy grazing, draining and burning, though surviving where grazing levels are low and management practices not so intensive. Carex-Sphagnum mires (M6) tend to be more extensive on the heath-rich sites and block 16 has many examples in good condition with abundant Sphagna despite many old drains. These flushes are valuable for invertebrates which are an important food source for grouse and wader chicks.

Where grazing pressures are too high for the good of the vegetation stocking levels should be reduced to allow recovery of Calluna and other moorland plants. Even though the vegetation on block 16 is in generally good condition there are areas which would benefit from reductions in stocking level. Management practices that are eroding the conservation value such as draining and bracken spraying ought to cease. Drainage ought to be recognised as inimical to good grouse moor management because of the value of wet areas for invertebrate food. Bracken spraying should be replaced by a rolling programme of scrub and woodland regeneration.

7. SUMMARY OF ASSESSMENTS OF CONSERVATION VALUE OF BLOCKS

Table 9 gives values and a ranking of the assessment criteria for the survey blocks while Table 18 provides a summary of rankings of the various values within the main categories of naturalness, diversity, rarity and intensity of land-use and management. In Table 18 the blocks have been divided into the two groups following the first division implemented by TWINSPAN. Blocks 14(ii) and 16 were the only ones split off, separately, after the second division of the blocks made by TWINSPAN.

Blocks where all the categories have high, or moderately high, values may be considered outstanding. The ratings have not been summed to get a summary score because a block very good or even superlative in one category may be low overall and hence downgraded. Secondly, adding the values implies equal weight to attributes - which is not intended. Rather the values should be considered separately. A good example is provided by block 6 which is one of the best blocks for the extent of Calluna-Eriophorum blanket mire (M19), so has a high overall naturalness score but a low diversity score. Here rarity is also low and intensity of land-use and management medium. However, regarding other blocks with high overall naturalness (mainly due to a large proportion of M19), only blocks 8 and 12 have such a low general intensity of land-use and management. Hence block 6 is to be rated more highly than a summed score would suggest.

All the "western" blocks are to be rated highly with a preponderance of high scores in all four categories (Tables 9 and 18). Of the group, block 12 is clearly the most outstanding, with high summary scores for all four categories (Table 18). Although land-use and management intensities are high in blocks 1 and 7 their naturalness scores are also high. This is due to a dichotomy of high intensity usage on the mineral soils giving low dwarf-shrub heath:grassland ratios (Table 4) and relatively low intensity usage of the vegetation on deep peat giving large tracts of relatively undisturbed Calluna-Eriophorum (M19). The high proportion of M19 is largely responsible for the high naturalness scores on these blocks.

Block 14(ii) has the same range of scores as block 6 but by contrast has a low naturalness score while block 6 is high and high diversity while block 6 is low. High diversity on block 14(ii) may be attributed to a relatively high land-use and management intensity, creating a more equitable dissection of the area among the plant communities. If this high intensity usage was to continue to modify the vegetation towards dominance solely by graminoids, diversity should decrease with the dominance by uniform tracts of Eriophorum mire and acidic grassland.

The "eastern" group of blocks differs from the "western" group in its generally lower scores for naturalness, diversity and rarity, and higher scores for general intensity of land-use and management i.e. a lower intensity of land-use and management. Blocks 15 and 16 consistently have the highest values, and should

therefore be regarded as the best of the group.

8. COMPARISONS OF THE VEGETATION ON THE SURVEY BLOCKS WITH THAT OF SSSI AND OTHER NON-STATUTORY SITES IN THE NORTHERN PENNINES AND SURROUNDING AREAS

Preceding sections (5. to 7.) place the vegetation of the survey blocks in a general context in relation to regions of the English uplands and summarise the conservation value of the blocks. This section compares the suites of plant communities and estimates of their conservation value with those for SSSI and a few non-statutory sites in northern England and surrounding areas. Firstly, a TWINSPAN was carried out with the plant communities of the survey blocks and the northern English SSSI and other sites as samples and plant communities as attributes to put the vegetation of the survey blocks in context. Secondly, a comparison is made between scores of conservation criteria (naturalness, diversity and rarity) for survey blocks and the other northern English sites.

Table 22 gives names of all NVC plant communities determined as present on the SSSI and non-statutory sites in the Pennines and surrounding areas. Table 23 gives area measurements of NVC plant communities on SSSI and a few non-statutory sites in the northern Pennines and surrounding areas. Table 24 provides a summary of this vegetation data as areas and ratios of dwarf-shrub heaths, grasslands and blanket mire.

Table 25 is the final output table of the TWINSPAN with a sites and plant community matrix while Figure 4 gives a dendrogram of the TWINSPAN division of sites.

Tables 26, 27, 28, 29, 30 and 31 give figures for measures of naturalness, diversity and rarity based on the suites of plant communities on SSSI and non-stats.

Appendix 3 gives area measurements of communities, sub-communities, rock types and other habitats for the SSSI+non-stats.

8.1 COMPARISONS OF AREAS OF DWARF-SHRUB HEATH, GRASSLAND AND BLANKET MIRE

On the SSSI+non-stats there is wider range of heath:grassland ratios (Table 24) than on the survey blocks (Table 4). For example Malham-Arncliffe is predominantly grassland (95% of total area) with no dwarf-shrub heath. Other sites with extensive limestone (Appleby Fells, Fountains/Darnbrook Fells, Ingleborough, Mallerstang & Swaledale Head, Moor House & Cross Fell, Pen-y-Ghent and Whernside) similarly have little dwarf-

shrub heath with a large proportion of grassland. The lowest dwarf-shrub heath:grassland ratio on the survey blocks is on 14(ii)(western Gt Whernside) which in general vegetation is the most similar to these grassy sites. The blocks range up to 66.3% of total vegetation area made up of dwarf-shrub heath compared to a maximum of 86.5% on the SSSI+non-stats.

The proportion of Calluna-Eriophorum blanket mire (M19), which has a maximum of 54.8% on block 6 is exceeded on only four of the SSSI+non-stats (Appleby Fells, Geltsdale & Glendue Fells, Kielder Head & Emblehope Moors and Upper Teesdale: all SSSI) while the extended Moor House & Cross Fell SSSI, for which complete figures are not available, may also exceed this proportion.

The overall proportion of Eriophorum blanket mire (M20) on the blocks ranges from 3.3 to 39.5% and is similarly variable on the SSSI+non-stats, except more so. Two southern Pennine SSSI have a large proportion of M20, Haworth Moor (75.0%) and The Dark Peak (53.0%), and almost all blanket bog on these sites is Eriophorum mire.

Eriophorum blanket mire is more widely developed on the blocks than on the SSSI+non-stats though some SSSI have a large proportion of their vegetation and most of their blanket mire made up of Eriophorum mire.

Total blanket mire and the heath:blanket mire ratio are also variable on the SSSI+non-stats. Five of the blocks have fairly evenly divided heath:blanket mire ratios which is found on few SSSI+non-stats (e.g. Geltsdale & Glendue Fells, Bowland Fells) where there is a tendency towards the extremes.

Total grassland+Eriophorum mire ranges from 5.9% to 64.6% of total vegetation area on the blocks while on the SSSI+non-stats it ranges from 0.1% to 96.9%. The ratio of Calluna-rich:Calluna poor vegetation is similarly more variable on the SSSI+non-stats.

A general conclusion is that the survey blocks have a greater proportion of dwarf-shrub heath or Calluna-Eriophorum blanket mire than many of the SSSI and more often combine high proportions of both.

8.2 TWINSPAN OF PLANT COMMUNITY DATA FOR SURVEY BLOCKS AND SSSI AND NON-STATUTORY SITES IN THE NORTHERN PENNINES AND SURROUNDING AREAS

Divisions of the analysis giving a classification of both sites and plant communities

Classification of the sites

The final output of the TWINSPAN is given in Table 25, while Fig. 4. gives a dendrogram of the TWINSPAN divisions of sites. Divisions are given until they begin to split off only one or two sites. Fig. 4. also gives indicator communities for each side of the divisions of sites. Details relevant to the comparison of the survey blocks with other sites are given while much more detail is to be found in the print-out of the analysis.

The first division divides the sites into two unequal groups. The smaller group are all Pennine sites from the Alston Block and Craven with extensive limestone. The preferential communities for this group includes a range of calcareous or base-rich communities at a range of levels or extents (values on the octave scale of extent) starting low (e.g. CG9, CG10, U23, W9, M37), and large extents of other grasslands (e.g. U4, U6) and montane Vaccinium-Cladonia heath (H19).

Only one of the survey blocks falls into this group, the western half of Buckden Pike-Gt Whernside-Heathfield Moor (block 14(ii)). This kind of site is therefore well-represented by SSSI.

The larger group of the first division is of sites with a predominance of siliceous rocks and extensive acidic vegetation, though small areas of limestone are present on some of the sites supporting small areas of calcareous grasslands (CG9, CG10) and other calcicolous communities. The preferentials include a range of dwarf-shrub heaths starting at low levels (H9, H10, H12), extensive bracken (U20), acidic birch/oak woodland (W17), Erica-Sphagnum wet heath (M16) and Deschampsia flexuosa grassland (U2).

Further divisions of the limestone group split off only groups of one or two sites and are not considered further.

The next division of the largely acidic group divides the sites into two unequal groups. The smaller of the groups consists of wholly acidic sites from the southerly Pennines and North York Moors with a predominance of Calluna-Deschampsia heath (H9). Preferentials include extensive Calluna-Deschampsia heath (H9), Erica-Sphagnum wet heath (M16), southern oak woods (W16), and less strongly, extensive Eriophorum mire (M20) and Molinia mire (M25). There are small areas only, of Calluna-Eriophorum mire (M19) present on some sites. There are nine sites in the group of which two are survey blocks (nos 15 and 16) and four SSSI (Fylingdales, Haworth Moors, The Dark Peak and Leek Moors).

Block 14(i)(eastern Gt Whernside), although placed in the larger group is borderline to this one.

The larger group at this division consists of 18 sites, 9 survey blocks and 9 SSSI including all remaining sites with limestone. Preferentials include low levels (only) of calcareous grassland (CG10) and Festuca-Agrostis-Rumex grassland (U1), Calluna-Vaccinium heath (H12), Erica-Sphagnum papillosum mire (M18) and Calluna-Eriophorum blanket mire (M19) and extensive Festuca-Agrostis-Galium and Juncus-Festuca grasslands (U4, U6).

Further division of the southern Pennine/North York Moors group gives a geographical split into a North York Moors group (only Fylingdales is a SSSI) and a southern Pennine group of five sites including blocks 15 and 16, and three SSSI.

Preferentials for the North York Moors group include extensive Erica-Sphagnum wet heath (M16), extensive bracken (U20), and less strongly Scirpus-Erica wet heath (M15) and Calluna-Vaccinium-Sphagnum heath (H21), and predominant Calluna-Deschampsia heath (H9). Some of these communities are favoured by the more oceanic climate of the North York Moors in comparison with the southern Pennines.

There are more preferentials for the southern Pennine than the North York Moors group, many at low levels including Calluna-Vaccinium heath (H12), Juncus-Festuca grassland (U6), Calluna-Eriophorum mire (M19), Carex-Pinguicula mire (M10) and Molinia mire (M25); and of Nardus-Galium grassland (U5) and Carex echinata-Sphagnum mire (M6) when extensive only and Eriophorum mire (M20) when moderately extensive to extensive. Many of these communities are indicative of the higher altitudes and cooler climates of the southern Pennines compared with the North York Moors.

Further division of the large block of 18 sites, including 9 survey blocks, is of interest because at this division all the blocks form their own group. The degree of difference between the groups at this split should indicate whether further SSSI ought to be sought among the survey blocks. Preferentials for the survey blocks include Calluna-Deschampsia heath (H9) (more strongly at higher levels), Eriophorum mire (M20), Juncus-Festuca grassland (U6) and Carex echinata-Sphagnum mire (M6) (all at higher levels), and Festuca-Agrostis-Rumex grassland (U1), Deschampsia flexuosa grassland (U2), Narthecium-Sphagnum valley mire (M21) and Juniperus-Oxalis woodland (W19). Many of these communities have an obvious eastern or southern bias in their GB distribution (Table 19), and are often developed at low altitude, but they also include communities of vegetation highly modified by man's activities.

Preferentials of the SSSI group include extensive Calluna-Vaccinium heath (H12), bracken (U20), Nardus-Galium grassland (U5), Vaccinium-Deschampsia heath (H18), moderately extensive (only) Erica-Sphagnum blanket mire (M18) and Carex rostrata-

Sphagnum mire (M4), Scirpus-Erica wet heath (M15), Philonotis-Saxifraga springs (M32) and Quercus-Betula-Dicranum woodland (W17). In addition Quercus-Betula-Oxalis woodland (W11) and Calluna-Vaccinium-Sphagnum heath (H21) are weak preferentials. These communities have a more northern (or high altitude) or western bias in their GB distribution than the preferentials for the survey blocks.

Calluna-Eriophorum mire (M19) is non-preferential being equally well-represented on the two groups at the octave scale of abundance of the analysis.

The list of preferentials is about equal for each group and suggests that differences between them are sufficiently great for further SSSI to be selected from within the survey blocks.

Currently a majority of the preferentials of this (the majority) group of survey blocks are poorly represented on the SSSI in the northern Pennines and there is also room for further representation of Calluna-Eriophorum mire (section 6.2.3 and below).

The survey blocks sub-divide at the next division into two near equal-sized groups. The smaller group consists of four blocks (1, 6, 7, 12) with large extents of Calluna-Eriophorum mire (M19) and high M19:M20b:M20a ratios (Table 4). Except for block 12 they have relatively inextensive Calluna heath, and grassland is also relatively extensive. The larger group consists of five blocks (2, 3, 5, 8, 14(i)) all of which have extensive Calluna heath (except 14(i) where heath is only moderately extensive) and mostly a relatively low extent of Calluna-Eriophorum mire (M19) giving generally low M19:M20b:M20a ratios (except for blocks 2 and 8). This division is similar to that of the blocks alone (section 5.).

The preferentials for the smaller group of blocks 1, 6, 7 and 12 include Carex rostrata-Sphagnum mire (M4), Festuca-Agrostis-Rumex grassland (U1), and extensive Calluna-Vaccinium heath (H12) and Calluna-Eriophorum mire (M19). The preferentials for the larger group of blocks 2, 3, 5, 8 and 14(i) include Erica-Sphagnum wet heath (M16) and extensive Carex echinata-Sphagnum mire (M6), Calluna-Deschampsia heath (H9) and Eriophorum mire (M20), and moderate extents (only) of bracken (U20).

The differences between these two sub-groups of the majority group of the survey blocks appear to be significant. The smaller group (blocks 1, 6, 7, 12) is generally more similar to the SSSI group of the previous division, though with more extensive Calluna-Eriophorum mire (M19). The larger group (blocks 2, 3, 5, 8, 14(i)) has more Eriophorum mire (M20) and generally more dwarf-shrub heath than the smaller group. The best choice for SSSI, in general are blocks of the smaller group (1, 6, 7 and 12) because of their larger extent of less-modified Calluna-Eriophorum blanket mire and generally higher conservation assessment scores (section 8.3, Tables 9 and 18).

Classification of the communities

The first division of the plant communities gives two unequal groups (Table 25). The larger, upper group (M17 to W) consists mainly of acidic communities but includes a few that are mesotrophic, while the smaller, lower group (M10 to U10), consists mainly of calcareous and high altitude communities. The calcareous communities are those largely restricted to base-rich substrates, especially limestone in the Pennines (M8, M9, M10, M11, M26, M37, CG9, CG10, W9, U23). The lower group also includes two grassland communities which are developed extensively on deep mesotrophic soils over limestone (U4) or developed in response to high grazing levels on peat (U6). The high altitude communities are chiefly those of acidic soils (H13, H19, U10, U16, U21) or of mesotrophic rock ledges (U17).

The larger group of mainly acidic communities divides into two main groups with a further two significant sub-divisions. The first two sub-groups (M17, M2, M3, M29, U1, M23; and W11, W17, W23, W1, H9, M16, M21, M35, U2, W16, U20) are of mainly eastern or southern communities chiefly flush mire, bog pool, wet heath and dwarf-shrub heath, generally developed at low altitudes. The upper sub-group (M17-M23) consists largely of communities re-defined or new to the NVC and their presence may be due to use of the new classification, at least their significance is made difficult to interpret. The other sub-group (W11-U20) includes dwarf-shrub heaths, wet heath, valley mire, eastern grassland and bracken community.

The second large sub-division (S9-W) of the mainly acidic communities, consists, as a broad generalisation, of communities that are more extensive in the north and at moderately high altitudes. They tend to replace the previous group of communities at higher altitudes on sites where both are developed. M10, U4 and U6 of the calcareous group are transitional to this group.

There are two sub-groups. The first sub-group (S9, H10, H21, H22, M15, M18, U7, U19, MG9, W7) consists chiefly of communities developed on at least moderately high ground which have a northern or western bias in their GB distributions. The second sub-group (H12, H18, M4, M6, M19, M20, M25, M32, U5, MG10, W, W19) also consists of communities with a northern distribution, or that are extensive at moderately high altitudes, though most of them in GB tend to be more frequent or extensive in the east (Table 19).

The calcareous group of communities divides at the second division into two unequal sub-groups. The smaller of these (H13, M10, U4, U6, U16) is chiefly of widely distributed communities developed at a wide range of altitudes generally on mesotrophic soils. H13 is an exception, restricted to very high altitudes, at exposed sites on acidic soils at only two sites in this analysis, and in GB has its headquarters in the Highlands. In GB U16 tends to be more extensive in the north.

The second sub-group of mainly calcareous communities (CG9, CG10, H19, M8, M9, M11, M26, U10, U21, U23, W3, W9) includes some restricted to the limestone areas of the Pennines, or at least with their headquarters there (CG9, M26, U23), northern or more widely distributed calcareous grasslands, mires and woodlands with their headquarters in England in the limestone Pennines (CG10, M8, M9, W9) and a range of high altitude communities of high Pennine hills and Lakeland fells (H19, M11, U10, U21).

Associations between groups of sites and groups of communities

The final TWINSPAN table (Table 25) shows a general trend of sites and communities ranging from acidic and low altitude at top and left to calcareous and/or high altitude at bottom and right. Sites on the left are mainly acidic and heathery, have relatively low altitude ground and have no representation of calcareous communities. Sites towards the centre of the table attain higher altitudes and have more blanket mire, and low altitude heaths and mire are replaced by high altitude types and there is an increase in grassland and a modest representation of calcicolous communities. The number of communities on sites is greater towards the centre of the table. The trend continues towards the right with increasing area of limestone on sites and more calcareous and high altitude communities and more extensive grassland. The end site at the right of the table is Malham which is exceptional in that it is almost wholly underlain by limestone and grassland predominates.

The group of mainly calcareous communities at the first division shows a preference for the group of north Pennine sites with extensive limestone of the first division of the sites (block 14(ii)-Whernside, Fig. 4). A small upper sub-group (M10, U4, U6, H13, U16) shows less of a preference for the limestone sites or is more extensive on them. Of these communities only Juncus-Festuca grassland (U6) is equally frequent and as extensive on the majority group of the survey blocks.

Broadly, the lower three sub-groups of the large group of acidic communities are developed across all the larger group of mainly acidic sites at the first division (block 1 to Bowland, Fig. 4).

The upper sub-group (M17-M23) is chiefly confined to the majority group of the survey blocks (block 1 to 12, Fig. 4).

The second group (W11-U20) is less restricted and occurs across all the large acidic group of sites but shows a preference for, and is more extensive on the North York Moors sites, southern Pennine sites (inc. block 15 and 16) and the majority group of survey blocks (i.e. all the survey blocks except for block 14(ii).

The third sub-group (S9-H10) shows a preference for the group of sites block 1-Bowland of the second division (Fig. 4). This

block consists of the majority group of survey blocks and the Armboth-Bowland group of northern acidic SSSI. The communities tend to be more extensive on the SSSI.

The fourth and final group of mainly acidic communities (H12-W) is spread right across the suite of sites with no general trend in representation or extent except that many of them tend to thin out or are less extensive towards the ends of the table.

Conclusions from TWINSPAN and conservation recommendations

TWINSPAN makes clear the relation of the survey blocks to the present SSSI series based upon their suites of plant communities. The general importance of the survey blocks for filling gaps in the representation of plant communities is discussed in section 6.2.3 and is now amplified and presented in more detail.

The site classification needs to be considered together with the classification of plant communities. The lower group of mainly calcareous plant communities at the first division (M10-U10) (Table 25) is a rarer group as a whole across the complete suite of sites. Many of the communities are rare or local nationally. However, the communities are well-represented on SSSI, on the many sites with extensive limestone (see also Horsfield & Thompson 1991). Only one of the survey blocks (block 14(ii)) falls within this group of sites and lacks many of the rarer communities of the group. Further representation of these nationally local communities within part of block 14(ii) may be considered but is perhaps not a priority.

Some of the communities of this group occur occasionally on the other sites, but mainly on the majority group of survey blocks. This is because many of the SSSI in northern England outwith the Alston-Craven group of sites with their large outcrops of Carboniferous limestone (both Great Scar and Yoredales) have little or no limestone. Many of the survey blocks have small outcrops of limestone of the Yoredale series and these support a limited developed of calcicolous communities. These occurrences are sometimes within prevailing acidic vegetation and demonstrate the contrast between the two kinds of vegetation. There are also some unusual developments on blocks where the rocks are sandstones of the Millstone Grit series (e.g. M10 and W9 on block 16) which are presumably supported by local bands of calcareous sandstone.

The communities of the lower of the four sub-groups (H12-W) of the larger mainly acidic group of communities of the first division are spread across the whole suite of sites. Calluna-Vaccinium heath (H12) is well-represented on SSSI in the Cheviots, northern Lakes and Bowland Fells but south of the Tyne Gap is only represented extensively on Geltsdale (1838.0 ha) and Upper Teesdale (632.7 ha) (Table 23). There is little representation of Calluna-Vaccinium heath in the more central and southern parts of the Pennines where it grades into and is

largely replaced by Calluna-Deschampsia heath (H9). Further representation by the survey blocks is recommended. The blocks with the largest extents are block 7 (874 ha), block 12 (847 ha) and block 15 (2082 ha), though much of the latter is transitional in floristics to Calluna-Deschampsia heath. Carex echinata-Sphagnum mire (M6) is more extensive on the survey blocks than on the majority of SSSI and may be regarded as relatively under-represented. Similarly, Calluna-Eriophorum mire (M19) is only extensively represented on SSSI in the Cheviots and far northern Pennines (Cheviot 555 ha, Kielder 3505 ha, Geltsdale 6402 ha, Moor House 2779+ ha, Appleby 6402 ha, Upper Teesdale 4135+ ha) with little further south (Pen-y-Ghent has the most with 384 ha) (Tables 23 and 24). Further representation should be sought at the southern end of the range on the blocks. The most southerly large areas of Calluna-Eriophorum blanket mire are on block 14 with a total of about 2500 ha, though it is patchy and not in generally good condition (section 6.3). Further north on block 12, between Wensleydale and Swaledale, Calluna-Eriophorum mire is also extensive (3523 ha) (Tables 3 and 4), more continuous and in generally good condition. This site is a better choice to fill this gap in representation of M19 (section 6.3 and 7).

Eriophorum blanket mire (M20) is well represented on SSSI throughout the Pennines with a much smaller representation in the north because it is there that Calluna-Eriophorum mire predominates. There are also large areas in the southern Pennines both on The Dark Peak (6042+ ha) and Haworth Moors (3278 ha) and moderate areas in Craven e.g. 452 ha on Pen-y-Ghent. Much of this Eriophorum mire has little Calluna while a lot of that on the survey blocks has abundant Calluna, and in this respect is floristically transitional to Calluna-Eriophorum mire, differing in a generally very sparse occurrence of Sphagnum. Further representation should be sought of these transitional forms in the more southerly Pennines. There are large areas on all the more southerly survey blocks including the most southerly, block 16.

The remaining communities in this group are all well-represented on SSSI.

The next sub-group of acidic communities (S9-H10) is a broadly western group which is better represented and more extensive on the SSSI, which tend to be in more oceanic areas, than on the survey blocks. Those communities that are represented on the blocks (H10, H21, M15, M18) constitute interesting eastern outliers of which representation in SSSI ought to be sought.

The next sub-group of plant communities (W11-U20) (second from the top) of the large acidic group are preferential for, and some also are more extensive on the group of sites including the majority group of survey blocks, blocks 15 and 16, southern Pennine SSSI and North York Moors sites (of the survey blocks only block 14(ii) is missing). Many of the communities also

occur on the Armboth-Bowland group of mainly acidic SSSI (Fig. 4) but at lower frequency and extent. Two kinds of birch/oak woodland (W11/W17) are poorly represented on upland SSSI in the Pennines and further representation ought to be sought for, although generally only small fragments remain on the survey blocks. Calluna-Deschampsia heath (H9) is extensive on 8/12 of the survey blocks. Representation on SSSI is restricted to the North York Moors where Calluna-Deschampsia heath predominates on Fylingdales with 1294 ha and the southern Pennines (Haworth 424 ha, Dark Peak 2209+ ha, Leek Moors 483 ha). Further representation should be sought in the northern Pennines. Some of the stands (notably on Embsay Moor and Barden Fell on block 16) are floristically transitional to the more markedly upland heaths belonging to the Myrtillion, of which Calluna-Vaccinium heath is the most widespread example (section 6.3).

Erica-Sphagnum compactum wet heath (M16) is developed within Calluna-Deschampsia heath on many sites but is local and rarely extensive. There are large stands on only two SSSI, Fylingdales on the North York Moors with 336 ha and Leek Moors with 62.7 ha. Survey blocks with the largest extents are block 2 (22.9 ha), block 15 (64.0) and block 16 (15.4). Further representation needs to be sought. The same is true of Narthecium-Sphagnum valley mire (M21) which is also represented on Fylingdales and nearby Fen Bog, but hardly anywhere else in northern England.

Ranunculus-Montia rill (M35) is a community little known in the uplands but may be more widespread than current records suggest.

Deschampsia flexuosa grassland (U2) is similarly poorly represented on SSSI, chiefly in the southern Pennines (Dark Peak 233.2 ha, Leek Moors 74.3 ha) and Kielder with 74.3 ha. By contrast the community is well-represented on the survey blocks though is no-where extensive.

Quercus-Betula-Deschampsia woodland (W16) was only recorded on one survey block and is also known from The Dark Peak SSSI.

Pteridium-Galium community (U20) is widely represented but local on north Pennine SSSI and is not extensive on SSSI with extensive limestone.

The upper sub-group of communities (M17-M23) is preferential to the majority group of survey blocks. As mentioned above these communities are ones that are new (M2, M3, M29, U1) or have been redefined floristically (M17, M23) when compared to the Birks & Ratcliffe (1980) classification that was used to classify vegetation on most of the SSSI. The preference of these communities for the survey blocks is likely to be an artifact due to the use of a new classification and this suite will not be considered further.

8.3 COMPARISONS OF CONSERVATION ASSESSMENTS BASED ON NATURALNESS, DIVERSITY AND RARITY

Tables 26, 27, 28, 29, 30 and 31 give figures for measures of naturalness, diversity and rarity based on the suites of plant communities on SSSI and non-stats. The figures of the measures for the three conservation criteria are compared and discussed below.

Naturalness

Tables 26, 27 and 28 give lists and areas of plant communities respectively in naturalness ranking 1, 2 and 3 categories. Table 29 gives a summary of totals for the three naturalness rankings while Table 31 gives an overall naturalness score and ranks naturalness scores. For ease of comparison the three-point ranks into which the scores are placed are for the same ranges as scores for the survey blocks given in Table 9.

Like the survey blocks the ranking 1 scores, which are based on both proportional extent and area of ranking 1 communities, are largely due to the proportion and extent of Calluna-Eriophorum blanket mire (M19) with other relatively undisturbed mire and woodland making only a small contribution. Ranking 2 scores, similarly derived, are largely made up of dwarf-shrub heath and modified mire, mostly Eriophorum mire (M20), while ranking 3 scores are largely dependant on the areas and proportion of grassland.

For the survey blocks the overall naturalness score ranged from 33.42 to 65.34 (Table 9) while the score ranged from 3.12 to 77.05 for the SSSI+non-stats (Table 31).

On many of the survey blocks (1, 2, 6, 7, 12) high ranking 1 is linked with moderately high ranking 2 giving high overall scores. This is due to a combination of a large proportion of Calluna-Eriophorum mire with dwarf-shrub heath. This is the same for the SSSI+non-stats with sites having extensive Calluna-Eriophorum mire and extensive dwarf-shrub heath having the highest or high scores (Geltsdale, Kielder and Bowland Fells). Other sites with varying proportions of Calluna-Eriophorum mire and dwarf-shrub heath also have high scores (e.g. Appleby, Upper Teesdale, Armboth).

The lowest scoring block for overall naturalness is the grassy western half of Gt Whernside (block 14(ii)) with a low proportion of both Calluna-Eriophorum mire and dwarf-shrub heath and hence low scores for both ranking 1 and ranking 2 communities. Many SSSI in the Craven area are like this. The lowest scores are for Malham-Arncliffe and Ingleborough respectively, sites with a predominance of grassland placed in ranking category 3 (Tables 28, 31). In the case of both these sites inclusion of rock habitats (chiefly limestone pavement and scree) at ranking category 1 for a relatively undisturbed habitat, would elevate

the scores to around 9 and 36 for Malham-Arncliffe and Ingleborough respectively (areas of rock habitats are given in Appendix 3). These rock habitats are of little importance on the survey blocks so were not considered in the block analysis, however because of their importance as refugia for calcicolous plants they were of great importance in the selection of many sites as SSSI. Other sites with important limestone rock habitats are Appleby Fells, Mallerstang & Swaledale Head, Moor House & Cross Fell, Pen-y-Ghent, Upper Teesdale and Whernside.

Ranking 1 scores give a similar picture (Tables 26, 31). The highest of the high scoring survey blocks (1, 6, 7, 12) with scores ranging from 35.30 to 54.88 are exceeded by four high-scoring SSSI (Appleby 63.17, Kielder 61.51, Geltsdale 56.20 and Upper Teesdale 55.71). However, the top survey blocks score higher on overall naturalness and ranking 1 than many SSSI (cf Table 9 and Table 31).

When scores for all three naturalness ranks of the survey blocks (Table 13) and SSSI+non-stats (Table 29) are considered some of the former are similar to the latter though the SSSI+non-stats are more variable than the survey blocks in their scores.

Four of the survey blocks (3, 5 and especially 15, 16) have low ranking 1 (chiefly due to small areas of Calluna-Eriophorum blanket mire), and high ranking 2 scores (due to extensive dwarf-shrub heath and Eriophorum bog) with low ranking 3 (little grassland). This is also found on Harbottle Moors (though Eriophorum mire is absent), Haworth Moor, The Dark Peak, Leek Moors and Simonside. The overall naturalness scores of this kind of survey block are only moderately high (range 40.86-48.17) but they are similar to those of the above five SSSI (range 43.81-56.95). Blocks 15 and 16 are similar in their vegetation composition to Haworth Moor and The Dark Peak SSSIs.

Some SSSI (Appleby Fells, Moor House & Cross Fell) have a high ranking 1 score but a low ranking 2 score. None of the survey blocks are like that.

The total area of naturalness ranking 1 communities on the survey blocks is 26,582.7 ha compared with a total of 29,942.1 ha on the SSSI (non-stats discounted), 27,414.0 ha of which is in the Pennines, Cheviots and Bowland ranges (recently scheduled ground in the Pennines may increase this a little). Since the survey blocks were selected to be the best remaining areas in the Pennines for their vegetation (Horsfield & Thompson, 1991) this 26,582.7 ha is likely to be the bulk of naturalness ranking 1 communities remaining in the Pennines. Therefore only about half of the known total is currently represented on SSSI.

There is 70,361.5 ha of naturalness ranking 2 communities on the survey blocks while 47,587.4 ha is represented on SSSI, 41,522.0 ha of which is in the Pennines, Cheviots and Bowland ranges (recently scheduled ground on The Dark Peak will increase this). Hence an even smaller proportion of these communities are

represented. Much of this is dwarf-shrub heath which is currently poorly represented on SSSI in the Pennines.

All but two (15 and 16) of the survey blocks have over 1000 ha of naturalness ranking 1 communities. Only five SSSI (Appleby Fells, Geltsdale & Glendue Fells, Kielder Head & Emblehope Moors, Upper Teesdale and Bowland Fells) have >1000 ha ranking 1 communities, the majority having <1000 ha and many sites having only small areas. Ranking 2 communities are similar with high scores throughout the survey blocks but with much more variable scores on the SSSI+non-stats, ranging up to 99.98 (Fylingdales).

Naturalness ranking 3 communities have generally low scores on the survey blocks (mostly 5-30%) due to the generally low proportions of grassland, while they are much more variable on the SSSI+non-stats, ranging up to 95.05 (Malham).

The naturalness of the survey blocks is generally high when compared with SSSI. Many of the blocks can be matched against SSSI with similar scores, though some SSSI have higher scores than the blocks.

The survey blocks divide into two main groups: good bog sites with extensive Calluna-Eriophorum mire (M19: accounting for most of the high ranking 1 score) but always with a large proportion of dwarf-shrub heath (accounting for most of the ranking 2 score) and predominantly dwarf-shrub heath blocks, with much Eriophorum mire and high ranking 2 scores.

Diversity

The highest number of communities recorded on the survey blocks is 26 on block 12 (Table 9). This is about the same, or indeed higher, than many SSSI (Tables 23, 31) though well below many of the larger SSSI, usually with extensive limestone or high altitude ground, (Appleby Fells 34, Kielder Head & Emblehope Moors 37, Moor House & Cross Fell 34, Skiddaw Group 48, Upper Teesdale 39). The survey blocks with the highest totals, which are block 1 with 24 and block 12 with 26 communities have a similar number as Armboth Fells, Cheviot, Leek Moors and Whernside but in general the survey blocks are not outstanding for number of communities in comparison with many SSSI. Blocks 15 and 16 with 16 and 25 communities respectively are similar in their suites of vegetation to Haworth Moors and The Dark Peak with 17 and 20 communities respectively. Therefore block 16 has significantly more communities represented than the two most similar SSSI in general vegetation.

The Shannon indices for the survey blocks are all moderately high (1.46-1.95) (Table 9) while the SSSI+non-stats are more variable (0.68-2.06) (Table 31). Four out of six sites with very low values (0.68-0.91) are sites on the North York Moors with overwhelming predominance of dwarf-shrub heath and Haworth Moors (0.97) and Simonside Hills (0.94) also have predominance of one

type of mire or heath. The highest values are for Leek Moors (2.06) and Skiddaw Group (2.05) where there is high equitability or evenness among the communities.

The Shannon index for blocks 15 and 16 are respectively 1.70 and 1.55 which are similar to the index for The Dark Peak at 1.44, though higher than Haworth Moor at 0.97.

In conclusion the diversity of the survey blocks lies well within the range of SSSI according to the measures applied and some blocks are more diverse than SSSI with similar vegetation.

Rarity

Rare/relic communities, their number and extent on the SSSI+non-stats are given in Tables 30 and 31. Compared with SSSI the number of rare/relic communities on the survey blocks is not generally high, ranging from 1 to 9 (Table 9). The highest total of 9 is for block 12, while four other blocks (1, 5, 7 and 16) have 7 each. The area of rare/relic communities exceeds 100 ha (>1.0 %) on only three of the blocks (8, 12, 14(ii)), largely due to moderately large extents of calcareous grassland.

As might be expected the SSSIs range up to a larger number of rare/relic communities, to a maximum of 16 on Upper Teesdale (Tables 29, 30). Two other SSSI have a large number, Appleby Fells (14) and Skiddaw Group (14). Although there are many SSSI with around 8-11 rare/relic communities many have a lower number. For example Haworth Moor and The Dark Peak have only two each compared with 6 and 7 respectively for survey blocks 15 and 16 which have similar suites of vegetation.

The area of rare/relic communities on the SSSI+non-stats is largely taken up by calcareous grasslands (CG9, CG10) but includes some areas of more local mire communities and woodland. They are more often extensive on SSSI than on the survey blocks, though there is much variation. Large extents on many SSSI are to be expected since they were often selected to represent rare and unusual communities. However, many of the blocks are comparable with SSSI.

General assessment based on the criteria

Comparison of the conservation assessment scores shows that in general the survey blocks compare favourably with SSSI while falling well short in many respects of the top scoring SSSI. However, the only two SSSI which are ahead of the survey blocks in all respects of the assessments are Appleby Fells and Upper Teesdale, while Geltsdale & Glendue Fells, Kielder Head & Emblehope Moors, Moor House & Cross Fell and Bowland Fells are at least as good as the best of the blocks in all respects except for their generally lower extents of dwarf-shrub heath.

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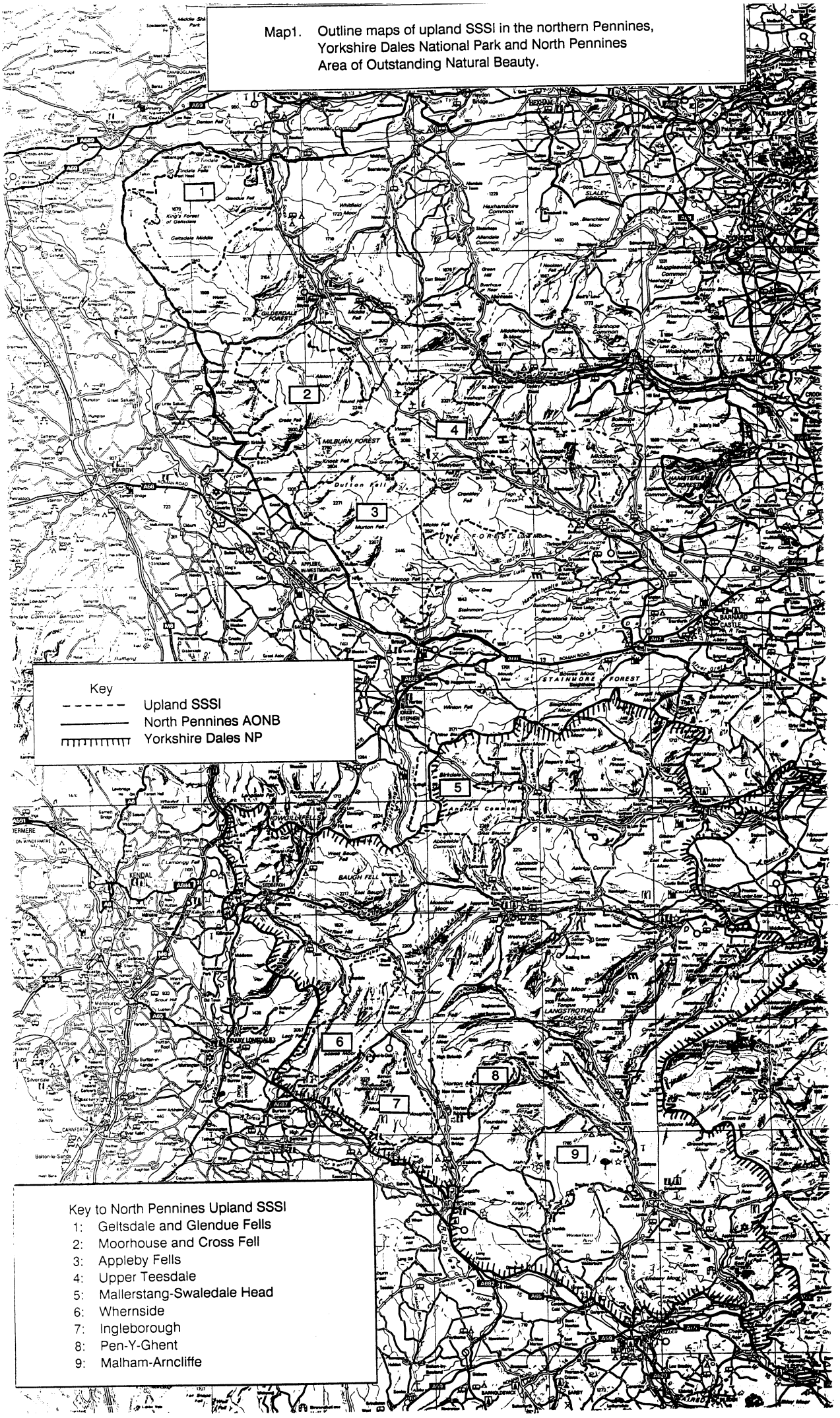
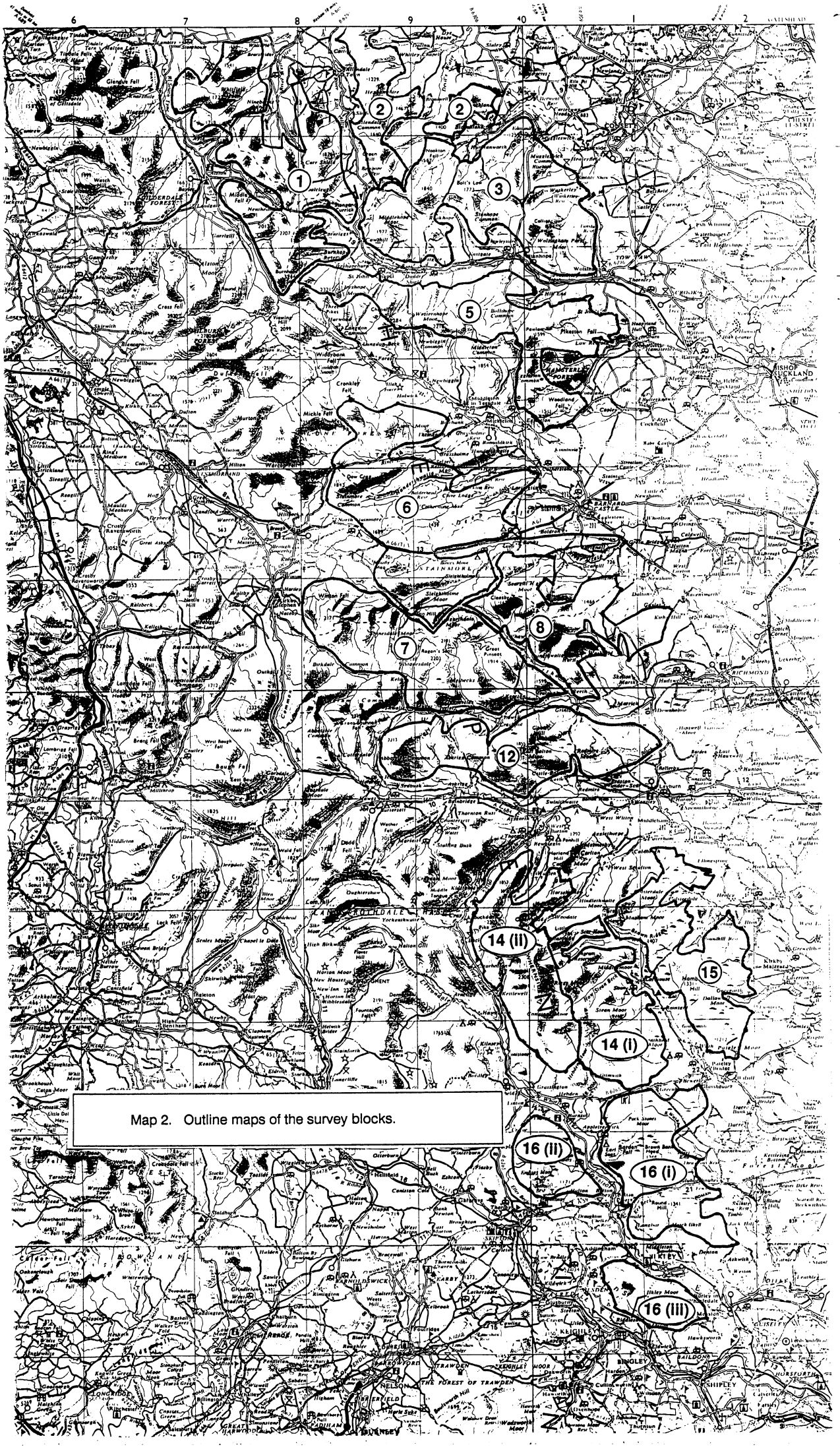


Map1. Outline maps of upland SSSI in the northern Pennines, Yorkshire Dales National Park and North Pennines Area of Outstanding Natural Beauty.



Map 2. Outline maps of the survey blocks.

Map 3 Outline maps of the survey blocks and SSSI in northern England on a map of bioclimatic classes (Bendelow & Hartnup 1980)

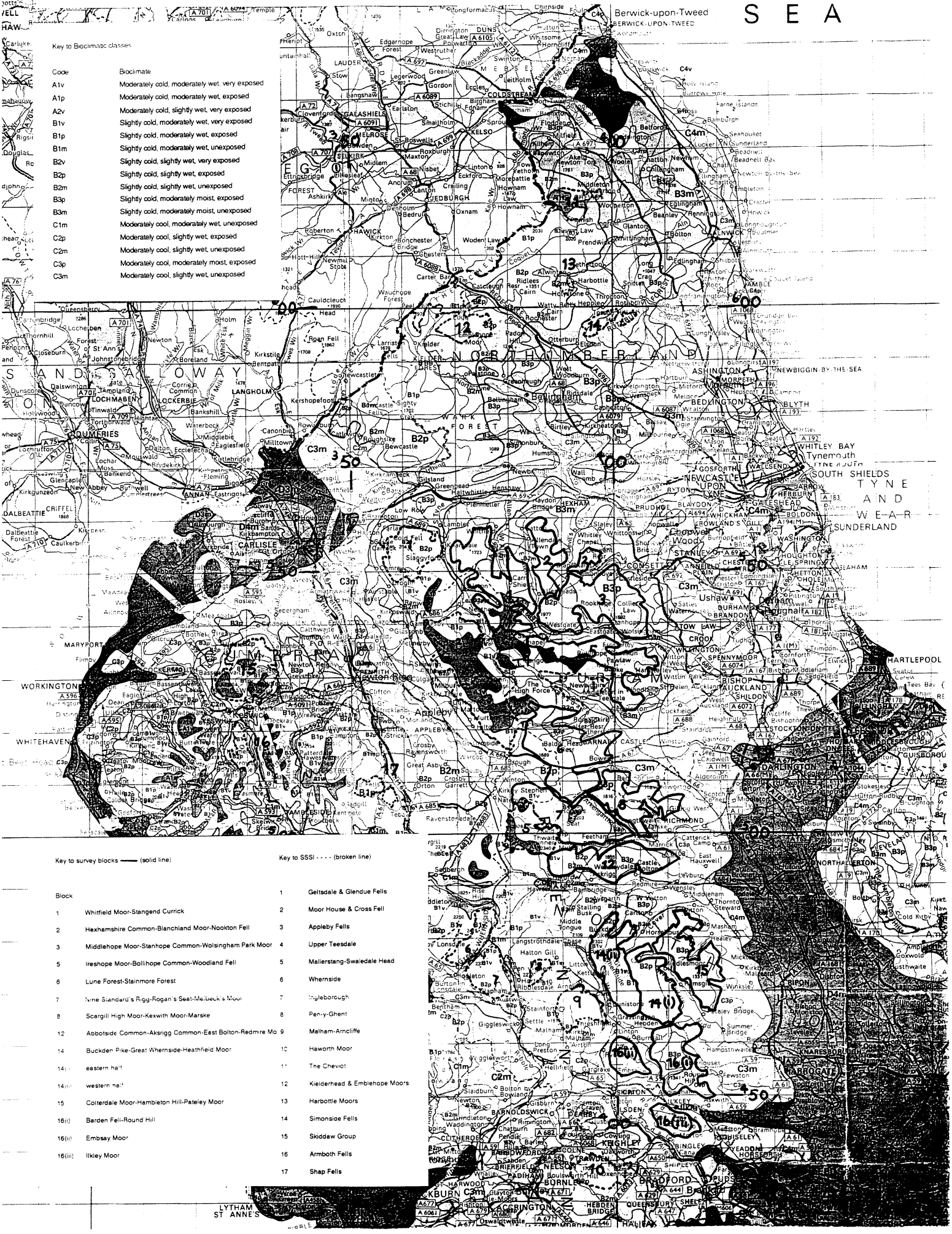


Fig. 1 Probable grazing derivatives of upland birch, oak, ash and juniper woods in the northern Pennines

Original woodland & scrub	Dwarf-shrub heaths	Grasslands and tall-herb/fern communities
W4 Betula-Molinia		M25 Molinia-Potentilla mire
W9 Fraxinus-Sorbus -Mercuralis		CG9 Sesleria-Galium CG10 Festuca-Agrostis-Thymus
W11 Quercus-Betula -Oxalis	H10 Calluna-Erica	U4 Festuca-Agrostis-Galium U20 Pteridium-Galium
W16 Quercus-Betula Deschampsia	H9 Calluna-Deschampsia	U2 Deschampsia flexuosa U4 Festuca-Agrostis-Galium
W17 Quercus-Betula Dicranum	H9 Calluna-Deschampsia H10 Calluna-Erica H12 Calluna-Vaccinium H18 Vaccinium-Deschampsia H21 Calluna-Vaccinium-Sphagnum	U2 Deschampsia flexuosa U4 Festuca-Agrostis-Galium U5 Nardus-Galium U16 Luzula-Vaccinium U20 Pteridium-Galium
W19 Juniperus-Oxalis	H12 Calluna-Vaccinium	U4 Festuca-Agrostis-Galium U5 Nardus-Galium

Fig. 2 Burning, grazing and draining derivatives of blanket mires and wet heath

Original mire	Derivative mires/grassland	
M15 Scirpus-Erica M16 Erica-Sphagnum wet heath	Impoverished stands lacking Sphagna	U6 Juncus-Festuca grassland
M18 Erica-Sphagnum blanket mire M19 Calluna-Eriophorum blanket mire	M20 Eriophorum blanket mire (Calluna-rich forms are intermediate)	U6 Juncus-Festuca grassland
M21 Narthecium-Sphagnum valley-mire	M16 Erica-Sphagnum wet heath	?M6 Carex echinata-Sphagnum ?U6 Juncus-Festuca grassland

Figure 3 Land-use apportioned to sheep and grouse plotted against the ratio of heathland:grassland and Calluna-poor:Calluna-rich vegetation on sites

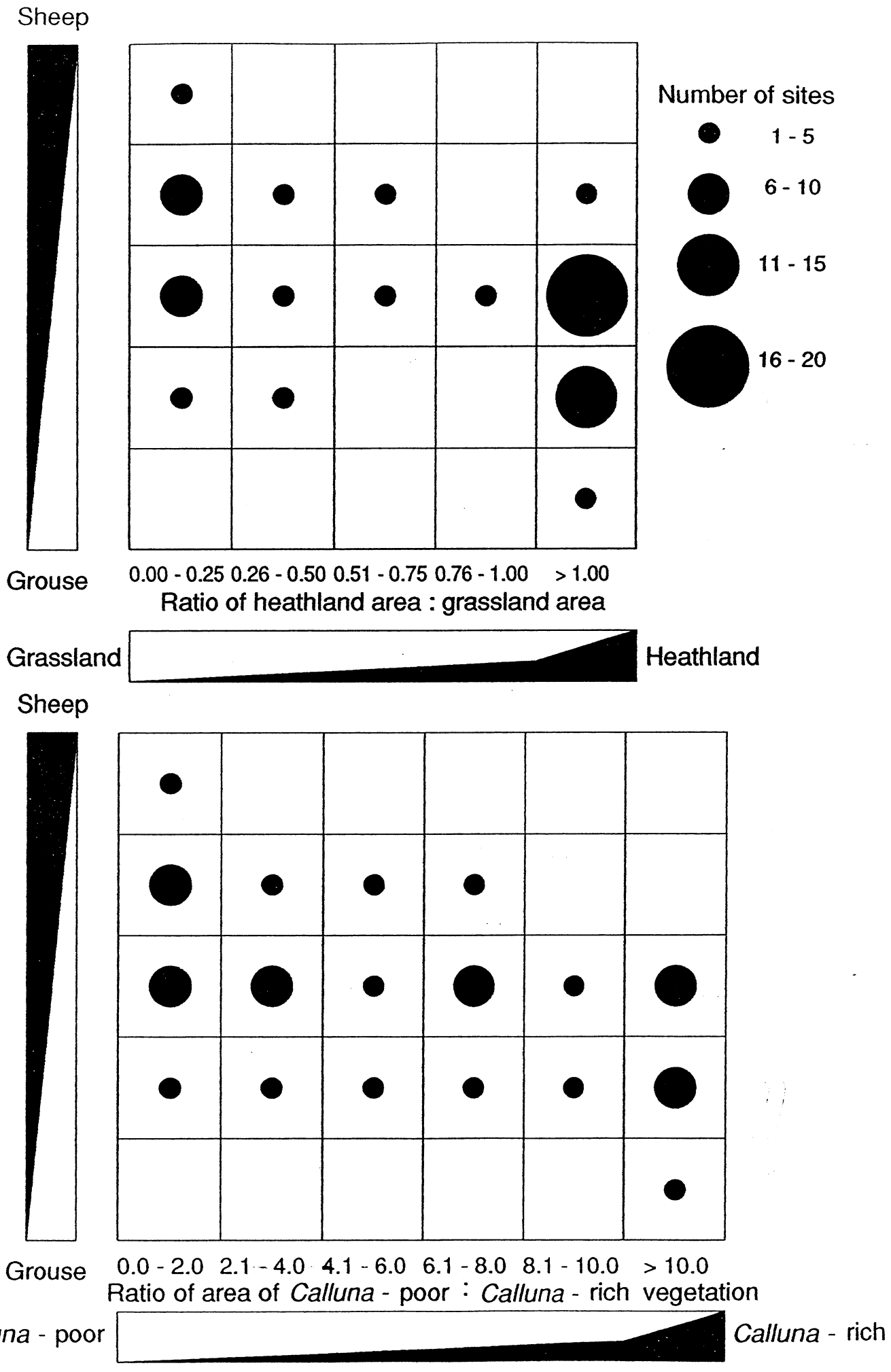
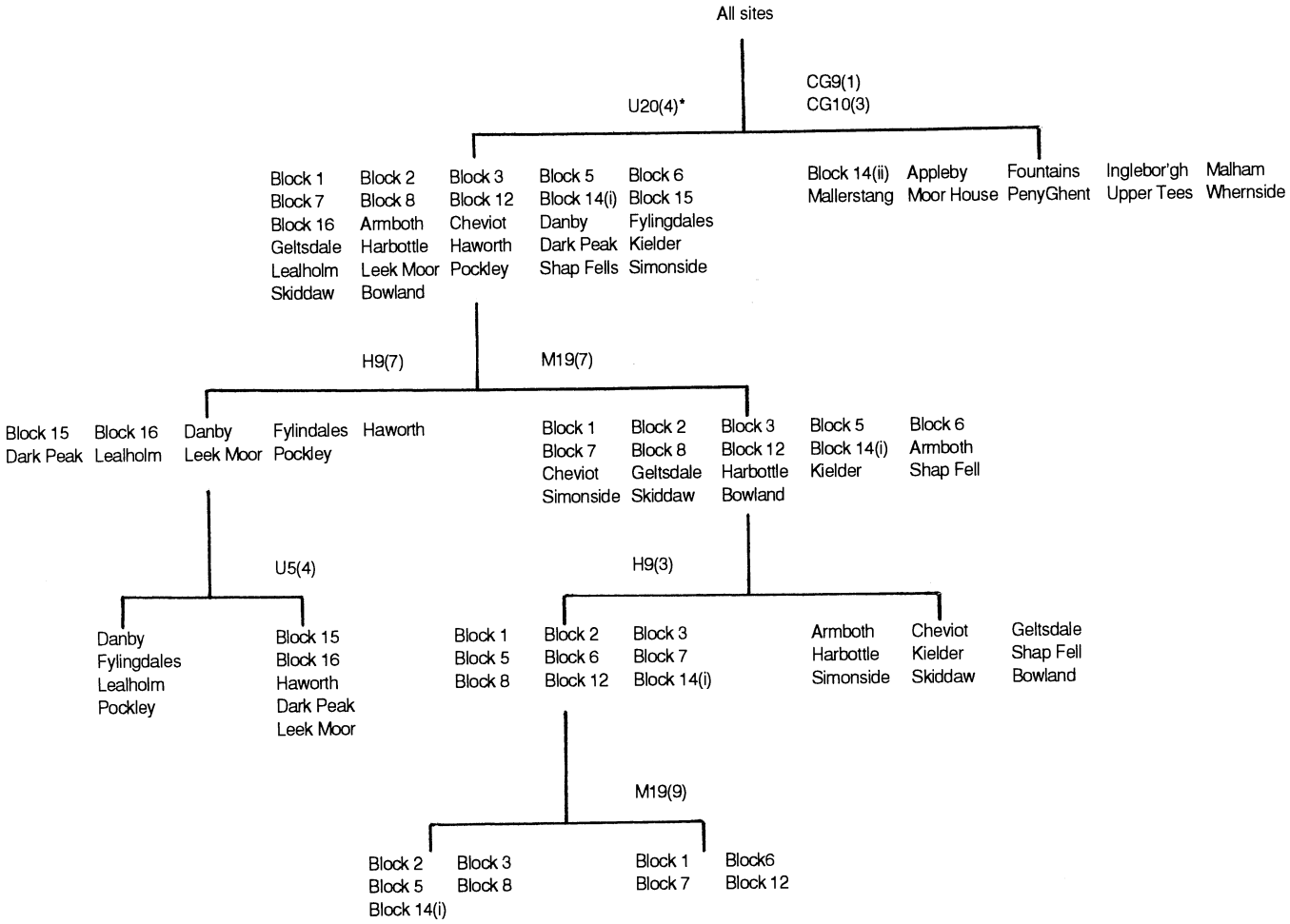


Figure 4 Sites in successive TWINSPAN divisions of survey blocks, SSSI in northern England and other non-statutory sites according to their suites of plant communities



* Indicator communities with values on octave scale in brackets are shown on the side of the division to which they apply

Table 1 Blocks of upland on which the vegetation was surveyed and mapped

Block no.	Name of survey block	Area surveyed (ha)	Year of survey
1	Whitfield Moor-Stangend Currick	12261	1992
2	Hexhamshire Common-Blanchland Moor-Nookton Fell	5264	1991
3	Middlehope Moor-Stanhope Common-Wolsingham Park Moor	14337	1992
5	Ireshope Moor-Bollihope Common-Woodland Fell	12179	1991
6	Lune Forest-Stainmore Forest	8738	1992
7	Nine Standard's Rigg-Rogan's Seat-Melbeck's Moor	13154	1992
8	Scargill High Moor-Kexwith Moor-Marske	7977	1992
12	Abbotside Common-Askrigg Common-East Bolton-Redmire Moor	10066	1992
14	Buckden Pike-Great Whernside-Heathfield Moor (eastern half 14(i), western half 14(ii))	8881 (14(i)) 9268 (14(ii))	1991 1984
15	Colsterdale Moor-Hambleton Hill-Pateley Moor	9689	1991
16	Embsay Moor-Barden Fell-Round Hill-Ilkley Moor	14093	1992

Note: All field survey carried out by the North Pennines team except for block 14(ii) which was surveyed by the Upland Survey team of Mark Owen and Richard Tapper.

Table 2 List of National Vegetation Classification plant communities found on the survey blocks

NVC type code	NVC type name
W	**Woodlands & scrub**
W7	Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum woodland
W9	Fraxinus excelsior-Sorbus aucuparia-Mercuralis perennis woodland
W11	Quercus petraea-Betula pubescens-Oxalis acetosella woodland
W16	Quercus spp.-Betula spp.-Deschampsia flexuosa woodland
W17	Quercus petraea-Betula pubescens-Dicranum majus woodland
W17c	Anthoxanthum odoratum-Agrostis capillaris sub-community
W19	Juniperus communis-Oxalis acetosella woodland
W19a	Vaccinium vitis-idaea-Deschampsia flexuosa sub-community
W23	Ulex europaeus-Rubus fruticosus agg. scrub
H	**Heaths**
H9	Calluna vulgaris-Deschampsia flexuosa heath
H9a	Hypnum cupressiforme sub-community
H9b	Vaccinium myrtillus-Cladonia spp. sub-community
H9c	Species-poor sub-community
H10	Calluna vulgaris-Erica cinerea heath
H12	Calluna vulgaris-Vaccinium myrtillus heath
H12a	Calluna vulgaris sub-community
H12b	Vaccinium vitis-idaea-Cladonia impexa sub-community
H12c	Galium saxatile-Festuca ovina sub-community

H18 Vaccinium myrtillus-Deschampsia flexuosa heath

H18a Hylocomium splendens-Rhytidiadelphus loreus sub-community

H18b Alchemilla alpina-Carex pilulifera sub-community (lacking A. alpina)

H18c Empetrum nigrum nigrum-Racomitrium lanuginosum sub-community

H21 Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium heath

H21a Calluna vulgaris-Pteridium aquilinum sub-community

U **Upland and montane communities**

U1 Festuca ovina-Agrostis capillaris-Rumex acetosella grassland

U1a Cornicularia aculeata-Cladonia arbuscula sub-community

U1b Typical sub-community

U1c Erodium cicutarium-Teesdalia nudicaulis sub-community

U1e Galium saxatile-Potentilla erecta sub-community

U2 Deschampsia flexuosa grassland

U2a Festuca ovina-Agrostis capillaris sub-community

U2b Vaccinium myrtillus sub-community

U4 Festuca ovina-Agrostis capillaris-Galium saxatile grassland

U4a Typical sub-community

U5 Nardus stricta-Galium saxatile grassland

U5a Species-poor sub-community

U5b Agrostis canina-Polytrichum commune sub-community

U5d Calluna vulgaris-Danthonia decumbens sub-community

U6 Juncus squarrosus-Festuca ovina grassland

U6a Sphagnum sub-community

U6b Carex nigra-Calypogeia trichomanis sub-community

U6c	*Vaccinium myrtillus* sub-community
U6d	*Agrostis capillaris*-*Luzula multiflora* sub-community
U20	*Pteridium aquilinum*-*Galium saxatile* community
U20a	*Anthoxanthum odoratum* sub-community
U20b	*Vaccinium myrtillus*-*Dicranum scoparium* sub-community
U23	*Asplenium viride*-*Cystopteris fragilis* community
M	**Mires**
M2	*Sphagnum cuspidatum/recurvum* bog-pool community
M2b	*Sphagnum recurvum* sub-community
M3	*Eriophorum angustifolium* bog-pool community
M4	*Carex rostrata*-*Sphagnum recurvum* mire
M6	*Carex echinata*-*Sphagnum recurvum/auriculatum* mire
M6a	*Carex echinata* sub-community
M6b	*Carex nigra*-*Nardus stricta* sub-community
M6c	*Juncus effusus* sub-community
M6d	*Juncus acutiflorus* sub-community
M10	*Carex dioica*-*Pinguicula vulgaris* mire
M10a	*Carex demissa*-*Juncus bulbosus/kochii* sub-community
M16	*Erica tetralix*-*Sphagnum compactum* wet heath
M16a	Typical sub-community
M16d	*Juncus squarrosus*-*Dicranum scoparium* sub-community
M17	*Scirpus cespitosus*-*Eriophorum vaginatum* blanket mire
M17c	*Juncus squarrosus*-*Rhytidiadelphus loreus* sub-community
M18	*Erica tetralix*-*Sphagnum papillosum* raised and blanket mire
M18a	*Sphagnum magellanicum*-*Andromeda polifolia* sub-community
M19	*Calluna vulgaris*-*Eriophorum vaginatum* blanket mire
M19a	*Erica tetralix* sub-community
M19b	*Empetrum nigrum nigrum* sub-community

M20 Eriophorum vaginatum blanket and raised mire

M20a Species-poor sub-community

M20b Calluna vulgaris-Cladonia sub-community

M21 Narthecium ossifragum-Sphagnum papillosum valley mire

M21b Sphagnum recurvum-Vaccinium oxycoccus sub-community

M23 Juncus effusus/acutiflorus-Galium palustre rush-pasture

M23a Juncus acutiflorus sub-community

M23b Juncus effusus sub-community

M25 Molinia caerulea-Potentilla erecta mire

M25a Erica tetralix sub-community

M25b Anthoxanthum odoratum sub-community

M29 Hypericum elodes-Potamogeton polygonifolius soakway (lacking H. elodes)

M32 Philonotis fontana-Saxifraga stellaris spring

M35 Ranunculus omiophyllus-Montia fontana spring

M37 Cratoneuron commutatum/filicinum-Festuca rubra spring

Calcareous grasslands

CG9 Sesleria albicans-Galium sterneri grassland

CG10 Festuca ovina-Agrostis capillaris-Thymus praecox grassland

CG10a Trifolium repens-Luzula campestris sub-community

CG10b Carex pulicaris-Carex panicea sub-community

Mesotrophic grasslands

MG10 Holcus lanatus-Juncus effusus rush-pasture

MG10a Typical sub-community

Swamps

S9 Carex rostrata swamp

Table 3 NVC communities with areas on the survey blocks with rare/relic communities and naturalness rating

NVC code	Rare/ relic comms	Natural-ness score 1-3 scale	Total area (ha) and % area Block no. 1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%	Total area	% total area	% range	No. of sites
H9		2	850.60	6.94	2379.80	45.21	6907.50	48.18	3905.40	32.07	334.00	3.82	788.30	5.99	3274.70	41.05	2325.10	23.10	1284.20	14.46	166.60	1.80	4342.20	44.82	7129.40	50.59	33687.80	26.75	1.8-50.6	12
H10		2	0.10	0.00	10.70	0.20	16.60	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	27.40	0.02	0.0-0.2	3
H12		2	157.80	1.29	167.00	3.17	76.70	0.53	198.30	1.63	367.70	4.21	874.10	6.65	28.60	0.36	847.90	8.42	171.80	1.93	166.60	1.80	2081.80	21.49	2.00	0.01	5140.30	4.08	<0.1-21.5	12
H18		2	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.03	0.00	0.00	0.20	0.00	3.80	0.05	26.40	0.26	27.60	0.31	87.10	0.94	133.70	1.38	90.90	0.64	373.80	0.30	0.0-1.4	8
H21	R	2	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.01	1.80	0.00	0.0-<0.1	6
M2		1	0.40	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.40	0.00	0.70	0.01	0.10	0.00	0.60	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	2.80	0.00	0.0-<0.1	7
M3		2	2.80	0.02	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.40	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.80	0.00	0.0-<0.1	6
M4		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.06	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	1.20	0.01	0.00	0.00	0.30	0.00	6.90	0.01	0.0-<0.1	5
M6		2	469.90	3.83	677.80	12.88	156.90	1.09	1621.50	13.31	279.30	3.20	308.80	2.35	250.20	3.14	267.20	2.65	968.30	10.90	53.40	0.58	938.00	9.68	840.70	5.97	6832.00	5.43	0.6-13.3	12
M10	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	5.90	0.07	0.20	0.00	0.00	0.00	18.40	0.20	0.10	0.00	0.30	0.00	25.00	0.02	0.0-0.2	6
M15	R	2	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.0-<0.1	1
M16		2	0.00	0.00	22.90	0.43	5.10	0.04	1.70	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.00	0.66	15.40	0.11	109.10	0.09	0.0-0.7	5
M17	R	1	11.10	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	15.60	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.80	0.02	0.0-0.2	3
M18	R	1	9.10	0.07	0.00	0.00	3.30	0.02	0.00	0.00	4.70	0.05	0.20	0.00	60.80	0.76	2.90	0.03	0.00	0.00	0.00	0.00	6.40	0.07	0.00	0.00	87.40	0.07	0.0-0.8	7
M19		1	5330.40	43.47	1182.50	22.46	1352.00	9.43	1153.20	9.47	4784.70	54.76	5232.60	39.78	1088.50	13.65	3523.20	35.00	1453.50	16.37	1109.20	11.97	116.00	1.20	5.10	0.04	26330.90	20.91	1.2-54.8	12
M20		2	1365.20	11.13	172.40	3.27	1149.20	8.02	1733.30	14.23	832.20	9.52	1959.50	14.90	448.00	5.62	1047.80	10.41	3510.90	39.53	3391.90	36.60	782.80	8.08	2161.20	15.34	18554.40	14.74	3.3-39.8	12
M21	R	1	0.50	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	5.00	0.04	5.80	0.00	0.0-<0.1	5
M23		2	51.30	0.42	0.00	0.00	0.00	0.00	0.10	0.00	0.50	0.01	0.20	0.00	4.10	0.05	5.40	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.60	0.05	0.0-0.4	6
M25		2	56.00	0.46	0.00	0.00	0.90	0.01	3.20	0.03	7.50	0.09	32.50	0.25	38.30	0.48	2.50	0.02	263.90	2.97	0.10	0.00	24.70	0.25	77.80	0.55	507.40	0.40	0.0-3.0	11
M29	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.0-<0.1	1
M32	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	5.70	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	5.90	0.00	0.0-<0.1	3
M35	R	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.20	0.00	0.0-<0.1	2
M37	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.0-<0.1	1
U1		3	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.10	0.00	11.30	0.14	64.10	0.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	76.40	0.06	0.0-0.6	5
U2		3	0.30	0.00	0.00	0.00	10.10	0.07	3.00	0.02	0.00	0.00	4.70	0.04	25.30	0.32	38.20	0.38	1.40	0.02	0.00	0.00	84.30	0.87	3.30	0.02	170.60	0.14	0.0-0.9	9
U4		3	72.60	0.59	35.50	0.67	161.60	1.13	143.20	1.18	30.90	0.35	275.40	2.09	350.40	4.39	357.20	3.55	27.50	0.31	1581.60	17.06	37.90	0.39	74.60	0.53	3148.40	2.50	0.3-17.1	12
U5		3	1160.70	9.47	154.30	2.93	1723.40	12.02	1188.20	9.76	749.60	8.58	1249.10	9.50	608.40	7.63	281.40	2.80	285.60	3.22	1010.70	10.91	196.80	2.03	1193.40	8.47	9801.60	7.78	2.0-12.0	12
U6		3	2598.50	21.19	369.60	7.02	2078.80	14.50	1844.60	15.15	1331.90	15.24	2195.00	16.69	1396.50	17.51	592.70	5.89	649.60	7.31	1345.80	14.52	173.10	1.79	517.10	3.67	15093.20	11.99	1.8-21.2	12
U20		2	115.30	0.94	91.70	1.74	689.30	4.81	376.50	3.09	5.40	0.06	167.50	1.27	323.00	4.05	394.30	3.92	227.70	2.56	86.40	0.93	692.30	7.15	1867.50	13.25	5036.90	4.00	0.1-13.3	12
U23	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.0-<0.1	1
CG9	R	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	16.80	0.18	0.00	0.00	0.00	0.00	16.90	0.01	0.0-0.2	2
CG10	R	3	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	3.50	0.04	51.00	0.39	26.40	0.33	261.60	2.60	0.00	0.00	230.10	2.48	0.00	0.00	0.00	0.00	572.70	0.45	0.0-2.6	6
MG10		3	3.40	0.03	0.00	0.00	5.00	0.03	0.00	0.00	0.00	0.00	10.50	0.08	25.00	0.31	0.00	0.00	9.40	0.11	0.00	0.00	0.00	0.00	35.40	0.25	88.70	0.07	0.0-0.3	6
W		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.02	0.00	0.00	10.00	0.07	12.20	0.01	0.0-0.1	2
W7	R	1	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	1.30	0.01	1.90	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	3.50	0.00	0.0-<0.1	5
W9	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.02	2.80	0.00	0.0-<0.1	1
W11	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.02	4.10	0.00	0.0-<0.1	2
W16		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.05	0.00	0.00	5.20	0.00	0.0-0.1	1
W17	R	1	0.00	0.00	0.00	0.00	0.10	0.00	1.60	0.01	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.90	0.09	61.30	0.43	72.00	0.06	0.0-0.4	5
W19	R	1	4.50	0.04	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.00	0.01	0.0-0.1	3
W23		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.0-0.1	1
S9	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.0-<0.1	1
Block total			12261.40	100.00	5264.40	100.00	14337.20	100.00	12178.70	100.00	8737.90	100.00	13153.80	100.00	7977.00	100.00	10066.10	100.00	8881.50	100.00	9268.10	100.00	9688.50	100.00	14096.10	100.04	125912.70	100.00	0.0-50.6	

Table 4 Summary area figures and ratios for NVC dwarf-shrub heaths, grasslands and blanket mire on the survey blocks

NVC type/ group — Block no.

Total area (ha) and % area of block

	1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14(i)	%	14(ii)	%	15	%	16	%
Dwarf-shrub heath H9+H10+H12	1008.6	8.2	2557.5	48.6	7000.8	48.8	4103.7	33.7	701.7	8.0	1662.4	12.6	3303.3	41.4	3173.0	31.5	1456.0	16.4	333.2	3.6	6424.0	66.3	7131.4	50.6
Grassland U1+U2+U4+U5+U6+CG9+CG10	3832.7	31.3	559.4	10.6	3973.9	27.7	3179.0	26.1	2116.2	24.2	3775.2	28.7	2418.3	30.3	1595.2	15.8	964.1	10.9	4185.0	45.2	492.1	5.1	1788.4	12.7
Ratio Dwarf-shrub heath : Grass'd	2.1:7.9		8.2:1.8		6.4:3.6		5.6:4.4		2.5:7.5		3.1:6.9		5.8:4.2		6.7:3.3		6.0:4.0		0.7:9.3		9.3:0.7		8.0:2.0	
Calluna-Eriophorum blanket mire (M19)	5330.4	43.5	1182.5	22.5	1352.0	9.4	1153.2	9.5	4784.7	54.8	5232.6	39.8	1088.5	13.6	3523.2	35.0	1453.5	16.4	1109.2	12.0	116.0	1.2	5.1	0.04
Calluna-rich Eriophorum blanket mire (M20b)+	777.8	6.3	130.5	2.5	245.4	1.7	1733.3	14.2	447.0	5.1	99.4	0.8	271.8	3.4	688.5	6.8	3348.7	37.7	1590.7	17.2	695.7	7.2	1631.4	11.6
Calluna-poor Eriophorum blanket mire (M20a)	587.4	4.8	41.9	0.8	903.8	6.3	0.0	0.0	385.2	4.4	1860.1	14.1	176.2	2.2	359.3	3.6	162.2	1.8	1801.2	19.4	87.1	0.9	529.8	3.8
Ratio M19 : M20b : M20a	8.0:1.2:0.8		8.7:1.0:0.3		5.4:1.0:3.6		4.0:6.0:0.0		8.5:0.8:0.7		7.3:0.1:2.6		7.1:1.8:1.1		7.7:1.5:0.8		2.9:6.7:0.3		2.5:3.5:4.0		1.3:7.7:1.0		<0.1:7.5:2.4	
Total Eriophorum blanket mire (M20)	1365.2	11.1	172.4	3.3	1149.2	8.0	1733.3	14.2	832.2	9.5	1959.5	14.9	448.0	5.6	1047.8	10.4	3510.9	39.5	3391.9	36.6	782.8	8.1	2161.2	15.3
Total blanket mire (M19+M20)	6695.6	54.6	1354.9	25.7	2501.2	17.4	2886.5	23.7	5616.9	64.3	7192.1	54.7	1536.5	19.3	4571.0	45.4	4964.4	55.9	4501.1	48.6	898.8	9.3	2166.3	15.4
Ratio Heath : Blanket mire (H9+H10+H12 : M19+M20)	1.3:8.7		6.5:3.5		7.4:2.6		5.9:4.1		1.1:8.9		1.9:8.1		6.8:3.2		4.1:5.9		2.3:7.7		0.7:9.3		8.8:1.2		7.7:2.3	
Total dwarf-shrub heath+ Calluna-rich blanket mire	7116.8	58.0	3870.5	73.5	8598.2	60.0	6990.2	57.4	5933.4	67.9	6994.4	53.2	4663.6	58.5	7384.7	73.4	6258.2	70.5	3033.1	32.7	7235.7	74.7	8767.9	62.2
Total grassland+ Calluna-poor blanket mire	4420.1	36.0	601.3	11.4	4877.7	34.0	3179.0	26.1	2501.4	28.6	5635.3	42.8	2594.5	32.5	2283.7	22.7	1126.3	12.7	5986.2	64.6	579.2	6.0	2318.2	16.4
Ratio Calluna-rich : Calluna-poor	6.2:3.8		8.6:1.4		6.4:3.6		6.9:3.1		7.0:3.0		5.5:4.5		6.4:3.6		7.6:2.4		8.5:1.5		3.4:6.6		9.3:0.7		7.9:2.1	

+ inc. figures for M20 not assigned to a sub-comm.

Table 5 Physical features, climate and predominant vegetation on the survey blocks

Block no.	Topography High plateau/ Low plateau	Altitude (m) Max.	Min.	Bioclimatic classes and geology assigned to six-point % area scale Bioclimatic classes A1v	A1p	A2v	B1v	B1p	B1m	B2p	B2m	B3p	B3m	C2p	C3p	C3m	Geology Sand-stone	Lime-stone	Vegetation % block area Calluna heath 30-65%	<15%	Blanket bog 45-65%	10-25%	Grass'd 25-40%	<15%	Block area (ha)
1	HP/LP	700	240	+	1	-	-	+	-	4	+	-	-	-	-	-	5	+	-	+	+	-	+	-	12261.4
2	LP	590	250	-	-	-	-	-	-	2	-	2	+	-	-	-	5	-	+	-	-	+	-	+	5264.4
3	HP/LP	607	250	-	-	-	-	-	-	2	-	2	1	-	-	+	5	+	+	-	-	+	+	-	14337.2
5	HP/LP	708	250	-	-	+	-	-	-	1	-	4	+	-	-	-	5	+	+	-	-	+	+	-	12178.7
6	LP	677	250	+	-	-	-	+	-	2	-	2	1	-	-	+	5	+	-	+	+	-	+	-	8737.9
7	HP	671	260	+	-	-	+	1	+	3	-	+	-	-	-	-	5	++	-	+	+	-	+	-	13153.8
8	LP	553	250	-	-	-	-	-	-	-	-	4	1	-	-	+	5	++	+	-	-	+	+	-	7977
12	HP/LP	675	250	-	-	-	+	+	-	1	-	3	-	-	-	1	4	1	+	-	+	-	-	+	10066.1
14(i)	HP/LP	670	270	-	-	-	-	1	-	2	-	2	-	-	-	+	5	+	-	+	+	-	-	+	8881.5
14(ii)	HP	704	250	-	-	-	1	2	-	2	+	-	-	-	-	-	4	1	-	+	+	-	+	-	9268.1
15	LP	540	200	-	-	-	-	-	-	-	-	4	-	-	1	+	5	-	+	-	-	+	-	+	9688.5
16	LP	506	200	-	-	-	-	-	-	+	-	2	-	1	2	+	5	+	+	-	-	+	-	+	14093.1

KEY

HP High plateau 450-610m
LP Low plateau <450m
(only the main type is given, or both where both are extensive)

% area scale

+,++	<10%
1	10-20%
2	21-40%
3	41-60%
4	61-80%
5	81-100%

Bioclimatic classes

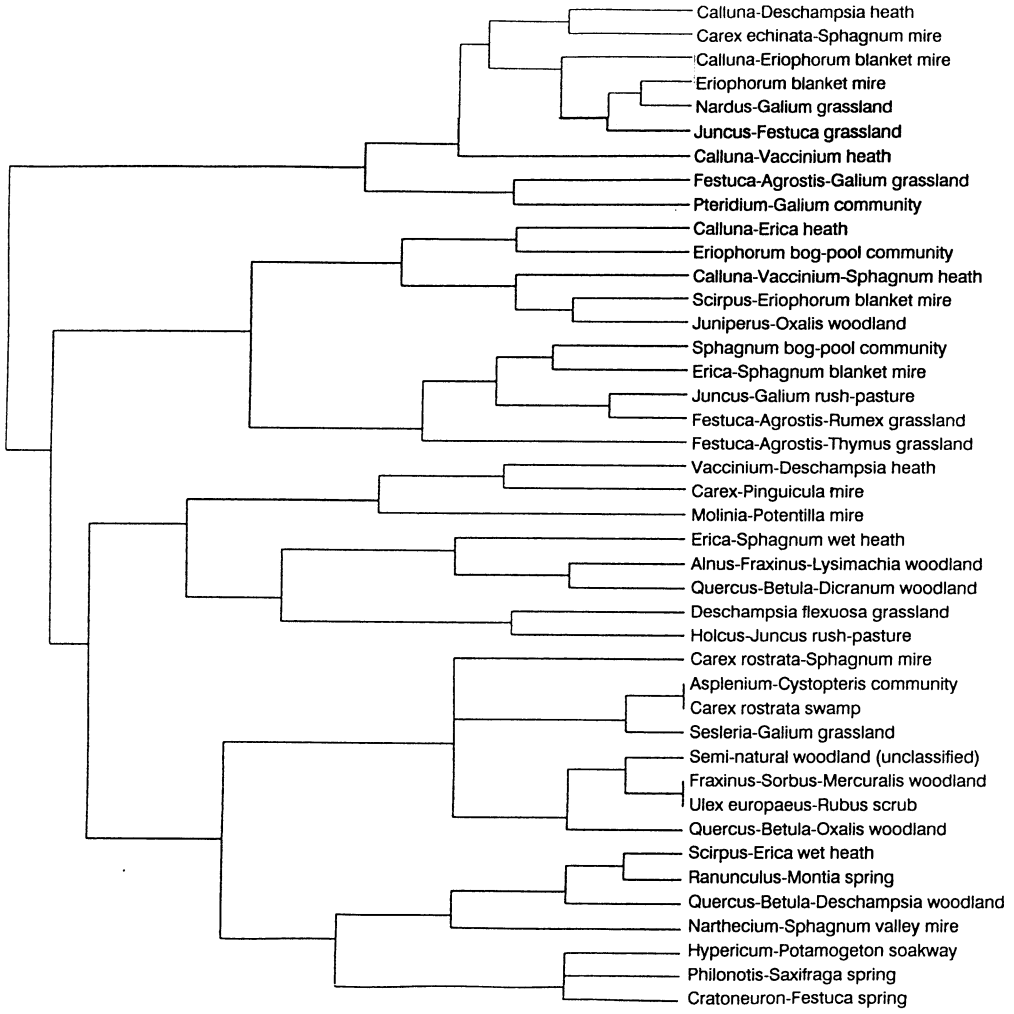
A1v	Moderately cold, moderately wet, very exposed
A1p	Moderately cold, moderately wet, exposed
A2v	Moderately cold, slightly wet, very exposed
B1v	Slightly cold, moderately wet, very exposed
B1p	Slightly cold, moderately wet, exposed
B1m	Slightly cold, moderately wet, unexposed
B2p	Slightly cold, slightly wet, exposed
B2m	Slightly cold, slightly wet, unexposed
B3p	Slightly cold, moderately moist, exposed
B3m	Slightly cold, moderately moist, unexposed
C2p	Moderately cool, slightly wet, exposed
C3p	Moderately cool, moderately moist, exposed
C3m	Moderately cool, slightly wet, unexposed

Table 6 Two-way table of communities and blocks from a TWINSPAN analysis of plant community areas on the survey blocks

		1 1 111	
		48216723545 6	
		i i	
31	CG9	2-2----------	0000
32	CG10	525-22-2-----	0000
23	M37	-2----------	00010
30	U23	--2----------	00010
42	S9	--2----------	00010
11	M15	---2---------	00011
13	M17	--22-2------	00011
24	U1	-23222------	00011
6	M2	-22222-2---2	001
14	M18	-32222-2--2-	001
18	M23	-22222--2---	001
7	M3	--22222-----	010
40	W19	--22----2---	010
8	M4	2-2-22-----2	0110
15	M19	779999877842	01110
26	U4	865325344223	01110
5	H21	--22-2-22--2	01111
33	MG10	-2-2-2-2-2-2	01111
37	W11	-----2-----2	01111
10	M10	222-----2-22	1000
34	W	2----------2	1000
22	M35	---2-------2-	10010
3	H12	427466534482	10011
16	M20	967777577977	10011
27	U5	765777577557	10011
28	U6	786878677645	10011
1	H9	498656999799	10100
9	M6	355555747776	10100
19	M25	222222-22523	10100
29	U20	365324465567	10100
4	H18	322--2--2243	10101
25	U2	-222-2-22232	1011
35	W7	-2---2-22--2	1011
2	H10	---2--22----	110
17	M21	---2--2--222	110
21	M32	-2-------2-2-	110
39	W17	-----2-22-22	110
12	M16	------222-32	1110
20	M29	-------2----	1110
38	W16	-------2---2-	1110
36	W9	-------2----2	1111
41	W23	-------2----2	1111
		000000111111	
		011111000001	
		00111100001	

Table 7

Matrix diagram of communities and survey blocks ordered according to farthest neighbour clustering with dissimilarity coeffecient Canberra metric distance



NVC community	NVC type code	Block no./ octave transformation community areas												
		16	15	5	14 (ii)	14 (i)	2	8	3	12	7	6	1
Calluna-Deschampsia heath	H9	8	8	8	3	6	8	8	8	7	5	4	5
Carex echinata-Sphagnum mire	M6	5	6	6	2	6	6	4	3	4	4	4	4
Calluna-Eriophorum blanket mire	M19	1	3	6	6	7	7	6	6	8	8	8	8
Eriophorum blanket mire	M20	6	6	6	8	8	4	5	6	6	6	6	6
Nardus-Galium grassland	U5	6	4	6	6	4	4	5	6	4	6	6	6
Juncus-Festuca grassland	U6	4	3	6	6	5	5	7	6	5	7	6	7
Calluna-Vaccinium heath	H12	1	7	3	3	3	4	1	2	6	5	5	3
Festuca-Agrostis-Galium grassland	U4	2	1	3	7	1	2	5	3	4	4	1	2
Pteridium-Galium community	U20	6	5	4	2	4	3	5	5	4	3	1	2
Calluna-Erica heath	H10	-	-	-	-	-	1	-	1	-	-	-	1
Eriophorum bog-pool community	M3	-	-	-	-	-	1	-	1	1	1	1	1
Calluna-Vaccinium-Sphagnum heath	H21	1	-	1	-	-	-	-	1	1	1	-	1
Scirpus-Eriophorum blanket mire	M17	-	-	-	-	-	-	-	-	-	1	-	1
Juniperus-Oxalis woodland	W19	-	-	1	-	-	-	-	-	1	1	-	-
Sphagnum bog-pool community	M2	1	-	-	-	-	-	1	1	1	1	1	1
Erica-Sphagnum blanket mire	M18	-	1	-	-	-	-	2	1	1	1	1	1
Juncus-Galium rush-pasture	M23	-	-	1	-	-	-	1	-	1	1	1	1
Festuca-Agrostis-Rumex grassland	U1	-	-	-	-	-	-	1	-	2	1	1	1
Festuca-Agrostis-Thymus grassland	CG10	-	-	-	4	-	-	1	1	4	1	1	-
Vaccinium-Deschampsia heath	H18	2	3	1	2	1	-	1	-	1	1	-	-
Carex-Pinguicula mire	M10	1	1	1	1	-	-	1	-	1	-	-	-
Molinia-Potentilla mire	M25	2	1	1	1	4	-	1	1	1	1	1	1
Erica-Sphagnum wet heath	M16	1	2	1	-	-	1	-	1	-	-	-	-
Alnus-Fraxinus-Lysimachia woodland	W7	1	-	1	-	-	-	1	1	-	1	-	-
Quercus-Betula-Dicranum woodland	W17	1	1	1	-	-	-	-	1	-	1	-	-
Deschampsia flexuosa grassland	U2	1	2	1	-	1	-	1	1	1	1	-	1
Holcus-Juncus rush-pasture	MG10	1	-	-	-	1	-	1	1	-	1	-	1
Carex rostrata-Sphagnum mire	M4	1	-	-	1	-	-	-	-	1	1	1	-
Asplenium-Cystopteris community	U23	-	-	-	-	-	-	-	-	1	-	-	-
Carex rostrata swamp	S9	-	-	-	-	-	-	-	-	1	-	-	-
Sesleria-Galium grassland	CG9	-	-	-	1	-	-	-	-	1	-	-	-
Semi-natural woodland (unclassified)	W	1	-	-	1	-	-	-	-	-	-	-	-
Fraxinus-Sorbus-Mercuralis woodland	W9	1	-	-	-	-	-	-	-	-	-	-	-
Ulex europaeus-Rubus scrub	W23	1	-	-	-	-	-	-	-	-	-	-	-
Quercus-Betula-Oxalis woodland	W11	1	-	-	-	-	-	-	-	-	1	-	-
Scirpus-Erica wet heath	M15	-	-	-	-	-	-	-	-	-	-	-	1
Ranunculus-Montia spring	M35	-	1	-	-	-	-	-	-	-	-	-	1
Quercus-Betula-Deschampsia woodland	W16	-	1	-	-	-	-	-	-	-	-	-	-
Narthecium-Sphagnum valley mire	M21	1	1	-	-	1	1	-	-	-	-	-	1
Hypericum-Potamogeton soakway	M29	-	-	1	-	-	-	-	-	-	-	-	-
Philonotis-Saxifraga spring	M32	-	1	1	-	-	-	1	-	-	-	-	-
Cratoneuron-Festuca spring	M37	-	-	-	-	-	-	1	-	-	-	-	-

Table 8 Plant communities ranked according to naturalness (intensity of disturbance)

1 More natural	2 -->	3 Less natural
Woodland & scrub Undisturbed blanket mire Other *Sphagnum*-rich mire Springs NVC types: M2, M4, M17, M18, M19, M21, M29, M32, M35, M37, U23, W7, W9, W11, W16, W17, W19, S9	Dwarf-shrub heath Disturbed blanket mire Graminoid-rich mire Bracken NVC types: H9, H10, H12, H18, H21, M3, M6, M10, M15, M16, M20, M23, M25, U20, W23	Grassland NVC types: U1, U2, U4, U5, U6, CG9, CG10, MG10

Table 9 Values of assessment criteria for the survey blocks with different measures of naturalness, diversity, rarity and land-use intensity

	Block no. 1	2	3	5	6	7	8	12	14(i)	14(ii)	15	16
Naturalness												
Overall score	56.20	55.92	40.86	41.70	65.34	55.52	41.95	59.73	52.71	33.42	48.17	43.86
Rank	***	***	*	*	***	***	*	***	**	*	**	*
Ranking 1 score	43.68	22.46	9.46	9.49	54.88	39.81	14.51	35.30	16.37	12.00	1.41	0.62
Rank	***	**	*	*	***	***	*	**	*	*	*	*
Area ranking 1	5356.1	1182.6	1355.8	1155.4	4795.0	5236.4	1157.1	3553.6	1453.6	1112.6	136.8	87.7
Rank	***	*	**	*	***	***	*	**	**	*	*	*
Area ranking 2	3069.2	3522.4	9002.4	7844.3	1826.7	4131.6	4376.6	4917.2	6454.4	3970.5	9059.6	12186.6
Rank	*	*	***	**	*	*	*	*	**	*	***	***
Diversity												
No. sub-communities	37	14	27	24	22	30	28	43	19	18	26	30
Rank	***	*	**	**	*	**	**	***	*	*	**	**
No. communities	24	13	21	21	17	25	22	26	14	20	16	25
Rank	***	*	**	**	*	***	***	***	*	**	*	***
Shannon div. index	1.67	1.61	1.61	1.88	1.46	1.79	1.84	1.95	1.81	1.83	1.70	1.55
Rank	**	*	*	***	*	***	***	***	***	***	**	*
Rarity												
No. rare/relic comms	7	1	5	7	2	7	6	9	1	3	6	7
Rank	***	*	**	***	*	***	**	***	*	*	**	***
Area on block (ha)	25.5	0.1	3.7	2.4	8.2	54.1	100.8	291.7	0.1	265.3	15.7	73.6
Rank	**	*	*	*	*	**	***	***	*	***	**	**
% area on block	0.21	<0.01	0.03	0.02	0.09	0.41	1.26	2.9	<0.01	0.16	2.86	0.52
Rank	**	*	*	*	*	**	***	***	*	**	***	**
Land-use and management												
Sheep:grouse ratio	0.56:0.46	0.60:0.40	0.46:0.54	0.69:0.31	0.63:0.37	0.50:0.50	0.45:0.55	0.46:0.54	0.47:0.53	0.75:0.25	0.33:0.67	0.43:0.57
Rank	*	*	***	*	*	**	***	***	***	*	***	***
Grazing index	2.2	2.2	1.7	2.3	2.0	2.2	1.6	1.6	2.2	2-3	1.3	1.7
Heather cond'n index	2.2	1.8	1.7	2.4	1.5	2.2	2.0	1.6	1.9	2-3	1.3	1.6
Overall rank	*	**	***	*	**	*	**	***	**	*	***	***

Table 10 Naturalness ranking 1 NVC communities with areas on the survey blocks

NVC code	Natural-ness ranking 1-3 scale	Total area (ha) and % area Block no. 1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%
M2	1	0.40	0.01	0.00	0.00	0.30	0.02	0.00	0.00	0.40	0.01	0.70	0.01	0.10	0.01	0.60	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.34
M4	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.11	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	1.20	0.11	0.00	0.00	0.30	0.34
M17	1	11.10	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	15.60	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	1	9.10	0.17	0.00	0.00	3.30	0.24	0.00	0.00	4.70	0.10	0.20	0.00	60.80	5.25	2.90	0.08	0.00	0.00	0.00	0.00	6.40	4.68	0.00	0.00
M19	1	5330.40	99.52	1182.50	99.99	1352.00	99.72	1153.20	99.81	4784.70	99.79	5232.60	99.93	1088.50	94.07	3523.20	99.14	1453.50	99.99	1109.20	99.69	116.00	84.80	5.10	5.82
M21	1	0.50	0.01	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.10	0.07	5.00	5.70
M29	1	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	1	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	5.70	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.00	0.00
M35	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.00	0.00
M37	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U23	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.20	0.00	0.00	10.00	11.40
W7	1	0.00	0.00	0.00	0.00	0.10	0.01	0.10	0.01	0.00	0.00	1.30	0.02	1.90	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.11
W9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	3.19
W11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	3.19
W16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20	3.80	0.00	0.00
W17	1	0.00	0.00	0.00	0.00	0.10	0.01	1.60	0.14	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.90	6.51	61.30	69.90
W19	1	4.50	0.08	0.00	0.00	0.00	0.00	0.30	0.03	0.00	0.00	0.00	0.00	0.00	0.00	10.20	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Block tot		5356.10	100.00	1182.60	100.00	1355.80	100.00	1155.40	100.00	4795.00	100.00	5236.40	100.00	1157.10	100.00	3553.60	100.00	1453.60	100.00	1112.60	100.00	136.80	100.00	87.70	100.00
No. comms		7.00	43.68	2.00	22.46	5.00	9.46	6.00	9.49	4.00	54.88	8.00	39.81	6.00	14.51	8.00	35.30	2.00	16.37	3.00	12.00	7.00	1.41	9.00	0.62

Table 11. Naturalness ranking 2 NVC communities with areas on the survey blocks.

NVC code	Natural-ness ranking 1-3 scale	Total area (ha) and % area Block no. 1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%
H9	2	850.60	27.71	2379.80	67.56	6907.50	76.73	3905.40	49.79	334.00	18.28	788.30	19.08	3274.70	74.82	2325.10	47.29	1284.20	19.90	166.60	4.20	4342.20	47.93	7129.40	58.50
H10	2	0.10	0.00	10.70	0.30	16.60	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12	2	157.80	5.14	167.00	4.74	76.70	0.85	198.30	2.53	367.70	20.13	874.10	21.16	28.60	0.65	847.90	17.24	171.80	2.66	166.60	4.20	2081.80	22.98	2.00	0.02
H18	2	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.05	0.00	0.00	0.20	0.00	3.80	0.09	26.40	0.54	27.60	0.43	87.10	2.19	133.70	1.48	90.90	0.75
H21	2	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.01
M3	2	2.80	0.09	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.01	0.40	0.01	0.00	0.00	0.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6	2	469.90	15.31	677.80	19.24	156.90	1.74	1621.50	20.67	279.30	15.29	308.80	7.47	250.20	5.72	267.20	5.43	968.30	15.00	53.40	1.34	938.00	10.35	840.70	6.90
M10	2	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	5.90	0.13	0.20	0.00	0.00	0.00	18.40	0.46	0.10	0.00	0.30	0.00
M15	2	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M16	2	0.00	0.00	22.90	0.65	5.10	0.06	1.70	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.00	0.71	15.40	0.13
M20	2	1365.20	44.48	172.40	4.89	1149.20	12.77	1733.30	22.10	832.20	45.56	1959.50	47.43	448.00	10.24	1047.80	21.31	3510.90	54.40	3391.90	85.43	782.80	8.64	2161.20	17.73
M23	2	51.30	1.67	0.00	0.00	0.00	0.00	0.10	0.00	0.50	0.03	0.20	0.00	4.10	0.09	5.40	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M25	2	56.00	1.82	0.00	0.00	0.90	0.01	3.20	0.04	7.50	0.41	32.50	0.79	38.30	0.88	2.50	0.05	263.90	4.09	0.10	0.00	24.70	0.27	77.80	0.64
U20	2	115.30	3.76	91.70	2.60	689.30	7.66	376.50	4.80	5.40	0.30	167.50	4.05	323.00	7.38	394.30	8.02	227.70	3.53	86.40	2.18	692.30	7.64	1867.50	15.32
W23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
Block total		3069.20	100.00	3522.40	100.00	9002.40	100.00	7844.30	100.00	1826.70	100.00	4131.60	100.00	4376.60	100.00	4917.20	100.00	6454.40	100.00	3970.50	100.00	9059.60	100.00	12186.60	100.00
No. comms		11.00	25.03	8.00	66.91	10.00	62.79	11.00	64.41	8.00	20.91	10.00	31.41	9.00	54.87	11.00	48.85	7.00	72.67	8.00	42.84	9.00	93.51	11.00	86.47

Table 12 Naturalness ranking 3 NVC communities with areas on the survey blocks

NVC code	Natural-ness ranking 1-3 scale	Total area (ha) and % area Block no. 1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%
U1	3	0.60	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.01	0.10	0.00	11.30	0.46	64.10	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U2	3	0.30	0.01	0.00	0.00	10.10	0.25	3.00	0.09	0.00	0.00	4.70	0.12	25.30	1.04	38.20	2.39	1.40	0.14	0.00	0.00	84.30	17.13	3.30	0.18
U4	3	72.60	1.89	35.50	6.35	161.60	4.06	143.20	4.50	30.90	1.46	275.40	7.27	350.40	14.34	357.20	22.39	27.50	2.82	1581.60	37.79	37.90	7.70	74.60	4.09
U5	3	1160.70	30.26	154.30	27.58	1723.40	43.31	1188.20	37.38	749.60	35.42	1249.10	32.99	608.40	24.90	281.40	17.64	285.60	29.34	1010.70	24.15	196.80	39.99	1193.40	65.43
U6	3	2598.50	67.74	369.60	66.07	2078.80	52.24	1844.60	58.02	1331.90	62.94	2195.00	57.98	1396.50	57.16	592.70	37.15	649.60	66.73	1345.80	32.16	173.10	35.18	517.10	28.35
CG9	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	16.80	0.40	0.00	0.00	0.00	0.00
CG10	3	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	3.50	0.17	51.00	1.35	26.40	1.08	261.60	16.40	0.00	0.00	230.10	5.50	0.00	0.00	0.00	0.00
MG10	3	3.40	0.09	0.00	0.00	5.00	0.13	0.00	0.00	0.00	0.00	10.50	0.28	25.00	1.02	0.00	0.00	9.40	0.97	0.00	0.00	0.00	0.00	35.40	1.94
Block tot		3836.10	100.00	559.40	100.00	3979.00	100.00	3179.00	100.00	2116.20	100.00	3785.80	100.00	2443.30	100.00	1595.30	100.00	973.50	100.00	4185.00	100.00	492.10	100.00	1823.80	100.00
No. comms		6.00	31.29	3.00	10.63	6.00	27.75	4.00	26.10	5.00	24.22	7.00	28.78	7.00	30.63	7.00	15.85	5.00	10.96	5.00	45.15	4.00	5.08	5.00	12.94

Table 13 Division of block area into three naturalness ranks

Ranking 1-3	Block no. 1	2	3	5	6	7	8	12	14(i)	14(ii)	15	16
Ranking 1												
Area (ha)	5356.1	1182.6	1355.8	1155.4	4795.0	5236.4	1157.1	3553.6	1453.6	1112.6	136.8	87.7
%	43.68	22.46	9.46	9.49	54.88	39.81	14.51	35.30	16.37	12.00	1.41	0.62
Ranking 2												
Area (ha)	3069.2	3522.4	9002.4	7844.3	1826.7	4131.6	4376.6	4917.2	6454.4	3970.5	9059.6	12186.6
%	25.03	66.91	62.79	64.41	20.91	31.41	54.87	48.85	72.67	42.84	93.51	86.47
Ranking 3												
Area (ha)	3836.1	559.4	3979.0	3179.0	2116.2	3785.8	2443.3	1595.3	973.5	4185.0	492.1	1823.8
%	31.29	10.63	27.75	26.10	24.22	28.78	30.63	15.85	10.96	45.15	5.08	12.94

Table 14 Rare, local and relic NVC communities present on the survey blocks

Rare	Local England/N. Pennines	Relic woodland & scrub
CG9, CG10, M10	W19, U23, H21, M15, M17, M18, M21, M29, M32, M35, M37, S9	W7, W9, W11, W17

Table 15 Rare/relic NVC communities with areas on the survey blocks

NVC code	Total area (ha) and % area Block no.																							
	1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%
H21	0.10	0.39	0.00	0.00	0.10	2.70	0.10	4.17	0.00	0.00	0.10	0.18	0.00	0.00	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.77
M10	0.00	0.00	0.00	0.00	0.00	0.00	0.10	4.17	0.00	0.00	0.00	0.00	5.90	5.85	0.20	0.07	0.00	0.00	18.40	6.94	0.10	0.64	0.30	0.41
M15	0.10	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M17	11.10	43.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.18	0.00	0.00	15.60	5.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	9.10	35.69	0.00	0.00	3.30	89.19	0.00	0.00	4.70	57.32	0.20	0.37	60.80	60.32	2.90	0.99	0.00	0.00	0.00	0.00	6.40	40.76	0.00	0.00
M21	0.50	1.96	0.10	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	100.00	0.00	0.00	0.10	0.64	5.00	6.79
M29	0.00	0.00	0.00	0.00	0.00	0.00	0.10	4.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	0.00	0.00	0.00	0.00	0.00	0.00	0.10	4.17	0.00	0.00	0.00	0.00	5.70	5.65	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.64	0.00	0.00
M35	0.10	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.64	0.00	0.00
M37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.00	0.00	16.80	6.33	0.00	0.00	0.00	0.00
CG10	0.00	0.00	0.00	0.00	0.10	2.70	0.00	0.00	3.50	42.68	51.00	94.27	26.40	26.19	261.60	89.68	0.00	0.00	230.10	86.73	0.00	0.00	0.00	0.00
W7	0.00	0.00	0.00	0.00	0.10	2.70	0.10	4.17	0.00	0.00	1.30	2.40	1.90	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.14
W9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	3.80
W11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	2.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	3.80
W17	0.00	0.00	0.00	0.00	0.10	2.70	1.60	66.67	0.00	0.00	0.10	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.90	56.69	61.30	83.29
W19	4.50	17.65	0.00	0.00	0.00	0.00	0.30	12.50	0.00	0.00	0.00	0.00	0.00	0.00	10.20	3.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Block total	25.50	100.00	0.10	100.00	3.70	100.00	2.40	100.00	8.20	100.00	54.10	100.00	100.80	100.00	291.70	100.00	0.10	100.00	265.30	100.00	15.70	100.00	73.60	100.00
No./% comms	7.00	0.21	1.00	0.00	5.00	0.03	7.00	0.02	2.00	0.09	7.00	0.41	6.00	1.26	9.00	2.90	1.00	0.00	3.00	2.86	6.00	0.16	7.00	0.52

Table 16
Summary of land-use, Calluna condition and management information for sites and blocks

Block no.	Site no.	Site name	Land-uses				Grazing density	Calluna cond'n	Management				
			Sheep grazing	Grouse rearing	Forestry	Other			Burning	Draining	Bracken spraying	Liming/ re-seeding	Stock feeding
1	1	Asholme & Snope Commons	+++	+	+	-	M	L	+	+	-	-	+
	2	Whitfield Moor	+	+++	-	-	M	G	+	+	-	-	+
	3	Wellhope Moor	++	++	-	Water catch't	M	S	+	+	-	-	+
	4	Dryburn Moor (part Acton & Middlehope Moors	++	++	-	-	M	L	+	+	-	-	+
	5	Newshield Moss & Flinty Fell	+++	+	+	-	H	S	+	+	-	-	+
	6	Burnhope & Killhope	++	++	+	-	M	L	+	+	-	-	+
		Block score:	13	11	-	-	13	13	-	-	-	-	-
		Block ratio and indices:	0.54	0.46	-	-	2.2	2.2	-	-	-	-	-
2	1	Spitalshield Moor	++	++	-	-	M	L	+	+	-	-	+
	2	Eshalls Moor	++	++	-	-	M	G	+	-	-	-	+
	3	Westburnhope	+++	+	-	-	M	L	+	+	-	-	+
	4	Lilswood Moor	++	++	-	-	H	L	+	+	-	-	+
	5	Byerhope Moss	+++	+	-	-	M	L	+	+	-	-	+
		Block score:	12	8	-	-	11	9	-	-	-	-	-
		Block ratio and indices:	0.6	0.4	-	-	2.2	1.8	-	-	-	-	-
3	1	Nookton Fell & Hunstantworth	+	+++	+	-	M	G	+	+	-	-	+
	2	Redburn Common	+++	+	+	Mining	H	S	+	+	-	+	+
	3	Edmondbyers Common	++	++	+	-	L	G	+	-	-	-	+
	4	Stanhope Common	++	++	-	Quarry	M	L	+	+	-	-	+
	5	Muggleswick Common	+	+++	-	Water catch't	L	G	+	+	+	-	-
	6	Wolsingham Park	++	++	-	-	L	L	+	-	-	-	-
		Block score:	11	13	-	-	10	10	-	-	-	-	-
		Block ratio and indices:	0.46	0.54	-	-	1.7	1.7	-	-	-	-	-
5	1	Burnhope Moor	++	++	+	Mining Water catch't	M	L	-	+	-	-	+
	2	Chapel/ Harthorpe	+++	+	+	-	M	L	-	-	-	-	+
	3	Snow Western H.	++++	-	-	Mining	M	S	-	-	-	-	+
	4	Bollihope	+++	+	-	-	H	S	+	+	+	-	+
	5	Bollihope East	+++	+	-	-	H	S	+	+	+	-	+
	6	Pikestone Fell	++	++	-	-	M	L	+	+	+	-	+
	7	Eggleston Common	++	++	-	-	M	L	+	+	+	-	+
	8	Woodland Fell	+++	+	-	-	M	L	+	+	+	+	+
		Block score:	22	10	-	-	18	19	-	-	-	-	-
		Block ratio and indices:	0.69	0.31	-	-	2.3	2.4	-	-	-	-	-

Table 16. Continued.

6	1	Strathmore Estate	++	++	-	Water catch't	M	G	+	+	-	-	+
	2	Stainmore	++	++	-	Military	M	G	+	+	-	-	+
	3	Cotherstone & Lartington High Moor	++++	-	-	-	M	S	+	-	-	+	-
	4*	Bowes Moor SSSI	++	++	-	-	M	G	+	+	-	-	+
	5	High Greygrits	++	++	-	-	M	G	+	+	-	-	+
		Block score:	10	6	-	-	8	6	-	-	-	-	-
		Block ratio and indices:	0.63	0.37	-	-	2.0	1.5	-	-	-	-	-
	4*	Not included in overall scores											
7	1	Winton & Kaber	+++	+	-	-	H	S	-	+	-	-	+
	2	Ravenseat Moor	++	++	-	Cattle	H	L	+	+	-	+	+
	3	Rogan's Seat	+	+++	-	-	L	L	+	+	-	-	-
	4	Arkengarthdale	++	++	-	-	M	L	+	+	-	-	+
	5	Reeth Moors	++	++	-	-	M	L	+	+	-	-	+
		Block score:	10	10	-	-	11	11	-	-	-	-	-
		Block ratio and indices:	0.5	0.5	-	-	2.2	2.2	-	-	-	-	-
8	1	Gilmonby Moor	+	+++	+	-	L	G	+	+	-	-	-
	2	Arkengarthdale	+++	+	-	-	M	S	+	+	-	-	+
	3	Hurst & Kexwith	+	+++	+	-	L	G	+	+	-	-	-
	4	Holgate Moor	++	++	+	-	M	L	+	-	+	-	-
	5	Feldom Ranges	++	++	+	Military	M	S	+	+	-	-	-
		Block score:	9	11	-	-	8	10	-	-	-	-	-
		Block ratio and indices:	0.45	0.55	-	-	1.6	2.0	-	-	-	-	-
12	1	Muker Common	++	++	-	Cattle	M	L	-	+	-	-	-
	2	Abbotside Common	++	++	-	Cattle	M	L	+	+	-	-	-
	3	Askrigg Common	++	++	-	-	L	G	+	+	-	-	+
	4	Whitaside Moor & Harkerside	++	++	-	-	M	L	+	+	-	-	+
	5	Bolton Moors	++	++	-	-	L	L	+	-	-	-	+
	6	Preston Moor	+	+++	-	-	L	G	+	+	-	-	+
	7	Stainton Moor	++	++	+	-	M	G	+	+	+	-	+
		Block score:	13	15	-	-	11	11	-	-	-	-	-
		Block ratio and indices:	0.46	0.54	-	-	1.6	1.6	-	-	-	-	-

Table 16. Continued.

14(i)	1	Angram/ Scar House	+++	+	-	Water catch't	M	S	+	+	+	+	+
	2	Riggs/ In Moor	++	++	-	Water catch't	M	S	+	+	+	-	-
	3	Stean Moor	+	+++	-	Water catch't	L	L	+	+	-	-	-
	4	Ramsgill Moor	++	++	-	-	M	L	+	+	+	-	-
	5	Gouthwaite Moor	+++	+	-	-	H	S	+	+	-	-	-
	6	Heathfield Moor	+	+++	-	-	M	G	+	+	+	-	-
	7	Hardcastle Moor	-	++++	-	-	L	G	+	+	+	-	-
	8	Appletreewick Moor	++	++	-	-	M	L	+	+	-	-	-
	9	Hebdenhigh Moor	+++	+	-	Water catch't	M	S	-	+	-	-	-
		Block score:	17	19	-	-	17	20	-	-	-	-	-
		Block ratio and indices:	0.47	0.53	-	-	1.9	2.2	-	-	-	-	-
14(ii)		Gt Whernside Blk	+++	+	-	Water catch't	M-H	M-S	+	+	-	-	+
		Block score:	3	1	-	-	2-3	2-3	-	-	-	-	-
		Block ratio and indices:	0.75	0.25	-	-	2-3	2-3	-	-	-	-	-
15	1	Witton & Agra Moors	+	+++	-	-	L	G	+	+	-	-	-
	2	Colsterdale	+	+++	-	-	L	G	+	-	-	-	-
	3	Middlesmoor	+	+++	-	-	M	L	+	-	-	-	-
	4	Masham Moor	++	++	-	Water catch't	M	L	+	+	-	-	-
	5	Ilton Moor	++	++	-	Water catch't	L	G	+	-	-	-	-
	6	Sype Land	+	+++	-	-	L	G	+	+	-	-	-
	7	Kirby Malzeard Moor	++	++	-	-	M	L	+	+	+	-	+
	8	Sigsworth Moor	+	+++	-	-	L	G	+	-	-	-	-
	9	Longside Estate	+	+++	-	-	L	G	+	+	-	-	-
		Block score:	12	24	-	-	12	12	-	-	-	-	-
		Block ratio and indices:	0.33	0.67	-	-	1.3	1.3	-	-	-	-	-
16	1	Barden Fell	+	+++	+	-	L	G	+	+	+	+	+
	2	Flat Moor	+	+++	+	-	L	G	+	+	-	-	-
	3	Rocking Moor	+	+++	+	-	L	G	+	+	+	+	+
	4	Embsay Moor	++	++	+	Water catch't	M	L	+	-	+	+	+
	5	Blubberhouses Moor	+	+++	+	Water catch't	M	G	+	+	+	-	+
	6	Rombalds Moor	++	++	+	Water catch't	M	L	+	+	+	+	+
	n.a.	Pock Stones Moor	++++	-	-	-	H	S	-	+	-	-	+
		Block score:	12	16	-	-	12	11	-	-	-	-	-
		Block ratio and indices:	0.43	0.57	-	-	1.7	1.6	-	-	-	-	-

Scores, ratios and indices

Sheep grazing/grouse rearing Scores

\+ 1

++ 2

++ 3

Ratio: score/total score

Grazing density

L 1

M 2

H 3

Index: total score/no. sites

Calluna condition

G 1

L 2

S 3

Index: total score/no. sites

Table 17 Number of sites on the survey blocks recorded for the three levels of grazing density and heather condition categories

Grazing density

Low	Medium	High
20 (28%)	43 (61%)	8 (11%)

Heather condition

Generally good	Locally suppressed	Widely suppressed
26 (37%)	31 (44%)	14 (20%)

Total no. of sites = 71

Table 18 Summary overall rankings of assessment criteria for blocks divided into the initial TWINSPAN groups

Group	Block	Natural-ness	Diversity	Rarity	Land-use/ management intensity
1 "western"	1	***	***	***	*
	6	***	*	*	**
	7	***	***	***	*
	8	*	***	***	**
	12	***	***	***	***
	14(ii)	*	***	**	*
2 "eastern"	2	**	*	*	**
	3	**	***	*	***
	5	*	***	**	*
	14(i)	**	**	*	**
	15	**	**	***	***
	16	**	**	***	***

Table 19 Geographical distribution of NVC communities in the uplands related to oceanicity with communities found by North Pennine Project (*)

WIDESPREAD	NORTHERN			MAINLY WESTERN: MORE OCEANIC AREAS			MAINLY EASTERN: LESS OCEANIC AREAS			
Generally distributed	Widespread (mainly from N Wales)	Highlands (mainly)	Northern England	Southern (mainly SW England & Wales)	Widespread	Northern (mainly Highlands)	Southern (mainly England)	Widespread	Northern (mainly Scotland)	(mainly England)
Hyperoceanic, euoceanic and hemioceanic		Mainly hemi- and euoceanic	Mainly hyper- and euoceanic / Hemi- and euoceanic	Chiefly hyperoceanic and euoceanic			Chiefly hemioceanic			
W3 W7(*) W9(*) W23(*)		W18 W20		W25	W4 W11(*) W17(*)		W16(*)		W19(*)	
H12(*) H18(*)		H20 H22		H4 H8	H10(*)	H14 H15 H17 H21(*)			H13 H16 H19	H9(*)
U4(*) U5(*) U6(*) U19 U20(*)	U7 U10 U15 U16 U17	U11 U12 U13 U14 U18	U21	U3			U1(*)	U2(*)	U8 U9	
CG10(*)		CG11 CG12 CG14	CG9(*)			CG13				
M2(*) M3(*) M4(*) M5 M6(*) M9 M10(*)	M8 M11 M18(*) M19(*) M31 M32(*) M37(*)	M7 M12 M33	M26	M21(*) M29(*) M35(*)	M1 M15(*) M17(*) M23(*) M25(*)	M28 M34		M16(*)	M38	M20(*)

Notes
H12, H18, M18 are mainly eastern in the Highlands
H12, H18 are more extensive in the north
U6, U19, U20 are more extensive in the west in mild hyperoceanic and euoceanic areas
W19 in euoceanic parts of the Lake District

Table 20.1
NVC plant communities in 13 upland geographical regions from 292 upland sites (SSSI+non stat.) together with presence in region as a whole and % of the regional total

	SW ENGLAND	%	WALES	%	S PENNINES	%	NE ENGLAND	%	N YORKS MOORS	%	NW ENGLAND	%	S UPLANDS	%	SW SCOTLAND	%	NE SCOTLAND	%	NW SCOTLAND	%	HARRIS	%	ORKNEY	%	SHETLAND	%
Heaths																										
H4	1990.9	8.712	0.1	6E-05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H8	5.7	0.025	3	0.002	0.1	0.000	0	0	0	0	0.1	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H9	0	0	0.1	6E-05	5064.6	23.08	0.1	0.000	3814	78.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H10	115.3	0.505	0.1	6E-05	0	0	13.8	0.024	0.1	0.002	37.1	0.072	0.8	0.002	413.9	0.708	62.6	0.048	19679.1	9.773	700.9	4.944	2714.3	25.76	2866.1	41.25
H12	4636.3	20.29	28096	16.43	0.1	0.000	6962.6	12.13	0.1	0.002	10306.9	19.97	9029.4	27.3	6024.4	10.31	32043.5	24.62	0.1	5E-05	0.1	0.001	0.1	0.001	0.1	0.001
H13	0	0	0	0	0	0	0.1	0.000	0	0	21.5	0.042	25.3	0.076	268	0.459	7172.1	5.51	4885.2	2.426	0	0	1.8	0.017	0	0
H14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.000	0.1	8E-05	1726.4	0.857	7.7	0.054	0.1	0.001	395	5.685
H15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	629.9	0.313	0	0	0	0	0	0
H16	0	0	0	0	0	0	0	0	0	0	0.1	0.000	0	0	34.6	0.059	336.8	0.259	0	0	0	0	0	0	0	0
H17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	968.2	0.481	0	0	302.8	2.873	0	0
H18	148.8	0.651	17794.8	10.41	1451	6.613	994.4	1.732	106.1	2.1701	2060.3	3.992	1572.1	4.753	3878.6	6.637	6284.8	4.828	2510.8	1.247	0	0	0	0	0	0
H19	0	0	0	0	0	0	117.8	0.205	0	0	317.3	0.615	275	0.831	159.8	0.273	4108.8	3.156	75.6	0.038	0	0	0	0	0	0
H20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.3	0.011	869.2	0.668	1563.2	0.776	0	0	0	0	1.5	0.022
H21	0	0	1792	1.048	0.1	0.000	52.9	0.092	0.1	0.002	25.5	0.049	654.9	1.98	711.8	1.218	0.1	8E-05	3462.3	1.719	331.4	2.337	106.6	1.012	148.4	2.136
H22	0	0	0	0	0	0	0.1	0.000	0	0	0	0	3.1	0.009	38.3	0.066	6178.5	4.746	368.6	0.183	0	0	0	0	0	0
Grasslands and upland communities																										
U1	0.1	0.000	0.1	6E-05	0.1	0.000	0.1	0.000	0	0	0	0	0.1	0.000	0	0	0	0	0	0	0	0	0	0	0	0
U2	0.1	0.000	29	0.017	249.6	1.138	74.3	0.129	0.1	0.002	0.1	0.000	22.4	0.068	0	0	0.1	8E-05	0	0	0	0	0	0	0	0
U3	317.2	1.388	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
U4	2791.9	12.22	16577.7	9.697	1187.1	5.41	5689.2	9.912	13.7	0.2802	4506.4	8.732	2823.4	8.535	2417	4.136	1529.1	1.175	4944.4	2.455	143.3	1.011	9.5	0.09	136.4	1.963
U5	99.4	0.435	24198.4	14.15	1773.2	8.082	6281.3	10.94	16.3	0.3334	8731.3	16.92	5113.5	15.46	9378.6	16.05	4836.1	3.715	7200.6	3.576	1874.9	13.22	2.9	0.028	1103.3	15.88
U6	22.1	0.097	13313.5	7.788	7.5	0.034	4460.6	7.771	0.1	0.002	3944.1	7.642	120.1	0.363	3573.4	6.115	829.8	0.637	4153.3	2.063	281.2	1.983	0	0	61.5	0.885
U7	0	0	0	0	0	0	0.1	0.000	0	0	2	0.004	0.1	0.000	1159.6	1.984	9695.1	7.448	11708.4	5.814	97.2	0.686	33.2	0.315	16.2	0.233
U8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	203.1	0.348	1036.6	0.796	18.3	0.009	0	0	0	0	0	0
U9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.000	1612.8	1.239	0.1	5E-05	0	0	0	0	0	0
U10	0	0	130	0.076	0	0	51	0.089	0	0	23.4	0.045	706	2.134	2175.1	3.722	5604.8	4.306	7837.3	3.892	935.1	6.596	0	0	0	0
U11/U12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31.7	0.054	255	0.196	70.6	0.035	0	0	0	0	0	0
U13	0	0	0	0	0	0	0	0	0	0	4	0.008	1.9	0.006	170.5	0.292	830.5	0.638	2629.3	1.306	0	0	0	0	0	0
U14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.000	0.1	8E-05	0.1	5E-05	0	0	0	0	0	0
U15	0	0	0	0	0	0	0	0	0	0	0.1	0.000	0	0	139.1	0.238	0.3	0.000	0.1	5E-05	0	0	0	0	0	0
U16	0.1	0.000	21	0.012	0	0	2.6	0.005	0	0	2.8	0.005	0.5	0.002	0.3	0.001	37.5	0.029	68.8	0.034	9.2	0.065	24.3	0.231	0.1	0.001
U17	0	0	33	0.019	0	0	0.1	0.000	0	0	1.3	0.003	1	0.003	181.5	0.311	76.8	0.059	143.9	0.071	0	0	110.8	1.051	0.1	0.001
U18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.000	16.4	0.013	75.7	0.038	0	0	0	0	0	0
U19	0	0	0.1	6E-05	0	0	0.1	0.000	0	0	0	0	0.1	0.000	17.7	0.03	0.1	8E-05	64.6	0.032	0	0	0	0	0	0
U20	2218.7	9.709	10958	6.41	600.7	2.738	956.2	1.666	329.5	6.7395	4097.6	7.94	742.4	2.244	856.9	1.466	2302	1.768	1026.4	0.51	2.1	0.015	2.6	0.025	26.7	0.384
U21	0	0	400	0.234	0	0	0.3	0.001	0	0	118.5	0.23	7.5	0.023	0.1	0.000	0	0	0.1	5E-05	0	0	0	0	0	0
U23	0	0	0.1	6E-05	0.1	0.000	0.1	0.000	0	0	0.1	0.000	0	0	0.1	0.000	0	0	0.1	5E-05	0	0	0	0	0	0
Calcareous grasslands																										
CG9	0	0	0	0	0	0	1062.7	1.851	0	0	17.4	0.034	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CG10	0	0	709	0.415	0.4	0.002	1619.1	2.821	0	0	267.1	0.518	11.8	0.036	198.2	0.339	433.3	0.333	1330.8	0.661	0.1	0.001	1.2	0.011	28.9	0.416
CG11	0	0	0	0	0	0	0	0	0	0	34.8	0.067	0	0	1149.3	1.967	501	0.385	724	0.36	0	0	0	0	0	0
CG12	0	0	3	0.002	0	0	0	0	0	0	0.1	0.000	0	0	257.3	0.44	2	0.002	32	0.016	0	0	0	0	0	0
CG13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	176.3	0.088	0	0	0	0	0	0
CG14	0	0	0.1	6E-05	0	0	0	0	0	0	0.1	0.000	0	0	0	0	0.1	8E-05	7.1	0.004	0	0	0	0	0	0

Table 20.2
NVC plant communities in 13 upland geographical regions from 292 upland sites (SSSI+non stat.) together with presence in region as a whole and % of the regional total

	SW ENGLAND	%	WALES	%	S PENNINES	%	NE ENGLAND	%	N YORKS MOORS	%	NW ENGLAND	%	S UPLANDS	%	SW SCOTLAND	%	NE SCOTLAND	%	NW SCOTLAND	%	HARRIS	%	ORKNEY	%	SHETLAND	%
Mires																										
M1	0.1	0.000	0.1	6E-05	0	0	0	0	0	0	0.1	0.000	0.1	0.000	0.1	0.000	0	0	0.1	5E-05	0.1	0.001	0.1	0.001	0.1	0.001
M2	10.1	0.044	0.1	6E-05	0.1	0.000	0.1	0.000	0	0	0.5	0.001	0.1	0.000	0.1	0.000	0.1	8E-05	0.1	5E-05	0.1	0.001	0.1	0.001	0.1	0.001
M3	0.1	0.000	0.1	6E-05	0.1	0.000	0.1	0.000	0	0	0.1	0.000	0.1	0.000	0.1	0.000	0.1	8E-05	0.1	5E-05	0.1	0.001	0	0	0	0
M4	55	0.241	254	0.149	0	0	21.3	0.037	0	0	5.6	0.011	4.3	0.013	11.3	0.019	44.8	0.034	5.5	0.003	0	0	0.1	0.001	0	0
M5	0	0	0.1	6E-05	0	0	0.1	0.000	0	0	0.1	0.000	0.1	0.000	0.1	0.000	0.1	8E-05	0.1	5E-05	0	0	0.1	0.001	0	0
M6	321.7	1.408	6332	3.704	298.6	1.361	593.4	1.034	132.6	2.7122	1183.3	2.293	301.5	0.911	340	0.582	225.9	0.174	633.5	0.315	0.8	0.006	160.9	1.527	0.1	0.001
M7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0.009	7.5	0.006	67.6	0.034	0	0	0	0	0	0
M8	0	0	0	0	0	0	0.1	0.000	0	0	0	0	0	0	0.1	0.000	0.1	8E-05	0	0	0	0	0	0	0	0
M9	0	0	2	0.001	0	0	3	0.005	0	0	1.1	0.002	0.1	0.000	1.1	0.002	0.6	0.000	0.1	5E-05	0	0	8.9	0.084	0.1	0.001
M10	0	0	49	0.029	0.1	0.000	112.3	0.196	3.3	0.0675	25.2	0.049	22.2	0.067	407.8	0.698	254.6	0.196	52.3	0.026	3	0.021	70.6	0.67	46.2	0.665
M11	0	0	0	0	0	0	2.4	0.004	0	0	1.3	0.003	0	0	49.1	0.084	13.9	0.011	11.4	0.006	0	0	0.1	0.001	0.1	0.001
M12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13.3	0.023	0.1	8E-05	2.3	0.001	0	0	0	0	0	0
M15	2530.5	11.07	4142.5	2.423	0	0	58.8	0.102	2.6	0.0532	221.5	0.429	3533.1	10.68	10322.5	17.66	6315.7	4.852	45660	22.68	4485.7	31.64	3608.8	34.25	88.8	1.278
M16	107.7	0.471	0.1	6E-05	103.8	0.473	0.1	0.000	411.4	8.4146	0.1	0.000	0.1	0.000	0	0	874.9	0.672	0.1	5E-05	0	0	0	0	0	0
M17	4301.4	18.82	26	0.015	0	0	0	0	0	0	80.9	0.157	118.4	0.358	1370	2.344	902.6	0.693	42112.4	20.91	4717.9	33.28	5.5	0.052	0.1	0.001
M18	0	0	0.1	6E-05	17.8	0.081	310.1	0.54	0	0	74.1	0.144	0.1	0.000	5.5	0.009	122.6	0.094	15.8	0.008	0	0	93.8	0.89	0	0
M19	0	0	13166.5	7.702	146.4	0.667	20224.3	35.24	0	0	9491.9	18.39	5838.2	17.65	10581.8	18.11	29144.5	22.39	29144	14.47	586.1	4.134	3063.9	29.07	1979.2	28.48
M20	0	0	5971	3.493	10197.8	46.48	6194.4	10.79	51.2	1.0472	5569.3	10.79	167.3	0.506	51.5	0.088	0.1	8E-05	43.3	0.022	0	0	0	0	0	0
M21	216.2	0.946	0.1	6E-05	0.1	0.000	0.1	0.000	0.1	0.002	3.2	0.006	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M23	4.1	0.018	186	0.109	6.3	0.029	77.8	0.136	0.1	0.002	78.7	0.152	14.4	0.044	154	0.264	1.6	0.001	100.9	0.05	0	0	102.5	0.973	48.9	0.704
M25	2721	11.91	25913	15.16	733.8	3.344	1299.6	2.264	4	0.0818	114.1	0.221	1922.5	5.812	1170	2.002	662.4	0.509	2585.5	1.284	0.1	0.001	101	0.958	0	0
M26	0	0	0	0	0	0	0.1	0.000	0	0	0.1	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M29	0.7	0.003	0.1	6E-05	0	0	0	0	0	0	0.1	0.000	0.1	0.000	0.1	0.000	0	0	0	0	0	0	0	0	0	0
M31	0	0	0.1	6E-05	0	0	0	0	0	0	0.1	0.000	0.1	0.000	1.8	0.003	39.5	0.03	39.1	0.019	0.1	0.001	0	0	0.1	0.001
M32	0	0	19	0.011	0	0	0.9	0.002	0.1	0.002	0.3	0.001	4.3	0.013	0.8	0.001	8.9	0.007	50	0.025	0.4	0.003	0	0	0.1	0.001
M33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.000	2.1	0.002	0.5	0.000	0	0	0	0	0	0
M34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	5E-05	0	0	0	0	0	0
M35	0.1	0.000	0.1	6E-05	0	0	0	0	0	0	0.1	0.000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
M37	0	0	0.1	6E-05	0	0	0.1	0.000	0	0	0.3	0.001	0.1	0.000	0.1	0.000	0.1	8E-05	0.1	5E-05	0	0	0	0	0	0
M38	0	0	0	0	0	0	0.1	0.000	0	0	0	0	0	0	0.1	0.000	0.1	8E-05	0.1	5E-05	0	0	0	0	0	0
Woodlands & scrub																										
W7	0.1	0.000	0.1	6E-05	0.1	0.000	33.8	0.059	0.1	0.002	25.3	0.049	7.8	0.024	8	0.014	15.4	0.012	28.8	0.014	0	0	0	0	0	0
W9	0.1	0.000	0.1	6E-05	0	0	6.5	0.011	0.1	0.002	0.1	0.000	0.1	0.000	0.1	0.000	0.1	8E-05	106.8	0.053	0	0	0	0	0	0
W11	0.1	0.000	0.1	6E-05	0	0	1.7	0.003	0	0	0.1	0.000	0.1	0.000	285	0.488	2000.7	1.537	1292	0.642	0	0	0.6	0.006	0	0
W17	5.7	0.025	0.1	6E-05	84.6	0.386	70.7	0.123	3.3	0.0675	124.4	0.241	31.8	0.096	80.9	0.138	284.3	0.218	509.2	0.253	0	0	0	0	0	0
W18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131.7	0.225	2161.6	1.661	789.9	0.392	0	0	0	0	0	0
W19	0	0	0	0	0	0	45	0.078	0	0	55	0.107	0.1	0.000	0	0	366	0.281	21	0.01	0	0	0	0	0	0
W20	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.000	1	0.002	31.9	0.025	0.1	5E-05	0	0	0	0	0	0
A4B	6.5	0.028	705.1	0.412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
W23	224.6	0.983	131	0.077	17.2	0.078	1.1	0.002	0.1	0.002	32.6	0.063	0.1	0.000	0.1	0.000	34.4	0.026	11.7	0.006	0	0	0	0	0	0
A3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.000	0.1	8E-05	0	0	0	0	10.9	0.103	0.1	0.001
TOTAL	22852.4	100	170957.7	100	21941.4	100	57397.6	100	4889.1	100	51609.6	100	33078.7	100	58436.9	100	130173.4	100	201366.2	100	14177.6	100	10538.1	100	6948.3	100

Table 21.1
NVC plant communities in 13 upland geographical regions from 292 upland sites (SSSI+non stat.) together with presence in region as a whole and % of the plant community total across all the regions

	SW ENGLAND	%	WALES	%	S PENNINES	%	NE ENGLAND	%	N YORKS MOORS	%	NW ENGLAND	%	S UPLANDS	%	SW SCOTLAND	%	NE SCOTLAND	%	NW SCOTLAND	%	HARRIS	%	ORKNEY	%	SHETLAND	%	TOTAL
Heaths																											
H4	1990.9	99.99	0.1	0.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1991
H8	5.7	64.04	3	33.71	0.1	1.124	0	0	0	0	0.1	1.124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8.9
H9	0	0	0.1	0.001	5064.6	57.04	0.1	0.001	3814	42.956	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8878.8
H10	115.3	0.433	0.1	0.000	0	0	13.8	0.052	0.1	0.0004	37.1	0.139	0.8	0.003	413.9	1.556	62.6	0.235	19679.1	73.97	700.9	2.635	2714.3	10.2	2866.1	10.77	26604.1
H12	4636.3	4.775	28096	28.94	0.1	0.000	6962.6	7.171	0.1	0.0001	10306.9	10.61	9029.4	9.299	6024.4	6.204	32043.5	33	0.1	0.000	0.1	0.000	0.1	0.000	0.1	0.000	97099.7
H13	0	0	0	0	0	0	0.1	0.001	0	0	21.5	0.174	25.3	0.204	268	2.166	7172.1	57.96	4885.2	39.48	0	0	1.8	0.015	0	0	12374
H14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.005	0.1	0.005	1726.4	81.07	7.7	0.362	0.1	0.005	395	18.55	2129.4
H15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	629.9	100	0	0	0	0	0	0	629.9
H16	0	0	0	0	0	0	0	0	0	0	0.1	0.027	0	0	34.6	9.314	336.8	90.66	0	0	0	0	0	0	0	0	371.5
H17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	968.2	76.18	0	0	302.8	23.82	0	0	1271
H18	148.8	0.404	17794.8	48.35	1451	3.943	994.4	2.702	106.1	0.2883	2060.3	5.598	1572.1	4.272	3878.6	10.54	6284.6	17.08	2510.8	6.823	0	0	0	0	0	0	36801.7
H19	0	0	0	0	0	0	117.8	2.331	0	0	317.3	6.278	275	5.441	159.8	3.162	4108.8	81.29	75.6	1.496	0	0	0	0	0	0	5054.3
H20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.3	0.258	869.2	35.62	1563.2	64.06	0	0	0	0	1.5	0.061	2440.2
H21	0	0	1792	24.59	0.1	0.001	52.9	0.726	0.1	0.0014	25.5	0.35	654.9	8.988	711.8	9.769	0.1	0.001	3462.3	47.52	331.4	4.548	106.6	1.463	148.4	2.037	7286.1
H22	0	0	0	0	0	0	0.1	0.002	0	0	0	0	3.1	0.047	38.3	0.581	6178.5	93.78	368.6	5.595	0	0	0	0	0	0	6588.6
Grasslands and upland communities																											
U1	0.1		0.1		0.1		0.1		0		0		0.1		0		0		0		0		0		0		0.5
U2	0.1	0.027	29	7.719	249.6	66.44	74.3	19.78	0.1	0.0266	0.1	0.027	22.4	5.962	0	0	0.1	0.027	0	0	0	0	0	0	0	0	375.7
U3	317.2	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	317.2
U4	2791.9	6.528	16577.7	38.76	1187.1	2.776	5689.2	13.3	13.7	0.032	4506.4	10.54	2823.4	6.601	2417	5.651	1529.1	3.575	4944.4	11.56	143.3	0.335	9.5	0.022	136.4	0.319	42769.1
U5	99.4	0.141	24198.4	34.27	1773.2	2.511	6281.3	8.896	16.3	0.0231	8731.3	12.37	5113.5	7.242	9376.6	13.28	4836.1	6.849	7200.6	10.2	1874.9	2.655	2.9	0.004	1103.3	1.563	70607.8
U6	22.1	0.072	13313.5	43.27	7.5	0.024	4460.6	14.5	0.1	0.0003	3944.1	12.82	120.1	0.39	3573.4	11.61	829.8	2.697	4153.3	13.5	281.2	0.914	0	0	61.5	0.2	30767.2
U7	0	0	0	0	0	0	0.1	0.000	0	0	2	0.009	0.1	0.000	1159.6	5.106	9695.1	42.69	11708.4	51.55	97.2	0.428	33.2	0.146	16.2	0.071	22711.9
U8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	203.1	16.14	1036.6	82.4	18.3	1.455	0	0	0	0	0	0	1258
U9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.006	1612.8	99.99	0.1	0.006	0	0	0	0	0	0	1613
U10	0	0	130	0.744	0	0	51	0.292	0	0	23.4	0.134	706	4.043	2175.1	12.46	5604.8	32.1	7837.3	44.88	935.1	5.355	0	0	0	0	17462.7
U11/U12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31.7	8.872	255	71.37	70.6	19.76	0	0	0	0	0	0	357.3
U13	0	0	0	0	0	0	0	0	0	0	4	0.11	1.9	0.052	170.5	4.689	830.5	22.84	2629.3	72.31	0	0	0	0	0	0	3636.2
U14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1		0.1		0.1		0	0	0	0	0	0	0.3
U15	0	0	0	0	0	0	0	0	0	0	0.1	0.072	0	0	139.1	99.64	0.3	0.215	0.1	0.072	0	0	0	0	0	0	139.6
U16	0.1	0.06	21	12.56	0	0	2.6	1.555	0	0	2.8	1.675	0.5	0.299	0.3	0.179	37.5	22.43	68.8	41.15	9.2	5.502	24.3	14.53	0.1	0.06	167.2
U17	0	0	33	6.016	0	0	0.1	0.018	0	0	1.3	0.237	1	0.182	181.5	33.09	76.8	14	143.9	26.24	0	0	110.8	20.2	0.1	0.018	548.5
U18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.108	16.4	17.79	75.7	82.1	0	0	0	0	0	0	92.2
U19	0	0	0.1	0.121	0	0	0.1	0.121	0	0	0	0	0.1	0.121	17.7	21.4	0.1	0.121	64.6	78.11	0	0	0	0	0	0	82.7
U20	2218.7	9.199	10958	45.43	600.7	2.49	956.2	3.964	329.5	1.3661	4097.6	16.99	742.4	3.078	856.9	3.553	2302	9.544	1026.4	4.255	2.1	0.009	2.6	0.011	26.7	0.111	24119.8
U21	0	0	400	75.97	0	0	0.3	0.057	0	0	118.5	22.51	7.5	1.425	0.1	0.019	0	0	0.1	0.019	0	0	0	0	0	0	526.5
U23	0		0.1		0.1		0.1		0		0.1		0		0.1		0		0.1		0		0		0		0.6
Calcareous grasslands																											0
CG9	0	0	0	0	0	0	1062.7	98.39	0	0	17.4	1.611	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1080.1
CG10	0	0	709	15.41	0.4	0.009	1619.1	35.2	0	0	267.1	5.807	11.8	0.257	198.2	4.309	433.3	9.42	1330.8	28.93	0.1	0.002	1.2	0.026	28.9	0.628	4599.9
CG11	0	0	0	0	0	0	0	0	0	0	34.8	1.445	0	0	1149.3	47.71	501	20.8	724	30.05	0	0	0	0	0	0	2409.1
CG12	0	0	3	1.019	0	0	0	0	0	0	0.1	0.034	0	0	257.3	87.4	2	0.679	32	10.87	0	0	0	0	0	0	294.4
CG13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	176.3	100	0	0	0	0	0	0	176.3
CG14	0	0	0.1	1.351	0	0	0	0	0	0	0.1	1.351	0	0	0	0	0.1	1.351	7.1	95.95	0	0	0	0	0	0	7.4

Table 21.2
NVC plant communities in 13 upland geographical regions from 292 upland sites (SSSI+non stat.) together with presence in region as a whole and % of the plant community total across all the regions

	SW ENGLAND	%	WALES	%	S PENNINES	%	NE ENGLAND	%	N YORKS MOORS	%	NW ENGLAND	%	S UPLANDS	%	SW SCOTLAND	%	NE SCOTLAND	%	NW SCOTLAND	%	HARRIS	%	ORKNEY	%	SHETLAND	%	TOTAL
Mires																											
M1	0.1		0.1		0	0	0	0	0	0	0.1		0.1		0.1		0	0	0.1		0.1		0.1		0.1		0.9
M2	10.1		0.1		0.1		0.1		0	0	0.5		0.1		0.1		0.1		0.1		0.1		0.1		0.1		11.6
M3	0.1		0.1		0.1		0.1		0	0	0.1		0.1		0.1		0.1		0.1		0.1		0	0	0	0	1
M4	55	13.68	254	63.2	0	0	21.3	5.3	0	0	5.6	1.393	4.3	1.07	11.3	2.812	44.8	11.15	5.5	1.368	0	0	0.1	0.025	0	0	401.9
M5	0		0.1		0	0	0.1		0	0	0.1		0.1		0.1				0.1		0	0	0.1		0	0	0.8
M6	321.7	3.057	6332	60.17	298.6	2.837	593.4	5.638	132.6	1.2599	1183.3	11.24	301.5	2.865	340	3.231	225.9	2.146	633.5	6.019	0.8	0.008	160.9	1.529	0.1	0.001	10524.3
M7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6.242	7.5	9.363	67.6	84.39	0	0	0	0	0	0	80.1
M8	0	0	0	0	0	0	0.1		0	0	0	0	0	0	0.1		0.1		0	0	0		0		0		0.3
M9	0	0	2	11.76	0	0	3	17.65	0	0	1.1	6.471	0.1	0.588	1.1	6.471	0.6	3.529	0.1	0.588	0	0	8.9	52.35	0.1	0.588	17
M10	0	0	49	4.682	0.1	0.01	112.3	10.73	3.3	0.3153	25.2	2.408	22.2	2.121	407.8	38.96	254.6	24.33	52.3	4.997	3	0.287	70.6	6.746	46.2	4.414	1046.6
M11	0	0	0	0	0	0	2.4	3.065	0	0	1.3	1.66	0	0	49.1	62.71	13.9	17.75	11.4	14.56	0	0	0.1	0.128	0.1	0.128	78.3
M12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13.3	84.71	0.1	0.637	2.3	14.65	0	0	0	0	0	0	15.7
M15	2530.5	3.125	4142.5	5.116	0	0	58.8	0.073	2.6	0.0032	221.5	0.274	3533.1	4.363	10322.5	12.75	6315.7	7.8	45660	56.39	4485.7	5.54	3608.8	4.457	88.8	0.11	80970.5
M16	107.7	7.188	0.1	0.007	103.8	6.928	0.1	0.007	411.4	27.458	0.1	0.007	0.1	0.007	0	0	874.9	58.39	0.1	0.007	0	0	0	0	0	0	1498.3
M17	4301.4	8.02	26	0.048	0	0	0	0	0	0	80.9	0.151	118.4	0.221	1370	2.554	902.6	1.683	42112.4	78.52	4717.9	8.796	5.5	0.01	0.1	0.000	53635.2
M18	0	0	0.1	0.016	17.8	2.782	310.1	48.46	0	0	74.1	11.58	0.1	0.016	5.5	0.86	122.6	19.16	15.8	2.469	0	0	93.8	14.66	0	0	639.9
M19	0	0	13166.5	10.67	146.4	0.119	20224.3	16.39	0	0	9491.9	7.694	5838.2	4.732	10581.8	8.578	29144.5	23.62	29144	23.62	586.1	0.475	3063.9	2.484	1979.2	1.604	123366.8
M20	0	0	5971	21.14	10197.8	36.1	6194.4	21.93	51.2	0.1813	5569.3	19.72	167.3	0.592	51.5	0.182	0.1	0.000	43.3	0.153	0	0	0	0	0	0	28245.9
M21	216.2	98.36	0.1	0.045	0.1	0.045	0.1	0.045	0.1	0.0455	3.2	1.456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	219.8
M23	4.1	0.529	186	23.99	6.3	0.813	77.8	10.03	0.1	0.0129	78.7	10.15	14.4	1.857	154	19.86	1.6	0.206	100.9	13.01	0	0	102.5	13.22	48.9	6.307	775.3
M25	2721	7.309	25913	69.61	733.8	1.971	1299.6	3.491	4	0.0107	114.1	0.306	1922.5	5.164	1170	3.143	662.4	1.779	2585.5	6.945	0.1	0.000	101	0.271	0	0	37227
M26	0	0	0	0	0	0	0.1		0	0	0.1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
M29	0.7		0.1		0	0	0	0	0	0	0.1		0.1		0.1		0	0	0	0	0	0	0	0	0	0	1.1
M31	0	0	0.1	0.124	0	0	0	0	0	0	0.1	0.124	0.1	0.124	1.8	2.225	39.5	48.83	39.1	48.33	0.1	0.124	0	0	0.1	0.124	80.9
M32	0	0	19	22.41	0	0	0.9	1.061	0.1	0.1179	0.3	0.354	4.3	5.071	0.8	0.943	8.9	10.5	50	58.96	0.4	0.472	0	0	0.1	0.118	84.8
M33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	3.704	2.1	77.78	0.5	18.52	0	0	0	0	0	0	2.7
M34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1		0	0	0	0	0	0	0.1
M35	0.1	0	0.1	0	0	0	0	0	0	0	0.1		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3
M37	0	0	0.1		0	0	0.1		0	0	0.3		0.1		0.1		0.1		0.1		0	0	0	0	0	0	0.9
M38	0	0	0	0	0	0	0.1		0	0	0	0	0	0	0.1		0.1		0.1		0	0	0	0	0	0	0.4
Woodlands & scrub																											
W7	0.1	0.001	0.1	0.001	0.1	0.001	33.8	0.283	0.1	0.0008	25.3	0.212	7.8	0.065	8	0.067	15.4	0.129	28.8	0.241	0	0	0	0	0	0	119.5
W9	0.1	0.088	0.1	0.088	0	0	6.5	5.702	0.1	0.0877	0.1	0.088	0.1	0.088	0.1	0.088	0.1	0.088	106.8	93.68	0	0	0	0	0	0	114
W11	0.1	0.003	0.1	0.003	0	0	1.7	0.047	0	0	0.1	0.003	0.1	0.003	285	7.96	2000.7	55.88	1292	36.09	0	0	0.6	0.017	0	0	3580.4
W17	5.7	0.477	0.1	0.008	84.6	7.079	70.7	5.916	3.3	0.2762	124.4	10.41	31.8	2.661	80.9	6.77	284.3	23.79	509.2	42.61	0	0	0	0	0	0	1195
W18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	131.7	4.272	2161.6	70.11	789.9	25.62	0	0	0	0	0	0	3083.2
W19	0	0	0	0	0	0	45	9.227	0	0	55	11.28	0.1	0.021	0	0	366	75.05	21	4.306	0	0	0	0	0	0	487.1
W20	0	0	0	0	0	0	0	0	0	0	0	0	0.1		1		31.9		0.1		0	0	0	0	0	0	33.1
A4B	6.5	0.913	705.1	99.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	711.6
W23	224.6	49.59	131	28.92	17.2	3.798	1.1	0.243	0.1	0.0221	32.6	7.198	0.1	0.022	0.1	0.022	34.4	7.595	11.7	2.583	0	0	0	0	0	0	552.9
A3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.893	0.1	0.893	0	0	0	0	10.9	97.32	0.1	0.893	11.2

Table 22 List of National Vegetation Classification plant communities found on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC type code	NVC type name
W	**Woodlands & scrub**
W1	Salix cinerea-Galium palustre woodland
W3	Salix pentandra-Carex rostrata woodland
W7	Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum woodland
W9	Fraxinus excelsior-Sorbus aucuparia-Mercuralis perennis woodland
W11	Quercus petraea-Betula pubescens-Oxalis acetosella woodland
W16	Quercus spp.-Betula spp.-Deschampsia flexuosa woodland
W17	Quercus petraea-Betula pubescens-Dicranum majus woodland
W19	Juniperus communis-Oxalis acetosella woodland
W23	Ulex europaeus-Rubus fruticosus agg. scrub
H	**Heaths**
H9	Calluna vulgaris-Deschampsia flexuosa heath
H10	Calluna vulgaris-Erica cinerea heath
H10d	Thymus praecox-Carex pulicaris sub-community
H12	Calluna vulgaris-Vaccinium myrtillus heath
H12b	Vaccinium vitis-idaea-Cladonia impexa sub-community
H13	Calluna vulgaris-Cladonia arbuscula heath
H13a	Cladonia arbuscula-Cladonia rangiferina sub-community
H18	Vaccinium myrtillus-Deschampsia flexuosa heath
H19	Vaccinium myrtillus-Cladonia arbuscula heath

H21	Calluna vulgaris-Vaccinium myrtillus-Sphagnum capillifolium heath
H21a	Calluna vulgaris-Pteridium aquilinum sub-community
H22	Vaccinium myrtillus-Rubus chamaermorus heath
H22a	Polytrichum commune-Galium saxatile sub-community
U	**Upland and montane communities**
U2	Deschampsia flexuosa grassland
U4	Festuca ovina-Agrostis capillaris-Galium saxatile grassland
U4a	Typical sub-community
U4e	Vaccinium myrtillus-Galium saxatile sub-community
U5	Nardus stricta-Galium saxatile grassland
U5a	Species-poor sub-community
U6	Juncus squarrosus-Festuca ovina grassland
U6a	Sphagnum sub-community
U6d	Agrostis capillaris-Luzula multiflora sub-community
U7	Nardus stricta-Carex bigelowii grass-heath
U7c	Alchemilla alpina-Festuca ovina sub-community
U10	Carex bigelowii-Racomitrium lanuginosum moss-heath
U10a	Galium saxatile sub-community
U10b	Typical sub-community
U16	Luzula sylvatica-Vaccinium myrtillus tall-herb community
U17	Luzula sylvatica-Geum rivale tall-herb community
U19	Thelypteris limbosperma-Blechnum spicant community
U20	Pteridium aquilinum-Galium saxatile community
U20a	Anthoxanthum odoratum sub-community
U20b	Vaccinium myrtillus-Dicranum scoparium sub-community
U20c	Species-poor sub-community

U21	Cryptogramma crispa-Deschampsia flexuosa community
U22	Asplenium trichomanes-Asplenium ruta-muraria community
U23	Asplenium viride-Cystopteris fragilis community
M	**Mires**
M2	Sphagnum cuspidatum/recurvum bog-pool community
M4	Carex rostrata-Sphagnum recurvum mire
M6	Carex echinata-Sphagnum recurvum/auriculatum mire
M6a	Carex echinata sub-community
M6b	Carex nigra-Nardus stricta sub-community
M6c	Juncus effusus sub-community
M6ci	Sphagnum recurvum variant
M6d	Juncus acutiflorus sub-community
M6di	Sphagnum recurvum variant
M8	Carex rostrata-Sphagnum warnstorfii mire
M9	Carex rostrata-Calliergon cuspidatum/giganteum mire
M10	Carex dioica-Pinguicula vulgaris mire
M10a	Carex demissa-Juncus bulbosus/kochii sub-community
M10aiii	Schoenus nigricans variant
M10b	Briza media-Primula farinosa sub-community
M11	Carex demissa-Saxifraga aizoides mire
M11b	Cratoneuron commutatum-Eleocharis quinqueflora sub-community
M15	Scirpus cespitosus-Erica tetralix wet heath
M15a	Carex panicea sub-community
M15b	Typical sub-community
M16	Erica tetralix-Sphagnum compactum wet heath
M17	Scirpus cespitosus-Eriophorum vaginatum blanket mire
M17c	Juncus squarrosus-Rhytidiadelphus loreus sub-community

M18 *Erica tetralix*-*Sphagnum papillosum* raised and blanket mire

M18a *Sphagnum magellanicum*-*Andromeda polifolia* sub-community

M19 *Calluna vulgaris*-*Eriophorum vaginatum* blanket mire

M19a *Erica tetralix* sub-community

M19b *Empetrum nigrum nigrum* sub-community

M20 *Eriophorum vaginatum* blanket and raised mire

M20a Species-poor sub-community

M20b *Calluna vulgaris*-*Cladonia* sub-community

M21 *Narthecium ossifragum*-*Sphagnum papillosum* valley mire

M21b *Sphagnum recurvum*-*Vaccinium oxycoccus* sub-community

M23 *Juncus effusus/acutiflorus*-*Galium palustre* rush-pasture

M23a *Juncus acutiflorus* sub-community

M23b *Juncus effusus* sub-community

M25 *Molinia caerulea*-*Potentilla erecta* mire

M25a *Erica tetralix* sub-community

M25b *Anthoxanthum odoratum* sub-community

M26 *Molinia caerulea*-*Crepis paludosa* mire

M32 *Philonotis fontana*-*Saxifraga stellaris* spring

M35 *Ranunculus omiophyllus*-*Montia fontana* spring

M37 *Cratoneuron commutatum/filicinum*-*Festuca rubra* spring

Calcareous grasslands

CG9 *Sesleria albicans*-*Galium sterneri* grassland

CG10 *Festuca ovina*-*Agrostis capillaris*-*Thymus praecox* grassland

CG10c *Saxifraga aizoides*-*Ditrichum flexicaule* sub-community

Mesotrophic grasslands

MG9	*Holcus lanatus*-*Deschampsia cespitosa* grassland
MG10	*Holcus lanatus*-*Juncus effusus* rush-pasture

Swamps

S9	*Carex rostrata* swamp
S22	*Glyceria fluitans* water-margin vegetation

Rock types

R1	Rock outcrops
R1a	Crags
R1b	Gently-sloping outcrops
R2	Scree
R2a	Scree on steep slopes
R2b	Scree on shallow slopes
R3	Boulder fields

Table 23 NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with rare/relic communities and naturalness rating

NVC code	Rare/ relic comms	Natural-ness score 1-3 scale	Site name	Total area (ha) and % area																	
				Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
				ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9		2		0.00	0.00	0.00	0.00	0.00	0.00	359.40	74.09	0.00	0.00	1293.90	70.92	0.00	0.00	0.00	0.00	424.40	9.71
H9/H12		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12		2		0.00	0.00	164.30	7.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12/H21		2		0.00	0.00	497.10	21.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12		2		150.60	1.48	0.10	0.00	259.90	9.64	0.00	0.00	0.90	0.03	0.00	0.00	1838.00	23.58	671.20	73.61	0.10	0.00
H12/H21		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H13	R	1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H18		2		172.10	1.69	0.00	0.00	637.40	23.63	29.50	6.08	27.40	0.81	0.00	0.00	16.30	0.21	4.10	0.45	12.50	0.29
H19	R	1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H21	R	2		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	2.30	0.03	0.10	0.01	0.00	0.00
H22	R	1		0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total H				322.80	3.18	661.50	28.88	897.40	33.28	388.90	80.17	28.30	0.84	1294.00	70.93	1856.60	23.82	675.40	74.07	437.00	10.00
Mire (uncl)		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2		1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M4		1		0.10	0.00	4.10	0.18	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.03	0.00	0.00
M6		2		25.50	0.25	45.90	2.00	0.70	0.03	8.20	1.69	54.30	1.60	54.70	3.00	134.30	1.72	16.40	1.80	78.90	1.80
M6/M10		2		13.10	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6/M23		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.18	0.00	0.00	0.00	0.00	0.00	0.00
M6/M23/MG10		2		42.40	0.42	21.40	0.93	0.40	0.01	0.00	0.00	4.90	0.14	0.00	0.00	1.10	0.01	0.00	0.00	0.00	0.00
M8	R	1		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	R	1		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M10	R	2		19.50	0.19	4.10	0.18	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00
M10/M11	R	2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M11	R	1		0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total flush M				100.90	0.99	75.50	3.30	1.20	0.04	8.20	1.69	59.30	1.75	58.00	3.18	135.50	1.74	16.70	1.83	79.00	1.81
M15	R	2		0.00	0.00	41.30	1.80	0.00	0.00	0.00	0.00	0.00	0.00	9.80	0.54	0.10	0.00	0.10	0.01	0.00	0.00
M15/M16		2		0.00	0.00	0.00	0.00	2.50	0.09	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.02	9.60	1.05	0.00	0.00
M15/M25		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.70	1.83	0.00	0.00
M16		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	335.90	18.41	0.00	0.00	0.00	0.00	0.10	0.00
M16/M25		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total wet heath M				0.00	0.00	41.30	1.80	2.50	0.09	0.00	0.00	0.00	0.00	345.70	18.95	1.40	0.02	26.40	2.90	0.10	0.00
M17	R	1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	R	1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18/M19		1		0.10	0.00	3.60	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00
M19		1		0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
M19/M20		1		6401.80	62.98	714.50	31.20	555.10	20.58	0.00	0.00	325.20	9.60	0.00	0.00	4311.00	55.31	71.60	7.85	0.00	0.00
M20		2		276.60	2.72	10.70	0.47	265.60	9.85	44.00	9.07	1356.70	40.04	7.20	0.39	118.20	1.52	0.00	0.00	3277.80	74.98
M21	R	1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Total blanket M				6678.60	65.70	728.80	31.82	820.80	30.43	44.00	9.07	1681.90	49.64	7.30	0.40	4429.30	56.83	71.70	7.86	3277.80	74.98
M23		2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M23/MG10		2		43.00	0.42	1.00	0.04	0.10	0.00	0.00	0.00	1.60	0.05	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00
M25		2		0.10	0.00	5.10	0.22	22.10	0.82	0.00	0.00	37.60	1.11	0.00	0.00	11.70	0.15	0.10	0.01	120.50	2.76
M26	R	2		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	R	1		0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M35	R	1		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	R	1		0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total meadow/spring M				43.30	0.43	6.30	0.28	22.30	0.83	0.00	0.00	39.40	1.16	0.00	0.00	11.70	0.15	0.20	0.02	120.50	2.76

(cont.)

Table 23 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with rare/relic communities and naturalness rating

Total area (ha) and % area

NVC code	Rare/ relic comms	Natural-ness score 1-3 scale	Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
			ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9		2	0.00	0.00	2209.20	19.39	0.10	0.00	955.00	83.38	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H9/H12		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	965.50	33.57	0.00	0.00	0.00	0.00	0.00	0.00
H10		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12/H21		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12		2	20.90	0.57	0.00	0.00	570.10	9.33	0.00	0.00	0.10	0.00	0.00	0.00	67.80	3.27	0.10	0.00
H12/H21		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H13	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H18		2	0.10	0.00	796.20	6.99	41.90	0.69	3.60	0.31	73.70	2.56	0.00	0.00	20.80	1.00	21.00	0.34
H19	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.70	0.47	103.80	1.66
H21	R	2	0.00	0.00	0.00	0.00	38.50	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H22	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total H			21.00	0.57	3005.40	26.38	650.60	10.65	958.60	83.70	1039.40	36.14	0.00	0.00	98.30	4.74	124.90	2.00
Mire (undl)		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	134.50	3.65	0.00	0.00	0.00	0.00
M2		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M4		1	0.00	0.00	0.00	0.00	1.60	0.03	0.00	0.00	0.00	0.00	0.10	0.00	11.20	0.54	3.00	0.05
M6		2	12.60	0.34	108.80	0.96	46.50	0.76	40.50	3.54	53.20	1.85	0.10	0.00	119.30	5.76	105.20	1.69
M6/M10		2	0.00	0.00	0.00	0.00	1.80	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
M6/M23		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6/M23/MG10		2	0.00	0.00	0.00	0.00	14.80	0.24	0.00	0.00	0.00	0.00	0.00	0.00	16.50	0.80	0.10	0.00
M8	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	R	1	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
M10	R	2	14.10	0.39	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.50	0.01
M10/M11	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M11	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total flush M			26.80	0.73	108.80	0.96	64.90	1.06	40.50	3.54	53.20	1.85	134.90	3.66	147.10	7.10	108.80	1.74
M15	R	2	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.03
M15/M16		2	0.10	0.00	0.00	0.00	11.80	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15/M25		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M16		2	0.00	0.00	0.10	0.00	0.10	0.00	14.80	1.29	62.70	2.18	0.00	0.00	0.00	0.00	0.00	0.00
M16/M25		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total wet heath M			0.10	0.00	0.10	0.00	12.20	0.20	14.80	1.29	62.70	2.18	0.00	0.00	0.00	0.00	1.60	0.03
M17	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	R	1	0.00	0.00	0.00	0.00	76.60	1.25	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	15.00	0.24
M18/M19		1	0.00	0.00	0.00	0.00	172.80	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M19		1	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.00	146.40	5.09	0.00	0.00	0.10	0.00	996.20	15.96
M19/M20		1	21.50	0.59	0.00	0.00	3504.80	57.38	0.00	0.00	0.00	0.00	0.00	0.00	94.90	4.58	1782.40	28.55
M20		2	858.70	23.48	6041.50	53.03	32.30	0.53	0.10	0.01	896.20	31.16	0.00	0.00	692.80	33.43	643.30	10.30
M21	R	1	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total blanket M			880.30	24.07	6041.70	53.03	3786.60	62.00	0.20	0.02	1042.60	36.25	0.10	0.00	787.80	38.01	3436.90	55.05
M23		2	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	6.30	0.22	0.00	0.00	0.00	0.00	0.00	0.00
M23/MG10		2	0.00	0.00	0.00	0.00	3.70	0.06	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.10	0.10	0.00
M25		2	16.10	0.44	501.00	4.40	1064.20	17.42	4.00	0.35	153.60	5.34	0.00	0.00	0.00	0.00	0.00	0.00
M26	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
M32	R	1	0.10	0.00	0.00	0.00	0.70	0.01	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
M35	R	1	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	R	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00
Total meadow/spring M			16.30	0.45	501.20	4.40	1068.60	17.50	4.10	0.36	159.90	5.56	0.10	0.00	2.20	0.11	0.30	0.00

(cont.)

Table 23 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with rare/relic communities and naturalness rating

NVC code	Rare/ relic comms	Natural-ness score 1-3 scale	Total area (ha) and % area															
			Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
			ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9		2	0.00	0.00	1205.60	81.56	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H9/H12		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.80	0.20	13.80	0.18	0.00	0.00	0.00	0.00
H10/H12		2	0.00	0.00	0.00	0.00	58.40	2.99	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12/H21		2	0.00	0.00	0.00	0.00	16.00	0.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12		2	0.10	0.01	0.00	0.00	0.00	0.00	1469.50	73.88	1407.90	18.05	632.70	8.40	5492.40	36.71	0.00	0.00
H12/H21		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.40	0.52	0.00	0.00
H13	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.60	0.15	0.10	0.00	0.00	0.00	0.00	0.00
H18		2	41.60	3.30	73.00	4.94	0.00	0.00	1.70	0.09	280.40	3.60	0.10	0.00	1045.30	6.99	10.10	0.31
H19	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.30	1.16	0.10	0.00	0.00	0.00	4.30	0.13
H21	R	2	0.10	0.01	0.10	0.01	0.10	0.01	12.00	0.60	0.10	0.00	0.10	0.00	5.40	0.04	0.00	0.00
H22	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total H			41.80	3.32	1278.70	86.51	74.50	3.82	1483.30	74.57	1806.20	23.16	646.90	8.58	6621.50	44.26	14.40	0.44
Mire (undl)		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00
M4		1	0.00	0.00	0.00	0.00	0.10	0.01	0.10	0.01	0.10	0.00	7.90	0.10	0.10	0.00	0.00	0.00
M6		2	34.20	2.71	25.90	1.75	112.60	5.77	17.30	0.87	217.30	2.79	50.50	0.67	322.20	2.15	248.50	7.54
M6/M10		2	0.00	0.00	0.00	0.00	1.40	0.07	0.00	0.00	0.00	0.00	27.00	0.36	0.00	0.00	0.00	0.00
M6/M23		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.02	0.00	0.00
M6/M23/MG10		2	0.00	0.00	0.00	0.00	19.80	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M8	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	0.09
M10	R	2	0.00	0.00	0.00	0.00	0.10	0.01	0.60	0.03	0.00	0.00	36.30	0.48	0.00	0.00	0.10	0.00
M10/M11	R	2	0.00	0.00	0.00	0.00	0.50	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M11	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	2.30	0.03	0.00	0.00	0.00	0.00
Total flush M			34.20	2.71	25.90	1.75	134.50	6.89	18.00	0.90	217.50	2.79	124.00	1.65	325.10	2.17	251.50	7.63
M15	R	2	0.00	0.00	0.00	0.00	152.30	7.80	3.80	0.19	7.20	0.09	0.00	0.00	0.00	0.00	0.00	0.00
M15/M16		2	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15/M25		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.02	0.00	0.00	0.00	0.00
M16		2	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M16/M25		2	0.00	0.00	60.70	4.11	0.00	0.00	0.00	0.00	0.00	0.00	31.00	0.41	0.00	0.00	0.00	0.00
Total wet heath M			0.00	0.00	60.80	4.11	152.30	7.80	4.20	0.21	7.20	0.09	32.40	0.43	0.00	0.00	0.00	0.00
M17	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
M18	R	1	0.00	0.00	0.00	0.00	39.40	2.02	219.40	11.03	0.00	0.00	11.50	0.15	34.70	0.23	0.00	0.00
M18/M19		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
M19		1	2.60	0.21	0.00	0.00	136.80	7.01	0.00	0.00	811.60	10.41	0.00	0.00	0.10	0.00	207.10	6.28
M19/M20		1	383.70	30.45	0.00	0.00	666.40	34.13	27.30	1.37	0.10	0.00	4135.30	54.87	3751.50	25.08	0.00	0.00
M20		2	451.70	35.85	0.00	0.00	270.80	13.87	0.40	0.02	274.10	3.51	324.40	4.30	1726.90	11.54	1254.40	38.06
M21	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total blanket M			838.00	66.51	0.00	0.00	1113.40	57.03	247.10	12.42	1086.80	13.94	4471.30	59.33	5513.20	36.85	1461.50	44.35
M23		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.40	0.65	0.00	0.00	0.00	0.00	0.00	0.00
M23/MG10		2	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.18	0.00	0.00	23.80	0.32	0.00	0.00	0.00	0.00
M25		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	123.90	0.83	147.90	4.49
M26	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
M32	R	1	0.00	0.00	0.10	0.01	0.10	0.01	0.00	0.00	0.20	0.00	0.10	0.00	0.10	0.00	0.00	0.00
M35	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
Total meadow/spring M			0.00	0.00	0.10	0.01	0.10	0.01	3.50	0.18	50.60	0.65	24.20	0.32	124.00	0.83	147.90	4.49

(cont.)

Table 23 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with rare/relic communities and naturalness rating

Total area (ha) and % area

NVC code	Rare/ relic comms	Natural-ness score 1-3 scale	Site name																			
			Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
			ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U4		3	736.50	7.25	8.70	0.38	22.30	0.83	0.30	0.06	274.80	8.11	0.10	0.01	559.40	7.18	1.90	0.21	27.10	0.62
U4/CG10		3	339.20	3.34	0.00	0.00	24.40	0.90	0.00	0.00	344.20	10.16	0.00	0.00	0.00	0.00	22.40	2.46	0.00	0.00
U5		3	403.40	3.97	404.80	17.67	874.20	32.41	0.10	0.02	139.20	4.11	0.00	0.00	366.00	4.70	26.40	2.90	243.20	5.56
U6		3	748.30	7.36	26.50	1.16	0.10	0.00	0.10	0.02	786.10	23.20	0.00	0.00	33.20	0.43	0.10	0.01	7.50	0.17
U7	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U10	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total acid grass U			2227.40	21.91	440.00	19.21	921.00	34.15	0.50	0.10	1544.30	45.58	0.10	0.01	958.60	12.30	50.80	5.57	277.80	6.35
U16	R	2	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U17	R	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U19	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U20		2	31.30	0.31	317.90	13.88	16.00	0.59	43.50	8.97	7.80	0.23	119.20	6.53	326.00	4.18	64.70	7.10	179.30	4.10
U21	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U22/U23	R	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total fern/forb U			31.60	0.31	317.90	13.88	16.00	0.59	43.50	8.97	7.90	0.23	119.20	6.53	326.00	4.18	64.70	7.10	179.30	4.10
CG9	R	3	205.00	2.02	0.00	0.00	0.00	0.00	0.00	0.00	8.90	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG9/CG10	R	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	R	3	537.20	5.28	0.10	0.00	0.00	0.00	0.00	0.00	18.30	0.54	0.00	0.00	4.50	0.06	0.00	0.00	0.00	0.00
Total calc. grass CG			742.20	7.30	0.10	0.00	0.00	0.00	0.00	0.00	27.20	0.80	0.00	0.00	4.50	0.06	0.00	0.00	0.00	0.00
MG		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG9		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG10		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
Total meso grass MG			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
S22	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.01	4.40	0.48	0.00	0.00
W1	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W3	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7	R	1	13.40	0.13	0.00	0.00	13.90	0.52	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.03	0.10	0.01	0.00	0.00
W7/W9	R	1	4.70	0.05	4.10	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30	0.06	0.00	0.00	0.10	0.00
W9	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11	R	1	0.00	0.00	0.00	0.00	1.70	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	R	1	0.00	0.00	14.80	0.65	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	61.30	0.79	1.40	0.15	0.00	0.00
W16		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W17	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00
W19	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W23		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.01	0.00	0.00	0.00	0.00
Total wood/scrub W			18.10	0.18	18.90	0.83	15.70	0.58	0.00	0.00	0.00	0.00	0.10	0.01	70.00	0.90	5.90	0.65	0.10	0.00
Community total			10164.90	100.00	2290.30	100.00	2696.90	100.00	485.10	100.00	3388.30	100.00	1824.40	100.00	7793.70	100.00	911.80	100.00	4371.60	100.00
Diversity			34		26		25		9		23		12		27		23		17	

Diversity is the number of communities

(cont.)

Table 23 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with rare/relic communities and naturalness rating

Total area (ha) and % area

NVC code	Rare/ relic comms	Natural-ness score 1-3 scale	Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
			ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2		3	0.00	0.00	233.20	2.05	74.30	1.22	0.00	0.00	16.40	0.57	0.00	0.00	0.00	0.00	0.00	0.00
U4		3	595.40	16.28	2.20	0.02	164.50	2.69	14.20	1.24	25.60	0.89	1894.20	51.45	3.40	0.16	237.60	3.81
U4/CG10		3	19.80	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	0.28	99.10	1.59
U5		3	666.60	18.23	1189.40	10.44	211.30	3.46	10.80	0.94	340.60	11.84	757.80	20.58	344.50	16.62	844.20	13.52
U6		3	820.00	22.42	0.10	0.00	1.90	0.03	0.00	0.00	0.00	0.00	0.00	0.00	542.10	26.15	1063.00	17.03
U7	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U10	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.10	1.51
Total acid grass U			2101.80	57.47	1424.90	12.51	452.00	7.40	25.00	2.18	382.60	13.30	2652.00	72.03	895.70	43.21	2338.00	37.45
U16	R	2	0.00	0.00	0.00	0.00	2.60	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U17	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
U19	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U20		2	14.40	0.39	296.50	2.60	69.90	1.14	102.00	8.91	46.20	1.61	0.00	0.00	0.00	0.00	34.00	0.54
U21	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
U22/U23	R	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.10	0.00
Total fern/forb U			14.50	0.40	296.50	2.60	72.50	1.19	102.00	8.91	46.20	1.61	0.10	0.00	0.20	0.01	34.20	0.55
CG9	R	3	485.00	13.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	214.60	5.83	16.50	0.80	0.10	0.00
CG9/CG10	R	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	R	3	98.80	2.70	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	632.80	17.19	124.80	6.02	198.50	3.18
Total calc. grass CG			583.80	15.96	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	847.40	23.02	141.30	6.82	198.60	3.18
MG		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.20	0.32	0.00	0.00	0.00	0.00	0.00	0.00
MG9		3	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG10		3	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.01	0.10	0.00	0.10	0.00	0.10	0.00	0.00	0.00
Total meso grass MG			0.00	0.00	0.00	0.00	0.20	0.00	0.10	0.01	9.30	0.32	0.10	0.00	0.10	0.00	0.00	0.00
S22	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W		1	0.00	0.00	7.50	0.07	0.00	0.00	0.00	0.00	0.00	0.00	40.50	1.10	0.00	0.00	0.00	0.00
W1	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.05	0.00	0.00	0.00	0.00	0.00	0.00
W3	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.18	0.00	0.00	0.00	0.00
W7	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7/W9	R	1	1.40	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W9	R	1	6.50	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	R	1	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W16		1	0.00	0.00	5.90	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W17	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.00	2.43	0.00	0.00	0.00	0.00	0.00	0.00
W19	R	1	4.40	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W23		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.70	0.30	0.00	0.00	0.00	0.00	0.00	0.00
Total wood/scrub W			12.30	0.34	13.40	0.12	0.10	0.00	0.00	0.00	80.00	2.78	47.00	1.28	0.00	0.00	0.00	0.00
Community total			3656.90	100.00	11392.00	100.00	6107.80	100.00	1145.30	100.00	2875.90	100.00	3681.70	100.00	2072.70	100.00	6243.30	100.00
Diversity			27		20		37		12		25		15		22		34	

Diversity is the number of communities

(cont.)

Table 23 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with rare/relic communities and naturalness rating

NVC code	Rare/ relic comms	Natural-ness score 1-3 scale	Total area (ha) and % area															
			Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
			ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U4		3	15.00	1.19	0.00	0.00	176.00	9.01	0.10	0.01	572.80	7.34	193.00	2.56	216.00	1.44	201.10	6.10
U4/CG10		3	3.60	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.60	0.94	0.00	0.00	0.70	0.02
U5		3	196.40	15.59	5.40	0.37	296.40	15.18	0.30	0.02	2294.70	29.42	1279.70	16.98	624.40	4.17	818.80	24.85
U6		3	79.90	6.34	0.00	0.00	3.30	0.17	0.20	0.01	1219.10	15.63	489.60	6.50	484.30	3.24	222.60	6.75
U7	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00
U10	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Total acid grass U			294.90	23.40	5.40	0.37	475.70	24.36	0.60	0.03	4094.50	52.50	2032.90	26.98	1324.70	8.85	1243.20	37.72
U16	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.02	0.00	0.00	0.00	0.00	0.00	0.00
U17	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00
U19	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U20		2	0.00	0.00	103.90	7.03	1.90	0.10	202.00	10.16	497.90	6.38	47.60	0.63	1043.80	6.98	6.20	0.19
U21	R	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.60	0.11	0.10	0.00	0.00	0.00	0.10	0.00
U22/U23	R	1	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00
Total fern/forb U			0.10	0.01	103.90	7.03	1.90	0.10	202.00	10.16	508.10	6.52	47.90	0.64	1043.80	6.98	6.50	0.20
CG9	R	3	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.20	0.29	0.00	0.00	110.40	3.35
CG9/CG10	R	3	50.70	4.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	R	3	0.10	0.01	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	93.50	1.24	0.00	0.00	54.50	1.65
Total calc. grass CG			50.90	4.04	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	115.70	1.54	0.00	0.00	164.90	5.00
MG		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG9		3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG10		3	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total meso grass MG			0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S22	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W1	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W3	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7	R	1	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7/W9	R	1	0.00	0.00	0.00	0.00	0.00	0.00	17.40	0.87	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.17
W9	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
W11	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	R	1	0.00	0.00	0.00	0.00	0.00	0.00	6.70	0.34	0.10	0.00	0.10	0.00	2.30	0.02	0.00	0.00
W16		1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W17	R	1	0.00	0.00	3.30	0.22	0.00	0.00	1.90	0.10	0.10	0.00	0.00	0.00	5.90	0.04	0.00	0.00
W19	R	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.50	0.34	40.50	0.54	0.00	0.00	0.00	0.00
W23		2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Total wood/scrub W			0.00	0.00	3.30	0.22	0.00	0.00	30.10	1.51	28.00	0.36	40.60	0.54	8.20	0.05	5.60	0.17
Community total			1260.00	100.00	1478.10	100.00	1952.40	100.00	1989.10	100.00	7798.90	100.00	7535.90	100.00	14960.50	100.00	3295.50	100.00
Diversity			17		11		30		30		48		39		28		23	

Diversity is the number of communities

Table 24 Summary areas figures and ratios for NVC dwarf-shrub heaths, grasslands and blanket mire, Calluna-rich and Calluna-poor vegetation on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC group/ code	Total area (ha) and % area of plant communities																	
	Site name																	
	Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Dwarf-shrub heath (H9+H10...H22)	322.8	3.2	661.5	28.9	897.4	33.3	388.9	80.2	28.3	0.8	1294.0	70.9	1856.6	23.8	675.4	74.1	437.0	10.0
Grassland (sub-montane) U2+U4+U5+U6+CG9+CG10	2969.6	29.2	440.1	19.2	921.0	34.2	0.5		1571.5	46.4	0.1	0.0	963.1	12.4	50.8	5.6	277.8	6.4
Ratio Dwarf-shrub heath:Grass'd	1.0:9.0		6.0:4.0		4.9:5.1		10.0:<0.1		0.2:9.8		10.0:<0.1		6.6:3.4		9.3:0.7		6.1:3.9	
Calluna-Eriophorum blanket mire (M19) (max.)	6402.0	63.0	718.1	31.4	555.2	20.6	0.0		325.2	9.6	0.0		4311.1	55.3	71.7	7.9	0.0	0.0
Eriophorum blanket mire (M20)	276.6	2.7	10.7	0.5	265.6	9.8	44.0	9.1	1356.7	40.0	7.2	0.4	118.2	1.5	0.0	0.0	3277.8	75.0
Ratio M19:M20	9.6:0.4		9.9:0.1		6.7:3.2		0.0:10.0		1.9:8.1		0.0:10.0		9.7:0.3		10.0:0.0		0.0:10.0	
Total blanket mire (M17+M18+M19+M20)	6678.6	65.7	728.8	31.8	820.8	30.4	44.0	9.1	1681.9	49.6	7.2	0.4	4429.3	56.8	71.7	7.9	3277.8	75.0
Ratio Heath:Blanket mire (H9...H22:M17...M20)	0.5:9.5		4.7:5.2		5.2:4.8		9.0:1.0		0.2:9.8		9.9:0.1		3.0:7.0		9.0:1.0		1.2:8.8	
Total dwarf-shrub heath+ Calluna-rich blanket mire (M19)	6724.8	66.2	1379.6	60.2	1452.6	53.9	388.9	80.2	353.5	10.4	1294.0	70.9	6167.7	79.1	747.1	81.9	437.0	10.0
Total grassland+ Calluna-poor blanket mire (M20)	3246.2	31.9	450.8	19.7	1186.6	44.0	44.5	9.2	2928.2	86.4	7.3	0.4	1081.3	13.9	50.8	5.6	3555.6	81.3
Ratio Calluna-rich:Calluna poor	6.7:3.3		7.5:2.5		5.5:4.5		9.0:1.0		1.1:8.9		9.9:0.1		8.5:1.5		9.4:0.6		1.1:8.9	
Community total	10164.9		2290.3		2696.9		485.1		3388.3		1824.4		7793.7		911.8		4371.6	

(cont.)

Table 24 (cont.) Summary areas figures and ratios for NVC dwarf-shrub heaths, grasslands and blanket mire, Calluna-rich and Calluna-poor vegetation on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC group/ code	Total area (ha) and % area of plant communities													
	Site name													
	Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Dwarf-shrub heath (H9+H10...H22)	21.0	0.6	3005.4	26.4	650.6	10.7	958.6	83.7	1039.4	36.1	0.0	0.0	98.3	4.7	124.9	2.0
Grassland (sub-montane) U2+U4+U5+U6+CG9+CG10	2685.6	73.4	1424.9	12.5	452.1	7.4	25.0	2.2	382.6	13.3	3499.4	95.0	1037.0	50.0	2442.5	39.1
Ratio Dwarf-shrub heath:Grass'd	0.1:9.9		6.7:3.2		5.9:4.1		9.7:0.3		7.3:2.7		0.0:10.0		0.9:9.1		0.5:9.5	
Calluna-Eriophorum blanket mire (M19) (max.)	21.6	0.6	0.1	0.0	3677.7	60.2	0.0	0.0	146.4	5.1	0.0	0.0	95.0	4.6	2778.6	44.5
Eriophorum blanket mire (M20)	858.7	23.5	6041.5	53.0	32.3	0.5	0.1	0.0	896.2	31.2	0.0	0.0	692.8	33.4	643.3	10.3
Ratio M19:M20	0.2:9.7		<0.1:10.0		9.9:0.1		0.0:10.0		0.1:8.6		0.0		1.2:8.8		8.1:1.9	
Total blanket mire (M17+M18+M19+M20)	880.3	24.1	6041.6	53.0	3786.6	62.0	0.1	0.0	1042.6	36.3	0.1	0.0	787.8	38.0	3436.9	55.0
Ratio Heath:Blanket mire (H9...H22:M17...M20)	0.2:9.8		3.3:6.7		1.5:8.5		10.0:<0.1		5.0:5.0		0.0:10.0		1.1:8.9		0.4:9.6	
Total dwarf-shrub heath+ Calluna-rich blanket mire (M19)	42.6	1.2	3005.5	26.4	4328.3	70.9	958.6	83.7	1185.8	41.2	0.0		193.3	9.3	2903.5	46.5
Total grassland+ Calluna-poor blanket mire (M20)	3544.3	96.9	7466.4	65.5	484.4	7.9	25.1	2.2	1278.8	44.5	3499.4	95.0	1729.8	83.5	3085.8	49.4
Ratio Calluna-rich:Calluna poor	0.1:9.9		2.9:7.1		9.0:1.0		9.7:0.3		4.8:5.2		0.0:10.0		1.0:9.0		4.8:5.2	
Community total	3656.9		11392.0		6107.8		1145.3		2875.9		3681.7		2072.7		6243.3	

(cont.)

Table 24 (cont.) Summary areas figures and ratios for NVC dwarf-shrub heaths, grasslands and blanket mire, Calluna-rich and Calluna-poor vegetation on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC group/ code	Total area (ha) and % area of plant communities													
	Site name													
	Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
Dwarf-shrub heath (H9+H10...H22)	41.8	3.3	1278.7	86.5	74.5	3.8	1483.3	74.6	1806.2	23.2	646.9	8.6	6616.1	44.2	14.4	0.4
Grassland (sub-montane) U2+U4+U5+U6+CG9+CG10	345.8	27.4	5.4	0.4	475.7	24.4	0.7	0.0	4086.6	52.4	2148.6	28.5	1324.7	8.9	1408.1	42.7
Ratio Dwarf-shrub heath:Grass'd	1.1:8.9		10.0:<0.1		1.4:8.6		10.0:<0.1		3.1:6.9		2.3:7.7		8.3:1.7		0.1:9.9	
Calluna-Eriophorum blanket mire (M19) (max.)	386.3	30.7	0.0	0.0	803.2	41.1	27.3	1.4	811.7	10.4	4135.4	54.9	3751.6	25.1	207.1	6.3
Eriophorum blanket mire (M20)	451.7	35.8	0.0	0.0	270.8	13.9	0.4	0.0	274.1	3.5	324.4	4.3	1726.9	11.5	1254.4	38.1
Ratio M19:M20	4.6:5.4		0.0		7.4:2.5		9.8:1.4		7.5:2.5		9.3:0.7		6.8:3.2		1.4:8.5	
Total blanket mire (M17+M18+M19+M20)	838.0	66.5	0.0	0.0	1113.4	57.0	247.1	12.4	1086.8	13.9	4471.3	59.3	5513.2	36.9	1461.5	44.3
Ratio Heath:Blanket mire (H9...H22:M17...M20)	0.5:9.5		10.0:0.0		0.6:9.4		8.6:1.4		6.2:3.8		1.3:8.7		5.5:4.5		0.1:9.9	
Total dwarf-shrub heath+ Calluna-rich blanket mire (M19)	428.1	34.0	1278.7	86.5	877.7	45.0	1510.6	75.9	2617.9	33.6	4782.3	63.5	10367.7	69.3	221.5	6.7
Total grassland+ Calluna-poor blanket mire (M20)	797.5	63.3	5.4	0.4	746.5	38.2	1.1	0.1	4360.7	55.9	2473.0	32.8	3051.6	20.4	2662.5	80.8
Ratio Calluna-rich:Calluna poor	3.5:6.5		10.0:<0.1		5.4:4.6		10.0:<0.1		3.8:6.2		6.6:3.4		7.7:2.3		0.8:9.2	
Community total	1260.0		1478.1		1952.4		1989.1		7798.9		7535.9		14960.5		3295.5	

Table 25 Two-way table of communities and sites from a TWINSPAN with plant community areas as attributes and survey blocks, SSSI and non-statutory sites in the northern Pennines and surrounding areas as samples

Order of sites (samples)

16 Danby	18 Fylingdales	25 Lealholm	31 Pockley	12 Block 16	10 Block 15
21 Haworth	23 Dark Peak	26 Leek Moors	2 Block 2	9 Block 14	3 Block 3
4 Block 5	7 Block 8	1 Block 1	5 Block 6	6 Block 7	8 Block 12
15 Cheviot	36 Bowland	14 Armboth	19 Geltsdale	20 Harbottle	32 Shap Fells
24 Kielder	33 Simonside	34 Skiddaw	13 Appleby	11 Block 14(ii)	17 Fountains
22 Ingleb'gh	37 Whernside	28 Mallerstang	30 PenyGhen	29 Moor Hous	35 Upper Tees
27 Malham					

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                112311222          1311232331112323232
                685120136293471568564902434317278095 7

13        M17   --------------2-22--------2----------  000000
 6         M2   ----2------2-22222-2-----------------  000001
 7         M3   ---------2-2--2222--------------------  000001
20        M29   ------------2-----------------------  000001
24         U1   -------------22223--------------------  000001
18        M23   -------22---222222--2-----3----------  00001
37        W11   ----2-----------2-22-----------------  000100
39        W17   -2-222--5--22---2--2332-222--------2-  000100
41        W23   ----2---2------------2----2----------  000100
57         W1   --------2----------------2----------  000100
 1         H9   99999978897999656 8------22--4--------  000101
12        M16   -846232252-22-----2--2--22---------2-  000101
17        M21   -22-22-2-22---2----------------------  000101
22        M35   -----2-2------2----------------------  000101
25         U2   ----23-53-22222-22------4-----------  000101
38        W16   -----2-2------------------------------  000101
29        U20   76767665445656324536766247623222--33-  00011
42         S9   ----------------2-------2-----------  00100
45        H22   -----------------2-------------------  00101
50         U7   --------------------------2----------  00101
54        U19   --------------------------2----------  00101
56        MG9   ------------------------2------------  00101
 5        H21   -2-22------22-2-22-222223322-----2-2-  00110
11        M15   -3-----------2-----4-46222--------22-  00110
14        M18   -----2-----2-32222-22-2547--------222  00110
35         W7   ----2------222--2-3--22--4-2---------  00110
 2        H10   ---------2-2--2-----7--4--2--------2-  00111
 3        H12   ----282-8543424667797894798 4423-5227-  010
 8         M4   ----2----------222222-2222222----3-222  010
 9         M6   455467434774755555255446335234266 5432  01100
19        M25   --2-32566-5222222233224-8--22426---2-  01100
15        M19   ----24-26887779999888969947977366899-  011010
16        M20   722-779985977677777724-7325599899976-  011010
27         U5   2-327567755776777596865752857688877 88  011010
40        W19   ------------2-2--2--------2---2----3-  011010
21        M32   --22-2------22----222--22-22-22---22-  011011
33       MG10   -22-2---2-22-22-2-22322422-3-2--22-22  011011
 4        H18   6-2634265-2-22--2286-22-325433224522-  0111
34         W   ----2-22-----------222-----2-------4  0111
10        M10   ----222-----22---2--22-222-22222---3-  100
26         U4   224-32323324463255442657526788862 4659  101
28         U6   2---5422-667788786254222227678868686-  101
43        H13   --------------------------2--------2-  101
52        U16   ------------------------2-22---------  101
36         W9   ----2-----------------------2--22-----  110000
30        U23   -----------------2---------2-22222222  110001
31        CG9   -----------------2---------5227535226  110001
46         M8   ----------------------------2---------  110001
53        U17   ---------------------------2---22--2-  110001
23        M37   -------------2------2------2-22-2-22-  11001
44        H19   -------------------------4----22-42-  11001
55        U21   ----------------------------22---2--22-  11001
32       CG10   -----------2-2-225--22--22-6535465548  1101
47         M9   ------------------------2--2--22----2  1101
49        M26   -----------------------------------22  1101
58         W3   ------------------------------------2  1101
48        M11   --------------------------22-------2-  111
51        U10   --------------------------2-------4--  111

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Table 26 NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 1

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area																	
		Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H13	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H22	1	0.00	0.00	0.00	0.00	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M4	1	0.10	0.00	4.10	0.55	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.39	0.00	0.00
M8	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M11	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18/M19	1	0.10	0.00	3.60	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.13	0.00	0.00
M19	1	0.10	0.00	0.00	0.00	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
M19/M20	1	6401.80	99.70	714.50	96.38	555.10	97.18	0.00	0.00	325.20	99.91	0.00	0.00	4311.00	98.42	71.60	91.91	0.00	0.00
M21	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	50.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	1	0.10	0.00	0.10	0.01	0.10	0.02	0.00	0.00	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M35	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	1	0.10	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U7	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U17	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U22/U23	1	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
S22	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.02	4.40	5.65	0.00	0.00
W1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W3	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7	1	13.40	0.21	0.00	0.00	13.90	2.43	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.06	0.10	0.13	0.00	0.00
W7/W9	1	4.70	0.07	4.10	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30	0.10	0.00	0.00	0.10	100.00
W9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11	1	0.00	0.00	0.00	0.00	1.70	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	1	0.00	0.00	14.80	2.00	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	61.30	1.40	1.40	1.80	0.00	0.00
W16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	50.00	0.00	0.00	0.00	0.00	0.00	0.00
W19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site total		6420.90	100.00	741.30	100.00	571.20	100.00	0.00	0.00	325.50	100.00	0.20	100.00	4380.00	100.00	77.90	100.00	0.10	100.00
No. comms		13.00	63.17	7.00	32.37	8.00	21.18	0.00	0.00	4.00	9.61	2.00	0.01	6.00	56.20	6.00	8.54	1.00	0.00
Total area comms		10164.90		2290.30		2696.90		485.10		3388.30		1824.40		7793.70		911.80		4371.60	

(cont.)

Table 26 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 1

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area															
		Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H13	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.70	8.35	103.80	3.58
H22	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M4	1	0.00	0.00	0.00	0.00	1.60	0.04	0.00	0.00	0.00	0.00	0.10	0.21	11.20	9.64	3.00	0.10
M8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	1	0.10	0.29	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.21	0.00	0.00	0.00	0.00
M11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	1	0.00	0.00	0.00	0.00	76.60	2.04	0.00	0.00	0.00	0.00	0.10	0.21	0.00	0.00	15.00	0.52
M18/M19	1	0.00	0.00	0.00	0.00	172.80	4.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M19	1	0.10	0.29	0.10	0.73	0.10	0.00	0.00	0.00	146.40	67.25	0.00	0.00	0.10	0.09	996.20	34.34
M19/M20	1	21.50	62.68	0.00	0.00	3504.80	93.29	0.00	0.00	0.00	0.00	0.00	0.00	94.90	81.67	1782.40	61.45
M21	1	0.00	0.00	0.10	0.73	0.00	0.00	0.10	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	1	0.10	0.29	0.00	0.00	0.70	0.02	0.10	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
M35	1	0.00	0.00	0.10	0.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	1	0.10	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.09	0.10	0.00
U7	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.09	0.00	0.00
U22/U23	1	0.10	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.21	0.10	0.09	0.10	0.00
S22	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	1	0.00	0.00	7.50	54.74	0.00	0.00	0.00	0.00	0.00	0.00	40.50	85.44	0.00	0.00	0.00	0.00
W1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.60	0.00	0.00	0.00	0.00	0.00	0.00
W3	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	13.71	0.00	0.00	0.00	0.00
W7	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7/W9	1	1.40	4.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W9	1	6.50	18.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	1	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W16	1	0.00	0.00	5.90	43.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.00	32.15	0.00	0.00	0.00	0.00	0.00	0.00
W19	1	4.40	12.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site total		34.30	100.00	13.70	100.00	3756.80	100.00	0.20	100.00	217.70	100.00	47.40	100.00	116.20	100.00	2900.70	100.00
No. comms		9.00	0.94	5.00	0.12	8.00	61.51	2.00	0.02	3.00	7.57	6.00	1.29	7.00	5.61	8.00	0.46
Total area comms		3656.90		11392.00		6107.80		1145.30		2875.90		3681.70		2072.70		6243.30	

(cont.)

Table 26 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 1

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area															
		Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H13	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.60	1.23	0.10	0.00	0.00	0.00	0.00	0.00
H19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.30	9.57	0.10	0.00	0.00	0.00	4.30	1.95
H22	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.01	0.00	0.00
M4	1	0.00	0.00	0.00	0.00	0.10	0.01	0.10	0.04	0.10	0.01	7.90	0.19	0.10	0.00	0.00	0.00
M8	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	1.32
M11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	2.30	0.05	0.00	0.00	0.00	0.00
M17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
M18	1	0.00	0.00	0.00	0.00	39.40	4.67	219.40	79.18	0.00	0.00	11.50	0.27	34.70	0.91	0.00	0.00
M18/M19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
M19	1	2.60	0.67	0.00	0.00	136.80	16.23	0.00	0.00	811.60	85.99	0.00	0.00	0.10	0.00	207.10	94.09
M19/M20	1	383.70	99.30	0.00	0.00	666.40	79.07	27.30	9.85	0.10	0.01	4135.30	98.50	3751.50	98.85	0.00	0.00
M21	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	1	0.00	0.00	0.10	2.94	0.10	0.01	0.00	0.00	0.20	0.02	0.10	0.00	0.10	0.00	0.00	0.00
M35	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00
U7	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.22	0.00	0.00	0.00	0.00	0.00	0.00
U17	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.05
U22/U23	1	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.05
S22	1	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W1	1	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W3	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7	1	0.00	0.00	0.00	0.00	0.00	0.00	4.00	1.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7/W9	1	0.00	0.00	0.00	0.00	0.00	0.00	17.40	6.28	0.00	0.00	0.00	0.00	0.00	0.00	5.50	2.50
W9	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05
W11	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	1	0.00	0.00	0.00	0.00	0.00	0.00	6.70	2.42	0.10	0.01	0.10	0.00	2.30	0.06	0.00	0.00
W16	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W17	1	0.00	0.00	3.30	97.06	0.00	0.00	1.90	0.69	0.10	0.01	0.00	0.00	5.90	0.16	0.00	0.00
W19	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.50	2.81	40.50	0.96	0.00	0.00	0.00	0.00
Site total		386.40	100.00	3.40	100.00	842.80	100.00	277.10	100.00	943.80	100.00	4198.30	100.00	3795.20	100.00	220.10	100.00
No. comms		3.00	30.67	2.00	0.23	5.00	43.17	9.00	13.93	11.00	12.10	13.00	55.71	8.00	25.37	7.00	6.68
Total area comms		1260.00		1478.10		1952.40		1989.10		7798.90		7535.90		14960.50		3295.50	

Table 27 NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 2

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area																	
		Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9	2	0.00	0.00	0.00	0.00	0.00	0.00	359.40	74.16	0.00	0.00	1293.90	70.93	0.00	0.00	0.00	0.00	424.40	10.37
H9/H12	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12	2	0.00	0.00	164.30	14.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12/H21	2	0.00	0.00	497.10	44.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12	2	150.60	19.46	0.10	0.01	259.90	21.57	0.00	0.00	0.90	0.06	0.00	0.00	1838.00	75.01	671.20	85.71	0.10	0.00
H12/H21	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H18	2	172.10	22.24	0.00	0.00	637.40	52.91	29.50	6.09	27.40	1.84	0.00	0.00	16.30	0.67	4.10	0.52	12.50	0.31
H21	2	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	2.30	0.09	0.10	0.01	0.00	0.00
Mire (uncl.)	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6	2	25.50	3.29	45.90	4.14	0.70	0.06	8.20	1.69	54.30	3.64	54.70	3.00	134.30	5.48	16.40	2.09	78.90	1.93
M6/M10	2	13.10	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6/M23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30	0.18	0.00	0.00	0.00	0.00	0.00	0.00
M6/M23/MG10	2	42.40	5.48	21.40	1.93	0.40	0.03	0.00	0.00	4.90	0.33	0.00	0.00	1.10	0.04	0.00	0.00	0.00	0.00
M10	2	19.50	2.52	4.10	0.37	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00
M10/M11	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15	2	0.00	0.00	41.30	3.72	0.00	0.00	0.00	0.00	0.00	0.00	9.80	0.54	0.10	0.00	0.10	0.01	0.00	0.00
M15/M16	2	0.00	0.00	0.00	0.00	2.50	0.21	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.05	9.60	1.23	0.00	0.00
M15/M25	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.70	2.13	0.00	0.00
M16	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	335.90	18.41	0.00	0.00	0.00	0.00	0.10	0.00
M16/M25	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M20	2	276.60	35.74	10.70	0.96	265.60	22.05	44.00	9.08	1356.70	90.97	7.20	0.39	118.20	4.82	0.00	0.00	3277.80	80.07
M23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M23/MG10	2	43.00	5.56	1.00	0.09	0.10	0.01	0.00	0.00	1.60	0.11	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00
M25	2	0.10	0.01	5.10	0.46	22.10	1.83	0.00	0.00	37.60	2.52	0.00	0.00	11.70	0.48	0.10	0.01	120.50	2.94
M26	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U10	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U16	2	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U19	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U20	2	31.30	4.04	317.90	28.67	16.00	1.33	43.50	8.98	7.80	0.52	119.20	6.53	326.00	13.30	64.70	8.26	179.30	4.38
U21	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.04	0.00	0.00	0.00	0.00
Site total		774.40	100.05	1108.90	100.00	1204.70	100.00	484.60	100.00	1491.30	100.00	1824.10	100.00	2450.50	100.00	783.10	100.00	4093.70	100.00
No. comms		12.00	7.62	11.00	48.42	9.00	44.67	5.00	99.90	9.00	44.01	8.00	99.98	12.00	31.44	10.00	85.89	9.00	93.64
Total area comms		10164.90		2290.30		2696.90		485.10		3388.30		1824.40		7793.70		911.80		4371.60	

(cont.)

Table 27 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 2

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area															
		Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9	2	0.00	0.00	2209.20	22.20	0.10	0.01	955.00	85.27	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H9/H12	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	965.50	42.60	0.00	0.00	0.00	0.00	0.00	0.00
H10	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12/H21	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12	2	20.90	2.23	0.00	0.00	570.10	30.03	0.00	0.00	0.10	0.00	0.00	0.00	67.80	7.37	0.10	0.01
H12/H21	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H18	2	0.10	0.01	796.20	8.00	41.90	2.21	3.60	0.32	73.70	3.25	0.00	0.00	20.80	2.26	21.00	2.33
H21	2	0.00	0.00	0.00	0.00	38.50	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mire (uncl.)	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	134.50	99.78	0.00	0.00	0.00	0.00
M6	2	12.60	1.34	108.80	1.09	46.50	2.45	40.50	3.62	53.20	2.35	0.10	0.07	119.30	12.98	105.20	11.69
M6/M10	2	0.00	0.00	0.00	0.00	1.80	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00
M6/M23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6/M23/MG10	2	0.00	0.00	0.00	0.00	14.80	0.78	0.00	0.00	0.00	0.00	0.00	0.00	16.50	1.79	0.10	0.01
M10	2	14.10	1.50	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.10	0.07	0.00	0.00	0.50	0.06
M10/M11	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15	2	0.00	0.00	0.00	0.00	0.30	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.18
M15/M16	2	0.10	0.01	0.00	0.00	11.80	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15/M25	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M16	2	0.00	0.00	0.10	0.00	0.10	0.01	14.80	1.32	62.70	2.77	0.00	0.00	0.00	0.00	0.00	0.00
M16/M25	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M20	2	858.70	91.64	6041.50	60.70	32.30	1.70	0.10	0.01	896.20	39.54	0.00	0.00	692.80	75.35	643.30	71.47
M23	2	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	6.30	0.28	0.00	0.00	0.00	0.00	0.00	0.00
M23/MG10	2	0.00	0.00	0.00	0.00	3.70	0.19	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.23	0.10	0.01
M25	2	16.10	1.72	501.00	5.03	1064.20	56.05	4.00	0.36	153.60	6.78	0.00	0.00	0.00	0.00	0.00	0.00
M26	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.00	0.00	0.00	0.00
U10	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.10	10.45
U16	2	0.00	0.00	0.00	0.00	2.60	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U19	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U20	2	14.40	1.54	296.50	2.98	69.90	3.68	102.00	9.11	46.20	2.04	0.00	0.00	0.00	0.00	34.00	3.78
U21	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
W23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.70	0.38	0.00	0.00	0.00	0.00	0.00	0.00
Site total		937.00	100.00	9953.40	100.00	1898.70	100.00	1120.00	100.00	2266.30	100.00	134.80	100.00	919.40	100.00	900.10	100.00
No. comms		8.00	25.62	8.00	87.37	16.00	31.09	6.00	97.79	11.00	78.80	4.00	3.66	7.00	44.36	11.00	14.42
Total area comms		3656.90		11392.00		6107.80		1145.30		2875.90		3681.70		2072.70		6243.30	

(cont.)

Table 27 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 2

NVC code	Naturalness score 1-3 scale	Total area (ha) and % area															
		Pen y Ghent		Pockley and East Moors		Shap Fells		Simonside Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whernside	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9	2	0.00	0.00	1205.60	82.05	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H9/H12	2	0.00	0.00	0.00	0.00	0.00	0.00	1469.50	85.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.80	0.57	13.80	1.16	0.00	0.00	0.00	0.00
H10/H12	2	0.00	0.00	0.00	0.00	58.40	9.21	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H10/H12/H21	2	0.00	0.00	0.00	0.00	16.00	2.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12	2	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	1407.90	50.85	632.70	53.21	5492.40	55.81	0.00	0.00
H12/H21	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	78.40	0.80	0.00	0.00
H18	2	41.60	7.88	73.00	4.97	0.00	0.00	1.70	0.10	280.40	10.13	0.10	0.01	1045.30	10.62	10.10	0.61
H21	2	0.10	0.02	0.10	0.01	0.10	0.02	12.00	0.70	0.10	0.00	0.10	0.01	5.40	0.05	0.00	0.00
Mire (uncl.)	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6	2	34.20	6.48	25.90	1.76	112.60	17.76	17.30	1.01	217.30	7.85	50.50	4.25	322.20	3.27	248.50	14.90
M6/M10	2	0.00	0.00	0.00	0.00	1.40	0.22	0.00	0.00	0.00	0.00	27.00	2.27	0.00	0.00	0.00	0.00
M6/M23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.30	0.02	0.00	0.00
M6/M23/MG10	2	0.00	0.00	0.00	0.00	19.80	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M10	2	0.00	0.00	0.00	0.00	0.10	0.02	0.60	0.04	0.00	0.00	36.30	3.05	0.00	0.00	0.10	0.01
M10/M11	2	0.00	0.00	0.00	0.00	0.50	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15	2	0.00	0.00	0.00	0.00	152.30	24.03	3.80	0.22	7.20	0.26	0.00	0.00	0.00	0.00	0.00	0.00
M15/M16	2	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15/M25	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.40	0.12	0.00	0.00	0.00	0.00
M16	2	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M16/M25	2	0.00	0.00	60.70	4.13	0.00	0.00	0.00	0.00	0.00	0.00	31.00	2.61	0.00	0.00	0.00	0.00
M20	2	451.70	85.60	0.00	0.00	270.80	42.72	0.40	0.02	274.10	9.90	324.40	27.28	1726.90	17.55	1254.40	75.24
M23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.40	1.82	0.00	0.00	0.00	0.00	0.00	0.00
M23/MG10	2	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.20	0.00	0.00	23.80	2.00	0.00	0.00	0.00	0.00
M25	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	123.90	1.26	147.90	8.87
M26	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
U10	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80	0.21	0.00	0.00	0.00	0.00	0.00	0.00
U16	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.05	0.00	0.00	0.00	0.00	0.00	0.00
U19	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U20	2	0.00	0.00	103.90	7.07	1.90	0.30	202.00	11.80	497.90	17.98	47.60	4.00	1043.80	10.61	6.20	0.37
U21	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.60	0.31	0.10	0.01	0.00	0.00	0.10	0.01
W23	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.05	0.00	0.00	0.00	0.00	0.00	0.00
Site total		527.70	100.00	1469.30	100.00	633.90	100.00	1711.30	100.00	2768.50	100.00	1189.00	100.00	9840.60	100.00	1667.30	100.00
No. comms		5.00	41.88	7.00	99.40	11.00	32.47	11.00	86.03	15.00	35.50	15.00	15.78	9.00	65.78	7.00	50.59
Total area comms		1260.00		1478.10		1952.40		1989.10		7798.90		7535.90		14960.50		3295.50	

Table 28 NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 3

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area																	
		Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U4	3	736.50	24.80	8.70	1.98	22.30	2.42	0.30	60.00	274.80	17.49	0.10	100.00	559.40	58.08	1.90	3.74	27.10	9.76
U4/CG10	3	339.20	11.42	0.00	0.00	24.40	2.65	0.00	0.00	344.20	21.90	0.00	0.00	0.00	0.00	22.40	44.09	0.00	0.00
U5	3	403.40	13.58	404.80	91.98	874.20	94.92	0.10	20.00	139.20	8.86	0.00	0.00	366.00	38.00	26.40	51.97	243.20	87.54
U6	3	748.30	25.20	26.50	6.02	0.10	0.01	0.10	20.00	786.10	50.02	0.00	0.00	33.20	3.45	0.10	0.20	7.50	2.70
CG9	3	205.00	6.90	0.00	0.00	0.00	0.00	0.00	0.00	8.90	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG9/CG10	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	3	537.20	18.09	0.10	0.02	0.00	0.00	0.00	0.00	18.30	1.16	0.00	0.00	4.50	0.47	0.00	0.00	0.00	0.00
MG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG9	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG10	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
Site total		2969.60	100.00	440.10	100.00	921.00	100.00	0.50	100.00	1571.50	100.00	0.10	100.00	963.20	100.00	50.80	100.00	277.80	100.00
No. comms		6.00	29.22	4.00	19.22	4.00	34.15	3.00	0.10	6.00	46.38	1.00	0.01	5.00	12.36	4.00	5.57	3.00	6.35
Total area comms		10164.90		2290.30		2696.90		485.10		3388.30		1824.40		7793.70		911.80		4371.60	

(cont.)

Table 28 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 3

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area															
		Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2	3	0.00	0.00	233.20	16.37	74.30	16.43	0.00	0.00	16.40	4.18	0.00	0.00	0.00	0.00	0.00	0.00
U4	3	595.40	22.17	2.20	0.15	164.50	36.37	14.20	56.57	25.60	6.53	1894.20	54.13	3.40	0.33	237.60	9.73
U4/CG10	3	19.80	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	0.55	99.10	4.06
U5	3	666.60	24.82	1189.40	83.47	211.30	46.72	10.80	43.03	340.60	86.91	757.80	21.65	344.50	33.22	844.20	34.56
U6	3	820.00	30.53	0.10	0.01	1.90	0.42	0.00	0.00	0.00	0.00	0.00	0.00	542.10	52.27	1063.00	43.52
CG9	3	485.00	18.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	214.60	6.13	16.50	1.59	0.10	0.00
CG9/CG10	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	3	98.80	3.68	0.00	0.00	0.10	0.02	0.00	0.00	0.00	0.00	632.80	18.08	124.80	12.03	198.50	8.13
MG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.20	2.35	0.00	0.00	0.00	0.00	0.00	0.00
MG9	3	0.00	0.00	0.00	0.00	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG10	3	0.00	0.00	0.00	0.00	0.10	0.02	0.10	0.40	0.10	0.03	0.10	0.00	0.10	0.01	0.00	0.00
Site total		2685.60	100.00	1424.90	100.00	452.30	100.00	25.10	100.00	391.90	100.00	3499.50	100.00	1037.10	100.00	2442.50	100.00
No. comms		6.00	73.44	4.00	12.51	7.00	7.41	3.00	2.19	5.00	13.63	5.00	95.05	7.00	50.04	6.00	39.12
Total area comms		3656.90		11392.00		6107.80		1145.30		2875.90		3681.70		2072.70		6243.30	

(cont.)

Table 28 (cont.) NVC communities with areas on SSSI and non-statutory sites in the Pennines and surrounding areas with a naturalness ranking of 3

NVC code	Natural-ness score 1-3 scale	Total area (ha) and % area															
		Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U4	3	15.00	4.34	0.00	0.00	176.00	37.00	0.10	14.29	572.80	14.02	193.00	8.98	216.00	16.31	201.10	14.28
U4/CG10	3	3.60	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.60	3.29	0.00	0.00	0.70	0.05
U5	3	196.40	56.78	5.40	100.00	296.40	62.31	0.30	42.86	2294.70	56.15	1279.70	59.56	624.40	47.14	818.80	58.15
U6	3	79.90	23.10	0.00	0.00	3.30	0.69	0.20	28.57	1219.10	29.83	489.60	22.79	484.30	36.56	222.60	15.81
CG9	3	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.20	1.03	0.00	0.00	110.40	7.84
CG9/CG10	3	50.70	14.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	3	0.10	0.03	0.00	0.00	0.00	0.00	0.10	14.29	0.00	0.00	93.50	4.35	0.00	0.00	54.50	3.87
MG	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG9	3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MG10	3	0.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site total		345.90	100.00	5.40	100.00	475.70	100.00	0.70	100.00	4086.60	100.00	2148.60	100.00	1324.70	100.00	1408.10	100.00
No. comms		8.00	27.45	1.00	0.37	3.00	24.36	4.00	0.04	3.00	52.40	6.00	28.51	3.00	8.85	6.00	42.73
Total area comms		1260.00		1478.10		1952.40		1989.10		7798.90		7535.90		14960.50		3295.50	

Table 29 Division of NVC community areas on SSSI and non-statutory sites in the Pennines and surrounding areas into three naturalness ranks

Ranking 1-3	Site name								
	Appleby Fells	Armboth Fells	Cheviot	Danby High Moor	Fountains Darnbroo Fells	Fyling-dales	Geltsdale & Glendu Fells	Harbottle Moors	Haworth Moor
Ranking 1									
Area (ha)	6420.90	741.30	571.20	0.00	325.50	0.20	4380.00	77.90	0.10
%	63.17	32.37	21.18	0.00	9.61	0.01	56.20	8.54	<0.01
Ranking 2									
Area (ha)	774.40	1108.90	1204.70	484.60	1491.30	1824.10	2450.50	783.10	4093.70
%	7.62	48.42	44.67	99.90	44.01	99.98	31.44	85.89	93.64
Ranking 3									
Area (ha)	2969.60	440.10	921.00	0.50	1571.50	0.10	963.20	50.80	277.80
%	29.22	19.22	34.15	0.10	46.38	0.01	12.36	5.57	6.35
Total area comms	10164.90	2290.30	2696.90	485.10	3388.30	1824.40	7793.70	911.80	4371.60

Ranking 1-3	Site name							
	Ingle-borough	The Dark Peak	Kielder-Head & Emblehop Moors	Lealholm & Roxby Moors	Leek Moors	Malham-Arncliffe	Maller-stang and Swaledale Head	Moor House & Cross Fell
Ranking 1								
Area (ha)	34.30	13.70	3756.80	0.20	217.70	47.40	116.20	2900.70
%	0.94	0.12	61.51	0.02	7.57	1.29	5.61	46.46
Ranking 2								
Area (ha)	937.00	9953.40	1898.70	1120.00	2266.30	134.80	919.40	900.10
%	25.62	87.37	31.09	97.79	78.80	3.66	44.36	14.42
Ranking 3								
Area (ha)	2685.60	1424.90	452.30	25.10	391.90	3499.50	1037.10	2442.50
%	73.44	12.51	7.41	2.19	13.63	95.05	50.04	39.12
Total area comms	3656.90	11392.00	6107.80	1145.30	2875.90	3681.70	2072.70	6243.30

Ranking 1-3	Site name							
	Pen y Ghent	Pockley and East Moors	Shap Fells	Simon-side Hills	Skiddaw Group	Upper Teesdale	Bowland Fells	Whern-side
Ranking 1								
Area (ha)	386.40	3.40	842.80	277.10	943.80	4198.30	3795.20	220.10
%	30.67	0.23	43.17	13.93	12.10	55.71	25.37	6.68
Ranking 2								
Area (ha)	527.70	1469.30	633.90	1711.30	2768.50	1189.00	9840.60	1667.30
%	41.88	99.40	32.47	86.03	35.50	15.78	65.78	50.59
Ranking 3								
Area (ha)	345.90	5.40	475.70	0.70	4086.60	2148.60	1324.70	1408.10
%	27.45	0.37	24.36	0.04	52.40	28.51	8.85	42.73
Total area comms	1260.00	1478.10	1952.40	1989.10	7798.90	7535.90	14960.50	3295.50

Table 30 Rare/relic NVC communities with areas on SSSI and non-statutory sites in the Pennine and surrounding areas

NVC code	Rare/ relic comms	Total area (ha) and % area Site name																	
		Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Darnbrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H13	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H21	R	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.99	2.30	3.06	0.10	5.88	0.00	0.00
H22	R	0.00	0.00	0.00	0.00	0.10	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M8	R	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	R	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M10	R	19.50	2.50	4.10	6.35	0.00	0.00	0.00	0.00	0.10	0.36	0.00	0.00	0.10	0.13	0.00	0.00	0.10	50.00
M10/M11	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M11	R	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15	R	0.00	0.00	41.30	63.93	0.00	0.00	0.00	0.00	0.00	0.00	9.80	97.03	0.10	0.13	0.10	5.88	0.00	0.00
M17	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M21	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.99	0.00	0.00	0.00	0.00	0.00	0.00
M26	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	R	0.10	0.01	0.10	0.15	0.10	0.63	0.00	0.00	0.10	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M35	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	R	0.10	0.01	0.10	0.15	0.00	0.00	0.00	0.00	0.10	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U7	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U10	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U16	R	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U17	R	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U21	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U22/U23	R	0.10	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG9	R	205.00	26.26	0.00	0.00	0.00	0.00	0.00	0.00	8.90	32.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG9/CG10	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	R	537.20	68.81	0.10	0.15	0.00	0.00	0.00	0.00	18.30	66.30	0.00	0.00	4.50	5.99	0.00	0.00	0.00	0.00
S22	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W1	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W3	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7	R	13.40	1.72	0.00	0.00	13.90	87.42	0.00	0.00	0.00	0.00	0.00	0.00	2.50	3.33	0.10	5.88	0.00	0.00
W7/W9	R	4.70	0.60	4.10	6.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.30	5.73	0.00	0.00	0.10	50.00
W9	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11	R	0.00	0.00	0.00	0.00	1.70	10.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	R	0.00	0.00	14.80	22.91	0.10	0.63	0.00	0.00	0.00	0.00	0.00	0.00	61.30	81.62	1.40	82.35	0.00	0.00
W17	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.99	0.00	0.00	0.00	0.00	0.00	0.00
W19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site total		780.70	100.00	64.60	100.00	15.90	100.00	0.00	0.00	27.60	100.00	10.10	100.00	75.10	100.00	1.70	100.00	0.20	100.00
No. comms.		14.00	7.68	7.00	2.82	5.00	0.59	0.00	0.00	6.00	0.81	4.00	0.55	7.00	0.96	4.00	0.19	2.00	0.00
Total area comms		10164.90		2290.30		2696.90		485.10		3388.30		1824.40		7793.70		911.80		4371.60	

(cont.)

Table 30 (cont.) Rare/relic NVC communities with areas on SSSI and non-statutory sites in the Pennine and surrounding areas

NVC code	Rare/ relic comms	Total area (ha) and % area															
		Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H13	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.70	6.41	103.80	25.07
H21	R	0.00	0.00	0.00	0.00	38.50	32.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H22	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M8	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	R	0.10	0.02	0.00	0.00	0.10	0.08	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
M10	R	14.10	2.31	0.00	0.00	0.10	0.08	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.50	0.12
M10/M11	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M11	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M15	R	0.00	0.00	0.00	0.00	0.30	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.39
M17	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	R	0.00	0.00	0.00	0.00	76.60	64.32	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	15.00	3.62
M21	R	0.00	0.00	0.10	50.00	0.00	0.00	0.10	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M26	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
M32	R	0.10	0.02	0.00	0.00	0.70	0.59	0.10	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.02
M35	R	0.00	0.00	0.10	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	R	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.10	0.02
U7	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U10	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	94.10	22.73
U16	R	0.00	0.00	0.00	0.00	2.60	2.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U17	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.00	0.00
U19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U21	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.02
U22/U23	R	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01	0.10	0.07	0.10	0.02
CG9	R	485.00	79.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	214.60	25.12	16.50	10.91	0.10	0.02
CG9/CG10	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	R	98.80	16.18	0.00	0.00	0.10	0.08	0.00	0.00	0.00	0.00	632.80	74.06	124.80	82.49	198.50	47.95
S22	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W1	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.82	0.00	0.00	0.00	0.00	0.00	0.00
W3	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.50	0.76	0.00	0.00	0.00	0.00
W7	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7/W9	R	1.40	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W9	R	6.50	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	R	0.00	0.00	0.00	0.00	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W17	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	70.00	98.18	0.00	0.00	0.00	0.00	0.00	0.00
W19	R	4.40	0.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Site total		610.60	100.00	0.20	100.00	119.10	100.00	0.20	100.00	71.30	100.00	854.40	100.00	151.30	100.00	414.00	100.00
No. comms.		10.00	16.70	2.00	0.00	9.00	1.95	2.00	0.02	2.00	2.48	8.00	23.21	6.00	7.30	11.00	6.63
Total area comms		3656.90		11392.00		6107.80		1145.30		2875.90		3681.70		2072.70		6243.30	

(cont.)

Table 30 (cont.) Rare/relic NVC communities with areas on SSSI and non-statutory sites in the Pennine and surrounding areas

NVC code	Rare/ relic comms	Total area (ha) and % area															
		Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
		ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H13	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.60	7.47	0.10	0.05	0.00	0.00	0.00	0.00
H19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.30	58.15	0.10	0.05	0.00	0.00	4.30	2.41
H21	R	0.10	0.20	0.10	2.86	0.10	0.05	12.00	4.51	0.10	0.06	0.10	0.05	5.40	11.16	0.00	0.00
H22	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M8	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M9	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.90	1.63
M10	R	0.00	0.00	0.00	0.00	0.10	0.05	0.60	0.23	0.00	0.00	36.30	17.51	0.00	0.00	0.10	0.06
M10/M11	R	0.00	0.00	0.00	0.00	0.50	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M11	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.06	2.30	1.11	0.00	0.00	0.00	0.00
M15	R	0.00	0.00	0.00	0.00	152.30	79.12	3.80	1.43	7.20	4.64	0.00	0.00	0.00	0.00	0.00	0.00
M17	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.64	0.00	0.00	0.00	0.00	0.00	0.00
M18	R	0.00	0.00	0.00	0.00	39.40	20.47	219.40	82.42	0.00	0.00	11.50	5.55	34.70	71.69	0.00	0.00
M21	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M26	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.00	0.00	0.00	0.00
M32	R	0.00	0.00	0.10	2.86	0.10	0.05	0.00	0.00	0.20	0.13	0.10	0.05	0.10	0.21	0.00	0.00
M35	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M37	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.00	0.00	0.00	0.00
U7	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	1.35	0.00	0.00	0.00	0.00	0.00	0.00
U10	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.80	3.73	0.00	0.00	0.00	0.00	0.00	0.00
U16	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.97	0.00	0.00	0.00	0.00	0.00	0.00
U17	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.00	0.00	0.10	0.06
U19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.06	0.00	0.00	0.00	0.00	0.00	0.00
U21	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.60	5.54	0.10	0.05	0.00	0.00	0.10	0.06
U22/U23	R	0.10	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.05	0.00	0.00	0.10	0.06
CG9	R	0.10	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.20	10.71	0.00	0.00	110.40	61.99
CG9/CG10	R	50.70	99.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10	R	0.10	0.20	0.00	0.00	0.00	0.00	0.10	0.04	0.00	0.00	93.50	45.10	0.00	0.00	54.50	30.60
S22	R	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W1	R	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W3	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7	R	0.00	0.00	0.00	0.00	0.00	0.00	4.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W7/W9	R	0.00	0.00	0.00	0.00	0.00	0.00	17.40	6.54	0.00	0.00	0.00	0.00	0.00	0.00	5.50	3.09
W9	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.06
W11	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W11/W17	R	0.00	0.00	0.00	0.00	0.00	0.00	6.70	2.52	0.10	0.06	0.10	0.05	2.30	4.75	0.00	0.00
W17	R	0.00	0.00	3.30	94.29	0.00	0.00	1.90	0.71	0.10	0.06	0.00	0.00	5.90	12.19	0.00	0.00
W19	R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	26.50	17.06	40.50	19.54	0.00	0.00	0.00	0.00
Site total		51.10	100.00	3.50	100.00	192.50	100.00	266.20	100.00	155.30	100.00	207.30	100.00	48.40	100.00	178.10	100.00
No. comms.		5.00	4.06	3.00	0.24	6.00	9.86	10.00	13.38	14.00	1.99	16.00	2.75	5.00	0.32	10.00	5.40
Total area comms		1260.00		1478.10		1952.40		1989.10		7798.90		7535.90		14960.50		3295.50	

Table 31 Values of assessment criteria for SSSI and non-statutory sites in the Pennines and surrounding areas with different measures of naturalness, diversity and rarity

Criteria	Site name								
	Appleby Fells	Armboth Fells	Cheviot	Danby High Moor	Fountains/ Dambrook Fells	Fyling-dales	Geltsdale & Glendue Fells	Harbottle Moors	Haworth Moor
Naturalness									
Overall score (0-100)	66.98	56.58	43.51	49.95	31.62	50.00	71.92	51.48	46.82
Rank	***	***	*	**	*	**	***	**	**
Ranking 1 score (%)	63.17	32.37	21.18	0.00	9.61	0.01	56.20	8.54	<0.01
Rank	***	**	**		*	*	***	*	*
Area ranking 1 (ha)	6420.90	741.30	571.20	0.00	325.50	0.20	4380.00	77.90	0.10
Rank	***	*	*		*	*	***	*	*
Ranking 2 score (%)	7.62	48.42	44.67	99.90	44.01	99.98	31.44	85.89	93.64
Area ranking 2	774.40	1108.90	1204.70	484.60	1491.30	1824.10	2450.50	783.10	4093.70
Rank	*	*	*	*	*	*	*	*	*
Diversity									
No. comms#	34	26	25	9	23	12	27	23	17
Rank	***	***	***	*	***	*	***	***	**
Shannon div. index	1.42	1.89	1.67	0.90	1.60	0.91	1.37	1.07	0.97
Rank	*	***	**	*	*	*	*	*	*
Rarity									
No. rare/relic comms	14.00	7.00	5.00	0.00	6.00	4.00	7.00	4.00	2.00
Rank	***	***	**		**	**	***	**	*
Area on site (ha)	780.70	64.60	15.90	0.00	27.60	10.10	75.10	1.70	0.20
Rank	***	**	**		**	**	**	*	*
% area on site	7.68	2.82	0.59	0.00	0.81	0.55	0.96	0.19	0.00
Rank	***	***	**		**	**	**	**	
Total area comms	10164.90	2290.30	2696.90	485.10	3388.30	1824.40	7793.70	911.80	4371.60

No. of communities = no. of sub. communities + communities

(cont.)

Table 31 (cont.) Values of assessment criteria for SSSI and non-statutory sites in the Pennines and surrounding areas with different measures of naturalness, diversity and rarity

Criteria	Site name							
	Ingle-borough	The Dark Peak	Kielder-Head & Emblehope Moors	Lealholm & Roxby Moors	Leek Moors	Malham-Arncliffe	Maller-stang and Swaledale Head	Moor House & Cross Fell
Naturalness								
Overall score (0-100)	13.75	43.81	77.05	48.92	46.97	3.12	27.79	53.67
Rank	*	*	***	**	**	*	*	**
Ranking 1 score (%)	0.94	0.12	61.51	0.02	7.57	1.29	5.61	46.46
Rank	*	*	***	*	*	*	*	***
Area ranking 1 (ha)	34.30	13.70	3756.80	0.20	217.70	47.40	116.20	2900.70
Rank	*	*	***	*	*	*	*	**
Ranking 2 score (%)	25.62	87.37	31.09	97.79	78.80	3.66	44.36	14.42
Area ranking 2	937.00	9953.40	1898.70	1120.00	2266.30	134.80	919.40	900.10
Rank	*	***	***	*	*	*	*	*
Diversity								
No. comms#	27	20	37	12	25	15	22	34
Rank	***	**	***	*	***	*	***	***
Shannon div. index	1.82	1.44	1.38	0.68	2.06	1.21	1.77	1.70
Rank	***	*	*	*	***	*	**	**
Rarity								
No. rare/relic comms	10.00	2.00	9.00	2.00	2.00	8.00	6.00	11.00
Rank	***	*	***	*	*	***	**	***
Area on site (ha)	610.60	0.20	119.10	0.20	71.30	854.40	151.30	414.00
Rank	***	*	***	*	**	***	***	***
% area on site	16.70	0.00	1.95	0.02	2.48	23.21	7.30	6.63
Rank	***		***	*	***	***	***	***
Total area comms	3656.90	11392.00	6107.80	1145.30	2875.90	3681.70	2072.70	6243.30

No. of communities = no. of sub. communities + communities

(cont.)

Table 31 (cont.) Values of assessment criteria for SSSI and non-statutory sites in the Pennines and surrounding areas with different measures of naturalness, diversity and rarity

Criteria	Site name							
	Pen y Ghent	Pockley and East Moors	Shap Fells	Simon-side Hills	Skiddaw Group	Upper Teesdale	Bowland Fells	Whern-side
Naturalness								
Overall score (0-100)	51.61	49.93	59.40	56.95	29.85	63.60	58.26	31.98
Rank	**	**	***	***	*	***	***	*
Ranking 1 score (%)	30.67	0.23	43.17	13.93	12.10	55.71	25.37	6.68
Rank	**	*	***	*	*	***	**	*
Area ranking 1 (ha)	386.40	3.40	842.80	277.10	943.80	4198.30	3795.20	220.10
Rank	*	*	*	*	*	***	***	*
Ranking 2 score (%)	41.88	99.40	32.47	86.03	35.50	15.78	65.78	50.59
Area ranking 2	527.70	1469.30	633.90	1711.30	2768.50	1189.00	9840.60	1667.30
Rank	*	*	*	*	*	*	***	*
Diversity								
No. comms#	17	11	30	30	48	39	28	23
Rank	*	*	***	***	***	***	***	***
Shannon div. index	1.63	0.74	1.81	0.94	2.05	1.55	1.79	1.81
Rank	**	*	***	*	***	*	***	***
Rarity								
No. rare/relic comms	5.00	3.00	6.00	10.00	14.00	16.00	5.00	10.00
Rank	**	*	**	***	***	***	**	***
Area on site (ha)	51.10	3.50	192.50	266.20	155.30	207.30	48.40	178.10
Rank	**	*	***	***	***	***	**	***
% area on site	4.06	0.24	9.86	13.38	1.99	2.75	0.32	5.40
Rank	***	**	***	***	***	***	**	***
Total area comms	1260.00	1478.10	1952.40	1989.10	7798.90	7535.90	14960.50	3295.50

No. of communities = no. of sub. communities + communities

Appendix 1. NVC communities and sub-communities with areas on the survey blocks

NVC code	Total area (ha) and % area Block no.																							
	1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%
H9	479.40	3.80	1986.70	37.73	5982.40	39.44	1856.90	15.15	236.40	2.65	539.70	3.93	2717.00	32.15	910.30	8.99	1022.60	11.51	166.60	1.80	1757.70	18.13	6983.30	45.33
H9a	241.60	1.92	238.40	4.53	706.60	4.66	708.20	5.78	33.50	0.38	248.60	1.81	504.60	5.97	915.80	9.05	239.30	2.69	0.00	0.00	142.00	1.46	146.10	0.95
H9b	0.10	0.00	0.00	0.00	2.50	0.02	0.00	0.00	47.80	0.54	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	330.60	3.41	0.10	0.00
H9c	129.50	1.03	154.70	2.94	216.00	1.42	1340.30	10.93	16.30	0.18	0.00	0.00	53.10	0.63	498.90	4.93	22.30	0.25	0.00	0.00	2111.90	21.78	0.00	0.00
Total	850.60	6.75	2379.80	45.20	6907.50	45.54	3905.40	31.86	334.00	3.74	788.30	5.73	3274.70	38.75	2325.10	22.97	1284.20	14.46	166.60	1.80	4342.20	44.79	7129.50	46.28
H10	0.10	0.00	10.70	0.20	16.60	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H12	138.40	1.10	167.00	3.17	76.60	0.51	198.30	1.62	88.60	0.99	827.10	6.02	14.20	0.17	338.70	3.35	169.90	1.91	166.60	1.80	1878.20	19.37	2.00	0.01
H12a	14.10	0.11	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	47.00	0.34	14.40	0.17	494.70	4.89	0.00	0.00	0.00	0.00	53.60	0.55	0.00	0.00
H12b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	279.10	3.13	0.00	0.00	0.00	0.00	11.40	0.11	0.00	0.00	0.00	0.00	123.10	1.27	0.00	0.00
H12c	5.30	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10	0.03	1.90	0.02	0.00	0.00	26.90	0.28	0.00	0.00
Total	157.80	1.25	167.00	3.17	76.70	0.51	198.30	1.62	367.70	4.12	874.10	6.36	28.60	0.34	847.90	8.38	171.80	1.93	166.60	1.80	2081.80	21.47	2.00	0.01
H18	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.03	0.00	0.00	0.20	0.00	3.80	0.04	10.10	0.10	20.10	0.23	87.10	0.94	133.70	1.38	3.80	0.02
H18a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.80	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H18b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.50	0.08	0.00	0.00	0.00	0.00	0.00	0.00
H18c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.50	0.07	0.00	0.00	0.00	0.00	0.00	0.00	87.10	0.57
Total	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.03	0.00	0.00	0.20	0.00	3.80	0.04	26.40	0.26	27.60	0.31	87.10	0.94	133.70	1.38	90.90	0.59
H21	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
H21a	0.10	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.01
Total	0.10	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.01
M2	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.30	0.00	0.30	0.00	0.10	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M2b	0.30	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.10	0.00	0.40	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00
Total	0.40	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.40	0.00	0.70	0.01	0.10	0.00	0.60	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00
M3	2.80	0.02	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.40	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.06	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	1.20	0.01	0.00	0.00	0.30	0.00
M6	8.20	0.07	0.00	0.00	0.00	0.00	6.30	0.05	0.20	0.00	11.30	0.08	15.20	0.18	0.00	0.00	0.00	0.00	8.30	0.09	0.00	0.00	0.10	0.00
M6a	1.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	3.80	0.04	0.90	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
M6b	0.60	0.00	0.00	0.00	1.90	0.01	0.20	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M6c	459.30	3.64	677.80	12.87	154.30	1.02	1615.00	13.18	279.10	3.13	297.00	2.16	231.20	2.74	266.30	2.63	968.30	10.90	41.50	0.45	938.00	9.68	840.40	5.46
M6d	0.10	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.60	0.04	0.00	0.00	0.10	0.00
Total	469.90	3.73	677.80	12.87	156.90	1.03	1621.50	13.23	279.30	3.13	308.80	2.25	250.20	2.96	267.20	2.64	968.30	10.90	53.40	0.58	938.00	9.68	840.70	5.46
M10	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	5.90	0.07	0.10	0.00	0.00	0.00	18.40	0.20	0.10	0.00	0.30	0.00
M10b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	5.90	0.07	0.20	0.00	0.00	0.00	18.40	0.20	0.10	0.00	0.30	0.00
M15a	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M16	0.00	0.00	22.90	0.43	0.10	0.00	1.70	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	54.90	0.57	15.40	0.10
M16a	0.00	0.00	0.00	0.00	5.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.10	0.09	0.00	0.00
M16b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	22.90	0.43	5.10	0.03	1.70	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.00	0.66	15.40	0.10
M17	11.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M17c	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	15.60	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	11.10	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	15.60	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M18	0.20	0.00	0.00	0.00	3.20	0.02	0.00	0.00	4.50	0.05	0.10	0.00	60.80	0.72	1.90	0.02	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
M18a	8.90	0.07	0.00	0.00	0.10	0.00	0.00	0.00	0.20	0.00	0.10	0.00	0.00	0.00	1.00	0.01	0.00	0.00	0.00	0.00	6.30	0.06	0.00	0.00
Total	9.10	0.07	0.00	0.00	3.30	0.02	0.00	0.00	4.70	0.05	0.20	0.00	60.80	0.72	2.90	0.03	0.00	0.00	0.00	0.00	6.40	0.07	0.00	0.00

Appendix 1. continued.

NVC code	Total area (ha) and % area Block no. 1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%
M19	313.50	2.49	356.20	6.76	1336.40	8.81	790.20	6.45	400.60	4.49	0.50	0.00	5.70	0.07	0.10	0.00	790.30	8.90	1109.20	11.97	25.20	0.26	0.00	0.00
M19a	4201.50	33.32	826.30	15.69	0.00	0.00	233.00	1.90	2603.30	29.15	782.70	5.69	620.50	7.34	3170.40	31.32	540.70	6.09	0.00	0.00	90.80	0.94	5.10	0.03
M19b	815.40	6.47	0.00	0.00	15.60	0.10	130.00	1.06	1780.80	19.94	4449.40	32.36	462.30	5.47	352.70	3.48	122.50	1.38	0.00	0.00	0.00	0.00	0.10	0.00
Total	5330.40	42.28	1182.50	22.46	1352.00	8.91	1153.20	9.41	4784.70	53.58	5232.60	38.06	1088.50	12.88	3523.20	34.81	1453.50	16.37	1109.20	11.97	116.00	1.20	5.20	0.03
M20	212.40	1.68	130.50	2.48	3.10	0.02	1733.30	14.14	288.50	3.23	0.00	0.00	44.80	0.53	5.40	0.05	2519.80	28.37	994.20	10.73	33.40	0.34	25.20	0.16
M20a	587.40	4.66	41.90	0.80	903.80	5.96	0.00	0.00	385.20	4.31	1860.10	13.53	176.20	2.08	359.30	3.55	162.20	1.83	1801.20	19.43	87.10	0.90	529.80	3.44
M20b	565.40	4.48	0.00	0.00	242.30	1.60	0.00	0.00	158.50	1.77	99.40	0.72	227.00	2.69	683.10	6.75	828.90	9.33	596.50	6.44	662.30	6.83	1606.20	10.43
Total	1365.20	10.83	172.40	3.27	1149.20	7.58	1733.30	14.14	832.20	9.32	1959.50	14.25	448.00	5.30	1047.80	10.35	3510.90	39.53	3391.90	36.60	782.80	8.07	2161.20	14.03
M21	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.01
M21b	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.01	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00
Total	0.50	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00
M23	5.10	0.04	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.10	0.00	0.70	0.01	1.20	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M23a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M23b	46.20	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	3.30	0.04	4.20	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	51.30	0.41	0.00	0.00	0.00	0.00	0.10	0.00	0.50	0.01	0.20	0.00	4.10	0.05	5.40	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M25	0.00	0.00	0.00	0.00	0.90	0.01	3.20	0.03	7.50	0.08	32.50	0.24	5.20	0.06	2.50	0.02	125.40	1.41	0.10	0.00	24.70	0.25	11.40	0.07
M25a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M25b	56.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.10	0.39	0.00	0.00	138.50	1.56	0.00	0.00	0.00	0.00	66.40	0.43
Total	56.00	0.44	0.00	0.00	0.90	0.01	3.20	0.03	7.50	0.08	32.50	0.24	38.30	0.45	2.50	0.02	263.90	2.97	0.10	0.00	24.70	0.25	77.80	0.51
M29	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
M32	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	5.70	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
M35	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
M37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U1	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.10	0.00	9.40	0.11	43.20	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U1a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.40	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U1b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U1c	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.90	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U1e	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	0.02	11.50	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.10	0.00	11.30	0.13	64.10	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U2	0.30	0.00	0.00	0.00	10.10	0.07	3.00	0.02	0.00	0.00	4.70	0.03	22.80	0.27	23.00	0.23	0.00	0.00	0.00	0.00	78.90	0.81	3.30	0.02
U2a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U2b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.20	0.15	1.40	0.02	0.00	0.00	5.40	0.06	0.00	0.00
Total	0.30	0.00	0.00	0.00	10.10	0.07	3.00	0.02	0.00	0.00	4.70	0.03	25.30	0.30	38.20	0.38	1.40	0.02	0.00	0.00	84.30	0.87	3.30	0.02
U4	72.60	0.58	35.50	0.67	161.60	1.07	143.20	1.17	30.90	0.35	275.40	2.00	350.40	4.15	353.10	3.49	27.50	0.31	1581.60	17.06	37.90	0.39	74.60	0.48
U4a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	72.60	0.58	35.50	0.67	161.60	1.07	143.20	1.17	30.90	0.35	275.40	2.00	350.40	4.15	357.20	3.53	27.50	0.31	1581.60	17.06	37.90	0.39	74.60	0.48
U5	992.80	7.87	154.30	2.93	1712.80	11.29	1188.20	9.69	749.60	8.39	1249.10	9.09	608.40	7.20	181.80	1.80	152.20	1.71	1010.70	10.91	196.80	2.03	1193.40	7.75
U5a	140.40	1.11	0.00	0.00	10.60	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	90.80	0.90	133.40	1.50	0.00	0.00	0.00	0.00	0.00	0.00
U5b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.70	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U5d	27.50	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1160.70	9.21	154.30	2.93	1723.40	11.36	1188.20	9.69	749.60	8.39	1249.10	9.09	608.40	7.20	281.40	2.78	285.60	3.22	1010.70	10.91	196.80	2.03	1193.40	7.75
U6	2280.30	18.09	369.60	7.02	2078.80	13.71	1844.60	15.05	1325.60	14.84	2195.00	15.97	1396.40	16.52	358.40	3.54	523.10	5.89	1345.80	14.52	173.10	1.79	517.10	3.36
U6a	5.90	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	32.70	0.32	98.90	1.11	0.00	0.00	0.00	0.00	0.00	0.00
U6b	5.60	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	28.10	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
U6c	43.80	0.35	0.00	0.00	0.00	0.00	0.00	0.00	6.30	0.07	0.00	0.00	0.10	0.00	44.20	0.44	11.90	0.13	0.00	0.00	0.00	0.00	0.00	0.00
U6d	262.90	2.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	128.40	1.27	15.70	0.18	0.00	0.00	0.00	0.00	0.00	0.00
Total	2598.50	20.61	369.60	7.02	2078.80	13.71	1844.60	15.05	1331.90	14.91	2195.00	15.97	1396.50	16.52	592.70	5.86	649.60	7.31	1345.80	14.52	173.10	1.79	517.10	3.36

Appendix 1. continued.

Total area (ha) and % area

NVC code / Block no.	1	%	2	%	3	%	5	%	6	%	7	%	8	%	12	%	14 (i)	%	14 (ii)	%	15	%	16	%
U20	100.90	0.80	91.70	1.74	594.80	3.92	335.50	2.74	0.40	0.00	167.50	1.22	287.70	3.40	225.40	2.23	164.50	1.85	86.40	0.93	462.30	4.77	1700.60	11.04
U20a	0.00	0.00	0.00	0.00	6.90	0.05	0.00	0.00	0.00	0.00	0.00	0.00	6.60	0.08	0.00	0.00	45.10	0.51	0.00	0.00	6.40	0.07	0.00	0.00
U20b	14.40	0.11	0.00	0.00	76.30	0.50	41.00	0.33	5.00	0.06	0.00	0.00	28.70	0.34	168.90	1.67	18.10	0.20	0.00	0.00	223.60	2.31	166.90	1.08
U20c	0.00	0.00	0.00	0.00	11.30	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	115.30	0.91	91.70	1.74	689.30	4.54	376.50	3.07	5.40	0.06	167.50	1.22	323.00	3.82	394.30	3.90	227.70	2.56	86.40	0.93	692.30	7.14	1867.50	12.12
U23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	16.80	0.18	0.00	0.00	0.00	0.00
CG10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.04	51.00	0.37	21.40	0.25	67.10	0.66	0.00	0.00	230.10	2.48	0.00	0.00	0.00	0.00
CG10a	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.06	194.50	1.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CG10b	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00	3.50	0.04	51.00	0.37	26.40	0.31	261.60	2.58	0.00	0.00	230.10	2.48	0.00	0.00	0.00	0.00
MG10	3.40	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.50	0.08	25.00	0.30	0.00	0.00	9.40	0.11	0.00	0.00	0.00	0.00	35.40	0.23
MG10a	0.00	0.00	0.00	0.00	5.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	3.40	0.03	0.00	0.00	5.00	0.03	0.00	0.00	0.00	0.00	10.50	0.08	25.00	0.30	0.00	0.00	9.40	0.11	0.00	0.00	0.00	0.00	35.40	0.23
W	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	0.02	0.00	0.00	10.00	0.06
W7	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	1.30	0.01	1.90	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
W9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.02
W11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.80	0.02
W16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.20	0.05	0.00	0.00
W17	0.00	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.90	0.09	61.30	0.40
W17c	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.10	0.00	1.60	0.01	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.90	0.09	61.30	0.40
W19	4.50	0.04	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W19a	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	4.50	0.04	0.00	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.20	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
S9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Semiimprov	146.40	1.16	0.00	0.00	487.60	3.21	0.00	0.00	0.00	0.00	237.70	1.73	197.90	2.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	415.80	2.70
Improved	12.50	0.10	0.00	0.00	130.10	0.86	59.90	0.49	165.70	1.86	209.80	1.53	174.40	2.06	53.70	0.53	0.00	0.00	0.00	0.00	1.90	0.02	483.80	3.14
Plantation	164.70	1.31	1.00	0.02	58.30	0.38	0.00	0.00	0.00	0.00	0.00	0.00	53.20	0.63	1.80	0.02	0.00	0.00	0.00	0.00	0.00	0.00	353.70	2.30
Open water	4.40	0.03	0.00	0.00	46.90	0.31	0.00	0.00	9.30	0.10	9.60	0.07	48.50	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	51.90	0.34
Mine tips	0.00	0.00	0.00	0.00	1.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00
Spoil	1.30	0.01	0.00	0.00	24.70	0.16	0.00	0.00	0.00	0.00	132.20	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Quarry	5.10	0.04	0.00	0.00	59.00	0.39	18.80	0.15	20.60	0.23	3.50	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.30	0.04
Bare peat	12.50	0.10	0.00	0.00	16.30	0.11	0.00	0.00	0.00	0.00	1.60	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bare ground	0.00	0.00	0.00	0.00	6.30	0.04	0.00	0.00	2.50	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.40	0.05	0.00	0.00
Block total	12607.70	100.00	5265.40	100.00	15167.70	100.00	12257.40	100.00	8930.80	100.00	13748.20	100.00	8451.00	100.00	10122.20	100.00	8881.50	100.00	9268.10	100.00	9694.80	100.00	15404.70	100.00
Diversity	37		14		27		24		22		30		28		43		19		18		26		30	

Diversity is the number of communities and subcommunites

Appendix 2(i). Plant community areas (ha) for sites in the North Pennines Survey blocks with values for rarity and naturalness, heath : grass and *Calluna*-rich : *Calluna*-poor vegetation ratios.

BLOCK:			1						2					3						5								6			
SITE:			1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6	7	8	1	2	3	4
COMM.	RARITY	NATURAL																													
H9	0	2	266.1	121.3	0.0	344.3	30.7	88.2	568.9	478.6	708.3	551.7	72.3	799.3	211.9	1782.0	1514.5	1531.1	1068.7	0.0	10.7	0.0	30.0	1017.3	1643.1	672.1	532.2	319.9	1.6	8.1	4.4
H10	0	2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.3	0.0	6.4	0.0	0.0	0.0	2.2	14.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H12	0	2	131.9	3.2	5.9	10.3	0.0	6.5	0.0	0.0	167.0	0.0	0.0	0.0	25.9	0.3	12.7	9.6	28.2	0.0	0.0	5.0	84.2	44.0	0.0	62.5	2.6	360.1	7.6	0.0	0.0
H18	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0
H21	1	2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
M2	0	1	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1
M3	0	2	0.0	2.6	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
M4	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0
M6	0	2	17.2	151.7	43.7	248.6	7.6	1.1	233.6	130.3	203.5	17.3	93.1	10.8	3.5	15.1	46.1	50.0	31.4	220.4	287.1	302.6	307.4	87.6	76.2	128.7	211.3	184.1	19.8	65.9	9.5
M10	1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15	1	2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M16	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.9	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0
M17	1	1	0.0	2.1	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18	1	1	0.0	8.9	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	4.4	0.1
M19	0	1	950.8	1989.1	263.1	903.1	309.4	914.9	109.4	18.8	175.3	5.6	873.4	429.0	213.7	87.2	167.3	219.1	235.7	511.1	27.3	109.9	113.4	135.7	13.1	165.6	77.1	2827.9	951.3	211.2	794.3
M20	0	2	0.0	22.1	310.6	114.6	419.5	498.4	3.8	24.3	56.2	0.0	88.1	190.5	935.1	9.1	0.1	0.0	14.4	305.9	434.8	573.1	276.1	14.4	0.0	0.0	129.0	360.7	189.9	277.5	4.1
M21	1	1	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0
M23	0	2	0.0	46.3	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0
M25	0	2	0.0	52.1	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
M29	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
M32	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
M35	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M37	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U1	0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
U2	0	3	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
U4	0	3	4.5	9.6	0.2	6.9	26.2	25.2	3.8	0.0	4.5	0.0	27.2	0.0	85.9	41.6	31.4	0.7	2.0	2.0	27.6	12.0	29.3	6.8	23.0	13.1	29.4	27.5	2.8	0.0	0.6
U5	0	3	12.2	213.1	89.8	203.0	481.3	161.3	57.9	0.0	7.5	0.0	88.9	43.5	953.9	23.2	591.5	82.3	29.0	81.6	259.8	347.5	327.6	25.8	0.0	37.7	108.2	258.7	178.2	244.7	68.0
U6	0	3	340.4	259.1	462.6	408.6	895.8	232.0	67.1	71.3	142.6	0.1	88.5	58.2	887.3	177.9	425.7	130.4	399.3	217.8	253.3	372.1	403.4	490.2	0.0	45.3	62.5	747.2	269.0	283.0	32.7
U20	0	2	36.9	51.9	6.9	19.6	0.0	0.0	15.1	31.7	34.6	10.3	0.0	105.5	31.6	166.1	87.6	229.2	69.3	3.0	2.5	37.8	52.6	61.2	102.2	27.0	90.2	5.3	0.0	0.0	0.1
U23	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG9	1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.1
CG10	1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG10	0	3	0.0	2.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W7	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W9	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W11	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W16	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W17	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W19	1	1	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W23	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S9	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DIVERSITY:			10	18	14	13	9	10	8	7	11	6	8	9	11	16	13	9	9	7	8	9	9	9	6	11	13	16	10	8	11
TOTAL AREA:			1764.6	2935.9	1197.1	2259.6	2175.6	1927.9	1059.6	759.3	1522.5	591.4	1331.6	1637.8	3349.0	2320.3	2896.6	2255.5	1878.0	1341.8	1303.1	1763.2	1624.0	1883.0	1859.1	1160.8	1242.9	5103.4	1620.5	1100.0	914.0
NO. RARE COMMUNITIES:			1	3	3	2	1	0	0	0	1	0	0	0	1	2	1	1	0	0	0	0	0	0	0	0	4	2	0	1	2
AREA RARE COMMUNITIES:			4.5	11.1	9.3	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.2	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.6	0.0	4.4	0.2
NATURALNESS (1):			54.1	68.1	22.8	40.0	14.2	47.5	10.3	2.5	11.5	0.9	65.6	26.2	6.4	3.8	5.8	9.9	12.6	38.1	2.1	6.2	7.0	7.2	0.8	14.3	6.2	55.4	58.7	20.1	86.9
NATURALNESS (2):			25.6	15.4	31.0	32.6	21.3	30.8	77.5	88.1	78.3	99.0	19.0	67.6	36.1	85.3	57.8	80.7	64.5	39.4	56.4	52.3	46.2	65.0	98.0	77.2	77.7	24.3	13.5	32.0	2.0
NATURALNESS (3):			20.2	16.5	46.2	27.4	64.5	21.7	12.2	9.4	10.2	0.0	15.4	6.2	57.5	10.9	36.4	9.5	22.9	22.5	41.5	41.5	46.8	27.8	1.2	8.5	16.1	20.3	27.8	48.0	11.1
NATURALNESS INDEX (%):			66.9	75.8	38.3	56.3	24.9	62.9	49.1	46.5	50.7	50.5	75.1	60.0	24.4	46.4	34.7	50.2	44.8	57.8	30.3	32.4	30.1	39.7	49.8	52.9	45.1	67.5	65.5	36.0	87.9
HEATH/GRASS:			1.11	0.26	0.01	0.57	0.02	0.23	4.42	6.77	5.66	5581.0	0.35	1.33	0.12	7.06	1.47	7.22	2.55	0.00	0.02	0.01	0.15	2.03	71.44	7.41	2.67	0.66	0.02	0.02	0.04
CALLUNA-RICH/POOR:			3.8	4.4	0.3	2.1	0.3	2.7	5.3	7.0	6.8	5637.0	4.6	13.4	0.2	7.1	1.6	8.2	3.0	1.7	0.1	0.2	0.3	2.3	72.0	9.1	3.1	2.9	1.7	0.4	7.6

Appendix 2(ii). Plant community areas (ha) for sites in the North Pennines Survey blocks continued.

BLOCK:			7					8					12							14							
SITE:			1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
COMM.	RARITY	NATURAL																									
H9	0	2	103.8	13.7	30.6	88.1	552.1	1070.1	42.2	1442.8	627.6	92.0	13.4	4.7	6.1	485.5	621.8	655.0	538.6	0.0	161.9	12.5	189.9	24.6	226.8	409.1	259.4
H10	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H12	0	2	4.2	0.0	61.5	75.9	732.5	17.2	0.0	8.9	0.0	2.5	59.1	11.3	0.0	549.0	96.2	0.0	132.3	0.0	0.0	0.0	131.0	10.8	8.0	6.7	15.3
H18	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.4	0.0	0.0	0.0	0.0	0.0	0.0	7.5	0.0	1.6	13.5	0.0	5.0	0.0	0.0
H21	1	2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M2	0	1	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M3	0	2	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M4	0	1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6	0	2	46.7	18.9	5.6	76.6	170.0	91.9	25.7	58.2	71.0	3.4	16.8	38.3	6.6	60.4	20.0	29.6	95.5	419.3	140.2	117.5	36.7	75.5	27.9	23.0	128.2
M10	1	2	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15	1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M16	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M17	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18	1	1	0.0	0.2	0.0	0.0	0.1	49.4	11.4	0.0	0.0	0.0	0.1	0.0	1.8	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M19	0	1	1130.7	857.1	1240.4	1487.8	516.6	130.6	443.8	264.6	141.3	108.2	661.5	668.1	666.0	463.2	1026.4	37.9	0.1	53.1	205.0	140.3	366.0	60.8	15.6	326.3	286.4
M20	0	2	543.9	963.3	378.0	11.5	62.8	78.3	161.3	148.0	60.4	0.0	425.5	576.8	39.8	5.5	0.1	0.0	0.1	627.6	564.4	1179.5	95.0	117.6	295.0	61.9	569.9
M21	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
M23	0	2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	4.0	0.7	0.0	0.3	0.8	0.0	2.1	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M25	0	2	0.0	30.6	0.0	1.9	0.0	33.1	3.2	0.0	2.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	122.2	0.0	0.0	138.5	0.0	0.0	0.0	3.2
M29	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M32	1	1	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M35	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M37	1	1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U1	0	3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	10.0	1.3	0.0	2.0	0.0	0.0	19.6	10.4	0.0	32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U2	0	3	0.0	0.0	4.1	0.6	0.0	0.0	0.0	0.0	25.3	0.0	0.0	22.5	0.0	0.0	0.0	0.5	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
U4	0	3	0.0	0.0	182.3	11.9	81.2	30.3	6.1	165.9	144.7	3.4	38.9	0.0	0.0	89.2	73.3	79.0	76.8	0.0	6.9	0.0	0.0	11.3	6.1	3.2	0.0
U5	0	3	408.9	262.9	264.5	166.8	146.0	63.8	113.5	92.3	267.5	71.3	114.9	17.3	23.5	9.9	0.0	1.5	114.3	144.9	38.8	51.9	0.0	11.3	13.5	2.2	23.0
U6	0	3	613.9	502.1	414.9	364.9	299.2	108.6	849.2	146.9	141.0	150.8	166.6	151.4	21.4	49.3	176.8	19.4	7.8	205.7	139.3	132.0	52.0	37.2	10.4	10.3	62.7
U20	0	2	5.6	10.3	57.0	63.6	31.0	59.3	35.3	160.6	66.3	1.5	8.8	1.6	0.0	189.8	26.3	23.3	144.5	16.1	25.6	9.8	71.5	50.7	27.8	9.1	17.1
U23	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG9	1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG10	1	3	0.0	0.0	12.8	6.4	31.8	10.1	0.0	10.3	5.4	0.6	61.7	137.0	19.2	31.6	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG10	0	3	0.0	0.0	5.9	3.8	0.8	24.5	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W7	1	1	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W9	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W11	1	1	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W16	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W17	0	1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W19	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W23	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S9	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DIVERSITY:			9	12	18	15	16	16	10	13	14	11	22	11	13	13	14	9	13	9	8	8	9	9	10	9	11
TOTAL AREA:			2857.9	2659.6	2660.6	2360.0	2624.5	1775.1	1691.7	2508.7	1558.0	439.6	1616.2	1629.1	785.4	1964.0	2064.8	848.3	1158.9	1605.8	1282.1	1645.1	1094.1	399.8	636.1	851.8	1366.7
NO. RARE COMMUNITIES:			0	1	3	1	3	5	1	1	2	2	7	2	3	2	3	0	1	0	0	0	0	0	0	0	1
AREA RARE COMMUNITIES:			0.0	0.2	15.4	6.4	32.0	67.4	11.4	10.3	9.2	2.5	78.8	137.1	21.3	41.8	13.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
NATURALNESS (1):			39.6	32.2	46.7	63.0	19.7	10.3	26.9	10.5	9.3	25.0	42.0	41.0	85.1	24.1	49.8	4.5	0.0	3.3	16.0	8.5	33.5	15.2	2.5	38.3	21.0
NATURALNESS (2):			24.6	39.0	20.0	13.5	59.0	76.4	15.8	72.5	53.1	23.5	34.2	38.8	6.7	65.7	37.0	83.7	78.7	74.3	69.6	80.3	61.8	69.8	92.8	59.8	72.7
NATURALNESS (3):			35.8	28.8	33.2	23.5	21.3	13.4	57.3	17.0	37.6	51.4	23.8	20.1	8.2	10.2	13.2	11.8	21.2	22.4	14.4	11.2	4.8	15.0	4.7	1.8	6.4
NATURALNESS INDEX (%):			51.9	51.7	56.7	69.8	49.2	48.4	34.8	46.8	35.9	36.8	59.1	60.4	88.5	57.0	68.3	46.3	39.4	40.4	50.8	48.7	64.3	50.1	48.9	68.2	57.3
HEATH/GRASS:			0.11	0.18	0.10	0.30	2.30	5.11	0.04	3.41	1.07	0.42	0.19	0.05	0.10	5.18	2.63	6.52	2.73	0.00	0.88	0.07	6.17	0.59	7.83	26.48	3.15
CALLUNA-RICH/POOR:			0.8	0.5	1.1	2.9	3.3	5.4	0.5	4.3	1.4	0.9	2.3	1.8	7.3	7.5	6.4	6.9	2.7	0.1	2.0	0.7	15.0	3.3	18.2	47.3	10.3

Appendix 2(iii). Plant community areas (ha) for sites in the North Pennines Survey blocks continued.

BLOCK:			15									16					
SITE:			1	2	3	4	5	6	7	8	9	1	2	3	4	5	6
COMM.	RARITY	NATURAL															
H9	0	2	705.2	358.2	258.3	247.8	540.3	224.9	638.9	368.1	1000.5	1277.1	538.4	931.5	1792.2	1370.9	1219.3
H10	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H12	0	2	68.1	184.2	2.5	788.9	258.1	92.5	381.2	149.2	157.1	0.0	0.0	0.0	0.0	0.0	0.0
H18	0	2	0.0	21.6	0.0	57.6	32.4	0.0	12.7	2.8	6.6	20.1	2.5	0.0	67.7	0.6	0.0
H21	1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0
M2	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1
M3	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M4	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1
M6	0	2	80.9	37.5	42.5	42.4	134.5	113.3	197.2	48.2	241.5	90.1	54.8	173.3	233.4	203.9	85.2
M10	1	2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0
M15	1	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M16	0	2	0.0	0.0	0.0	0.1	8.6	0.0	45.7	0.1	9.5	0.0	0.0	0.0	0.0	10.4	5.0
M17	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18	1	1	6.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M19	0	1	3.8	44.5	1.8	0.1	9.4	12.3	26.7	0.0	17.4	0.0	0.0	3.8	0.0	1.3	0.0
M20	0	2	0.0	101.9	237.8	309.1	0.0	111.5	0.0	22.5	0.0	218.9	422.1	663.1	229.3	51.4	576.4
M21	1	1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M25	0	2	0.0	0.0	0.0	0.0	0.0	24.7	0.0	0.0	0.0	0.0	9.4	13.9	23.8	0.0	30.7
M29	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M32	1	1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M35	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M37	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U1	0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U2	0	3	0.0	0.0	0.0	1.9	31.1	51.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	3.2
U4	0	3	0.0	0.0	8.2	0.0	13.5	0.0	0.0	6.2	10.0	65.1	6.4	0.0	2.8	0.1	0.2
U5	0	3	25.8	3.2	46.6	16.1	21.3	64.0	15.6	1.5	2.7	162.0	156.5	58.6	358.6	159.7	298.0
U6	0	3	0.0	0.0	70.6	35.2	8.5	30.9	15.6	10.9	1.4	134.5	0.8	122.3	252.9	6.4	0.2
U20	0	2	79.4	70.4	115.5	93.8	110.2	80.3	63.3	26.3	53.1	367.1	74.7	169.2	499.9	267.5	489.1
U23	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG9	1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG10	1	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG10	0	3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3	7.1	3.4	9.3	0.1	0.2
W	0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0
W7	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
W9	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0
W11	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0
W16	0	1	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W17	0	1	0.0	0.0	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0	58.8	2.5	0.0	0.0	0.0
W19	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W23	0	2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
S9	1	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DIVERSITY:			7	8	9	14	14	10	9	11	10	14	13	13	11	12	13
TOTAL AREA:			969.5	821.5	783.8	1602.1	1173.3	805.7	1396.9	635.9	1499.8	2366.0	1331.8	2143.2	3470.0	2072.4	2707.7
NO. RARE COMMUNITIES:			1	0	0	2	2	0	0	1	0	4	1	1	0	1	0
AREA RARE COMMUNITIES:			6.3	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.0	5.8	0.1	1.3	0.0	0.1	0.0
NATURALNESS (1):			1.0	5.4	0.2	0.6	1.3	1.5	1.9	0.0	1.2	0.7	4.4	0.3	0.0	0.1	0.0
NATURALNESS (2):			96.3	94.2	83.8	96.1	92.4	80.3	95.9	97.1	97.9	83.4	82.7	91.1	82.0	91.9	88.8
NATURALNESS (3):			2.7	0.4	16.0	3.3	6.3	18.1	2.2	2.9	0.9	15.9	12.8	8.6	18.0	8.0	11.1
NATURALNESS INDEX (%):			49.2	52.5	42.1	48.6	47.5	41.7	49.8	48.5	50.1	42.4	45.8	45.9	41.0	46.0	44.4
HEATH/GRASS:			29.97	169.50	2.08	19.49	10.73	2.17	32.70	27.81	82.10	3.53	3.29	5.15	2.92	8.25	4.04
CALLUNA-RICH/POOR:			30.1	215.3	3.9	25.3	10.9	1.4	33.6	29.0	83.3	2.5	1.7	5.4	3.3	8.6	5.8

Appendix 3 NVC communities, sub-communities and other types with areas on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC code	Total area (ha) and % area																	
	Site name																	
	Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9	0.0	0.0	0.0	0.0	0.0	0.0	359.4	74.1	0.0	0.0	1293.9	69.2	0.0	0.0	0.0	0.0	424.4	9.3
H9/H12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10/H12	0.0	0.0	164.3	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10/H12/H21	0.0	0.0	497.1	21.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H12	150.6	1.4	0.1	0.0	259.9	7.5	0.0	0.0	0.9	0.0	0.0	0.0	1838.0	23.1	671.2	72.8	0.1	0.0
H12B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H12/H21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H13A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H18	172.1	1.6	0.0	0.0	637.4	18.4	29.5	6.1	27.4	0.8	0.0	0.0	16.3	0.2	4.1	0.4	12.5	0.3
H19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H21A	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.3	0.0	0.1	0.0	0.0	0.0
H22A	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mire (uncl.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M4	0.1	0.0	4.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
M6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.1
M6A/M6B	0.0	0.0	5.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0
M6B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6C	25.5	0.2	40.3	1.7	0.7	0.0	8.2	1.7	54.3	1.6	54.7	2.9	132.9	1.7	16.4	1.8	75.0	1.6
M6CI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
M6DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6/M10	13.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6/M23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
M6/M23/MG10	42.4	0.4	21.4	0.9	0.4	0.0	0.0	0.0	4.9	0.1	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0
M8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M10	19.5	0.2	4.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
M10AIII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M10B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M10/M11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M11B	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15A	0.0	0.0	29.6	1.3	0.0	0.0	0.0	0.0	0.0	0.0	9.8	0.5	0.1	0.0	0.1	0.0	0.0	0.0
M15B	0.0	0.0	11.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15/M16	0.0	0.0	0.0	0.0	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	9.6	1.0	0.0	0.0
M15A/M25A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	1.8	0.0	0.0
M15B/M25B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	335.9	18.0	0.0	0.0	0.0	0.0	0.1	0.0
M16/M25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M17C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18/M19	0.1	0.0	3.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
M19	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
M19A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M19B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M19/M20	6397.8	60.2	111.5	4.7	58.0	1.7	0.0	0.0	325.2	9.5	0.0	0.0	9.1	0.1	8.6	0.9	0.0	0.0
M19/M20B	4.0	0.0	603.0	25.7	497.1	14.3	0.0	0.0	0.1	0.0	0.0	0.0	4301.9	54.0	63.0	6.8	0.0	0.0
M20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0
M20A	191.6	1.8	10.7	0.5	265.5	7.7	0.0	0.0	601.9	17.7	0.0	0.0	118.2	1.5	0.0	0.0	1020.3	22.3
M20B	85.0	0.8	0.0	0.0	0.1	0.0	44.0	9.1	754.8	22.2	0.0	0.0	0.0	0.0	0.0	0.0	2257.5	49.4
M20A/M20B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23/MG10	43.0	0.4	1.0	0.0	0.1	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
M25	0.1	0.0	0.0	0.0	22.1	0.6	0.0	0.0	30.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	99.4	2.2
M25A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M25B	0.0	0.0	5.1	0.2	0.0	0.0	0.0	0.0	6.8	0.2	0.0	0.0	11.7	0.1	0.1	0.0	21.1	0.5
M26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M32	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M37	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(cont.)

Appendix 3 (cont.) NVC communities, sub-communities and other types with areas on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC code	Total area (ha) and % area															
	Site name															
	Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9	0.0	0.0	2209.2	6.9	0.1	0.0	955.0	83.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H9/H12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	965.5	25.6	0.0	0.0	0.0	0.0	0.0	0.0
H10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10/H12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10/H12/H21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H12	20.9	0.4	0.0	0.0	570.1	6.9	0.0	0.0	0.1	0.0	0.0	0.0	67.8	1.1	0.1	0.0
H12B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H12/H21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H13A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H18	0.1	0.0	796.2	2.5	41.9	0.5	3.6	0.3	73.7	2.0	0.0	0.0	20.8	0.3	21.0	0.2
H19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.2	103.8	0.8
H21A	0.0	0.0	0.0	0.0	38.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H22A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mire (uncl.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	134.5	2.7	0.0	0.0	0.0	0.0
M2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M4	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	11.2	0.2	3.0	0.0
M6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	4.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0
M6A	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6A/M6B	0.0	0.0	0.0	0.0	6.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.2
M6B	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6C	12.6	0.2	108.6	0.3	38.8	0.5	40.5	3.5	4.6	0.1	0.0	0.0	119.3	1.9	72.0	0.5
M6CI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.8	1.1	0.0	0.0	0.0	0.0	0.1	0.0
M6D	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	3.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0
M6DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
M6/M10	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
M6/M23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6/M23/MG10	0.0	0.0	0.0	0.0	14.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	16.5	0.3	0.1	0.0
M8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M9	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
M10	14.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.0
M10AIII	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M10B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M10/M11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M11B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
M15A	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
M15B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15/M16	0.1	0.0	0.0	0.0	11.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15A/M25A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15B/M25B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M16	0.0	0.0	0.1	0.0	0.1	0.0	14.8	1.3	62.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0
M16/M25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M17C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18	0.0	0.0	0.0	0.0	76.6	0.9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	15.0	0.1
M18A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18/M19	0.0	0.0	0.0	0.0	172.8	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M19	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	9.7	0.3	0.0	0.0	0.0	0.0	996.2	7.3
M19A	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M19B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	136.7	3.6	0.0	0.0	0.1	0.0	0.1	0.0
M19/M20	2.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.7	0.4	9.4	0.1
M19/M20B	18.8	0.4	0.0	0.0	3504.8	42.5	0.0	0.0	0.0	0.0	0.0	0.0	68.2	1.1	1773.0	12.9
M20	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	896.2	23.8	0.0	0.0	0.0	0.0	643.3	4.7
M20A	858.7	16.4	0.0	0.0	25.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	692.8	11.1	0.0	0.0
M20B	0.1	0.0	0.0	0.0	7.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M20A/M20B	0.0	0.0	6041.5	18.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M21	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
M23/MG10	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.1	0.0
M25	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M25A	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M25B	16.1	0.3	500.9	1.6	1064.2	12.9	4.0	0.3	153.6	4.1	0.0	0.0	0.0	0.0	0.0	0.0
M26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
M32	0.1	0.0	0.0	0.0	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
M35	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M37	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0

(cont.)

Appendix 3 (cont.) NVC communities, sub-communities and other types with areas on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC code	Total area (ha) and % area															
	Site name															
	Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
H9	0.0	0.0	1205.6	81.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H9/H12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0
H10/H12	0.0	0.0	0.0	0.0	58.4	2.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10/H12/H21	0.0	0.0	0.0	0.0	16.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H10D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	0.1	0.0	0.0	0.0	0.0
H12	0.1	0.0	0.0	0.0	0.0	0.0	1469.5	71.9	1174.6	11.5	632.7	4.5	5492.4	34.9	0.0	0.0
H12B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	233.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0
H12/H21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.4	0.5	0.0	0.0
H13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
H13A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
H18	41.6	2.9	73.0	4.9	0.0	0.0	1.7	0.1	280.4	2.7	0.1	0.0	1045.3	6.6	10.1	0.3
H19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	90.3	0.9	0.1	0.0	0.0	0.0	4.3	0.1
H21A	0.1	0.0	0.1	0.0	0.1	0.0	12.0	0.6	0.1	0.0	0.1	0.0	5.4	0.0	0.0	0.0
H22A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mire (uncl.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0
M4	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	7.9	0.1	0.1	0.0	0.0	0.0
M6	23.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	3.6	0.0	3.6	0.1
M6A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.4	0.3	0.0	0.0	0.0	0.0	0.1	0.0
M6A/M6B	0.0	0.0	0.0	0.0	3.8	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0
M6B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6C	10.9	0.8	25.9	1.8	8.0	0.4	11.7	0.6	163.1	1.6	50.4	0.4	316.7	2.0	0.0	0.0
M6CI	0.0	0.0	0.0	0.0	100.3	4.8	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	244.7	6.4
M6D	0.0	0.0	0.0	0.0	8.5	0.4	5.3	0.3	17.2	0.2	0.1	0.0	0.0	0.0	0.1	0.0
M6DI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M6/M10	0.0	0.0	0.0	0.0	1.4	0.1	0.0	0.0	0.0	0.0	27.0	0.2	0.0	0.0	0.0	0.0
M6/M23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0
M6/M23/MG10	0.0	0.0	0.0	0.0	19.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.1
M10	0.0	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.0	36.3	0.3	0.0	0.0	0.0	0.0
M10AIII	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M10B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
M10/M11	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M11B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.3	0.0	0.0	0.0	0.0	0.0
M15	0.0	0.0	0.0	0.0	2.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15A	0.0	0.0	0.0	0.0	16.0	0.8	3.8	0.2	7.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
M15B	0.0	0.0	0.0	0.0	133.5	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15/M16	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15A/M25A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M15B/M25B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0
M16	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M16/M25	0.0	0.0	60.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	31.0	0.2	0.0	0.0	0.0	0.0
M17C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18	0.0	0.0	0.0	0.0	2.1	0.1	219.4	10.7	0.0	0.0	11.5	0.1	34.7	0.2	0.0	0.0
M18A	0.0	0.0	0.0	0.0	37.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M18/M19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
M19	0.0	0.0	0.0	0.0	12.0	0.6	0.0	0.0	805.9	7.9	0.0	0.0	0.0	0.0	207.1	5.4
M19A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M19B	2.6	0.2	0.0	0.0	124.8	5.9	0.0	0.0	5.7	0.1	0.0	0.0	0.1	0.0	0.0	0.0
M19/M20	0.0	0.0	0.0	0.0	2.8	0.1	27.3	1.3	0.0	0.0	1998.7	14.2	158.6	1.0	0.0	0.0
M19/M20B	383.7	26.6	0.0	0.0	663.6	31.6	0.0	0.0	0.1	0.0	2136.6	15.2	3592.9	22.8	0.0	0.0
M20	0.0	0.0	0.0	0.0	52.8	2.5	0.0	0.0	197.5	1.9	0.0	0.0	0.0	0.0	1254.4	32.7
M20A	451.7	31.3	0.0	0.0	218.0	10.4	0.2	0.0	38.3	0.4	324.4	2.3	1440.8	9.1	0.0	0.0
M20B	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	38.3	0.4	0.0	0.0	286.1	1.8	0.0	0.0
M20A/M20B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0
M23B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M23/MG10	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.2	0.0	0.0	23.8	0.2	0.0	0.0	0.0	0.0
M25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
M25A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0
M25B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	123.0	0.8	147.9	3.9
M26	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M32	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0
M35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
M37	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

(cont.)

Appendix 3 (cont.) NVC communities, sub-communities and other types with areas on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC code	Total area (ha) and % area																	
	Site name																	
	Appleby Fells		Armboth Fells		Cheviot		Danby High Moor		Fountains/ Dambrook Fells		Fyling-dales		Geltsdale & Glendue Fells		Harbottle Moors		Haworth Moor	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U4	736.5	6.9	8.7	0.4	22.3	0.6	0.3	0.1	274.8	8.1	0.1	0.0	559.4	7.0	1.9	0.2	27.1	0.6
U4A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U4E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U4/CG10	339.2	3.2	0.0	0.0	24.4	0.7	0.0	0.0	344.2	10.1	0.0	0.0	0.0	0.0	22.4	2.4	0.0	0.0
U5	403.4	3.8	404.8	17.2	874.2	25.2	0.1	0.0	139.2	4.1	0.0	0.0	366.0	4.6	26.4	2.9	243.2	5.3
U5A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U6	748.3	7.0	26.5	1.1	0.1	0.0	0.1	0.0	781.8	23.0	0.0	0.0	33.2	0.4	0.1	0.0	7.5	0.2
U6A	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U6D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U7C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U10A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U10B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U16	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U17	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U20	31.3	0.3	317.9	13.5	0.1	0.0	37.9	7.8	7.8	0.2	86.0	4.6	280.2	3.5	64.7	7.0	0.0	0.0
U20A	0.0	0.0	0.0	0.0	3.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	45.8	0.6	0.1	0.0	0.8	0.0
U20B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U20C	0.0	0.0	0.1	0.0	12.7	0.4	5.6	1.2	0.0	0.0	33.2	1.8	0.0	0.0	0.1	0.0	178.5	3.9
U21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U22/U23	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG9	205.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG9/CG10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG10	537.2	5.1	0.1	0.0	0.0	0.0	0.0	0.0	18.3	0.5	0.0	0.0	4.5	0.1	0.0	0.0	0.0	0.0
CG10C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
S22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	4.4	0.5	0.0	0.0
W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W7	13.4	0.1	0.0	0.0	13.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.1	0.0	0.0	0.0
W7/W9	4.7	0.0	4.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.1	0.0	0.0	0.1	0.0
W9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W11	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W11/W17	0.0	0.0	14.8	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.3	0.8	1.4	0.2	0.0	0.0
W16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0
R1	40.7	0.4	0.0	0.0	1.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.7	0.1	8.2	0.2
R1A	14.1	0.1	4.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
R1B	0.1	0.0	29.6	1.3	0.0	0.0	0.0	0.0	16.1	0.5	0.0	0.0	1.7	0.0	0.1	0.0	0.0	0.0
R2	4.0	0.0	0.1	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0
R2A	135.1	1.3	0.0	0.0	4.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
R2B	13.4	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
R3	0.1	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Open water	148.0	1.4	17.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	21.6	0.3	6.7	0.7	41.1	0.9
Plantation	0.0	0.0	0.5	0.0	0.6	0.0	0.0	0.0	0.0	0.0	6.5	0.3	7.9	0.1	0.0	0.0	10.5	0.2
Bare peat	3.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Semi-improved	109.6	1.0	1.8	0.1	7.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	135.0	1.7	0.0	0.0	137.1	3.0
Improved pasture	0.0	0.0	1.8	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spoil tips/mines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Bare ground	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Quarry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsurveyed	0.0	0.0	1.5	0.1	758.7	21.9	0.0	0.0	0.0	0.0	30.0	1.6	7.6	0.1	2.4	0.3	0.0	0.0
Site total	10633.1	100.0	2348.2	100.0	3470.3	100.0	485.1	100.0	3406.0	100.0	1870.1	100.0	7967.9	100.0	921.9	100.0	4569.2	100.0
Diversity	34		26		25		9		23		12		27		23		17	

(cont.)

Diversity is the number of communities and sub-communities

Appendix 3 (cont.) NVC communities, sub-communities and other types with areas on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC code	Total area (ha) and % area															
	Site name															
	Ingle-borough		The Dark Peak		Kielder-Head & Emblehope Moors		Lealholm & Roxby Moors		Leek Moors		Malham-Arncliffe		Maller-stang and Swaledale Head		Moor House & Cross Fell	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2	0.0	0.0	233.2	0.7	74.3	0.9	0.0	0.0	16.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
U4	595.4	11.4	2.2	0.0	164.5	2.0	14.2	1.2	25.6	0.7	1894.2	38.4	3.4	0.1	237.6	1.7
U4A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U4E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U4/CG10	19.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	0.1	99.1	0.7
U5	666.6	12.7	1189.4	3.7	211.3	2.6	10.8	0.9	340.6	9.0	757.8	15.4	344.5	5.5	844.2	6.2
U5A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U6	820.0	15.7	0.1	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	542.1	8.7	1063.0	7.8
U6A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
U6D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U7C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
U10A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.0	0.7
U10B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U16	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
U19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U20	14.4	0.3	296.5	0.9	69.9	0.8	0.0	0.0	43.2	1.1	0.0	0.0	0.0	0.0	34.0	0.2
U20A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U20B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U20C	0.0	0.0	0.0	0.0	0.0	0.0	102.0	8.9	3.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
U21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
U22/U23	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0
CG9	485.0	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	214.6	4.3	16.5	0.3	0.1	0.0
CG9/CG10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG10	98.8	1.9	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	632.8	12.8	124.8	2.0	198.5	1.4
CG10C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
MG9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG10	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0
S22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.5	0.8	0.0	0.0	0.0	0.0
W1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	0.1	0.0	0.0	0.0	0.0
W7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W7/W9	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W9	6.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W11/W17	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W16	0.0	0.0	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0
W19	4.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
R1	25.0	0.5	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.1	0.0	0.0
R1A	9.2	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	6.0	0.1	12.7	0.2	0.0	0.0
R1B	1144.4	21.9	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	292.6	5.9	6.6	0.1	0.1	0.0
R2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	12.1	0.2	89.0	0.6
R2A	20.9	0.4	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	0.1	57.5	0.4
R2B	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	0.2	6.0	0.0
R3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Open water	0.0	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	59.9	1.2	0.0	0.0	0.0	0.0
Plantation	12.0	0.2	77.0	0.2	1.5	0.0	0.0	0.0	66.7	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Bare peat	0.0	0.0	279.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.1	35.0	0.3
Semi-improved	192.8	3.7	0.0	0.0	33.5	0.4	0.0	0.0	677.1	18.0	464.1	9.4	0.0	0.0	0.0	0.0
Improved pasture	163.0	3.1	5.9	0.0	19.0	0.2	0.0	0.0	141.9	3.8	56.8	1.2	0.0	0.0	0.0	0.0
Spoil tips/mines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bare ground	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.1	19.9	0.4	0.0	0.0	0.0	0.0
Quarry	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsurveyed	6.6	0.1	20163.0	63.1	2091.3	25.3	0.0	0.0	0.0	0.0	353.8	7.2	4099.0	65.8	7277.5	53.1
Site total	5231.3	100.0	31930.3	100.0	8256.0	100.0	1145.3	100.0	3768.8	100.0	4934.8	100.0	6233.1	100.0	13708.7	100.0
Diversity	27		20		37		12		25		15		22		34	

(cont.)

Diversity is the number of communities and sub-communities

Appendix 3 (cont.) NVC communities, sub-communities and other types with areas on SSSI and non-statutory sites in the Pennines and surrounding areas

NVC code	Total area (ha) and % area															
	Site name															
	Pen y Ghent		Pockley and East Moors		Shap Fells		Simon-side Hills		Skiddaw Group		Upper Teesdale		Bowland Fells		Whern-side	
	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%	ha	%
U2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U4	15.0	1.0	0.0	0.0	176.0	8.4	0.1	0.0	177.2	1.7	193.0	1.4	216.0	1.4	201.1	5.2
U4A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
U4E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	362.6	3.5	0.0	0.0	0.0	0.0	0.0	0.0
U4/CG10	3.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.6	0.5	0.0	0.0	0.7	0.0
U5	196.4	13.6	5.4	0.4	296.4	14.1	0.3	0.0	9.1	0.1	1279.7	9.1	624.4	4.0	818.8	21.3
U5A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2285.6	22.3	0.0	0.0	0.0	0.0	0.0	0.0
U6	79.9	5.5	0.0	0.0	1.9	0.1	0.1	0.0	2.0	0.0	480.0	3.4	484.3	3.1	222.6	5.8
U6A	0.0	0.0	0.0	0.0	1.4	0.1	0.1	0.0	1217.1	11.9	9.6	0.1	0.0	0.0	0.0	0.0
U6D	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
U7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U7C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U10A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U10B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
U19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
U20	0.0	0.0	21.0	1.4	1.9	0.1	183.5	9.0	24.5	0.2	46.8	0.3	1030.7	6.5	6.2	0.2
U20A	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	369.8	3.6	0.0	0.0	0.9	0.0	0.0	0.0
U20B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
U20C	0.0	0.0	82.9	5.6	0.0	0.0	18.3	0.9	2.7	0.0	0.8	0.0	12.2	0.1	0.0	0.0
U21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	0.1	0.1	0.0	0.0	0.0	0.1	0.0
U22/U23	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
CG9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.2	0.0	0.0	110.4	2.9
CG9/CG10	50.7	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CG10	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	76.1	0.5	0.0	0.0	54.5	1.4
CG10C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4	0.1	0.0	0.0	0.0	0.0
MG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MG10	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S22	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W7	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W7/W9	0.0	0.0	0.0	0.0	0.0	0.0	17.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.1
W9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
W11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W11/W17	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.3	0.1	0.0	0.1	0.0	2.3	0.0	0.0	0.0
W16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
W17	0.0	0.0	3.3	0.2	0.0	0.0	1.9	0.1	0.1	0.0	0.0	0.0	5.9	0.0	0.0	0.0
W19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.5	0.3	40.5	0.3	0.0	0.0	0.0	0.0
W23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R1	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R1A	2.6	0.2	0.0	0.0	0.1	0.0	0.4	0.0	76.8	0.7	8.6	0.1	0.0	0.0	0.0	0.0
R1B	1.6	0.1	0.0	0.0	0.0	0.0	0.3	0.0	10.7	0.1	1.8	0.0	5.9	0.0	100.4	2.6
R2	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	12.1	0.1	0.0	0.0	15.3	0.1	0.0	0.0
R2A	8.8	0.6	0.0	0.0	0.1	0.0	0.1	0.0	388.7	3.8	27.7	0.2	0.1	0.0	23.3	0.6
R2B	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.5	0.0	1.2	0.0	0.1	0.0	0.0	0.0
R3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	1.8	0.0	0.0	0.0
Open water	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.2	4.7	0.0	224.0	1.6	0.5	0.0	3.7	0.1
Plantation	0.0	0.0	0.0	0.0	6.6	0.3	0.0	0.0	1.0	0.0	0.0	0.0	128.4	0.8	7.9	0.2
Bare peat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.1	0.2	0.0	0.0
Semi-improved	0.0	0.0	0.0	0.0	0.9	0.0	6.0	0.3	0.0	0.0	110.1	0.8	3.6	0.0	66.2	1.7
Improved pasture	0.0	0.0	0.0	0.0	3.3	0.2	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	18.9	0.5
Spoil tips/mines	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	0.1	13.5	0.1	0.0	0.0	0.0	0.0
Bare ground	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.6	0.1	0.0	0.0
Quarry	0.0	0.0	0.0	0.0	6.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Unsurveyed	167.0	11.6	0.0	0.0	124.1	5.9	42.7	2.1	1951.1	19.0	6114.2	43.6	605.1	3.8	324.3	8.4
Site total	1442.3	100.0	1478.1	100.0	2102.3	100.0	2043.7	100.0	10257.6	100.0	14037.0	100.0	15760.0	100.0	3840.3	100.0
Diversity	17		11		30		30		48		39		28		23	

Diversity is the number of communities and sub-communities

Appendix 4

Summary of the importance of geographical regions of the uplands for plant communities

SW England

1.) Headquarters for south-western heaths and grasslands (NVC types H4, U3).

2.) Largest extent on upland of other chiefly southern or south-western communities (NVC types H8, M21, M29, M35).

3.) Southern outliers of many widespread western communities, some of which are extensive (NVC types W17, H10, M15, M17, M23, M25).

4.) Southern outliers of widespread upland communities (esp. NVC types H12, U5, U6, M4, M6).

Wales

1.) Southern outliers of montane plant communities or habitats (NVC types U10, U13, H18, M11?, M31, M32, CG14 & rock communities)

2.) Important for widespread western communities, some with their most extensive tracts south of Scotland (NVC types W11, W17, H10, M15, M17, M23, M25) and relatively extensive southern outliers of north-western heath (NVC type H21).

3.) Extensive or well-developed southerly representation of northern or widespread communities, especially the extensive heaths and blanket mires (NVC types H12, M18, M19), calcicolous communities (NVC types M9, M10, CG10) and Juncus flush mires (NVC type M6).

4.) Southern outliers of tall herb and fern communities (NVC types U16, U19, U21).

Southern Pennines

1.) Extensive eastern dwarf-shrub heath and blanket mire communities characteristic of northern England (NVC types H9, M20) together with a good representation of southern or widespread mainly eastern woodland, grassland and wet heath types (NVC types W16, U1, U2, M16).

2.) Southern or extensive southerly outliers (in England) of widespread and northern heath, grassland and mire communities

(esp. NVC types H12, H18, U6, M6, M19, M32).

3.) Northern outliers of mainly southern grassland and mire communities (NVC types H8, M21) and outliers in a hemioceanic climate of chiefly western communities (e.g. NVC types M25, W17).

4.) Small representation of calcicolous upland communities (NVC types U5c, CG10, M10) on limestone with transitions to predominant lowland communities.

Northern Pennines and Cheviots

1.) Large tracts or extensive development of northern or more widespread heath, blanket bog and flush-mire communities (NVC types H12, H18, M6, M18, M19).

2.) Large areas (along the eastern edge) of mainly eastern communities characteristic of northern England (NVC types H9, M20) together with a complement of widespread and southern, eastern communities (NVC types U1, U2, M16) and relic southern outliers of juniper scrub (NVC type W19).

3.) Largest area in single upland region of calcicolous upland grasslands, mires and rock communities including montane forms (NVC types CG9, CG10, M5, M8, M9, M10, M11, M26, M37, M38, U23, U24) and ash wood on limestone pavement (NVC type W9).

4.) Southern outliers of montane and northern moss-heaths, dwarf-shrub heaths, tall-herb and fern communities and acidophilous springs (NVC types U10, H19, H22 (Cheviots only), U16, U17, U19, M32) together with high-altitude rock communities. Includes the most extensive and comparatively undisturbed outliers of Racomitrium moss-heath and montane Vaccinium-lichen heath (NVC types U10, H19) south of Scotland.

5.) Outlying stands in a hemioceanic climate of woodland, mire and fern communities characteristic of more oceanic areas (NVC types W17, M15, M23, M25, U21) together with north-western heath (NVC type H21).

North York Moors

1.) Extensive dry heath characteristic of northern England (NVC type H9) forming the largest single area of Calluna-dominated moorland in England, together with small areas of eastern blanket bog (NVC type M20) and comparatively extensive eastern wet heath (NVC type M16) with some Deschampsia flexuosa grassland (NVC type U2).

2.) Small complement of more northern upland heaths (NVC type codes H12, H18) and good representation of Juncus flushes (NVC type M6).

3.) Outlying development of oceanic dry and wet heath communities (NVC types H10, M15, M25) including a local (in England) flushed sub-community of M15, and relic upland birch woods (NVC type W17).

4.) Southern valley mires comparatively well-developed and best developed here in northern England (NVC type M21).

5.) Small representation of calcicolous woods and mires (NVC types W9, M10).

Lake District

1.) Best development south of Scotland, and for some south of the Highlands, of a range of montane dwarf-shrub heaths, grasslands, moss-heath, dwarf-herb communities and mires (NVC types H18, H19, U7, U10, U13, U15, M11, M31, M32, CG11, CG12, CG14), including calcicolous communities.

2.) Comparatively extensive western heath communities including both south- and north-western communities (NVC types H8, H10, H21) and headquarters in England for the more northerly latter two.

3.) Good representation of western bog pool, wet heath and mire communities (NVC types M1, M15, M17, M23, M25) together with a small development of southern and south-western valley-mire and rill communities (NVC types M21, M29, M35).

4.) Locally extensive development of northerly heaths and blanket mire (NVC types H12, H18, M18, M19).

5.) Outstanding for a range of both calcicolous and acidophilous relic woodland and scrub, including ones rich in Atlantic bryophytes (NVC types W9, W11, W17, W19).

6.) Frequent development and good range of calcicolous mires, springs and grasslands (NVC types M5, M10, M26, M37, CG10 & montane types above) with CG9 chiefly lowland or transitional to upland.

7.) Best development in England and southerly outliers of tall-herb and fern communities (NVC types U16, U17, U19, U21).

Southern Uplands

1.) Extensive northern upland blanket mire (NVC types M18, M19) and heaths (NVC type H12), especially in the east.

2.) Extensive or good representation of western heath, wet heath and mires (NVC types H10, H21, M15, M17, M23, M25) including south-western outlier of Schoenus-rich flushed wet heath.

3.) In a Scottish context important southern outliers of montane communities including the largest outliers of montane Racomitrium moss-heath and Vaccinium-lichen heath south of the Highlands (NVC types W20, H13, H18, H19, H22, U13, U10, M31).

4.) Southerly outliers of north-eastern Calluna-Arctostaphylos uva-ursi heath (NVC type H16) and relic Juniper scrub (NVC type W19) in the latter case bridging gap between more extensive stands both in the Highlands and northern England.

5.) Small but important representation of base-rich communities (NVC types H10d, M9, M10, M37, CG10) including nationally important stands on serpentine.

6.) Best area in Scotland for more generally southerly eastern grasslands (NVC types U1, U2).

South-west Highlands

1.) Most important area in GB for montane and high-montane base-rich communities (NVC CG10, CG11, CG12, CG14, W20, U14, U15, U17, M8, M11, M12, M38).

2.) Largest extent of sub-montane base-rich grassland and mire communities in Scotland (NVC types CG10, M5, M9, M10, M37).

3.) With two other Scottish Highland regions has important stands of acidophilous montane and high-montane communities and especially important for late-snow beds and flushed grasslands (NVC types inc. U7, U8, U10, U11, U12, U13, U18, M31, M33).

4.) Wide range and extensive development of western heath, wet heath and mire communities, especially those with a mainly south-western distribution in a Scottish context and meeting place of these with north-western communities (NVC types H10, H21, M6d, M15, M17, M23, M25, M29).

5.) Outstanding for range and extent of fern and tall-herb communities (NVC types inc. U16, U19, U20, U21).

6.) Most important area in GB for western upland woods with Atlantic species (NVC types W11, W17).

North-east Highlands

1.) Largest tracts in GB of montane and high-montane plateau holding the largest areas of acidophilous montane and high-montane dwarf-shrub heaths, grasslands, late-snow beds and alpine springs (NVC types H13, H18, H19, H20, H22, U8, U9, U10, U11, U12, M31, M33).

2.) Largest tracts in GB of sub-montane dwarf-shrub heath, including headquarters of eastern boreal Calluna-Arctostaphylos

uva-ursi heath (NVC types H12, H16) with montane heath constituting the largest single area internationally of ericaceous sub-shrub heath.

3.) Largest tracts in GB of upland blanket bog (NVC type M19) and especially important for high-altitude forms (NVC type M19c and variants) including highest altitude bog in GB.

4.) Largest remnants of Scots Pine woods and Juniper scrub (NVC types W18, W19) together with a generally good development of other upland woods (mainly NVC types W11, W17). Only natural tree-line in GB and region with most extensive development of continuity of semi-natural vegetation from woodland and other communities in valleys to high-plateau.

5.) Eastern outliers of montane and sub-montane base-rich grasslands, dwarf-herb communities and mires (NVC types CG10, CG11, CG12, CG14, U14, U15, M10, M11, M12) locally extensive and ranging up to high altitude.

6.) Eastern outliers of oceanic heaths and mires (inc. NVC types H10, H21, M15, M17).

7.) One of the largest concentrations of serpentine sites in GB, and only one in continental climate, important for high-altitude Calaminarian grasslands.

North-west Highlands

1.) Headquarters of northern oceanic (western) Scots pine woodland, heath, grassland and mire communities (NVC types W18e, H14, H15, H17, H20c, H21b, CG13, M34) some of which are confined to the region.

2.) Important for the large extent of widespread oceanic (western) heaths, tall-herb and mire communities some of which reach their largest extent here (NVC types H10, H21a, U16, M15, M17) including the largest tracts of oceanic blanket mire in GB.

3.) Important relics of upland ash and birch woods with northern and Atlantic flora (NVC types W9, W11, W17).

4.) Extensive development of montane moss-heaths with oceanic flora dominated by Racomitrium lanuginosum or Rhytidiadelphus loreus (NVC types U10, U13b, H20) and with most extensive development of species-rich Racomitrium heath (NVC type U10c).

5.) Most widespread and extensive development of wave-form montane heaths and solifluction terracing (with NVC types H14, H17, U10, H20).

6.) Extensive upland blanket mire, especially northern form with Betula nana and Arctostaphylos spp. (NVC type M19ci).

7.) Extensive flushed montane grassland (NVC U13a) and fern-dominated late-lie snow-beds (NVC type U18) together with a wide range of other nationally local montane scrub, calcicolous grasslands, dwarf- and tall-herb communities, late-lie moss snow-beds, flushes and springs (NVC types W20, CG10, CG11, CG12, CG14, U11, U12, U14, U15, U17, M7, M10, M11, M12, M31, M33, M37, M38).

Orkney

1.) Extensive and relatively undisturbed moorland communities including heath and blanket bog (mainly NVC types H10, H12, M19) with unusual development and tall-herb and fern communities on open moorland (NVC types U16, U17).

2.) Important for northern montane *Calluna*-*Arctostaphylos alpinus* heath (NVC type H17).

3.) Extensive development of oceanic heaths and mires (NVC types H10, H21, M15, M23) some unusually lichen rich.

4.) Widespread development of base-rich flushes (NVC types M5, M9, M10, M11).

5.) Northern outliers of montane grassland and tall-herb community (NVC types U7, U17).

6.) Relic birch woodland (NVC type W17) at most northerly location in GB.

Shetland

1.) Extreme northern cool oceanic climate with a predominance of oceanic or oceanic variants of heath and mire communities (NVC types inc. H10, H14, H21, M15, M17, M19a) with a large extent of blanket mire (chiefly M19).

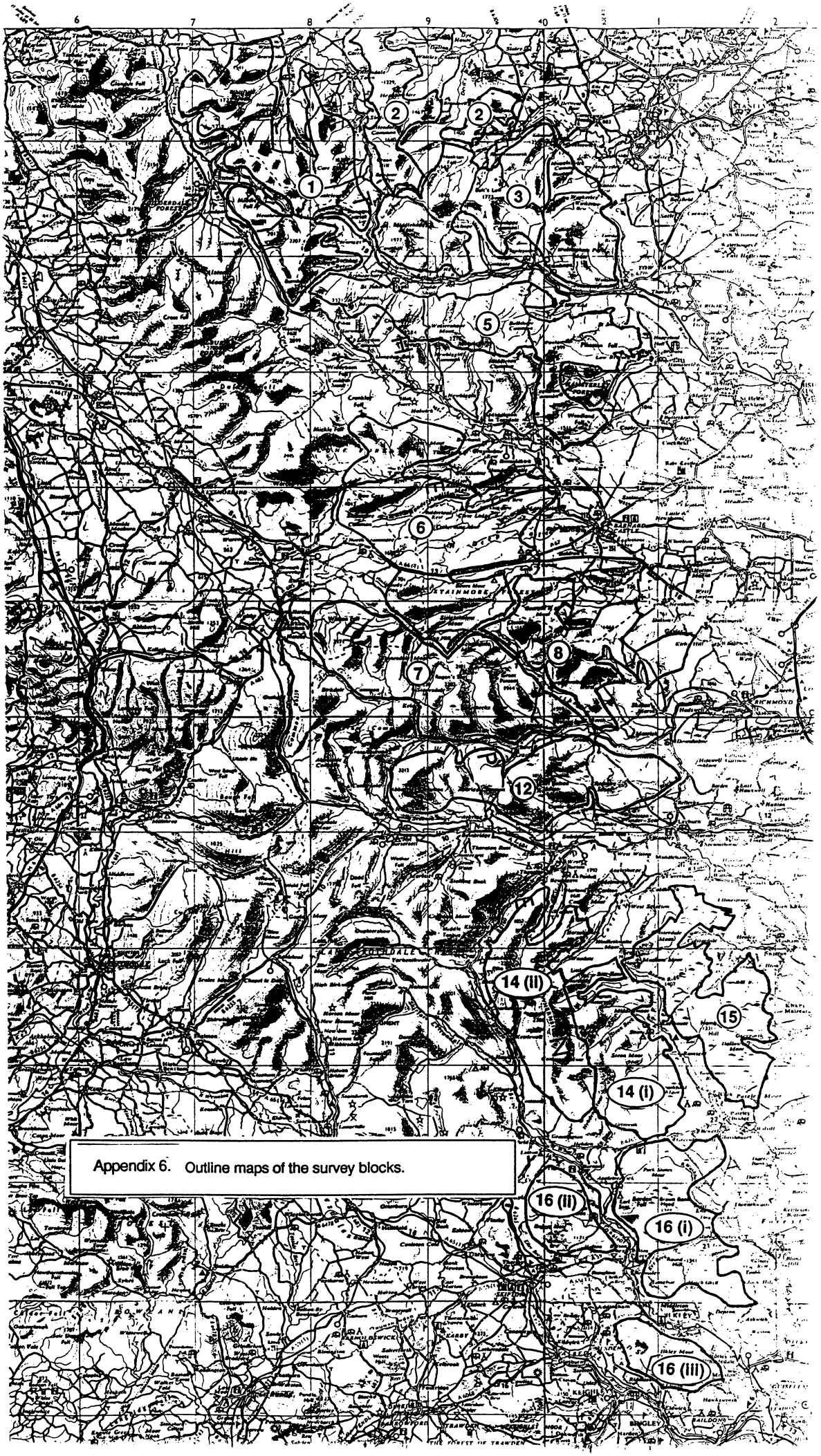
2.) Outstanding development of wave-form prostrate Callunetum (NVC type H14), montane fell-field and grassland (NVC type U7) at low altitude demonstrating altitudinal descent.

3.) Internationally important extensive serpentine rock including exposed fell-field (with Calaminarian grassland) and also supporting species-rich basiphilous dwarf-shrub heaths, grasslands and mires (NVC types H10d, CG10, M9, M10, M11).

4.) Important northern fragments of sub-alpine scrub and tall-herb community (NVC types inc. U16, U17).

Appendix 5 Numbers and names of the survey blocks of upland on which vegetation was surveyed and mapped

Block no.	Name of survey block
1	Whitfield Moor- Stangend Currick
2	Hexhamshire Common- Blanchland Moor- Nookton Fell
3	Middlehope Moor- Stanhope Common- Wolsingham Park Moor
5	Ireshope Moor- Bollihope Common- Woodland Fell
6	Lune Forest- Stainmore Forest
7	Nine Standard's Rigg- Rogan's Seat- Melbeck's Moor
8	Scargill High Moor- Kexwith Moor-Marske
12	Abbotside Common- Askrigg Common-East Bolton-Redmire Moor
14	Buckden Pike- Great Whernside- Heathfield Moor (eastern half 14(i), western half 14(ii))
15	Colsterdale Moor- Hambleton Hill- Pateley Moor
16	Embsay Moor-Barden Fell-Round Hill- Ilkley Moor



Appendix 6. Outline maps of the survey blocks.