

A LANDSCAPE
ECOLOGICAL STUDY OF THE
ANTRIM COAST & GLENS
AND
CAUSEWAY COAST AREAS OF
OUTSTANDING NATURAL BEAUTY

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Summary

1. A landscape ecological study of the Antrim Coast & Glens AONB and the Causeway Coast AONB was carried out during the summer of 1987. The main objectives of the work were to describe the major elements of landscape variation, carry out a field survey of land use and linear features, establish a computer data base for monitoring purposes and to comment on management strategies designed to maintain the natural beauty and wildlife interest of the area.
2. The major elements of landscape variation were summarised using a kilometre square multivariate land classification of Northern Ireland. The land classification provided a framework for assessing regional differences in the physical environment related to climate, physiography, settlement artefacts, soils and geology. The land class composition of Northern Ireland, County Antrim, the Antrim Coast & Glens AONB, the Causeway Coast AONB and the Mourne AONB were compared to give a regional perspective to the work.
3. The land classes were also used as sampling strata for field survey. Seven land classes were derived from the Northern Ireland land classification, representing a general transition from the coast (land class 1) to the higher elevation escarpments and plateau of the Antrim hills (land class 7).
4. A total of 87, 25ha sample squares representing approximately 2.8% of the area, were selected for field survey. Within each square, land use and linear features were recorded under the main categories of woodland, seminatural vegetation, field boundaries, agriculture and landscape attributes. This information is held on a computer data base suitable for analysis with an IBM personal computer.
5. Agricultural grassland and arable crops covered approximately one third of the AONB. Ryegrass swards predominated but there was a considerable amount of poorer quality grassland, reflecting the large proportion of transitional hill land present.
6. Associated with farmed land, there was a comparatively large area of species-rich wet grassland, and hill pasture. Only minor components of gorse and ericaceous heath were present, often at coastal sites. Bracken was locally common on the steeper sides of the better-drained glens.

7. The main ecological resource was bog, poor fen and peaty flush vegetation, situated largely in the uplands. Much of this peaty vegetation was secondary, resulting from former agricultural use or peat cutting. the remaining uncut peat often had a high wildlife conservation value.
8. The coastal vegetation of cliffs and screes was a feature of the AONB, particularly on Rathlin island which also supported a much greater diversity of species-rich seminatural plant communities compared with the mainland.
9. Seminatural deciduous woodland and scrub with a species-rich ground flora was scarce, occurring mainly as escarpment woodlands or along riversides. Broadleaf deciduous plantation was also poorly represented in the area. It was often in poor condition and invaded by Rhododendron and sycamore.
10. In contrast, coniferous plantation covered over 10% of the area, mainly in the uplands as either shelterbelt or larger, monoculture plantation. It was aesthetically dull, masking landform and reducing wildlife diversity.
11. The most common field boundary type was post and wire fencing. There were also many derelict hedgebanks and neglected dry stone walls. Post and wire fences, earth or wall banks and dry stone walls were more common in the uplands whereas hawthorn hedgebanks were a feature of low elevations. A significant proportion of maintained dry stone walls was found in the low elevation land classes.
12. Boundary removal had occurred to the extent of 5.2% since 1975 but in the better farmed areas (land class 2) this figure reached 12.3%. Field boundary removal was related to the degree of agricultural intensification. The resulting large field sizes contrasted strongly with the small scale heterogeneity of traditional landscape patterns, particularly in the uplands.
13. Newly constructed roads, made from concrete or basalt/chalk hardcore and giving better access to the uplands, for livestock management and peat extraction, were frequently recorded.
14. Artefacts of agricultural dereliction such as derelict buildings and abandoned farm tracks were widespread in the uplands. Derelict buildings were particularly common in the northern glens. Rubbish dumping was mainly confined to the lower elevation and coastal land classes.

15. Hazel and oak woods in the northern glens and the steeper escarpments of the south were attractive landscape elements and had a high wildlife conservation value. Management prescription should mainly be directed to the prevention of further felling, securing their boundaries against farm stock, and coppicing. The restoration of recently felled woods is also suggested, together with the extension of woodland into escarpment sites, watercourses and poor fen vegetation.
16. Scrub encroachment onto agricultural land in the uplands, where the probability of agricultural restoration is low, offers potential for the establishment of broadleaf woodland. Small scale tree planting managed as coppice rather than extensive afforestation is envisaged but not over other species-rich grassland or wetland communities.
17. Afforestation policy with conifers needs to be modified to take account of the natural beauty of the area. There is substantial potential for large-scale afforestation on rush infested marginal grassland but there would be a conflict with current landscape and agriculture.
18. Management is needed to maintain the structure and species composition of broadleaf and mixed woods. It includes tree planting, the removal of Rhododendron and the replacement of sycamore with other native trees. There is considerable scope for tree planting around farm buildings.
19. Scrub and bracken invasion onto species-rich dry grassland and the improvement or poor grazing management of species-rich wet grassland are the main threats to their wildlife conservation value. Reclamation and overgrazing are also reducing the area of ericaceous heaths on the better soils of the south.
20. Peatland vegetation is integral to the character of the Antrim hills and glens. At lower elevation, the rehabilitation of cut-over raised bog should be encouraged. Upland, oligotrophic peat, where not drained or planted, should be set aside for its conservation value. Peat cutting and afforestation are the main competing land uses.
21. The role of the farming community in maintaining and enhancing landscape quality and wildlife diversity should probably be one of field boundary restoration and the implementation of less intensive farming methods. Special attention might be given to the better wildlife habitats on farms through the involvement of a Farming and Wildlife Advisory Group.

22. The restoration of poorer quality grassland should be a priority in areas such as the northern glens and in the west where there were large areas of rush infested grassland on marginal land. There may be a role for small scale, broadleaf farm woods in these areas.
23. The high rate of boundary removal in land class 2 should be halted if contrasts with other landscape types are not to become more obvious. Disruption of field patterns on the ladder farms of the glens, however, can occur with even small rates of boundary removal.
24. Hedgebank dereliction deserves special attention. Trimming to a flat top on the better farms should be discouraged and replaced with management designed to maintain the stockproof nature of the hedges. Tree planting on derelict hedgebanks or earth/wall banks would help maintain the wooded appearance of the landscape at lower elevation. Ditch management and the maintenance of dry stone structures associated with field boundaries is also necessary.
25. Species-rich hedges along public roads are particularly valuable for wildlife. The adaptation of wide headlands along field boundaries would contribute to the species diversity of farmland.
26. Earth/wall banks, often with gorse are significant landscape features. Dry stone walls are locally frequent. A rebuilding programme would contribute to landscape quality particularly in the uplands.
27. The dependence on wood post and wire fences for stockproofing field boundaries has been at the expense of more labour intensive methods of, for example, hedge laying and dry stone walling. New post and wire fences are especially obtrusive in the uplands. The provision of stiles would give better access and be beneficial to farming in terms of protecting fences from walkers.
28. The Causeway Coast AONB had a larger cover of seminatural vegetation when compared with similar land from the Antrim Coast & Glens AONB. It was associated mainly with coastal topography. In contrast, surrounding farmland was intensively cultivated. Earth and wall banks were characteristic field boundary types.
29. The N.E. Antrim Environmentally Sensitive Area was much less intensively farmed and there was a greater degree of agricultural dereliction than similar land in the south. Species-rich wet grassland, bent/fescue hill pasture, bracken and gorse were all more extensive in the north whereas ericaceous and wet heaths were more abundant in the south.
30. In comparison with the Mourne AONB, there was a larger proportion of upland vegetation in the Antrim Coast & Glens AONB. Species-rich grasslands and peatlands were of a higher quality in terms of their greater diversity and species composition. Post and wire fencing was almost twice as extensive but there was almost two-thirds less maintained dry stone wall.

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1. Introduction

1.1 Initiation and progress of the study

During 1986, a landscape ecological study of the Mourne AONB was carried out by the Department of Environmental Studies at the University of Ulster, for the Countryside and Wildlife Branch of the Department of the Environment (Northern Ireland). A report was subsequently published, summarising the work (Cooper and Murray 1987).

Following this, a further research contract was awarded to assess the distribution of resources in the Antrim Coast & Glens AONB. Arrangements were made for a six month period of research from April to September 1987, leading to an interim report presented in July 1987 and a final report in September 1987.

Experience gained during the Mourne study together with modifications introduced to the field survey methods and analytical techniques allowed us to cover the larger Antrim Coast & Glens AONB at a similar intensity of sampling, in a shorter time period. Discussion and site visits with CWB staff also ensured that there was helpful feedback. This was particularly valuable at the interim report stage where emphasis was placed on identifying landscape and ecological elements likely to benefit from the designation of an Environmentally Sensitive Area (ESA) within the AONB. It was also helpful when, during the research programme, the Causeway Coast AONB was designated separately from the Antrim Coast & Glens AONB boundary (Fig. 1). The two areas together are subsequently referred to as the Antrim AONB for simplicity.

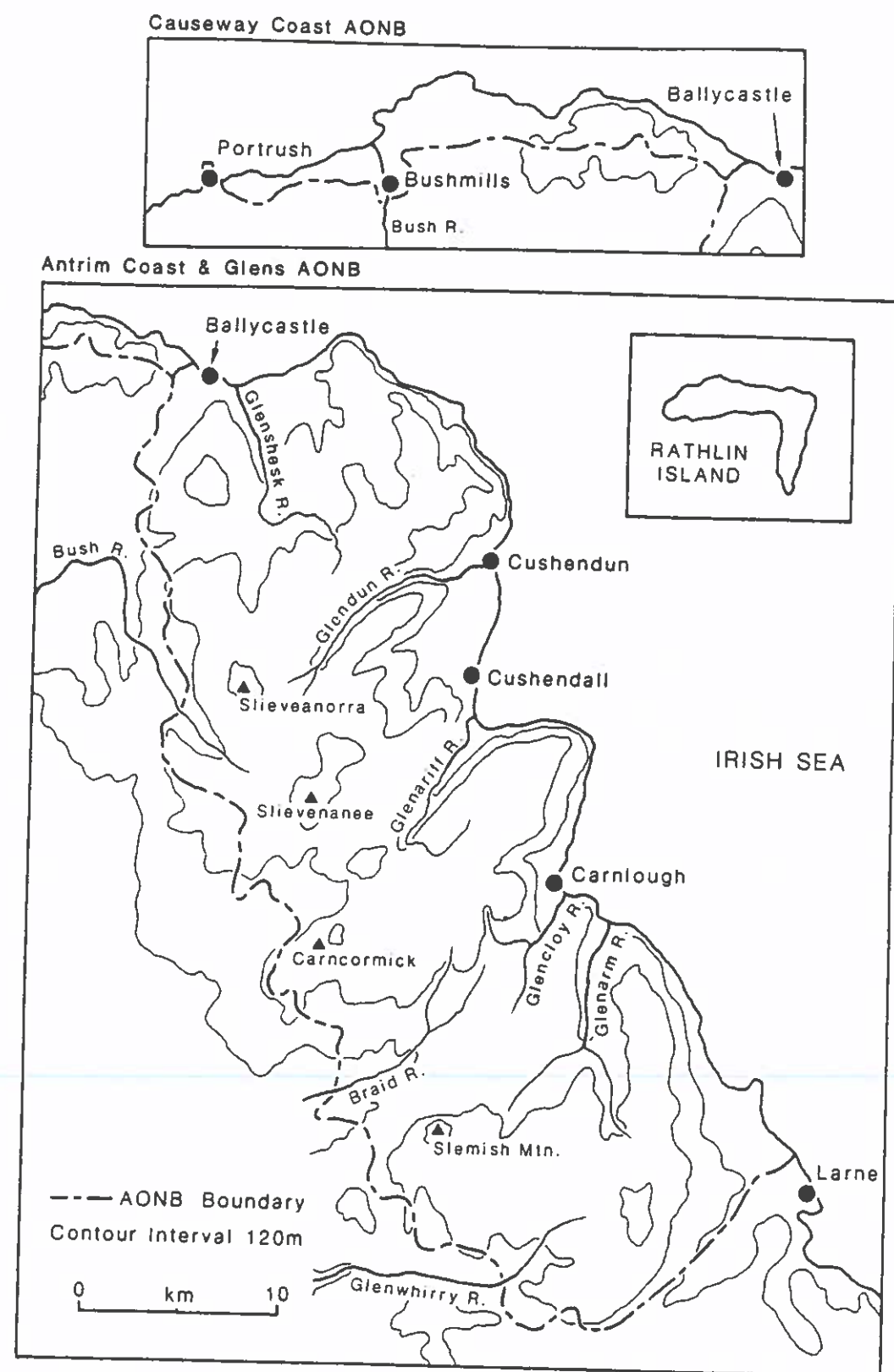


Fig. 1 Map of the Antrim Coast & Glens AONB and Causeway Coast AONB.

1.2 Objectives

The objectives of the work were similar to the Mourne study. They were to (a) describe the major elements of landscape variation within the Antrim AONB, (b) carry out a field survey of land use and linear features relating to agriculture, seminatural vegetation and field boundaries, (c) prepare a data base which could be used to monitor ecological and land use change and (d) comment on management policies designed to maintain the landscape and wildlife interest of the area.

Greater emphasis was placed on improving the efficiency of field survey and developing techniques for processing and retrieving information. A priority was the implementation of a computer data base of all field data which could be accessed by the Department of the Environment and the Department of Agriculture.

2. Regional Perspective

The Northern Ireland land classification (Cooper 1986) grouped kilometre squares in the province into 23 land classes, representing the main land types. The multivariate approach of the classification provides a framework for comparing regional differences in the physical environment related to climate, physiography, settlement artefacts, soils and geology. Such comparisons provide a perspective for the present study.

The frequency of the land classes in Northern Ireland, County Antrim, the Antrim Coast & Glens AONB and the Causeway Coast AONB are shown in Table 1.

2.1 Northern Ireland.

Full description of the land classes and their distribution maps are given in Cooper (1986). Fig 2 shows the distribution of those Northern Ireland land classes which constitute a large proportion of the Antrim AONB.

2.2 County Antrim

The large number of land classes reflects the variation in the physical environment of the county.

The lower elevation land classes 8 and 9 describe the flatter land of the River Bann valley. Land classes 11 and 12 include the rolling glacial deposits in the north-west of the county. Land class 14 is transitional to the Antrim hills as is land class 16 which also has a coastal distribution.

Glen sides in the south-west are represented by land class 18 with the steeper glens included in land class 21. The Antrim plateau is characterised largely by land classes 22 & 23.

2.3 Antrim Coast and Glens AONB

The boundary of the AONB has largely excluded the low elevation land classes 1-12. The lowland/upland transitional land class 16 has a much larger proportional representation when compared with County Antrim.

The upland and mountain land classes 20, 21, 22 and 23 also have a greater representation, reflecting the higher elevation of the AONB. Land class 18 has a similar frequency to the rest of the county.

2.4 Causeway Coast AONB

The small number of land classes show that landscape variation is limited. The coastal land class 16 is characteristic along with a minor upland component of land class 21 around Lannimore Hill. A high proportion (24.6%) of the low elevation land classes 11 and 12 also occur but this is more typical of intensive farmland to the south.

2.5 Mourne AONB

The different characteristics of the Mourne AONB are highlighted by the high frequencies of land classes 1, 17 and 23. The more upland nature of the Antrim Coast & Glens AONB (80.9% frequency of upland and mountain land classes) when compared with the Mourne AONB (56.2%) is clearly demonstrated.

Table 1. Frequency of the Northern Ireland land classes in the region. Calculations for N.I. and County Antrim were performed on an 11% sample of kilometre squares. Only land classes with a representation of 1% or more of any area are shown. An asterisk marks any frequency which deviates markedly from the NI frequency distribution.

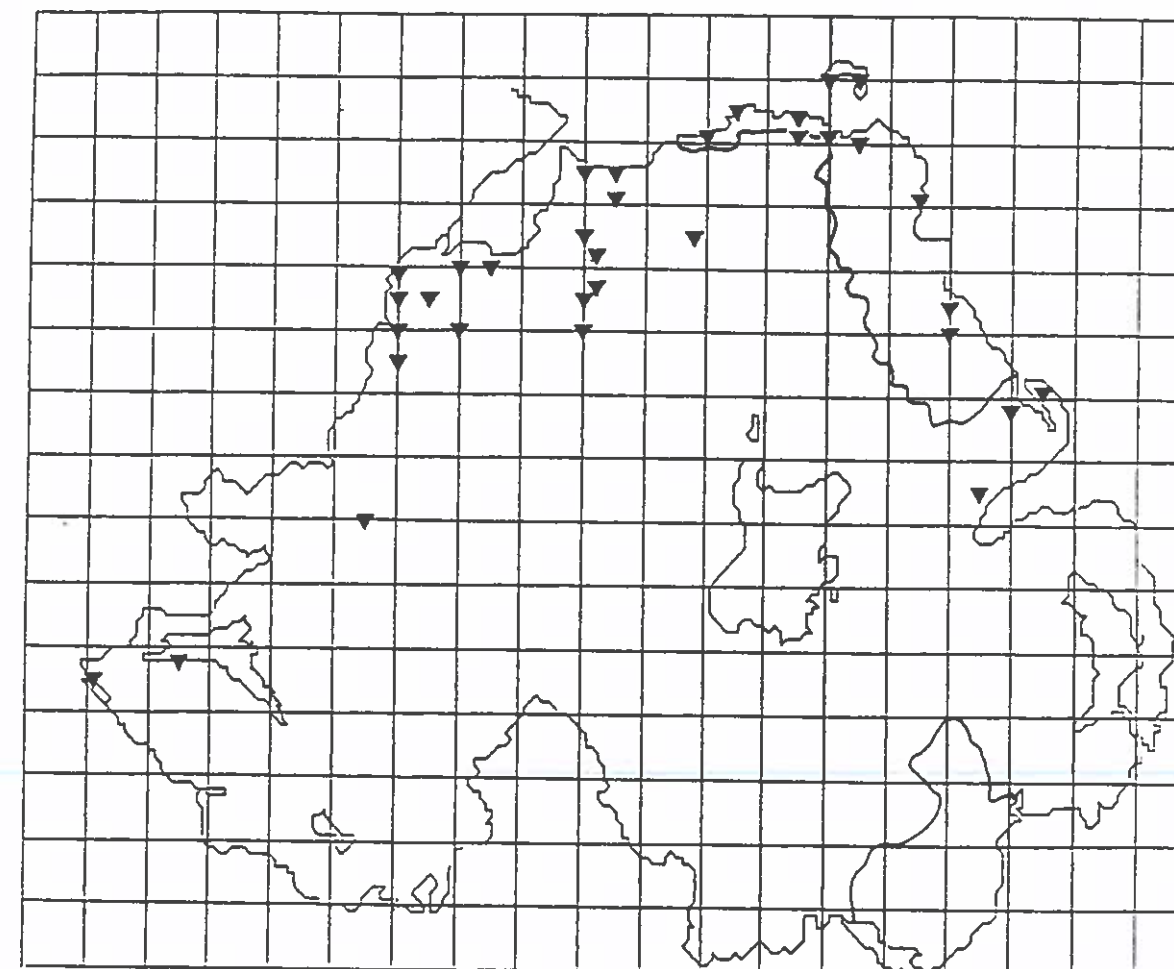
Northern Ireland Land Class		Northern Ireland	County Antrim	Antrim Coast and Glens AONB	Causeway Coast AONB	Mourne AONB
low elevation land	1	5.1	4.9	-	-	*16.8
	2	4.1	-	-	-	8.1
	3	7.9	-	-	-	5.7
	4	3.0	-	-	-	1.1
	5	5.0	1.2	-	-	-
	6	2.9	-	-	-	-
	7	3.9	1.2	1.2	-	-
	8	3.6	*7.4	-	-	-
	9	3.0	*5.6	-	-	-
	10	5.1	4.3	-	-	-
lowland/upland transition	11	4.6	*16.9	-	*15.8	-
	12	3.0	*6.2	-	*8.8	-
	13	2.9	-	-	-	3.4
	14	5.4	*8.6	-	-	4.1
	15	5.4	-	1.8	-	-
upland	16	4.9	*8.6	*14.5	*71.9	-
	17	3.3	-	-	-	*31.1
	18	3.7	*10.5	*8.3	-	2.6
	19	5.1	-	2.0	-	1.5
	20	5.3	3.7	*9.7	-	-
mountain	21	4.6	*8.6	*20.2	3.5	-
	22	4.9	*8.6	*27.4	-	2.4
	23	3.3	3.1	13.3	-	*18.6

Fig. 2

Distribution maps of those Northern Ireland land classes which constitute a large proportion of the Antrim AONB. The land classes are also described in terms of the map attributes used in the land classification. A constant attribute is one which occurs in the land class with a frequency of >80%.

Land Class 16

This has a northern, often coastal distribution. Its topography is usually dominated by steeply sloping or moderately steeply sloping, often rocky escarpments or cliffs in which all elevation classes occur. The most frequent of these is between 61m and 152m. The land is often backed by higher ground >244m. There are relatively few rivers and streams. When compared with most other land classes, the frequency of buildings and minor roads is low. Conifer plantations are not common but where they do occur, they are fairly extensive. Brown podzols and acid brown earths are the most frequent soil types but there are some gleys and hill peats.

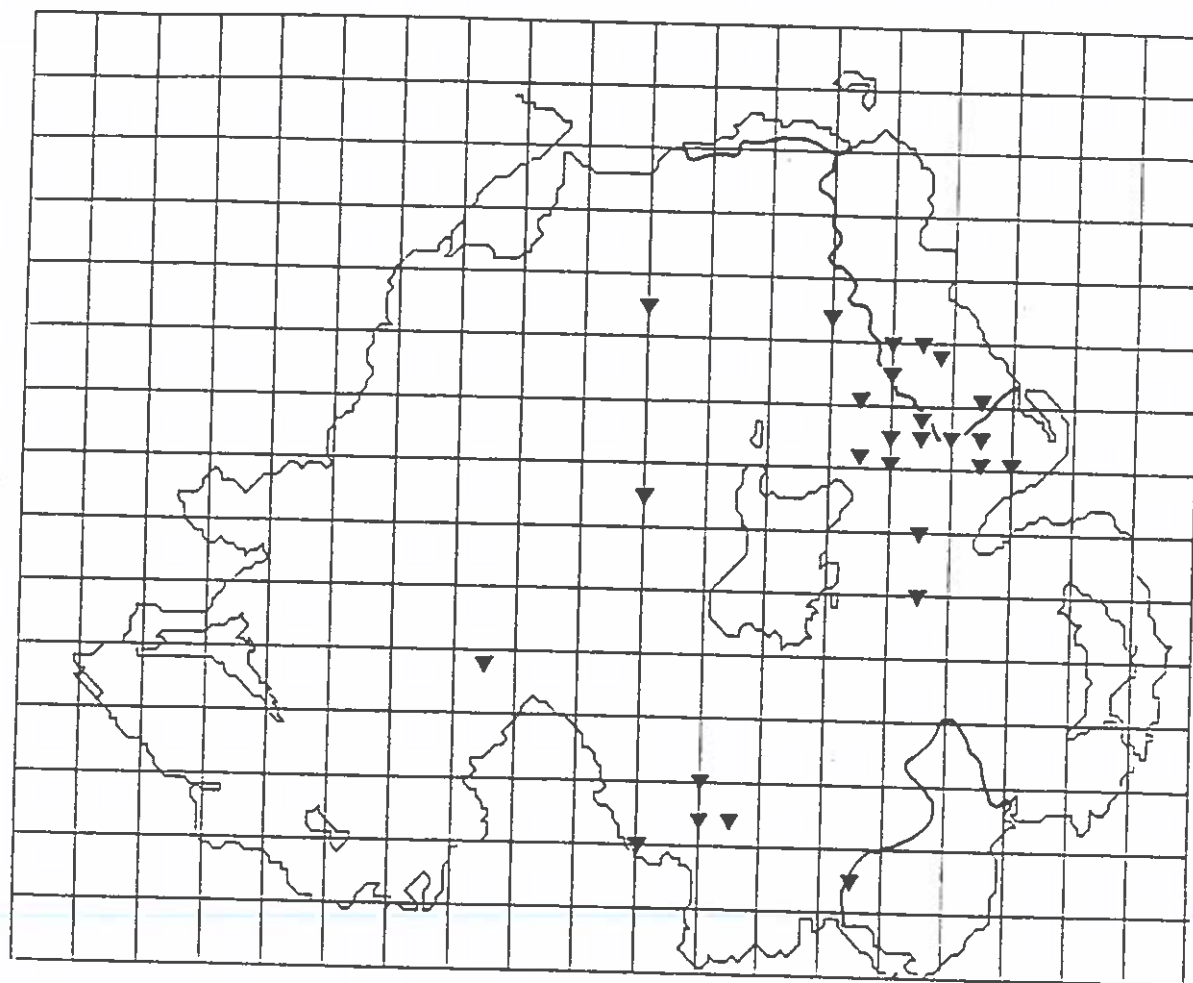


Constant attributes (80-100%)

Land, 62-152m in surrounding squares
Highest point, 0-152m
Land, 0-61m in surrounding squares
Mean maximum July temperature, <19°C
Minor road
*Mean annual number days with fog, 5-10
*Mean distance to north, <56km

Land Class 18

This upland land class lies predominantly between the 152m-244m contours. It is centred on the Antrim Hills, where it forms steep escarpments of the basalt plateau. There is a mainly minor and tertiary road network, a large proportion of which is unfenced and the density of buildings is relatively high. In comparison with other upland classes, rough grazing is not extensive. Gley soils predominate but acid brown earths are also frequent.

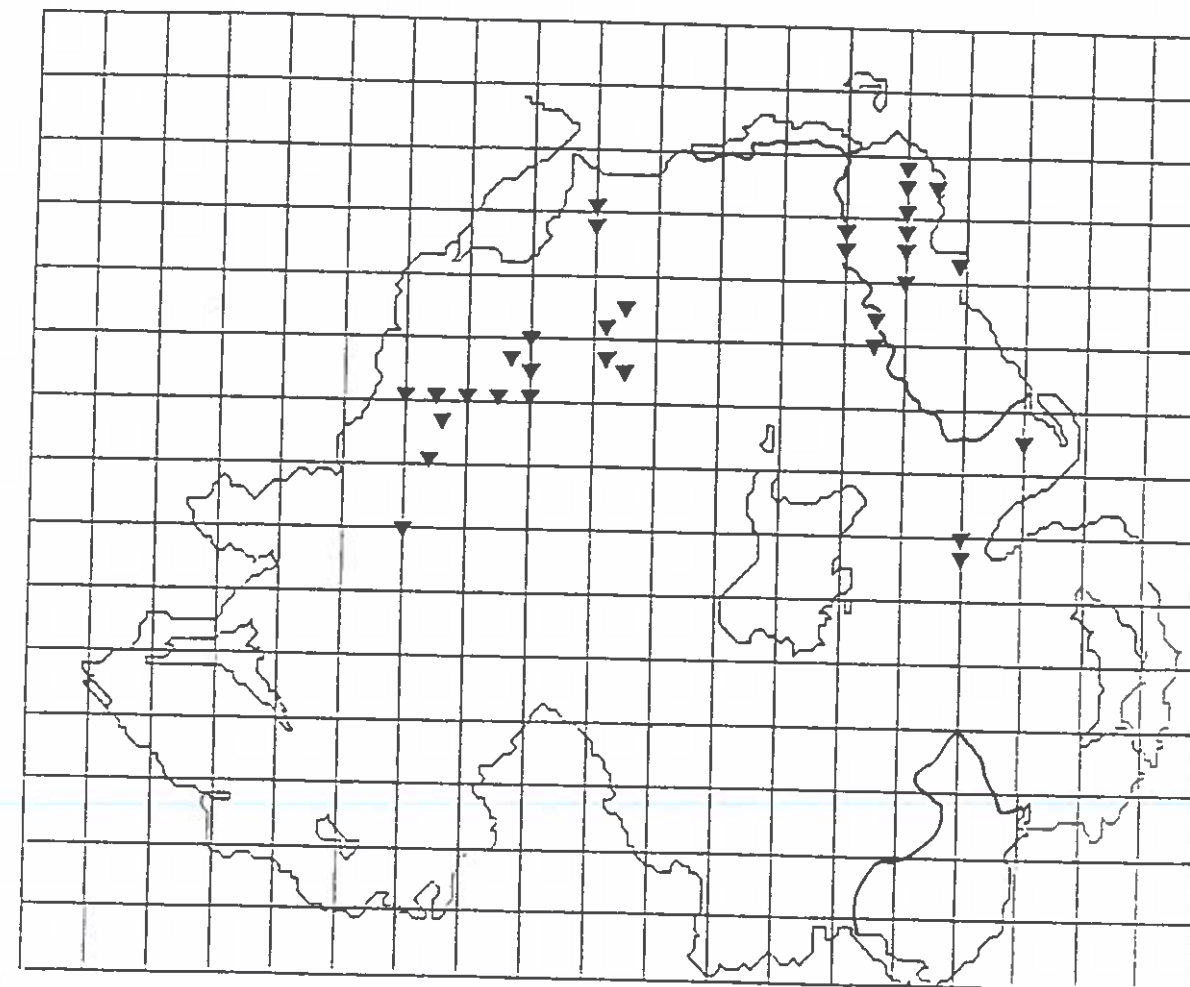


Constant attributes (80-100%)

Minor road
Land 153-244m in surrounding squares
Lowest point, 153-305m
Highest point, 153-305m
Unfenced road
Height of hill behind slope, 153-305m
Land 62-152m in surrounding squares
*Mean annual number days with air frost, 40-60

Land Class 21

This is associated with escarpments of the Sperrin Mountains and the Antrim Hills. Most of the land lies between the 152m-244m elevations. The relatively high frequency of land between 61m-152m and >244m gives a very steep topography of long hill slopes. The class is often backed by hill tops and mountain summits. In comparison with the upland classes, the land has a high proportion of major roads. Frequently forked minor roads, however, are also common and there is a relatively high density of buildings associated mainly with the lower elevations. Conifer plantations are frequent and cover about 10% of the land. There is also relatively high frequency of small deciduous woods for an upland class. Soils are mainly blanket peats and peaty gleys and brown podzolic soils are quite frequent. Some gleys also occur.

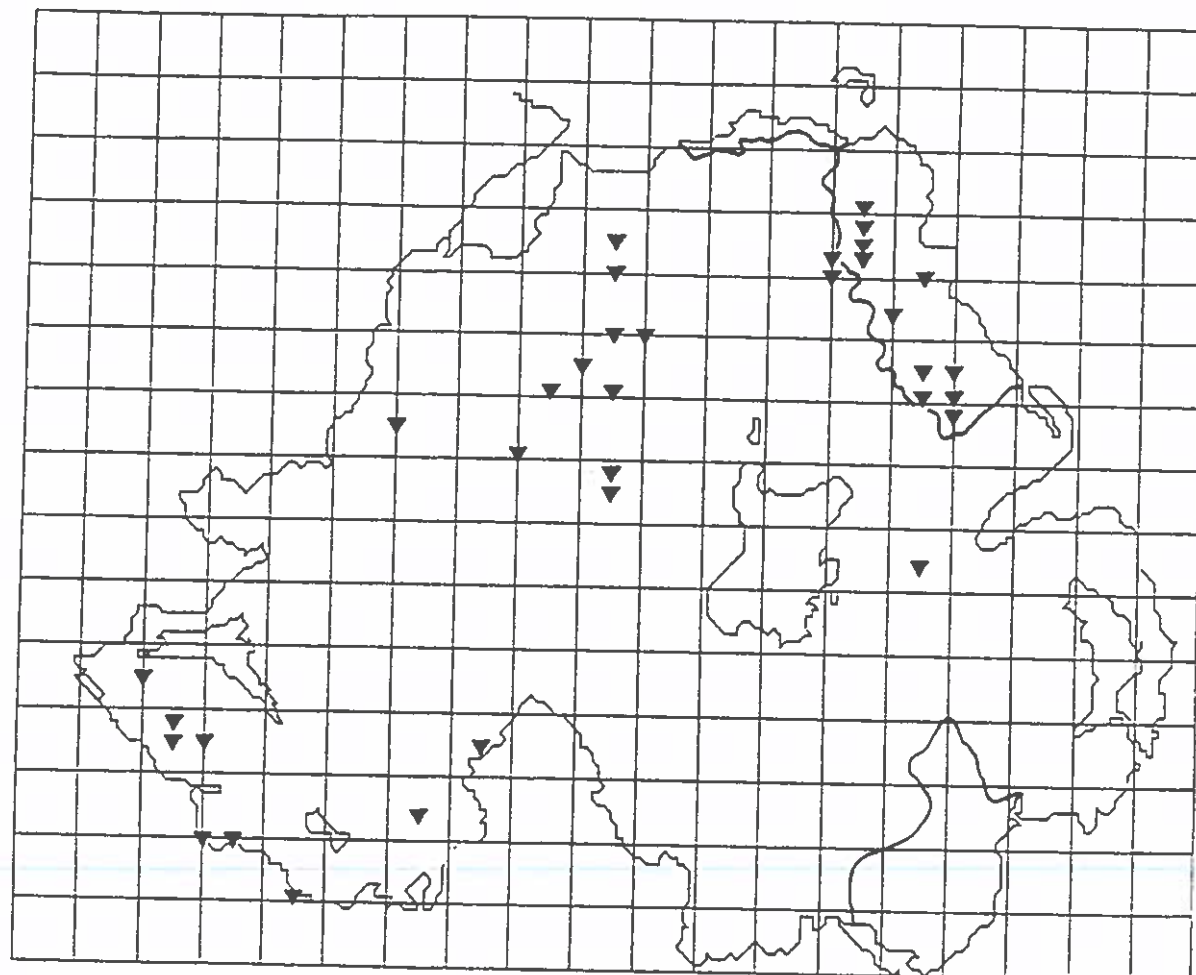


Constant attributes (80-100%)

Land 153-244m in surrounding squares
Highest point, 153-305m
Land 62-152m
Minor road
Height of hill behind slope, 153-305m

Land Class 22

This class mainly lies above the 244m contour but is less steeply sloping than other upland types. It is found mainly on the Antrim plateau and limestone hills of Fermanagh but also occurs in the Sperrins. Almost all of the land is associated with streams and small rivers. Roads consisting, for the most part, of unfenced minor roads, are infrequent and there are few signs of habitation. The land has the highest cover (15%) of conifer plantation. Soils are principally blanket peats and peaty gleys.

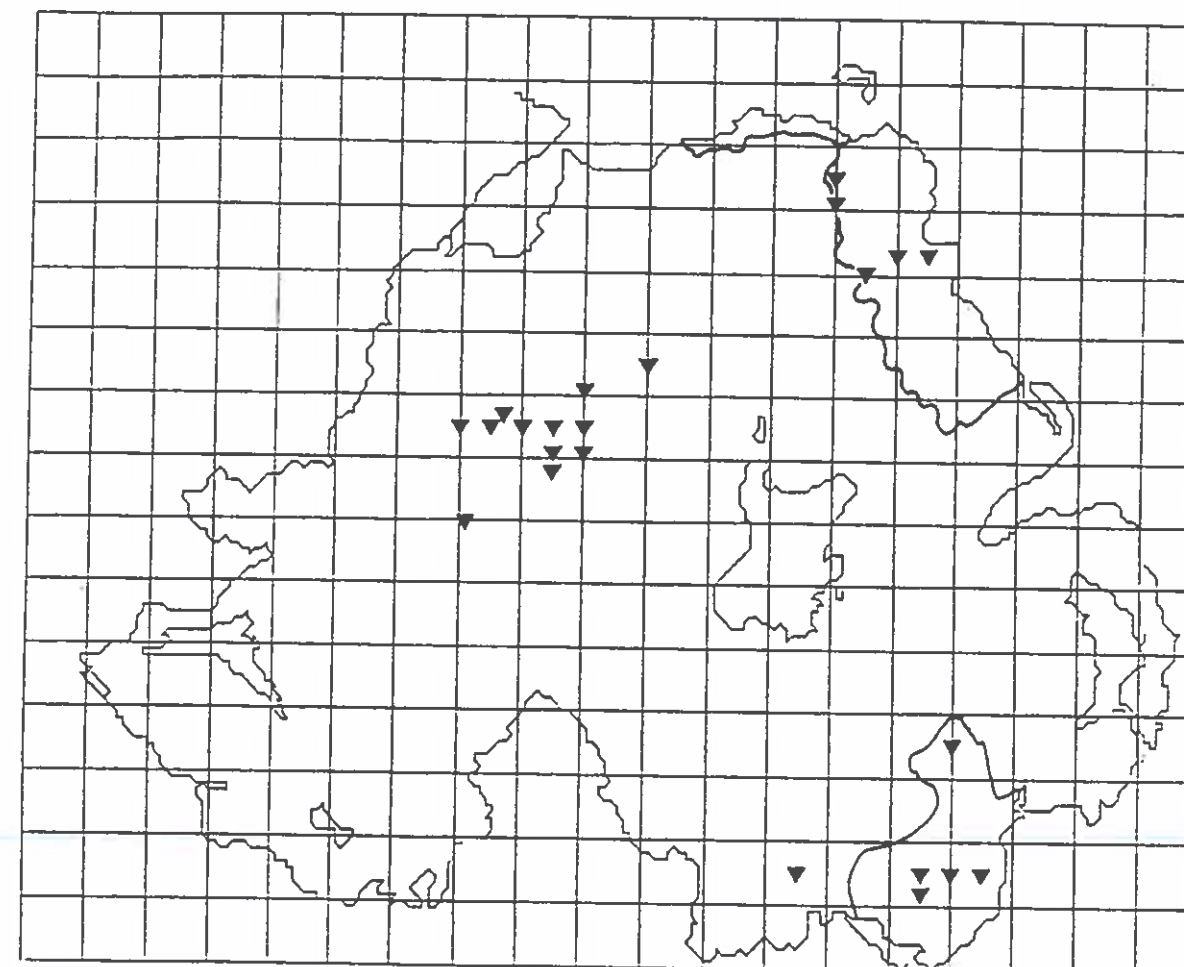


Constant attributes (80-100%)

Land >244m, 76-100 ha
Land >244 in surrounding squares
Mean annual rainfall, >1200mm
Single line river/stream
*Mean minimum July temperature, 10.0°-10.5°C
*Mean annual number gales, 5-10

Land Class 23

The land class is confined to the highest elevations and summits of the Sperrin and Mourne Mountains and the Antrim Hills. Slopes are very steep and extensive, sometimes with cliffs. Unbranched streams are a common feature, often springing from within the land class, but otherwise freshwater bodies do not occur. Despite the topography, unfenced minor roads do occur and the highest frequency of footpaths except for the coastal land class 1 are recorded here. Rough grazing is extremely frequent and there is some afforestation with conifers. The soils are usually peaty podzols, peaty gleys or blanket peats.



Constant attributes (80-100%)

Land >244m in surrounding squares
Highest point >305m
Height of hill behind slope, >305m
*Mean annual rainfall, >1200mm
Gradient, 6.1°-17°
Land >244m, 76-100 ha
Rough grazing

2.6 Location of the AONB boundary

Since the land classification is based on a coarse scale of kilometre grid squares, it is of limited value for defining precise boundaries between land types. Neither does it consider landscape attributes other than those which are recorded from the maps used in its construction. However, it takes a multivariate approach and can be useful as an initial guide for boundary definition.

The distribution of land classes in the Antrim Coast & Glens AONB and the Causeway Coast AONB have been used to make certain points related to boundary definition. For example, geographically distinct blocks of land classes 18, 20 and 21, which are otherwise characteristic of the Antrim Coast and Glens AONB, have been excluded.

In addition, the uncharacteristic land classes 11 and 12 along the southern margin of the Causeway Coast AONB have been included. Also included are low elevation land classes in the Braid river valley. These are more typical of other parts of county Antrim.

3. Antrim AONB Land Classification

3.1 Land class stratification

A land classification specific to the Antrim AONB was rejected in favour of the Northern Ireland land classification for the following reasons:

- (a) Comparison between the N.I. land classification and the Mourne specific land classification (Cooper 1986) indicated that the two stratifications were almost equally efficient.
- (b) An Antrim AONB land classification would have been too time-consuming.
- (c) The Northern Ireland land classification provides a framework within which regional comparisons can be made.

Each kilometre square with 25% of its area within the AONB was allocated to a land class using the indicator attributes at each division of the N.I. land classification hierarchy.

Since certain land classes were represented by small numbers of squares, any with <5 squares was combined with its nearest neighbour in the classification hierarchy. This gave a total of 7 groups, subsequently referred to as the Antrim AONB land classes (Table 2).

The land classes represented a transition from the coast to the higher elevation escarpments and plateau of the Antrim hills.

Table 2. Sample stratification and field sampling programme in the Antrim AONB

Antrim Land Class	Northern Ireland Land Class	Number of Squares in AONB	Area (km ²)(%)	Field Sample Numbers	Number of Sample Squares	Sampling Intensity (% area)
1 (low elevation, coastal)	1,16	153	119 15	1-15	17	3.2
2 (low elevation, inland)	8,11,12, 14,15	43	42 6	16-20	5	2.9
3 (lower glen sides)	17,18,19	86	86 11	21-30	10	2.9
4 (steep slopes of glen sides and coast)	21	157	154 20	31-45	15	2.4
5 (intermediate elevation)	20	74	74 9	46-55	10	3.4
6 (high elevation plateau)	22	210	210 27	56-70	15	1.8
7 (high elevation hill slopes)	23	102	102 13	71-85	15	3.7
		(825)			(87)	(2.8%)

3.2 Reconnaissance survey

Reconnaissance survey was necessary to assess whether the land classification had stratified the Antrim AONB in a manner which corresponded broadly with the main physiographic and landscape elements present. The opportunity was also taken to make notes on possible modification to the field data recording sheet by incorporating local ecological and landscape features specific to the AONB.

Three days were spent visiting a subsample of 25ha squares and taking notes along the main access roads.

3.3 Land classes

The field characteristics of the land classes were more variable than in the Mourne AONB and there was a greater degree of overlap between land classes. This reflected both the differences in the landscape types present in the two areas and the different methods used to carry out the classification. The land classes were, nevertheless, considered to be appropriate strata.

3.4 Description of the Antrim AONB Land Classes

Distribution maps of the land classes and statistical summaries of their map attributes are given in Fig. 3 and Tables 3 and 4.

3.4.1 Land class 1

This land class includes coastal areas, often with sea cliff in the north and east. It also incorporates the lower parts of coastal glens.

Coastal habitats are predominantly over basalt rocks but there is some chalk. The land is almost entirely below the 150m contour with a large proportion less than 50m. Steep escarpments and fast-flowing streams are associated with both coastal and inland cliffs.

There is a fairly dense transport network in which main roads figure prominently. A large proportion of the urban land occurs in this land class and facilities for tourism and recreation are frequent along the coast. The density of farm buildings is high with the majority of soils classed as either acid brown earths or gleys derived from basalt.

3.4.2 Land class 2

This land class shows a distribution which lies close to the boundary of the AONB. Most of the land lies between the 50m and the 150m contours. It has a well-farmed appearance and an undulating topography in which acid brown earth soils predominate.

There is a high density of farm buildings. Sites of historical and archaeological interest occur quite frequently. The road transport network is extensive with high proportions of primary, secondary and minor roads and footpaths.

3.4.3 Land class 3

Hill slopes between 150m and 250m, rising to higher ground are characteristic of this land class. It is found mainly in the west and southeast. Small streams and rivers are frequent, often in associated flatter glen bottoms.

There is a high density of farm buildings and an extensive system of minor roads. Soils are largely, gleys, peats or acid brown earths. They mostly overlie basalts.

3.4.4 Land class 4

This land class represents the steeper sides of the larger glens, particularly to the north and east. Higher elevation coastal escarpments around Fair Head and Garron Point are also included.

The terrain is very steeply sloping, often rising from low elevation and leading to the Antrim plateau. It includes streams and rivers associated with the glen bottoms. Most of the land lies between 150m and 250m.

Farm buildings and roads are less numerous but there is a high frequency of paths and tracks.

Schists and basalts are both common. Soils vary from acid brown earths to gleys and blanket peats.

3.4.5 Land class 5

This is a small land class associated with less steeply sloping marginal hill land. It is centred in the north, on the sides of rounded hills and cols.

Most of the land lies between 150m and 250m but a significant proportion also lies between 250m and 500m. Fast-flowing, frequently branched streams are common.

There are few roads and buildings. Blanket peat is common and there are minor elements of gleys and acid brown earths.

3.4.6 Land class 6

This land class represents the characteristic, high elevation plateau of the Antrim hills.

The land is predominantly between 250m and 500m in elevation with a mean elevation of over 300m. Hill tops and inland cliffs provide a further degree of topographic heterogeneity. Small streams are frequent and inland water bodies also occur.

A few minor roads and occasional buildings are present. Blanket peat over basalt is extensive.

3.4.7 Land class 7

This is a high elevation land class which occurs mainly to the west and north. Land is predominantly between 250m and 500m with a mean elevation approaching 350m. There are steep slopes to hill tops and summits of over 400m. Springs and streams are frequent.

Buildings are very few and there are occasional secondary roads crossing the hills. Blanket peat mainly over basalt and schists is extensive.

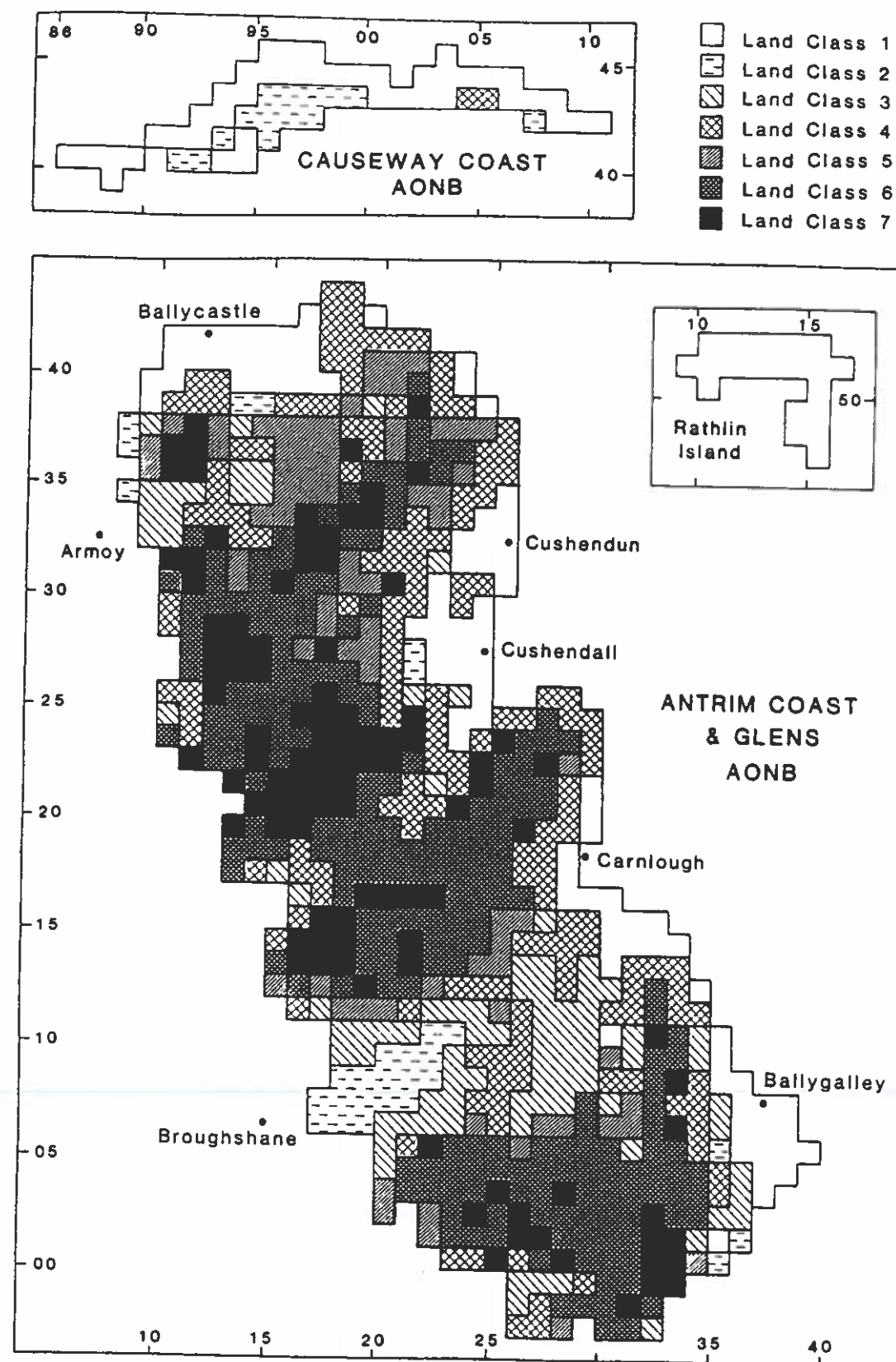


Fig. 3 The distribution of the 7 land classes in the Antrim AONB.

Table 3. The percentage mean frequency of map attributes recorded in a random sample of 10, kilometre squares from each land class.

Map Attributes		Land Class						
		1	2	3	4	5	6	7
1	Sea	80	-	-	10	-	-	-
2	Shingle, sand or mud	50	-	-	10	-	-	-
3	Flat rock	20	-	-	-	-	-	-
4	Sea cliff	30	-	-	-	-	-	-
5	Inland cliff	20	-	10	-	-	20	10
6	Contour top or summit	20	20	30	10	10	30	70
7	Flat valley bottom	10	20	30	50	40	-	-
8	Spring	-	-	20	30	60	30	70
9	Stream	80	60	80	60	80	90	70
10	Single line river	20	30	40	40	40	10	-
11	Double line river	-	-	10	10	-	-	-
12	Waterway junction	10	50	40	10	40	30	10
13	Inland water body	20	20	10	-	10	30	-
14	Red road	30	30	-	10	-	-	-
15	Brown road	30	40	50	-	-	-	10
16	Yellow road	40	100	100	70	50	30	-
17	White road (rural)	30	70	80	60	10	-	10
18	White road (urban)	10	-	-	-	10	-	-
19	Path, track or walk	30	60	40	70	20	30	20
20	Tourist information recreation facility	40	-	-	10	10	20	-
21	Antiquity site	20	30	10	10	-	-	-
22	Public building	10	10	10	-	-	-	-
23	Basalt	70	100	80	40	40	70	80
24	Metamorphic schist	-	10	-	50	70	20	20
25	Limestone or chalk	20	-	10	10	20	10	-
26	Liassic clays and mudstones	30	-	-	-	-	-	-
27	Igneous intrusives	-	-	10	10	-	10	-
28	Sandstone	-	-	10	-	-	-	-
29	Blanket peat	10	-	60	30	60	90	100
30	Rendzina	20	-	-	-	10	-	-
31	Acid brown earth	40	80	30	10	10	-	10
32	Glacial till gleys	30	20	40	30	-	10	10
33	Glacial mud gleys	-	-	10	40	20	-	-

Table 4. Mean values of map attributes recorded in a random sample of 10, kilometre squares from each land class.

Map Attribute	Land Class						
	1	2	3	4	5	6	7
1 Land 0-50m(ha)	21.8	24.6	-	3.3	-	-	-
2 Land 51-150m(ha)	41.9	70.9	20.3	21.4	1.9	-	-
3 Land 151-250m(ha)	0.2	3.5	73.7	55.3	58.7	7.5	3.8
4 Land 251-500m(ha)	-	-	2.3	8.7	29.4	91.4	96.2
5 Mean elevation (m)	51	113	177	188	234	305	344
6 Highest point (m)	96	130	216	254	287	338	398
7 Lowest point (m)	6	95	138	122	180	272	290
8 Dist. between highest and lowest point	580	515	730	790	880	640	865
9 Gradient of slope (o)	12.2	3.7	6.2	9.9	6.6	5.5	7.2
10 Height of hill behind slope (m)	126	216	306	336	346	346	409
11 Dist. to hill behind slope (m)	670	1165	765	1095	656	310	80
12 Distance to valley bottom (m)	25	6.6	281	1355	192	174	333
13 Number of road forks	0.6	0.7	0.5	0.1	-	-	-
14 Number of buildings	8.1	10.8	11.0	5.7	1.4	0.3	0.4

4. Field Sampling Programme

4.1 Selection of sample squares

The methods for sampling were based on those used for the landscape ecological study of the Mourne AONB (Cooper and Murray 1987). A random sample of 25ha squares, stratified by the Northern Ireland land classification (Cooper 1986) was selected for field study. For this purpose the Antrim Coast & Glens AONB and Causeway Coast AONB have been combined for major analyses and are referred to as the Antrim AONB.

The sampling intensity was approximately 2.8% of the total area. This was similar to the Mourne study for which there was formal validation of the sampling programme. Each 25ha sample square was located wholly within the AONB boundary.

4.2 Field data recording sheets

4.2.1 Ecological and landscape attributes

Reconnaissance survey indicated that variation in agricultural grassland and types of seminatural vegetation was much greater when compared with the Mourne AONB. Plant community diversity was also much greater. Detailed consideration of the modifications introduced to the standard field data recording sheet designed for the Mourne AONB Landscape Ecological Study (Cooper and Murray 1987), are given in section 4.2.3.

4.2.2 Recording procedure

In the field, the land use and linear features of each 25ha square were recorded onto a standard 7 page data sheet (Appendix 1) in check-list and map form. Data was recorded

under the following categories:

- (a) Woodland: type, position in the landscape, structure, ground flora, soils, management, major species of the understorey and canopy and species regenerating.
- (b) Seminatural vegetation: grassland, heath, mires, coastal vegetation and tall herb or farm vegetation; their structure, management and the main species present.
- (c) Field boundaries: type, structure and the main species of shrubs, small trees and larger trees.
- (d) Agriculture: grassland, crops, their management, structure and the types and numbers of farm animals.
- (e) Landscape: artefacts of the built, urban and rural environments, dereliction, recreation and surface topographical features.

Under each category there was a set of standard descriptors. Target notes were recorded separately for specific parcels of land and for the square as a whole, when necessary.

Further notes on recording procedures and formal definition of the descriptors used, are given in Appendix 2.

A typical panorama of each sample square was recorded onto 35mm slide film.

The area of each parcel of land and the length of each linear feature was calculated on returning from the field using a dot grid template. All data was subsequently transcribed to floppy disc for analysis with dBASE III (Ashton-Tate 1985) and LOTUS 1-2-3 (LOTUS Development Corporation 1985) run on an IBM, XT personal computer (Appendix 3).

Plant species codes, common names and botanical names are given in Appendix 4.

4.2.3 Modifications to the standard field data sheet

A standard data sheet for field survey was presented in a report of the Mourne AONB Landscape Ecological Study (Cooper and Murray 1987). Certain modifications were incorporated into the data sheet used for the Antrim work. These are largely self-explanatory and usually involved simplification but not loss of useful information. They resulted from experience gained from the Mourne study, the application of better information technology and consideration of field mapping exercises carried out by the NCC (1986). Throughout, the needs of the Countryside and Wildlife Branch and flexibility for analytical purposes were given a high priority.

The main change was a clearer separation of the types of ecological and landscape resources from their management and structural descriptors. Species names were recorded as a specified three letter code rather than selected from a checklist. The vegetation types approximated more closely to the NCC (1986) vegetation mapping classification.

Certain ecological and landscape attributes and descriptors which were recorded in the Mourne study but which were of less practical importance were deleted. This reduced the amount of time spent in the field. Examples are:

- (a) woodland habitats and species abundance categories,
- (b) wildlife records,
- (c) hydrological and geomorphological attributes.

Other attributes and descriptors from the reconnaissance field survey were incorporated, for example, those related to peat cutting and land drainage.

A larger scale map (1:7500) of the 25ha sample square was incorporated to facilitate the numbering of field parcels and field boundaries. The structure of the data sheet was designed to correspond to the field structure of the computer data base on which the records were stored.

4.2.4 Comparison with the NCC Phase I habitat classification

There was a broad similarity between the vegetation types employed in the present field survey and those of the NCC vegetation mapping programme. Differences are summarised in Appendix 5.

The main reasons for our modification of the NCC classification are discussed as follows:

The NCC classification is convenient and standard. It allows comparison with Great Britain. The vegetation types and descriptors in the NCC classification, however, do not always apply in Northern Ireland. In addition some NCC categories are poorly represented in the Antrim AONB and others are too coarse to be of value locally.

The grid square approach to resource assessment has different priorities to a mapping programme. A parcel in a full cover survey can be given an exact title. In a sampling approach, categories often need to be combined in different ways to make estimates of distribution and abundance.

4.3 Allocation of sample squares

The land classes were sampled at an intensity which was related to their size and complexity. Sample size was between 10 and 17 squares per land class with the exception of the smallest (land class 2). This represented land with the greatest agricultural activity. It was allocated 5 sample squares only (Table 2).

Samples were selected from:

- (a) Columns of kilometre grid squares separated by 5 km intervals.
- (b) Rows of grid squares selected randomly up to a maximum of 5 and a minimum of 2 (Fig 4).

All squares at the intersection of columns and rows were included in the field sampling programme whilst the remainder of the samples were selected randomly. The samples included those used in the N.I. land classification. From each kilometre square sample, a 25 ha square was selected as a random quarter. Grid references of the sample squares are given in Appendix 6.

4.4 Data analysis

A statistical consideration of the data, their validation and measures of variability within data sets are presented in Appendix 7.

5. Ecological Resources, Land Use and Landscape Attributes

Agricultural grassland and arable crops covered 28.9% of the Antrim AONB (Fig. 5). Approximately half consisted of Italian or perennial ryegrass swards. The remainder was grassland of poorer quality and reflected the large proportion of transitional hill land and uplands in the AONB.

There was a relatively large area of species-rich grasslands, species-rich wetland and bent/fescue hill pasture but only minor components of gorse and ericaceous heath.

The main ecological resource was bog, poor fen and peaty flush vegetation, occupying 29.1% of the land area.

Seminatural broadleaf woodland and scrub cover was small but over 10% of the AONB supported coniferous plantation, largely in the uplands (Fig. 5).

The most common boundary type was the post and wire fence but there were many derelict hedgebanks and neglected dry stone walls (Fig. 6).

The main differences between land classes 1-7 were associated with a trend from coastal, low elevations to the uplands (Figs. 7 & 8). Corresponding with this was a progressive increase in the proportion of seminatural vegetation and a decrease in the amount of agricultural grassland and crops. An exception was the relatively large seminatural component of land class 1, associated with its coastal habitats.

Post and wire fences, earth or wall banks and dry stone walls were more common in the upland land classes, with hedgebanks more a feature of low elevations (Fig. 9 & 10). In contrast, a significant proportion of maintained dry stone walls were found in the low elevation land classes.

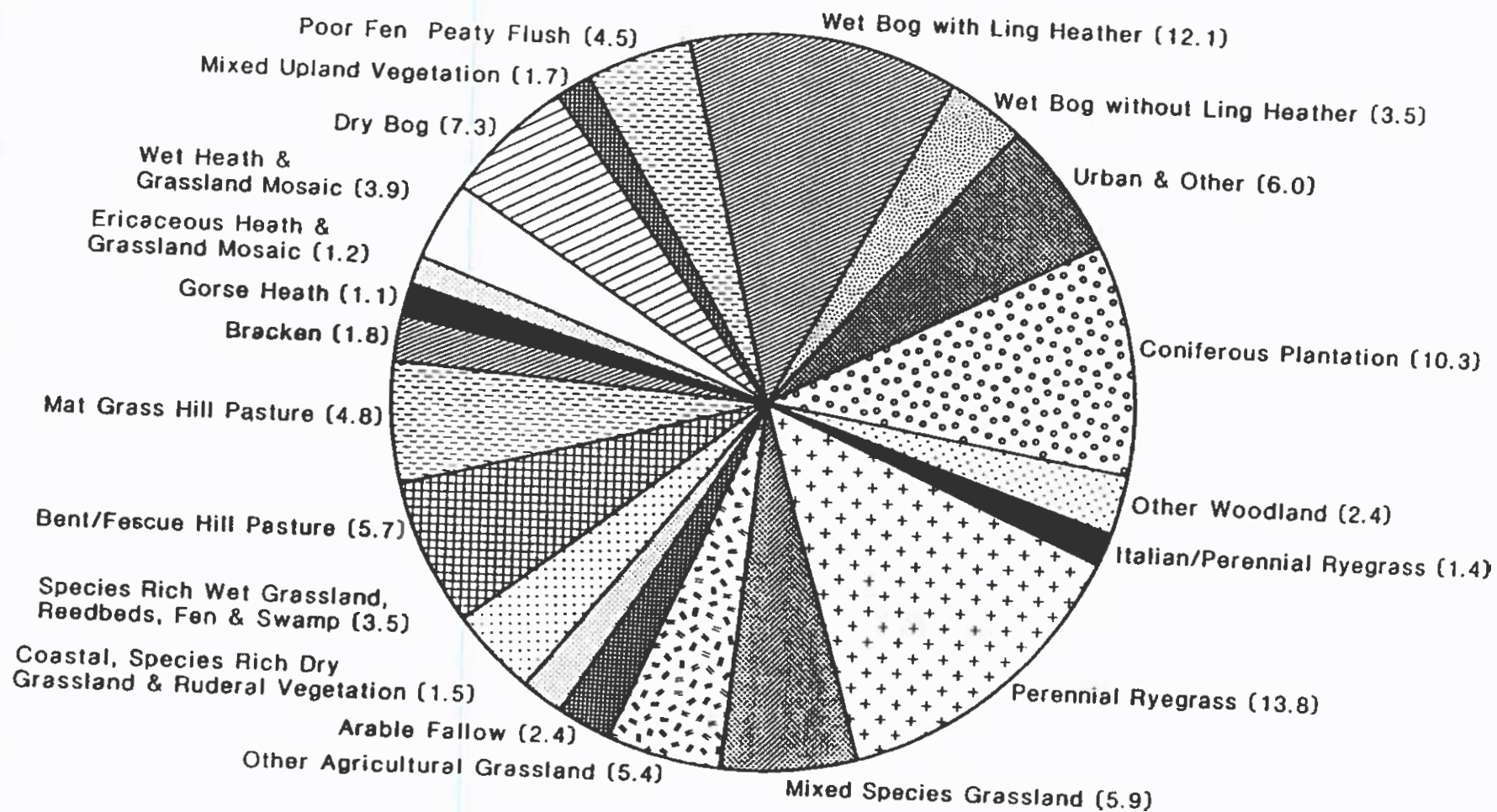


Fig. 5 Percentage area of ecological resources and land use types in the Antrim AONB.

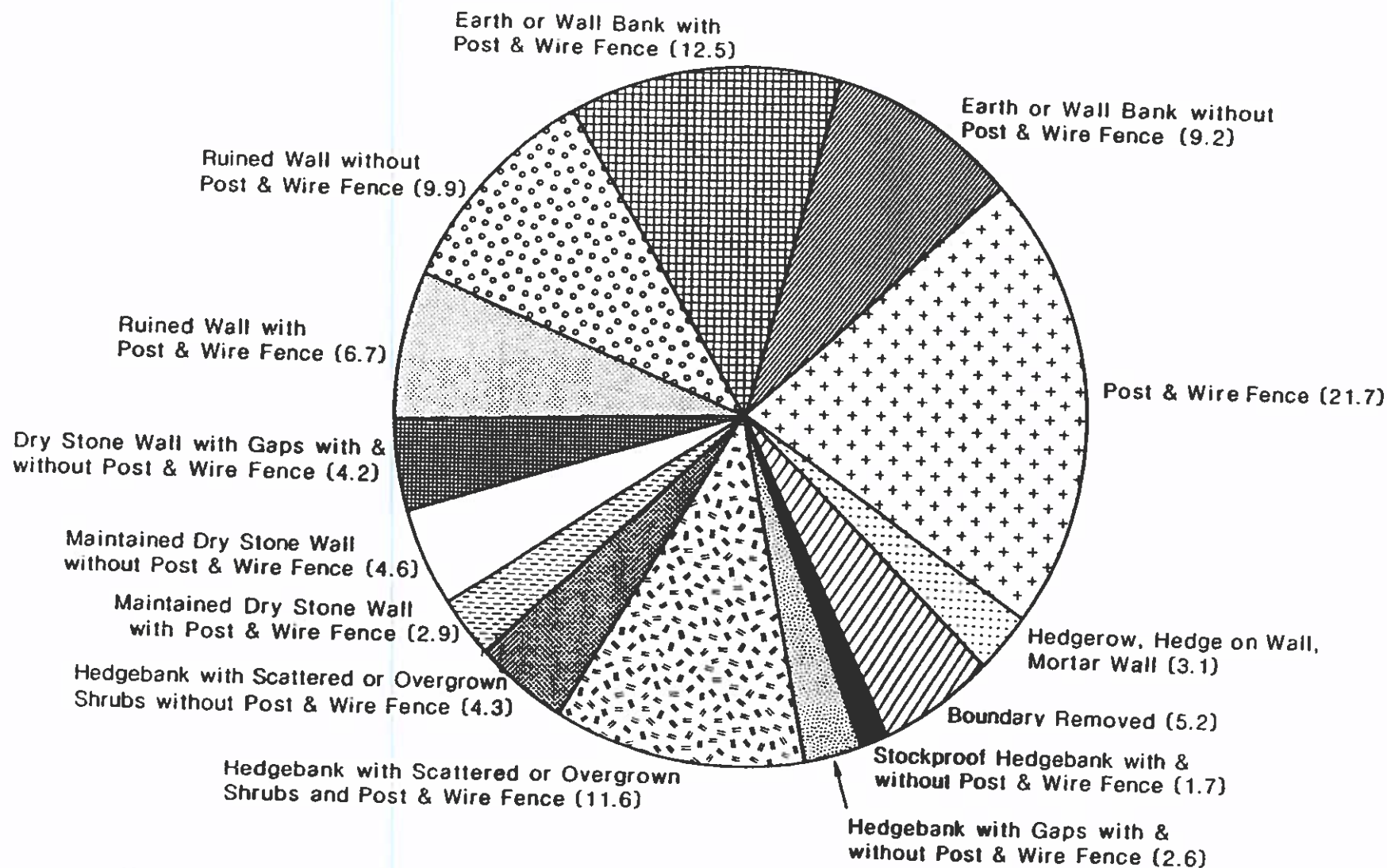


Fig. 6

Percentage length of field boundary types in the Antrim AONB.

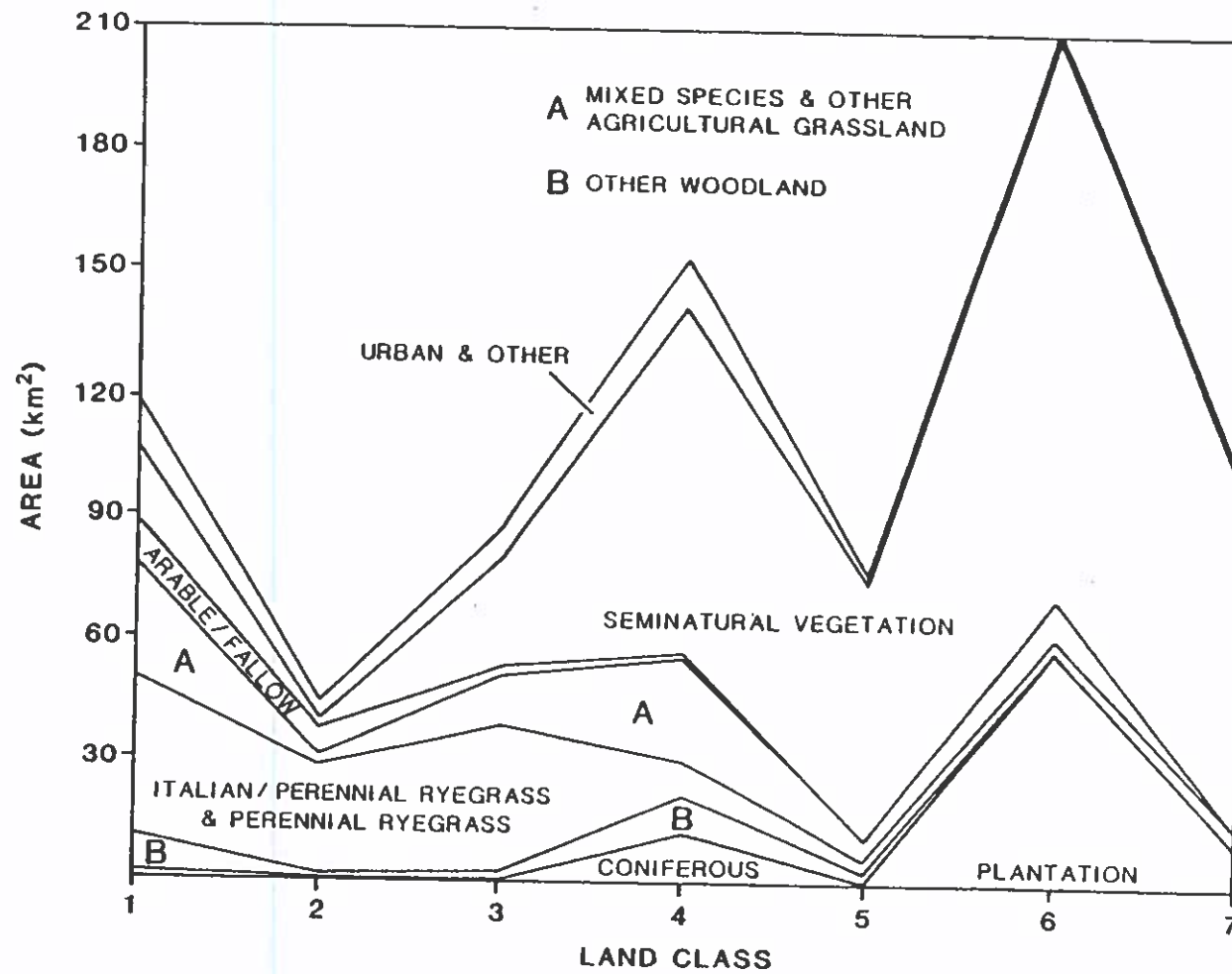


Fig. 7 Total predicted area (km²) of ecological resources and land use types in the 7 land classes.

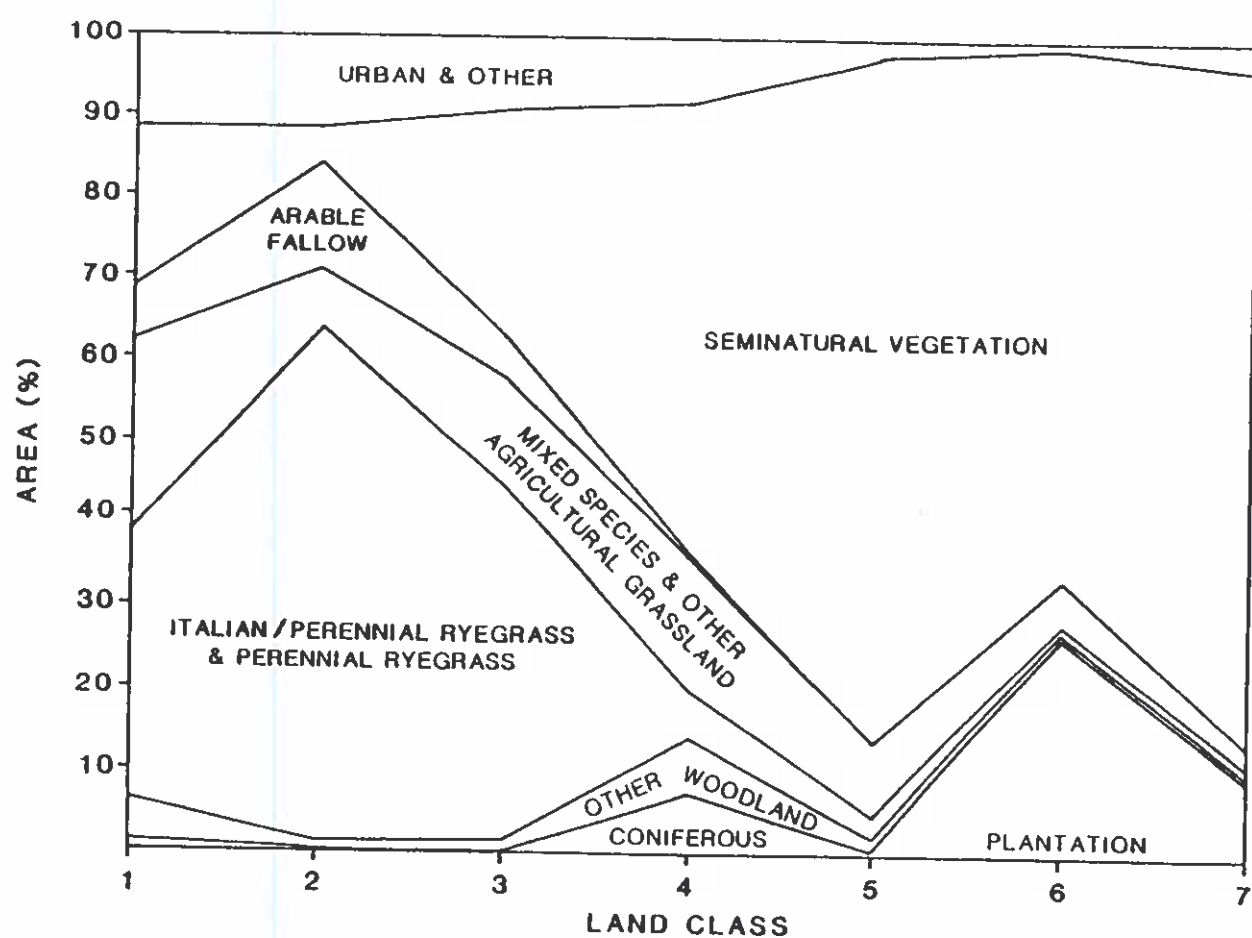


Fig. 8 Percentage area of ecological resources and land use types in the 7 land classes.

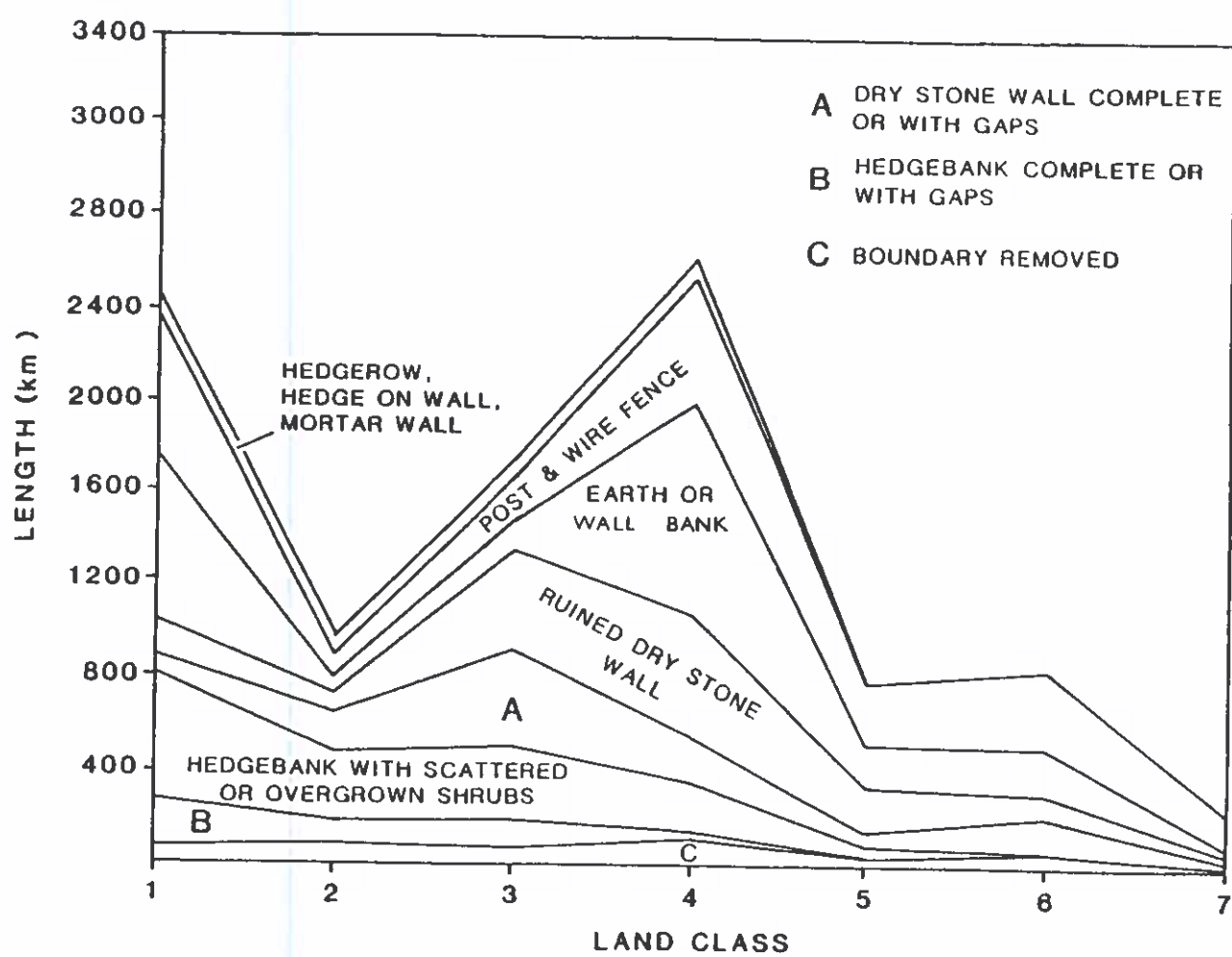


Fig. 9 Total predicted length (km) of field boundary types in the 7 land classes.

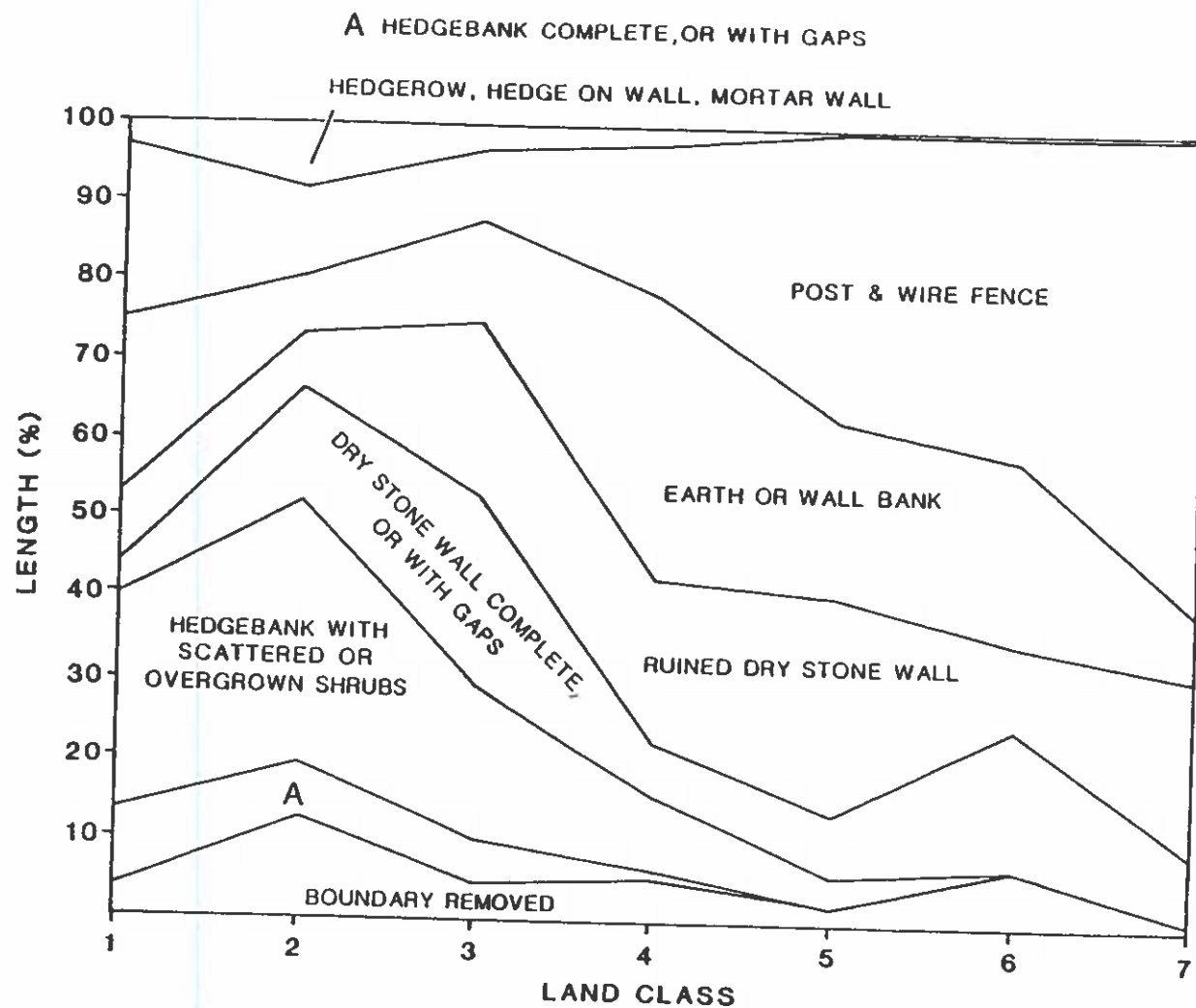


Fig. 10 Percentage length of field boundary types in the 7 land classes.

5.1 Woodland. The large area of coniferous plantation contrasted with the other woodland types which occupied only 19.7 square kilometres (Table 5). This represented a 2.5% cover and of this, broadleaf and mixed plantation occupied 1%, with seminatural woodland and scrub comprising the remaining 1.5%. Woodland data are presented in Tables 5-12.

5.1.1 Seminatural broadleaf woodland. This occurred mainly in land classes 4 and 5. Its frequency was high in land classes 1-5 but parcels were small in land classes 1-3 (Table 5). Escarpment woods at inland and coastal sites were particularly common (Table 6 & 7). Coastal, riverside and isolated field parcels, generally greater than 3m (Table 8), were also important elements. In land classes 1 and 2, woodland was almost exclusively riverside or coastal. Land class 3 had mainly riverside woodland but small field parcels were also evident. Land class 4 contained mainly riverside and glenside woodland. All three landscape elements were present in land class 5, particularly on the upper glen sides.

Species were mainly hazel, alder, ash, birch, rowan sycamore, hawthorn and willow with some oak and elm. (Table 12) Hazel was more common at lower elevation. It was replaced by birch at higher elevation.

The woodlands usually had a species-rich ground flora (Table 9), including ramsons, wood anemone, bluebell, primrose, celandine and wood sorrel, especially when fenced from farm stock. Their size was generally small. Species-rich grasslands and small field parcels were often

associated. Regeneration was most frequently by birch, sycamore and sometimes oak.

Soils were predominantly well-drained (Table 10). Few of the woods were managed in any way and most were unenclosed but only 15% were grazed (Table 11), often a consequence of their steep, rocky topography.

5.1.2 Scrub. This type occupied only 0.5% of the AONB. Small parcels of seminatural scrub were frequent in land classes 1-4, largely as isolated field parcels (Tables 5 & 6). Land class 4 had the greatest cover. In land class 1, scrub was associated with coastal escarpments and field parcels. Elsewhere, it occurred as isolated field parcels or, to a lesser extent, along riversides. It was largely found on rough, rocky or steeply sloping ground which was difficult to cultivate (Table 7).

Species were mainly european gorse, hawthorn, blackthorn and willow with some ash and hazel (Table 12). Whilst a larger proportion were managed when compared with broadleaf deciduous woodland, this usually took the form of clearance (Table 11). Less scrub was unenclosed when compared with the broadleaf woodland but owing to its easier access, much more of it was grazed by farm stock.

5.1.3 Coniferous plantation. Conifers covered 10.3% of the AONB. They were found mainly in land class 6 but notable amounts also occurred in land classes 4 and 7 (Table 5).

Plantations were of two types, either shelter belts or larger areas of forest. Shelter belts had a small area compared to plantations. They had, however, a visual effect on the landscape out of proportion to their number, particularly in land classes 4,5 and 6.

Species were mainly Sitka spruce with some lodgepole pine and larch (Table 12). Larch particularly, was associated with the shelter belts.

A large proportion of forest was of young to intermediate age, recorded as <10m high (Table 8). Soils were mainly peats (Table 10). When a species-rich ground flora was recorded this was associated with immature plantation over peat bog (Table 9).

Straight edges to fire breaks, rides and access roads did not add to the aesthetics of these plantations. They covered the full range of landforms in a way which masked their variation. Slieveanorra forest was the worst example of insensitive afforestation but some effort had been made to consider other interests at some sites. At Glenariff, much has been done to cater for recreation but other parts of this forest were poorly landscaped, including the siting of the main car parks. In contrast the mixed species plantations at Glenarm were scenically attractive.

5.1.4 Broadleaf plantation. This was found mainly in land classes 1 and 4, often near the coast. Although its frequency in land class 2 was high, it occupied only a small area (Table 5). Broadleaf plantation covered 0.5% of the AONB, and occurred mainly on estates or former demesnes. A significant

proportion also occurred as isolated parcels and farm buildings (Table 6), on flat or somewhat sloping ground (Table 7).

The dominant plantation species were ash, sycamore and beech, with some elm and rowan (Table 12). The ground flora was largely species-rich (Table 9). Most examples had mature or post-mature trees, often >10m (Table 8). A high proportion were managed, sometimes with replanting or underplanting and the majority were enclosed (Table 11). Despite this, the condition of many was poor, with an age-structure skewed towards mature trees. Invasion by non-native species such as sycamore and Rhododendron was frequent.

5.1.5 Mixed plantation. A small number of mixed, mainly mature (>10m) plantations were recorded, occupying an area of only 0.5% (Table 5 & 8). They occurred almost exclusively in land classes 1 and 4, associated with estates or former demesnes as well as smaller parcels of farm or riverside trees (Table 6). Compared with broadleaved plantation, there was a greater proportion of mixed woodland on steep ground (Table 7).

Trees were largely larch, beech, sycamore and Sitka spruce with a smaller frequency of ash, rowan and Scots pine (Table 12). The ground flora was less species-rich but more dominated by grasses than the broadleaf plantation (Table 9). Soils were mostly well-drained (Table 10).

A large proportion of the sites were managed. They were usually unenclosed but not used for grazing farm stock (Table 11). Trees next to farm buildings were mainly sycamore, beech, ash and various conifers. Many of the newer types of farm buildings had no trees.

5.1.6 Scattered, isolated or lines of trees. There was a fairly high frequency of trees in land classes 1-5 (Table 5). Species were mainly hawthorn, ash and sycamore (Table 12). They occurred most often, along the line of former hedges.

Table 5 Percentage mean area (A) and percentage frequency (F) of woodland in the Antrim AONB. Also shown is the predicted total area (km²) in the AONB.

		Land Class									Total (km ²)
		1	2	3	4	5	6	7	AONB		
Seminatural broadleaf woodland	A F	1.1 47	0.9 60	0.8 40	2.6 53	2.1 30	<0.1 7	-	1.0 30	8.1	
Scrub	A F	0.7 47	0.4 60	0.6 60	1.2 53	0.3 20	0.1 13	-	0.5 33	3.9	
Coniferous plantation	A F	0.7 41	<0.1 20	<0.1 10	7.8 47	0.2 10	27.4 60	10.0 13	10.3 36	80.8	
Broadleaf plantation	A F	2.4 47	0.1 60	0.1 20	0.6 20	<0.1 10	<0.1 7	-	0.5 19	3.9	
Mixed plantation	A F	1.1 24	-	<0.1 10	1.5 20	<0.1 10	-	0.2 7	0.5 10	3.8	
Scattered, isolated and lines of trees	A F	- 47	- 60	- 50	- 40	- 30	-	-	- 27	-	
TOTAL	A F	6.0 82	1.5 80	1.5 80	13.8 87	2.6 50	27.6 60	10.2 13	12.8 62	100.5	

Table 6 Location of woodland in the Antrim AONB expressed as a percentage mean area of each woodland type.

	Location					
	Riverside	Field	Farm	Roadside	Demesne	Coast
Seminatural broadleaf woodland	37	21	1	-	2	39
Scrub	18	64	-	1	1	17
Coniferous plantation	0	98	<1	1	1	<1
Broadleaf plantation	3	35	13	1	48	-
Mixed plantation	30	46	1	5	19	-

Table 7 Woodland topography in the Antrim AONB expressed as a percentage mean area of each woodland type.

	Topography					
	Flat	Sloping	Steep	Hill Top	Escarpment	Valley Bottom
Seminatural broadleaf woodland	6	19	5	-	56	15
Scrub	9	34	24	6	23	4
Coniferous plantation	14	58	28	<1	<1	-
Broadleaf plantation	33	60	7	-	-	-
Mixed plantation	8	35	50	-	-	9

Table 8 Woodland height in the Antrim AONB expressed as a percentage mean area of each woodland type.

	Height			
	0-1m	1-3m	3-10m	>10m
Seminatural broadleaf woodland	-	-	40	60
Scrub	3	57	40	-
Coniferous plantation	15	4	55	26
Broadleaf plantation	11	-	7	83
Mixed plantation	0	12	5	84

** Scattered, isolated and lines of trees were excluded from the analyses.

Table 9 Type of woodland ground flora in the Antrim AONB expressed as a percentage mean area of each woodland type.

	Ground Flora		
	Species Rich	Species Poor	Grass Dominated
Seminatural broadleaf woodland	61	9	30
Scrub	8	7	63
Coniferous plantation	30	68	2
Broadleaf plantation	62	12	27
Mixed plantation	31	29	40

Table 10 Woodland soil type in the Antrim AONB expressed as a percentage mean area of each woodland type.

	Soil Type			
	Waterlogged Peat	Drained Peat	Waterlogged Mineral	Drained Mineral
Seminatural broadleaf woodland	<1	<1	33	67
Scrub	3	8	15	74
Coniferous plantation	39	56	<1	5
Broadleaf plantation	-	-	22	79
Mixed plantation	-	4	-	96

Table 11 Woodland management in the Antrim AONB expressed as a percentage mean area of each woodland type.

	Management			
	Managed	Unenclosed	Shelter	Grazed
Seminatural broadleaf woodland	5	72	2	15
Scrub	9	54	<1	33
Coniferous plantation	83	2	1	<1
Broadleaf plantation	52	26	2	2
Mixed plantation	77	63	11	<1

* Scattered, isolated and lines of trees were excluded from the analyses.

Table 12

Percentage frequency in the Antrim AONB of the most common tree species in parcels of each woodland type.

	Alder	Ash	Beech	Birch	Elm	Hawthorn	Hazel	Holly	Oak	Rowan	Sycamore	Willow	Larch	Lodgepole pine	Sitka spruce	Scots pine
Seminatural broadleaf woodland	20	57	4	13	6	31	45	5	9	22	29	41	1	-	-	-
Scrub	-	19	2	7	-	53	12	-	-	-	4	44	2	2	3	-
Coniferous plantation	-	-	1	-	1	-	-	-	-	1	-	-	19	13	71	4
Broadleaf plantation	3	35	52	6	11	3	4	-	14	11	34	4	4	4	-	3
Mixed plantation	4	27	55	-	12	-	3	3	9	27	56	12	57	3	47	26
Scattered, isolated & lines of trees	5	23	12	12	3	47	-	7	6	6	18	2	6	-	6	-

5.2 Seminatural vegetation

5.2.1 Coastal vegetation. This was associated mainly with land class 1 and coastal parts of land class 4. It comprised mainly sea cliff vegetation particularly in the north and northeast including species-rich maritime grassland and heath, the vegetation of basalt/chalk screes and cliff ledges, and bird cliff vegetation (Table 13). There was a large proportion of fescue dominated grassland with bracken on the sea cliffs. Bracken has been classified separately.

Some foreshore vegetation with marram-grass and sea buckthorn was recorded at Waterfoot. These dune and strand line communities had largely lost their ecological interest due to recreation pressures and urban development.

5.2.2 Species-rich dry grassland. Fragments of this vegetation were found mainly at low elevation in land classes 1-4 (Table 13) where it was most usually associated with steep escarpment slopes. Of particular note were coastal sites in the north and northeast. In land class 3 and at lower elevation in land classes 4 and 5, species diversity was poorer on the more acidic soils.

Species such as crested dogstail-grass, bent, fescue, smooth-stalked meadow-grass, birds-foot trefoil, primrose, spring sedge, crested dog'stail-grass, bulbous buttercup and yarrow were characteristic. At coastal sites, maritime and woodland species were frequent and at some north facing sites, woodland plants such as pignut, wood anemone, bluebell and primrose also occurred.

5.2.3 Species-rich wet grassland This was more common than species-rich dry grassland, covering 3.4% of the area. Most occurred in land classes 3 and 5 (Table 13). It was mainly attractive and ubiquitous (except in land classes 6 and 7), occurring as parcels of meadow, mosaics with other grassland types and in field corners and ditches. Larger parcels were mainly in the uplands. Base-rich groundwater as flushes was often associated. Prime examples occur particularly in Glentassie.

The main species were soft rush, creeping buttercup, marsh marigold, celandine, cuckoo flower, meadowsweet, ragged robin, bent, Yorkshire fog, rough-stalked meadow-grass, carnation-grass, marsh horsetail and common foxtail. Species richness was greatest at lower elevation. At higher elevation the vegetation intergraded to poor-fen and peaty flush. Wet hollows and the vegetation around cut-over lowland raised bog were similar, but often with fen and swamp species.

5.2.4 Ruderal vegetation There was a small amount of this vegetation. It was associated with disturbed or waste ground, mainly in land classes 1-3 (Table 13). Two of the most common species were stinging nettle and cow parsley.

5.2.5 Reedbeds, fen and swamp. Only small areas were recorded, mainly in land classes 1-3 (Table 13). It was usually found in field boundary ditches and field corners at lower elevation but in the uplands it occurred around small loughs. On Rathlin Island, there were some larger areas.

Stands of common reed were recorded. Other habitats supported sweet-grass, marsh horsetail, yellow flag, brooklime and water-cress.

5.2.6 Bent/fescue hill pasture. A significant proportion of the AONB, particularly in land classes 3,4 and 5 was occupied by bent/fescue hill pasture (Table 13). Its ecological interest was often quite high, particularly when there was a mosaic with species-rich wet grassland or peaty flushes. Stands of yellow flag, for example, marked flushed sites on hill sides where marsh species occurred. At other less well drained sites there was frequently infestation by soft rush.

Also on wetter soils, at higher elevation, sweet vernal-grass, Yorkshire fog and smooth-stalked meadow-grass were common components. Crested dog's-tail grass became more abundant on the lower elevation drier soils. There was an intergradation to mixed upland vegetation at higher elevation.

5.2.7 Mat-grass hill pasture. This was a feature mainly of land class 5. It was also frequent but less extensive in land classes 6-7 (Table 13). It intergraded to bent/fescue hill pasture at lower elevation, often with rush infestation, and to peat communities at higher elevation as drainage deteriorated. There was considerable variation in its

composition.

Associated species were, bent, fescue, sweet vernal-grass, compact rush, heath rush and sometimes bilberry and deer-grass.

5.2.8 Bracken. Whilst bracken communities were not extensive (Table 13), they were fairly frequent on the coast (land class 1) and on better-drained soils of land classes 4,5 and 6 in the north and northeast. Woodland plants such as bluebell and wood anemone often occurred beneath the canopy and bracken was recorded spreading into newly cleared areas of seminatural scrub at lower elevation.

It often formed a mosaic with other grassland communities, some of which were species-rich. Otherwise the more common plants in below the canopy were sweet vernal-grass, fescue, bent, smooth-stalked meadow-grass and Yorkshire fog, particularly at higher elevation.

5.2.9 Gorse heath. This was most abundant in the coastal parts of land classes 1 and 4 and was also frequent in land classes 2, 3 and 5 (Table 13). It was particularly common on Rathlin Island with either european gorse or dwarf gorse dominant. Elsewhere, european gorse predominated, but it occupied only a small proportion of the AONB.

Away from the coast, gorse usually occurred in small parcels of rocky ground. A small proportion was invasive onto other types of seminatural communities and poor agricultural land. A mosaic of gorse with species-rich grassland or hill pasture was frequently recorded. Management was usually by

burning but overgrazing and poaching by farm stock were also frequent.

5.2.10 Ericaceous heath and ericaceous heath/grassland mosaic. The high cover of ericaceous heath shown for land class 3 was derived from a single sample square (Table 13). Field observation in this land class, however, confirmed ericaceous heath as a characteristic component. Representation in other land classes was poor but its position in the landscape, often on low hill tops meant that it had a scenic value which was proportionately higher than the relatively small area in the AONB. Heaths with ling heather were found mainly in the south and southwest on low elevation hill tops, often outside the boundary of the AONB. They were often overgrazed and in decline, occurring as a mosaic with bent/fescue hill pasture. Sites at which recent and past burning was observed, showed little or no heather regeneration.

5.2.11 Wet heath and wet heath/grassland mosaic. This was a feature of land classes 4-6 where it occurred on wet, peaty hill slopes, transitional to bog types (Table 13). A considerable fraction was found on land where peat had been cut over or had been drained in preparation for forestry or peat cutting.

Species composition was heterogeneous, reflecting variation in habitat conditions and management. As well as ling heather, heath rush, sweet vernal-grass, wavy hair-grass, cotton-grass, purple moor-grass, bog moss, Polytrichum

and mat-grass were common component species.

5.2.12 Dry bog. This was mainly a feature of land classes 4-7 (Table 13). It covered a large area of the AONB and was heterogeneous in species composition. Mat-grass, bog-moss, rushes and cotton-grasses were common components.

Many parcels had open agricultural drains or had been cut over by hand. Machine cut peat was also evident (Table 14).

5.2.13 Mixed upland vegetation. This occurred mainly in land classes 4 and 5 on moderately wet sites (Table 13). Approximately one third showed evidence of having been cut over for turf by hand (Table 14). The vegetation was transitional between hill pasture and poor fen or bog and contained species such as bilberry, Polytrichum, heath rush, compact rush, soft rush, mat-grass or fescue.

5.2.14 Poor fen and peaty flush. This vegetation covered a fairly large proportion of the AONB, mainly in land classes 4-7 but was represented in all except land class 2. It was also found on sea cliffs in the north of the AONB in land class 1. The main species were sharp-flowered rush and/or sedges. Poor fen intergraded to hill pasture with sweet vernal-grass, fescue or mat-grass and to species-rich wet grassland at lower elevation. Mosaics with these two and with bog containing Polytrichum and bog-moss at higher elevation, were frequent. The vegetation was particularly common at the transition from agricultural land to the hills.

Sites were mainly field parcels but it was also found in upland ditches where it was relatively species-rich. Rushes were frequent where there had been disturbance from agriculture or peat digging. It was difficult, however, to separate certain naturally occurring types from land which had formerly been under more intensive agricultural use.

5.2.15 Wet bog. This occurred principally in land classes 5, 6 and 7 and was the most abundant vegetation type in the area (Table 13). Most (77%) had ling heather as one of the main species along with bog-moss, cotton-grasses, bilberry and cross-leaved heath on waterlogged peat.

Communities included those from montane, oligotrophic blanket bog, mesotrophic blanket bog, upland raised bog, cut-over peat and forest plantation rides.

Mountain peat with the moss Rhacomitrium and stag's horn clubmoss was confined to land class 7. It was often subject to erosion. Cotton-grasses, deer-grass, crowberry and bog-moss also occurred, often together with ling heather and bilberry. Below the summits, a similar vegetation was found but without Rhacomitrium. Deer-grass (on oligotrophic wet peat) hare'stail cotton-grass (on mesotrophic peat) or ling heather (on drier peat) were often dominant.

This vegetation contrasted with peat bog which had been cut-over or otherwise managed. Disturbance of this kind gave a heterogeneous vegetation with cotton-grasses (mainly hare'stail, heath-rush, deer-grass, bog-moss, the moss Polytrichum, mat-grass, soft rush and wavy hair-grass.

Both types commonly occurred together as a mosaic, with flushes of soft rush or compact rush. Where the peat thinned there was a gradation to wet heath and on drier sites to rush infested hill pasture and mat-grass hill pasture.

Much bog had been cut over by hand, with recent machine peat cutting taking place to a considerable extent (Tables 14 & 15). The large area of bog recorded as having open drains had largely been prepared for forest plantation or peat cutting (Table 14).

Current peat cutting by hand was particularly frequent near public roads or newly constructed access roads. It was centred around Glenhead in the south, Slievenanee/Slievenamaddy, Croaghan and Slievanorra in the northwest and Cushleake mountain in the northeast. Machine cutting was occurring on an increasingly much larger scale and included both large areas and small plots often, but not exclusively, associated with old handcut workings.

Land class 5 had a large proportion of hand-cut and machine-cut peat, probably a function of the accessibility of land with peat for cutting (Table 15). The large area of peat in land classes 6 and 7 which was recorded as having open drains was primarily the result of forestry operations.

Table 13 Percentage mean area (A) and percentage frequency (F) of seminatural vegetation in the Antrim AONB. Also shown is the predicted total area (km²) in the AONB.

		Land class							AONB	Total (km ²)
		1	2	3	4	5	6	7		
Coastal vegetation	A	4.4	-	-	0.4	-	-	-	0.7	5.8
	F	41	-	-	7	-	-	-	8	
Species-rich dry grassland	A	1.7	0.4	0.4	1.0	<0.1	-	-	0.5	4.1
	F	47	40	30	33	10	-	-	20	
Species-rich wet grassland	A	1.9	1.2	7.0	3.4	8.3	3.0	0.2	3.4	26.7
	F	59	40	90	60	70	20	20	47	
Ruderal vegetation	A	0.3	0.1	0.3	<0.1	<0.1	<0.1	0.1	0.1	0.8
	F	35	20	40	13	10	7	7	17	
Reedbeds, fen and swamp freshwater veg.	A	0.3	0.1	0.5	<0.1	<0.1	<0.1	-	0.1	1.0
	F	59	40	80	13	20	20	-	30	
Bent/fescue hill pasture	A	1.9	0.8	9.7	14.4	7.3	2.4	1.1	5.7	44.7
	F	35	20	60	100	80	27	13	49	
Mat-grass hill pasture	A	-	-	0.8	2.2	17.2	5.7	9.0	4.8	37.9
	F	-	-	10	40	40	40	47	29	
Bracken	A	2.8	-	0.1	2.1	1.9	3.0	-	1.8	14.3
	F	24	-	10	53	30	7	-	20	
Gorse heath	A	2.1	0.3	0.9	2.6	1.5	-	-	1.1	8.6
	F	53	60	80	60	40	-	-	36	
Ericaceous heath and grassland mosaic	A	0.9	-	5.6	0.7	0.3	1.1	<0.1	1.2	9.4
	F	18	-	10	27	20	13	7	15	
Wet heath and grassland mosaic	A	-	-	0.4	5.8	9.7	6.1	1.1	3.9	30.4
	F	-	-	10	27	30	40	13	21	
Dry bog	A	-	-	2.7	9.9	8.8	11.3	9.4	7.3	57.3
	F	-	-	30	47	80	73	60	47	
Mixed upland vegetation	A	-	-	-	3.5	7.1	0.7	0.9	1.7	13.1
	F	-	-	-	20	30	13	13	12	
Poor fen, peaty flush	A	1.9	-	1.4	7.8	9.0	4.0	4.4	4.5	35.2
	F	24	-	40	60	60	60	40	46	
Wet bog with ling heather	A	-	-	<0.1	0.5	3.6	23.7	41.8	12.1	95.5
	F	-	-	10	20	40	67	73	36	
Wet bog without ling heather	A	-	-	0.1	0.6	9.0	2.9	13.8	3.5	27.9
	F	-	-	20	27	60	47	47	31	
TOTAL	A	18.2	3.0	29.9	54.9	83.7	63.9	81.9	52.4	412.7
	F	100	60	100	100	100	100	100	98	

Table 14 Seminatural vegetation in the Antrim AONB cut for peat or having open drains. Results are expressed as a percentage mean area of each seminatural vegetation type.

	Cut over Hand	Cut over Machine	Vegetation with open drains
Species rich wet grassland	-	-	<1
Bent/fescue hill pasture	-	-	2
Mat grass hill pasture	1	<1	<1
Ericaceous heath & grassland mosaic	2	-	2
Wet heath & grassland mosaic	41	3	27
Dry bog	24	1	33
Upland mixed vegetation	30	-	9
Poor fen/peaty flush	9	-	5
Wet bog with ling heather	18	2	25
Wet bog without ling heather	34	2	9

Table 15 Seminatural vegetation in the Antrim AONB cut over for peat or having open drains. Results are expressed as a mean percentage area of each land class.

	Land class							AONB
	1	2	3	4	5	6	7	
Cut over vegetation(hand)	-	-	-	11	26	6	14	8
Cut over vegetation(machine)	-	-	-	<1	2	1	<1	1
Vegetation with open drains	-	-	1	6	8	13	15	7

5.3 Agriculture. There was a great deal of mixed farming throughout land classes 1-3. Most farms were full-time intensive enterprises. There were large numbers of sheep and a relatively high proportion of dairy herds.

Farm size was often large, the most productive farms having large outbuildings, usually with little tree cover. These farms were most frequent in land classes 2 and 3 and the better parts of land class 1.

In the higher elevation land classes 4-7, farming was of the less intensive, low input/low output type involving mainly sheep farming and a minimum of stock control within holdings.

5.3.1 Italian/perennial ryegrass. This grassland covered only 1.4% of the area mainly in land classes 1-3 (Table 16). It was particularly frequent in land class 2 and was also found on improved peats in land class 6.

5.3.2 Perennial ryegrass. These swards were a major land use in the AONB (13.8%). They were found mainly in land classes 1-3 but also occurred in all land classes at least as minor components (Table 16). They were particularly frequent in land class 2. Many were in good condition but 16.0% were infested with broadleaved weeds (Table 17).

5.3.3 Mixed species grassland. The proportion of mixed species grassland was quite high (5.9%). It consisted of the longer established agricultural grasslands, often on the more sloping sites at lower elevations (Table 16). Mixed species grassland was most abundant in land classes 1 and 4 where the

topography was more varied and therefore intensive farming was more difficult. Rush and broadleaf weed infestation was frequent (Table 17).

5.3.4 Other grassland. This, in part comprised deteriorated ley grassland over less well drained soils or shallow peat. It was found throughout the land classes (Table 16) and occupied a fairly large proportion of the AONB (5.4%). Rush and broadleaf weed infestation was frequent (Table 17).

5.3.5 Arable and fallow land. Crops were predominantly of barley, potatoes and brassicas. Together, crops and fallow land occupied 2.4% of the AONB but occurred largely in land classes 1-3 and particularly in land class 2 (Table 16).

5.3.6 Sheep. Large numbers of sheep were recorded in the low elevation land classes 1-3 and at the lowland-upland transition in land class 4. There were fewer lambs to ewes in land classes 5-7 (Table 18). This was a function of poorer grazing, less intensive agriculture and the practice of placing barren ewes or those with only one lamb out to graze in the uplands.

5.3.7 New roads. Newly constructed roads were recorded leading into the uplands mainly from land classes 3 and 4 (Table 19). They were in most cases cut through difficult topography and their main use was for providing easier access for stock management or peat cutting. Materials were either concrete or basalt/chalk hardcore. Construction and siting were based on practical considerations, with little regard to

existing field patterns or contours. Disused access tracks, if present nearby, could not be used if they did not occur within the farm unit.

5.3.8 Field size. There was wide variation in field size (Table 20), confirming the observation of a mosaic of small fields associated with traditional land use patterns and larger fields on the better farmland and in reclaimed upland areas. Variation was greater in land classes 3 and 4, a part function of recent reclamation work.

Table 16 Percentage mean area (A) and percentage frequency (F) of agricultural land in the Antrim AONB. Also shown is the predicted total area (km²) in the AONB.

		Land class								AONB	Total (km ²)
		1	2	3	4	5	6	7			
Italian/perennial ryegrass	A	2.2	7.6	3.2	-	-	0.9	-	1.4	10.7	
	F	24	80	20			7		12		
Perennial ryegrass	A	31.5	55.3	40.6	5.9	2.6	0.7	0.2	13.8	109.0	
	F	82	100	80	67	30	13	7	47		
Mixed species grassland	A	14.5	3.8	6.1	11.1	7.0	-	-	5.9	46.5	
	F	65	100	70	67	40			40		
Other agricultural grassland	A	9.5	3.9	7.0	5.5	1.9	5.0	3.0	5.4	42.6	
	F	59	40	40	60	20	20	7	35		
Combined grassland categories	A	57.8	70.6	57.0	22.5	11.5	6.7	3.2	26.5	208.7	
	F	88	100	100	100	50	20	13			
Arable,fallow land	A	6.9	14.1	4.0	0.5	0.3	-	-	2.4	18.7	
	F	35	80	50	13	10			19		
TOTAL	A	64.7	84.6	61.0	23.0	11.8	6.7	3.2	28.9	227.4	
	F	94	100	100	100	50	20	13	62		

Table 17 Agricultural grassland in the Antrim AONB infested by rushes or broadleaf weeds. Results are expressed as a percentage mean area of each grassland type.

	Rush Infested	Broadleaf Infested
Italian/perennial ryegrass	-	3
Perennial ryegrass	3	16
Mixed species grassland	31	16
Other grassland	30	12

Table 18 The number of ewes and lambs per square kilometre in the Antrim AONB.

Land Class	Lambs	Ewes	Ratio: Ewes/lambs
1	144	182	1:1.3
2	149	146	1:1
3	166	152	1:0.9
4	205	93	1:0.5
5	94	67	1:0.7
6	32	21	1:0.7
7	30	17	1:0.6
AONB	109	84	1:0.8

Table 19 Mean length (km) per square kilometre (L) and percentage frequency (F) of newly constructed farm roads/tracks in the Antrim AONB. Also shown is the predicted total length in the AONB.

	Land Class								Total Length (km)
	1	2	3	4	5	6	7	AONB	
New roads/ tracks	L < 0.1	-	0.4	0.7	-	0.2	0.4	0.3	2.3
F	18	-	30	40	-	20	13	21	

Table 20. Mean field size (ha) in the farmed land classes 1-4. Figures are based on a random sample of 40 fields from each land class. The mainly unenclosed land classes 5,6 and 7 have been excluded from the analysis.

Land Class	Mean	Standard deviation
1	2.3	1.7
2	2.3	1.8
3	1.8	3.6
4	3.0	4.4

5.4. Dereliction

5.4.1 Abandoned vehicles. These were found in land classes 1-5, on farmland (Table 21). Land class 3 contained the largest number and highest frequency of abandoned vehicles. In the uplands they were often functional as a store for materials.

5.4.2 Derelict buildings. They occurred in all land classes (Table 21). With the exception of land class 2, numbers decreased with elevation. The small number in land class 2 reflected the more intensively managed and better quality land. Derelict buildings were particularly noticeable in the northern glens.

5.4.3 Rubbish and litter. This was mainly a characteristic of land classes 1 and 2 (Table 21). In land class 1 it was associated with coastal recreation and urban sites whereas in land class 2 most sites were on farms.

5.4.4 Abandoned roads/tracks. Overgrown lanes were associated with the more intensively farmed land and were mainly the result of farm rationalisation (Table 21)

5.4.5 Bare or disturbed ground. This occurred mainly in the low elevation land classes 1-3 as a result of either agriculture or recreation (Table 21). At higher elevation peat erosion accounted for most records.

Table 21 Artefacts of landscape dereliction in the Antrim AONB. N: mean number of sites per square kilometre. L: mean length (km) per square kilometre. A: percentage mean area F: percentage frequency. Also shown are the predicted totals in the AONB.

		Land class								Total
		1	2	3	4	5	6	7	AONB	
Sites of abandoned vehicles	N F	1.7 24	1.6 40	3.2 60	1.6 27	1.6 30	-	-	1.2 20	907
Sites of derelict buildings	N F	3.3 41	0.8 20	3.2 40	2.1 20	2.0 30	0.3 7	0.3 7	1.6 21	1265
Sites of disposed rubbish/litter	N F	5.8 53	6.4 60	1.6 30	1.3 33	0.8 20	0.5 13	0.5 7	1.9 27	1536
Abandoned roads/tracks	L F	0.3 18	0.4 20	0.1 20	-	-	<0.1 7	-	0.1 8	69
Bare/disturbed ground	A F	1.1 29	0.6 80	0.3 50	<0.1 20	-	0.1 7	0.4 13	0.3 22	2

5.5 Field boundaries

A hierarchical classification of field boundary types is shown in Fig. 11.

5.5.1 Boundary removed. A total of 5.2% of boundaries had been removed from the AONB since the mean date of cartographic survey (1975). The number was 12.3% in land class 2. The extent of boundary removal in the upland land classes was small (Table 22).

5.5.2 Hedgebanks. These were mainly a feature of land classes 1-3 where they represented 37.3%, 40.5% and 24.2% of field boundaries respectively (Table 22). This corresponds to 6.2km, 8.8km and 5.3km per kilometre square.

Most hedgebanks in the AONB (1729km) consisted of either scattered or overgrown shrubs (78.8%), or had gaps (12.7%). Only 8.4% (159km) of hedgebanks were stockproof.

The addition of post and wire fencing to hedgebanks for stock management was extensive. A total of 69.6% of hedgebanks had been modified in this way.

Lowland hedgebanks often had interesting floras. Species included, primrose, bluebell and early purple orchid. Associated with others was species-rich dry grassland containing, for example, bird's-foot trefoil, hare-bell, yarrow, lady's bedstraw and false oat-grass.

5.5.3 Dry stone walls. Maintained, stockproof walls accounted for only 26.6% (695km) of the total. Most walls (1955km) were either ruined (58.7%) or had gaps (14.7%) (Table 22). Just under half the walls (43.4%) had an associated post and wire fence. Post and wire fences were an integral feature of well kept walls. This was related to their structure; usually a single course of basalt stones, easily dislodged by stock. Ruined walls had often been replaced with stronger, post and wire fencing.

Maintained, stockproof walls were a feature of land classes 2 and 3, particularly in the Braid river valley and further east towards Glenarm. Ruined walls were most frequent in land classes 3,4 and 5 where they accounted for 21.9%, 20.6% and 29.0% of the field boundaries i.e 4.9km, 3.4km and 2.7km per kilometre square, respectively.

5.5.4 Earth banks/wall banks. These were either derelict hedgebanks or features in their own right. They accounted for 21.7% of field boundaries, representing 2.6km per kilometre square and a total of 2046km throughout the AONB. On over half (57.6%), post and wire fences had been erected (Table 22).

Banks were particularly frequent in land class 4 where they accounted for 34.7% of field boundaries (5.8km per kilometre square). They were also moderately abundant in land class 1 where exposure may be a factor inhibiting successful hedge planting.

At higher elevation, earth banks were more derelict i.e. they were not very high or there were a large number of gaps. Colonisation by european gorse was frequent at lower elevation.

5.5.5 Post and wire fences. They were relatively abundant in all land classes, accounting for 21.7% of field boundaries in the AONB or 2.5km per kilometre square (Table 22). In land classes 5,6 and 7 they were particularly abundant, forming, respectively, 36.1%, 41.4% and 60.8% of field boundaries.

5.5.6 Other field boundaries. Hedgerows were poorly represented at 0.1km per kilometre square (Table 22). Hedges on walls were slightly more abundant (0.2km per kilometre square), notably as double-sided walls with a species-rich hedge. These were found mainly in land class 2 in the Braid river valley.

Few mortar, brick or concrete walls were recorded, usually associated with buildings, roadsides and bridges.

5.5.7 Hedge management. Management usually involved mechanical trimming along sides and top of the hedge. The proportion of stockproof hedgebanks (62%) and hedgebanks with gaps (64%) in the AONB, which were managed, was high. A particularly large proportion were managed in land class 2 (Table 23).

A lesser proportion of hedgebanks with scattered or overgrown shrubs were managed, in many cases simply by cutting back to the stump and felling trees. Post and wire fences

were usually erected following this type of operation.

5.5.8 Field boundaries with ditches. Ditches were a feature of hedges and earth/wall banks (Table 24). The hedges in land class 5 were mostly associated with ditches (92%).

5.5.9 Field boundary trees. Trees were recorded most frequently in hedgebanks, hedgerows and hedges on walls (Table 25) and to a lesser extent in ruined dry stone walls, and earth/wall banks. They were mainly a feature of the lower elevation land classes 1-4.

The most abundant species were ash and hawthorn (Table 26), followed by sycamore, willow and rowan. Hawthorn was ubiquitous, with ash occurring in every land class except land class 7. Elm, in particular, was associated with the lower elevation land classes. Beech, holly, rowan, sycamore, birch and willow had a much wider range, extending to land class 5. Hazel, holly, birch and rowan were most frequent in land classes 3 and 4.

The distribution of shrub and tree species in the main field boundary types, is shown in Table 27. The lower elevation land classes 1-4 are shown separately from the higher elevation land classes 5-7. Only the more frequent species have been tabulated.

Hawthorn was found in almost every boundary type at both lower and upper elevation. Blackthorn was particularly associated at low elevation, with hedges on walls. Gorse occurred mainly on earth or wall banks at low elevation.

Ash was frequent mainly in hedgebanks and hedges on walls. Rowan occurred mainly on ruined dry stone walls and earth or wall banks. Sycamore and willow were found at low elevation on most boundary types but showed no specific preference.

Fig. 11 Hierarchical classification of field boundary types in the Antrim AONB. Total length (km) per square kilometre and percentage mean length are shown.

Boundary Type

- 1 Boundary removed
- 2 Stockproof hedgebank with post and wire fence.
- 3 Stockproof hedgebank without post and wire fence.
- 4 Hedgebank with gaps and post and wire fence.
- 5 Hedgebank with gaps, without post and wire fence.
- 6 Hedgebank with scattered or overgrown shrubs and post and wire fence.
- 7 Hedgebank with scattered or overgrown shrubs, without post and wire fence.
- 8 Hedgerow (all conditions)
- 9 Maintained dry stone wall with post and wire fence.
- 10 Maintained dry stone wall without post and wire fence.
- 11 Dry stone wall with gaps and post and wire fence.
- 12 Dry stone wall with gaps, without post and wire fence.
- 13 Ruined dry stone wall with post and wire fence.
- 14 Ruined dry stone wall without post and wire fence.
- 15 Mortar, brick or concrete wall.
- 16 Hedge on wall.
- 17 Earth or wall bank with post and wire fence.
- 18 Earth or wall bank without post and wire fence.
- 19 Post and wire fence.

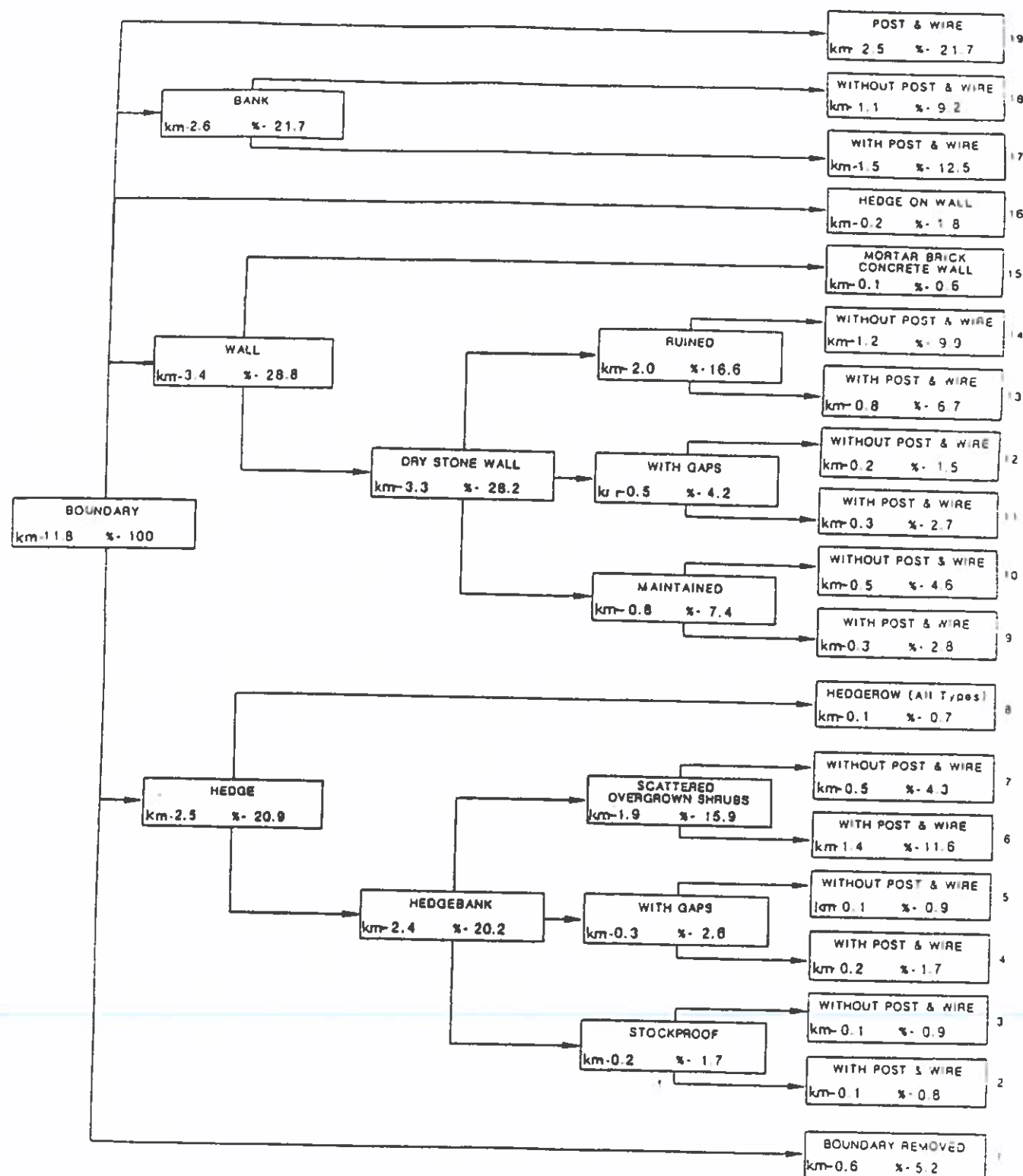


Table 22 The mean length (km) per square kilometre of field boundary types in the Antrim AONB. Results are also expressed as a percentage (%) of each land class total. Predicted total lengths (km) in the AONB are also given.

BOUNDARY TYPE		Land class								Total Length (km)
		1	2	3	4	5	6	7	AONB	
Boundary removed	1 km	0.6	2.7	1.0	0.8	0.2	0.3	<0.1	0.6	485.8
	%	3.8	12.3	4.6	4.8	1.8	6.9	1.3	5.2	
	2 km	0.2	0.6	0.2	<0.1	-	-	-	0.1	73.2
	%	1.4	2.6	0.9	0.1	-	-	-	0.8	
	3 km	0.5	0.2	0.1	0.1	-	-	-	0.1	85.9
	%	2.8	0.9	0.6	0.3	-	-	-	0.9	
Hedgebank	4 km	0.7	0.6	0.4	<0.1	-	-	-	0.2	155.7
	%	4.2	2.6	2.0	0.2	-	-	-	1.7	
	5 km	0.3	0.2	0.4	0.1	<0.1	-	-	0.1	84.6
	%	1.6	1.1	1.6	0.3	0.1	-	-	0.9	
	6 km	3.4	5.6	2.7	1.0	0.4	-	-	1.4	1085.1
	%	20.8	26.0	12.1	5.7	3.9	-	-	11.6	
	7 km	1.1	1.6	1.5	0.4	<0.1	-	-	0.5	403.6
	%	6.5	7.3	7.0	2.5	0.2	-	-	4.3	
Hedgerow	8 km	0.3	0.3	0.1	0.1	-	-	<0.1	0.1	68.4
	%	1.7	1.2	0.5	0.5	-	-	0.2	0.7	
	9 km	0.1	0.3	1.0	0.3	0.3	0.4	-	0.3	259.5
	%	0.5	1.3	4.6	1.8	3.1	9.1	-	2.8	
Dry stone wall	10 km	0.1	2.7	2.4	0.3	0.2	0.2	-	0.5	435.6
	%	0.5	12.4	10.7	1.6	2.1	5.6	-	4.6	
	11 km	0.4	0.1	0.9	0.5	0.1	0.1	0.1	0.3	251.7
	%	2.5	0.4	4.3	2.8	0.8	2.2	5.6	2.7	
	12 km	0.1	0.7	0.9	<0.1	-	<0.1	<0.1	0.2	139.7
	%	0.7	3.0	4.2	0.2	-	1.0	0.7	1.5	
Ruined dry stone wall	13 km	0.5	0.5	2.1	1.3	0.9	0.2	0.3	0.8	632.3
	%	3.2	2.5	9.5	8.0	9.7	5.5	13.0	6.7	
	14 km	0.8	0.9	2.8	2.1	1.8	0.3	0.2	1.2	931.4
	%	4.6	4.3	12.4	12.6	19.3	7.1	10.3	9.9	
Mortar wall	15 km	0.3	0.1	0.1	0.1	-	<0.1	-	0.1	57.5
	%	1.5	0.6	0.3	0.5	-	0.1	-	0.6	
Hedge on wall	16 km	0.2	1.2	0.4	0.3	-	<0.1	-	0.2	169.6
	%	1.3	5.5	2.0	1.8	-	0.7	-	1.8	
Earth, wall bank	17 km	2.7	1.4	2.1	2.1	1.4	0.7	<0.1	1.5	1178.1
	%	16.6	6.4	9.7	12.6	14.9	16.8	1.0	12.5	
	18 km	0.7	0.2	0.8	3.7	0.7	0.2	0.2	1.1	867.9
	%	4.4	0.8	3.6	22.1	7.7	4.8	6.9	9.2	
Post & wire fence	19 km	3.5	1.9	2.2	3.6	3.3	1.7	1.5	2.5	2040.7
	%	21.4	8.8	9.7	21.4	36.1	41.4	60.8	21.7	
Total		16.4	21.7	22.2	16.9	9.2	4.1	2.4	11.8	9406
		100	100	100	100	100	100	100	100	100

Table 23 The mean length (km) of managed field boundaries per square kilometre in the Antrim AONB. Results are also expressed as a percentage of each boundary type in each land class.

		Land class							
		1	2	3	4	5	6	7	AONB
Stockproof hedgebank	km	0.3	0.7	0.2	0.1	-	-	-	0.1
	%	49	95	64	92	-	-	-	62
Hedgebank with gaps	km	0.5	0.7	0.6	0.1	<0.1	-	-	0.2
	%	48	89	78	84	100	-	-	64
Hedgebank with scattered/overgrown shrubs	km	0.3	1.0	0.5	<0.1	-	-	-	0.2
	%	6	14	12	1	-	-	-	8
Hedgerow, hedge on wall	km	0.1	0.3	0.1	0.0	-	-	-	<0.1
	%	22	23	14	9	-	-	-	17
TOTAL		1.2	2.8	1.4	0.2	<0.1	-	-	0.5
		18	27	24	10	2	-	-	20

Table 24 The mean length (km) of field boundaries with ditches per kilometre square in the Antrim AONB. Results are also expressed as a percentage (%) of each land class.

		Land class							
		1	2	3	4	5	6	7	AONB
Hedgebank, hedgerow, hedge on wall	km	2.4	3.5	2.2	0.6	0.3	-	-	1.0
	%	36	34	38	33	92	-	-	36
Dry stone, mortar wall	km	0.2	0.1	0.4	0.4	0.5	0.2	-	0.2
	%	8	2	4	9	15	13	-	7
Earth, wall bank	km	1.0	0.3	1.4	2.8	1.1	0.3	-	1.0
	%	30	22	48	47	53	30	-	40
Post & wire fence	km	0.2	0.2	0.5	0.8	0.1	0.1	0.3	0.3
	%	7	9	23	22	3	6	22	13
TOTAL		3.8	4.1	4.5	4.6	2.0	0.5	0.3	2.6
		24	22	21	29	22	13	14	23

Table 25 The mean number (N) of field boundaries with emergent trees per 25ha square in the Antrim AONB. Results are also expressed as percentage mean number (%) of each boundary type in each landclass.

		Land class							AONB
		1	2	3	4	5	6	7	
Hedgebank	N	8.4	10.8	7.3	2.1	0.2	-	-	3.1
	%	50	41	46	46	22	-	-	46
Hedgerow	N	0.4	0.8	0.3	0.1	-	-	0.1	0.2
	%	50	67	50	20	-	-	100	50
Dry stone wall	N	0.3	0.8	1.8	0.4	-	-	-	0.4
	%	14	9	11	17	-	-	-	10
Ruined dry stone wall	N	0.6	2.0	5.3	1.7	0.3	0.1	-	1.2
	%	13	43	34	19	6	10	-	22
Mortar brick or concrete wall	N	0.1	-	-	-	-	-	-	<0.1
	%	29	-	-	-	-	-	-	3
Hedge on wall	N	0.3	1.6	1.0	0.5	-	-	-	0.3
	%	57	44	53	58	-	-	-	51
Earth, wall bank	N	2.1	2.2	2.9	3.0	0.2	0.2	-	1.4
	%	23	44	37	20	5	19	-	23
Post & wire fence	N	0.8	0.4	0.6	0.5	-	-	-	0.3
	%	8	6	8	7	-	-	-	6
TOTAL	N	12.9	18.6	19.2	8.1	0.7	0.3	0.1	6.9
	%	30	31	29	21	4	5	2	30

Table 26 The mean number (N) of field boundaries with specified tree species per 25ha square in the Antrim AONB. Results are also expressed as a percentage mean number (%) of boundaries with the tree species in each land class. Uncommon species are not shown.

		Land class							AONB
		1	2	3	4	5	6	7	
Alder	N	1.1	1.6	1.1	0.8	-	-	-	0.5
	%	3	3	2	2	-	-	-	2
Ash	N	7.7	12.6	11.4	2.5	0.1	0.1	-	3.7
	%	18	22	17	6	1	2	-	13
Beech	N	0.6	0.8	1.2	0.3	0.1	-	-	0.3
	%	1	1	2	1	1	-	-	1
Birch	N	0.1	-	0.7	0.4	0.1	-	-	0.2
	%	0	-	1	1	1	-	-	1
Elm	N	0.2	1.0	0.3	-	-	-	-	0.1
	%	0	2	0	-	-	-	-	<1
Hawthorn	N	3.0	5.6	4.1	3.4	0.4	0.2	0.1	2.0
	%	7	10	6	9	2	3	2	7
Hazel	N	0.1	-	1.3	0.4	-	-	-	0.2
	%	<1	-	2	1	-	-	-	1
Holly	N	0.1	0.4	2.4	0.5	0.1	-	-	0.4
	%	<1	1	4	1	1	-	-	1
Rowan	N	0.2	0.4	2.0	1.8	0.1	-	-	0.6
	%	<1	1	3	5	1	-	-	2
Sycamore	N	2.7	1.8	1.9	0.9	0.1	-	-	0.9
	%	6	3	3	2	1	-	-	3
Willow	N	2.4	1.8	1.9	0.9	0.1	-	-	0.9
	%	6	3	3	2	1	-	-	3

Table 27

The mean number (N) of field boundaries with selected shrub and tree species per 25ha square in the Antrim AONB. Results are also expressed as percentage mean number (%) of each boundary type in combined land classes.

		Blackthorn		Gorse		Hawthorn shrub		Ash		Hawthorn		Rowan		Sycamore		Willow	
		LC1-4	LC5-7	LC1-4	LC5-7	LC1-4	LC5-7	LC1-4	LC5-7	LC1-4	LC5-7	LC1-4	LC5-7	LC1-4	LC5-7	LC1-4	LC5-7
Hedgebank	N	0.5	-	0.6	-	11.1	0.2	3.9	-	1.2	<0.1	0.2	-	1.1	-	0.7	-
	%	4	-	5	-	87	100	30	-	9	11	1	-	8	-	5	-
Hedgerow	N	0.0	-	0.0	-	0.4	<0.1	0.1	-	0.1	-	-	-	<0.1	-	0.1	-
	%	3	-	3	-	71	100	22	-	17	-	-	-	7	-	10	-
Dry stone wall	N	0.2	-	0.1	-	0.4	-	0.4	-	0.3	-	0.1	-	0.1	-	0.1	-
	%	3	-	2	-	6	-	6	-	4	-	1	-	1	-	2	-
Ruined dry stone wall	N	0.4	0.0	0.4	<0.1	0.6	<0.1	1.1	0.1	0.8	<0.1	0.3	<0.1	0.4	<0.1	0.2	-
	%	5	0	4	3	7	1	13	4	10	1	4	1	4	2	2	-
Hedge on wall	N	0.3	-	0.0	-	0.8	<0.1	0.5	-	0.2	-	<0.1	-	0.1	-	0.1	-
	%	22	-	0	-	65	100	40	-	13	-	4	-	9	-	8	-
Earth, wall bank	N	0.1	-	2.8	<0.1	1.2	<0.1	0.9	<0.1	0.9	0.1	0.5	-	0.4	-	0.4	<0.1
	%	1	-	26	3	12	1	8	1	9	11	5	-	4	-	4	1
Post & wire fence	N	-	-	0.2	-	0.2	<0.1	0.1	-	0.1	-	0.1	-	0.1	-	0.1	-
	%	-	-	3	-	2	1	2	-	2	-	1	-	1	-	1	-
TOTAL	N	1.4	-	4.1	<0.1	14.8	0.3	7.0	0.1	3.6	0.2	1.2	-	2.1	-	1.6	-
	%	3	-	9	1	31	4	15	1	8	3	3	-	4	-	3	-

5.6 Comparison with the Mourne AONB.

The proportions of the high quality swards of Italian and perennial ryegrass in the Mourne AONB were much greater (Fig 12). The Antrim AONB was overall, more upland in character, with a high proportion of bog, poor fen and peaty flush vegetation.

Species-rich grasslands and bent/fescue hill pasture were correspondingly more frequent in Antrim and certainly of a higher quality in terms of their greater species diversity. This greater diversity was linked with differences in soil parent rock material.

Mat-grass hill pasture, gorse heath and ericaceous heath were characteristic of the Mourne AONB, but less well represented in Antrim.

There was more coniferous plantation in the Antrim AONB. In comparison with the Mourne AONB, there was almost twice as much post and wire fencing in Antrim but almost two-thirds less maintained dry stone wall. There were more hedgebanks with scattered or overgrown shrubs and earth/wall banks in Antrim and less complete hedgebanks or hedgebanks with gaps compared with the Mourne AONB. Otherwise field boundary types, status and management were similar (Fig. 13).

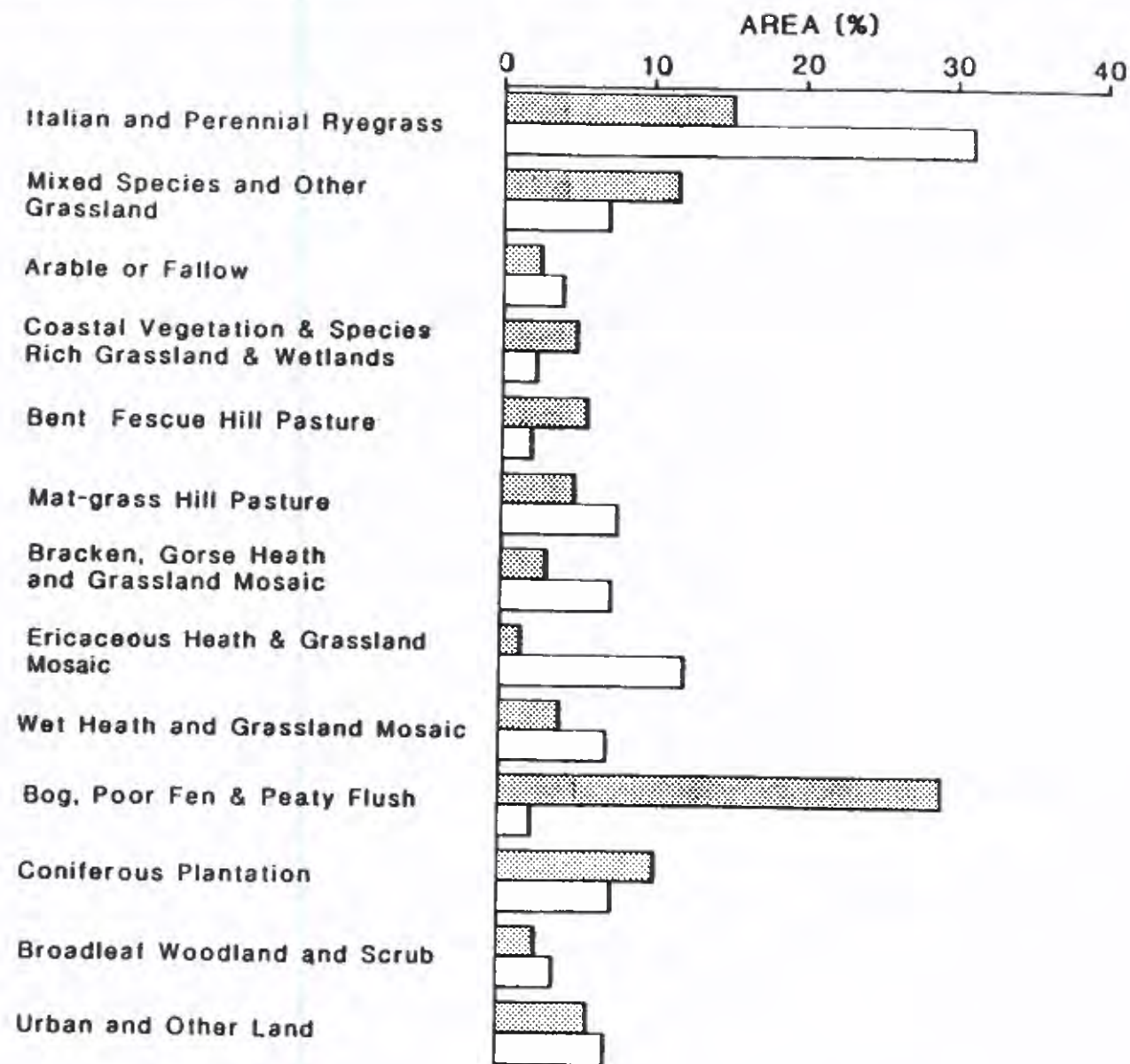


Fig. 12 Percentage area of seminatural vegetation and land use types in the Antrim AONB (▨) and the Mourne AONB (□).

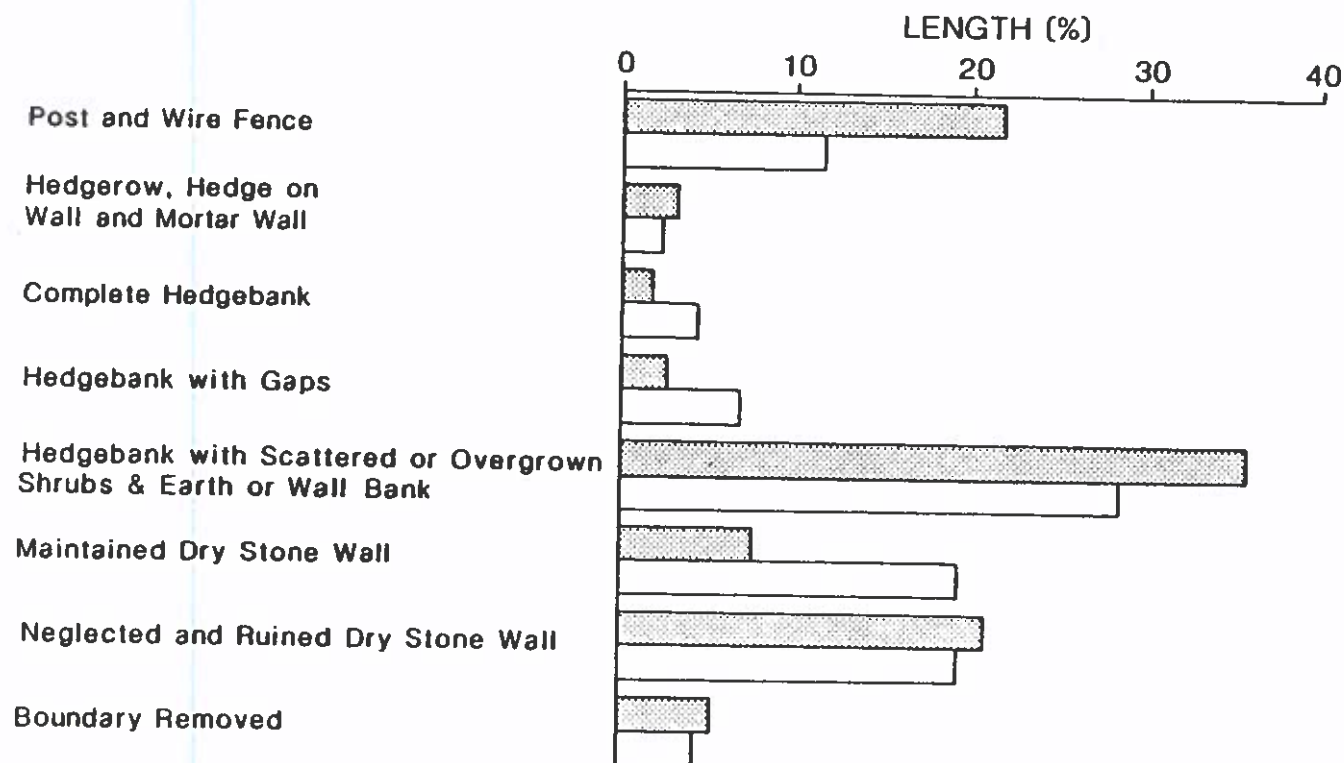


Fig. 13

Percentage length of field boundary types in the Antrim AONB () and the Mourne AONB ().

6. The Causeway Coast AONB

6.1 Sampling considerations

The sampling programme and field survey was completed for the Antrim AONB before a decision was taken to designate the Causeway Coast AONB separately. The Causeway Coast AONB was, therefore, sampled at an intensity in proportion to its fractional area of the Antrim AONB. For this reason, only a brief summary of its ecological and landscape resources will be given, based on the 5 sample squares that fell within its boundaries. Whilst this number is inadequate for detailed description, general comments can be made, based on the land class composition of the area.

Since the Causeway Coast AONB was largely made up of land class 1 (Table 28), comparison with land class 1 of the Antrim Coast & Glens AONB has been carried out to indicate the major differences which exist (Table 29 & 30). One of the sample squares from the Causeway Coast AONB, however, fell in land class 2. Land class 4, around Lannimore hill, was not sampled.

6.2 Ecological and landscape resources

6.2.1 Woodland

Seminatural broadleaf woodland and scrub cover was less in the Causeway Coast AONB (Table 29) but there was more plantation woodland. This amount has probably been overestimated since one sample square fell within the Dundarave estate.

6.2.2 Seminatural vegetation

There was a much greater seminatural vegetation cover in the Causeway Coast AONB, due to the greater extent of the coastal sea cliffs (Table 29). Coastal vegetation was particularly common and other types such as species-rich dry grassland, poor fen, bent/fescue hill pasture, bracken, gorse and ericaceous heath were associated with escarpments on or near the coast. There was usually an abrupt transition between this vegetation and the surrounding, intensively farmed land.

The absence of upland vegetation types highlights the largely lowland nature of the Causeway Coast AONB.

6.2.3 Agriculture

The smaller area of agricultural land when compared with the Antrim Coast & Glens AONB was related to the extensive escarpment topography (Table 29). There was, however, a greater proportion of arable/fallow land in the Causeway Coast AONB. Agricultural land had very little seminatural vegetation outside rock outcrops and their flushes. Also indicating the intensive nature of farming in the area was the smaller representation of mixed and other grassland types.

6.2.4 Field boundaries

Recent field boundary removal had taken place to approximately the same degree as in land class 1 of the Antrim Coast & Glens AONB (Table 30). Earth and wall banks was the predominant field boundary type. There was also a notable amount of post & wire fence and hedgebanks with scattered or

overgrown shrubs. Dry stone walls were infrequently recorded. These observations highlight the exposed, coastal nature of the Causeway Coast AONB.

Table 28 The area and land class composition of the Causeway Coast AONB and Antrim Coast and Glens AONB.

Land Class	Causeway Coast AONB		Antrim Coast and Glens AONB	
	Area (km ²)	(%)	Area (km ²)	(%)
1	32	67	87	12
2	14	29	29	4
3	0	0	86	12
4	2	4	152	21
5	0	0	74	10
6	0	0	210	28
7	0	0	107	14
TOTAL	48	10	740	100

Table 29 Percentage mean area of seminatural vegetation and agricultural land use in the Causeway Coast AONB compared with land class 1 of the Antrim Coast and Glens AONB.

	Causeway Coast AONB	Antrim Coast and Glens AONB
Seminatural broadleaf woodland/scrub	-	1.4
Coniferous plantation	1.8	0.3
Broadleaf/mixed plantation	3.7	1.6
Coastal vegetation	9.6	2.0
Species-rich dry grassland	3.7	1.0
Species-rich wet grassland, reedbeds, fen/swamp, freshwater vegetation	-	2.7
Ruderal vegetation, bracken, gorse heath, ericaceous heath, bent/fescue hill pasture	2.2	9.4
Poor fen, peaty flush	0.7	4.6
Mat-grass hill pasture, wet heath, mixed upland vegetation, bog	-	-
Italian/perennial ryegrass,	29.5	37.9
Mixed species and other agricultural grassland	4.2	28.5
Arable/fallow	17.6	2.9

Table 30 The mean length (km) per kilometre square of field boundaries in the Causeway Coast AONB compared with land class 1 of the Antrim Coast & Glens AONB.

	Boundary Type		Causeway Coast AONB	Antrim Coast & Glens AONB
Boundary removed	1	km %	0.4 2.9	0.7 3.5
	2	km %	0.3 2.4	0.3 1.4
Hedgebank	3	km %	0.1 0.9	0.5 2.7
	4	km %	0.2 1.2	0.8 4.0
	5	km %	0.2 1.1	0.3 1.7
	6	km %	2.6 19.5	4.0 20.1
	7	km %	0.4 3.4	1.3 6.5
Hedgerow	8	km %	0.1 1.1	0.3 1.5
	9	km %	-	0.1 0.5
Dry stone wall	10	km %	-	0.1 0.5
	11	km %	-	0.5 2.6
	12	km %	-	0.1 0.7
Ruined dry stone wall	13	km %	<0.1 0.1	0.6 3.3
	14	km %	0.3 2.6	0.8 4.1
Mortar, concrete, brick wall	15	km %	0.1 0.9	0.2 1.1
	16	km %	0.5 3.6	0.2 1.0
Earth or wall bank	17	km %	3.6 27.4	2.5 12.8
	18	km %	1.4 10.7	2.9 14.5
Post and wire fence	19	km %	3.0 22.3	3.4 17.4
	Total	km %	13.2 100.0	19.7 100

7. Proposed Environmentally Sensitive Area

After the sampling programme and field survey for the Antrim AONB had been carried out, proposals for the designation of an ESA were drawn up by the Department of Agriculture. To help with the decision on its location, a summary of the ecological resources and landscape attributes of two possible areas in the northeast and the south of the Antrim Glens & Coast AONB was prepared. Their boundaries were based on those of the Antrim Coast & Glens AONB and the upper limit of cultivation.

7.1 Land class composition

The South Antrim ESA was 44% larger (Table 31). There were also differences in its land class composition when compared with the northeast. The upland land classes 6 and 7 for instance, were not represented in the Northeast ESA.

The northeastern area was made up primarily of land classes 1 and 4, incorporating the northern glens and coast. In contrast, the south had a much more heterogeneous land class composition.

7.2 Ecological resources and landscape attributes

The South Antrim ESA was more intensively farmed. This was reflected in the much larger cover of ryegrass swards and the smaller areas of mixed and other grassland types in the south (Table 32).

Of the seminatural vegetation types, only ericaceous and wet heaths together with grassland mosaics were more abundant in the south. Species-rich wet grassland, bent/fescue hill pasture, bracken and gorse were all much more extensive in the northeast.

There were similar amounts of neglected and ruined field boundaries in each ESA (Table 32).

The land use was indicative of a more rugged landscape in the northeast with greater dereliction and less intensive farming. This contrasted with the south, where there was more improved land in which seminatural vegetation was more dispersed.

Composition of the North-East Antrim ESA and the South Antrim ESA.

Land Class	North-East ESA		South ESA	
	Area 2 (km)	(%)	Area 2 (km)	(%)
1	54	38	27	13
2	4	3	18	9
3	16	11	57	28
4	53	38	51	25
5	14	10	13	6
6	0	0	29	14
7	0	0	7	3
TOTAL	141	100	202	100

Table 32 The percentage area (A) of landscape ecological resources and length of boundary (L) per kilometre square in the proposed North-East Antrim ESA and South Antrim ESA.

RESOURCE		North East ESA (%)	South ESA (%)
Seminatural broadleaf woodland	A	2.1	2.2
Scrub	A	0.3	1.2
Species-rich dry grassland	A	0.3	0.2
Species rich wet grassland	A	6.5	1.9
Reedbeds, fen and swamp	A	0.4	0.2
Bent/fescue hill pasture	A	13.0	5.2
Bracken	A	4.9	0.7
Gorse	A	4.9	1.1
Ericaceous/wet heath grassland mosaic	A	3.9	7.1
Poor fen, peaty flush	A	6.0	4.7
Wet bog with and without ling heather	A	2.2	1.7
Ryegrass swards	A	14.6	30.3
Mixed species and other agri grassland	A	19.7	12.6
Scat. shrubs, overgrown h, bank+/-P&W.	L	2.1	3.2
Ruined Wall	L	3.1	3.4

8. Management Prescription

Current advisory publications on wildlife and countryside conservation in relation to agriculture and forestry contain much information on management techniques. Rather than review these publications, this section on management prescription concentrates on local issues.

8.1 Woodland

8.1.1 Seminatural woodland and scrub

Seminatural woodland is an attractive landscape element and has a high wildlife conservation value. A high priority should be placed on its restoration. Hazel woods and oak woods in the northern glens and on the steeper escarpments elsewhere are particularly valuable resources.

Management in the short term mainly involves preventing further felling and securing their boundaries against farm stock. The restoration of recently felled woods and former sites by the implementation of broadleaf planting policy could be encouraged. Tree planting, however, in small hazel woods would ultimately lead to a reduction in the species diversity of their ground flora. Coppicing them is more appropriate management technique.

Extensive tree planting in seminatural woods should not be undertaken. Natural regeneration and successional processes will improve the structure and species composition of the woods if they are properly fenced. Associated parcels of land which are infested with bracken might be planted with appropriate native trees, but in neighbouring species-rich

grasslands and meadows, grazing management should take priority over tree planting.

The extension of seminatural woodlands into hill sides, poor fen and stream courses with a relict woodland cover, by limited tree planting and fencing, offers potential.

Clearance of seminatural scrub, particularly on the north coast would have a detrimental effect on the landscape. The character of this part of the area depends partly on rocky escarpments with its associated scrub. Interplanting scrub with broadleaf trees would ultimately have a similar detrimental effect. The sites could be enhanced by planting trees on surrounding agricultural land to mask the often abrupt transition to intensive farmland. Harvesting as coppice stems would be more in character than growing trees to maturity.

In the less farmed glens, scrub encroachment onto poor land is masking field patterns and depleting certain species-rich grassland sites. Halting or reversing this trend is linked to the future of agriculture in these areas, and particularly to the management of field boundaries. Where the probability of agricultural restoration is low, areas of scrub could be the centre for the establishment of broadleaf woodland. Small scale tree planting rather than extensive afforestation is envisaged.

8.1.2 Coniferous plantation

Conifer shelterbelts on marginal farmland and in the uplands, are out of character with the scale of landscape variation. Consideration should be given to modifying their shape and species composition to ameliorate their impact. In the south, beech is a suitable species which has been frequently planted in the past.

There is scope for extending some conifer shelterbelts to link with existing field boundaries or interplanting with broadleaf trees. If planted on farmland next to extensive forests, they would help to mask abrupt or straight boundaries.

In relation to the extensive patterns of hedgebank the functional value of conifer shelterbelts to farm stock seems limited.

Afforestation policy with conifers needs to be modified to take account of the natural beauty of the area. The general principles for establishing conifer plantation which are sympathetic to landscape and wildlife, are well documented. Existing plantations and new programmes both need to be considered. Priority should be given to the conservation of blanket bog and upland raised bog.

There is potential for large-scale afforestation on rush-infested marginal land. Substantial forest productivity is possible but there is a conflict with current landscape and agriculture. Any further increase in agricultural dereliction in these areas is likely to favour the argument for afforestation.

8.1.3 Broadleaf and mixed plantation

Active management to maintain the structure and species composition of these woods is necessary. The removal of Rhododendron particularly and the replacement of sycamore with other native trees where possible, are the two main priorities along with planting and fencing programmes. These operations should encourage natural regeneration.

Management should be geared to stated objectives such as wildlife or landscape conservation, shelter or recreation.

There is much scope for planting farm woods and shelterbelts particularly around farm buildings, but the practical problems of establishing trees at higher elevations or when planting is not normally part of farm operations, are great.

8.2. Seminatural vegetation

8.2.1 Coastal vegetation The high conservation value of the vegetation of coastal cliffs and screes is not threatened and needs little management except at the cliff top where further agricultural reclamation is possible. Wider headlands in agricultural land would be beneficial.

Sand dune and strand vegetation, having lost many of their ecologically interesting plant and animal species, are at further risk from recreation and development.

8.2.2 Species-rich grasslands. Species-rich dry grassland has a high wildlife value but will lose species if invasion by scrub species such as hawthorn, blackthorn, gorse, bramble or bracken is not prevented. Controlled grazing is necessary to

prevent this. Spring grazing should be avoided where there is a woodland herb element present. Species-rich wet grassland has less easily solved management problems. Its quality varies considerably and it is more widespread. Most agricultural operations to increase its productivity result in the loss of species and an increase in dominance of Yorkshire fog, bent and rough-stalked meadow-grass.

Field survey to identify the best examples of species-rich wet grasslands should be carried out. These may deserve special conservation management to maintain them. Otherwise advice to farmers which could enhance species-rich grasslands generally, includes:

- (a) leaving wider headlands/margins at field boundaries,
- (b) avoiding poaching and overgrazing,
- (c) not overwintering stock,
- (d) late rather than early grazing,
- (e) ensuring that field boundaries are stockproof,
- (f) cutting and removing rushes mechanically late in the season.

8.2.3 Wetland. Pollution, eutrophication and rubbish dumping into fen and mainly by farmers, are threats, even on Rathlin Island. The highest priority is for prevention in upland water bodies. The flora of ditches could be enhanced with better management. This is linked to field boundary maintenance.

8.2.4 Hill pastures Bent/fescue hill pasture, can be maintained for agriculture against bracken, gorse or mat-grass invasion with appropriate stocking levels and top dressing. At higher elevation, where there is a heather component, this species could be encouraged by reducing the intensity of grazing. A trend to less intensive farming methods would promote the changes. Reclamation of hill pasture particularly on the better soils of the south, is detrimental if there is a significant amount of heather present. Reclamation also disrupts field patterns, with additional effects on the landscape.

The poor productivity of mat-grass hill pasture suggests that it is not likely to be extensively reclaimed. Restoration for agriculture involving minimal capital investment, for example, by top dressing, subsurface drains and stock control would improve this land without large detrimental effects on the landscape or wildlife. Afforestation is an alternative land use.

8.2.5 Bracken and gorse. Bracken over species-rich dry grassland or as a mosaic can be managed by mechanical cutting or selective herbicide treatment. Where it forms a dominant canopy, an alternative strategy is to establish broadleaf trees. Since bracken is usually confined to steeper sloping land, often with rock outcrops, this would complement the landscape although planting may be difficult.

Similar options are available for gorse management except that it has a landscape value in the spring when it flowers. Succession to woodland may occur if there is a supply of tree seeds for regeneration and if the intensity of grazing is not too great. Burning will also halt succession but can be used as a management tool for gorse control.

8.2.6 Ericaceous heath and wet heath. Ericaceous heath on farmland is in decline at most sites visited and therefore needs to be managed for its heather component if it is not to revert to acid grassland. The reasons for the changes are probably due to overgrazing, poorly-timed burning, differences in soil mineral nutrient status induced, for example, by top dressing. If changes in soil mineral nutrient status affect the mor humus on the surface, it may not be possible to regenerate heather by controlled grazing and burning regimes.

Since ericaceous heath is largely confined to the better soils on the basalts in the south, it may be lost by reclamation.

The wildlife conservation value of wet heath is quite high where it has not been disturbed by peat cutting. Degradation by overgrazing is indicated by the presence of heath rush.

8.2.7 Poor fen. Consideration could be given to planting poor-fen dominated by soft rush or sharp-flowered rush, with birch, alder or willow to diversify their wildlife and landscape interest. Tree planting might be considered as a means of extending streamside woodland into the uplands.

8.2.8 Bog. Mixed upland vegetation and dry bog are integral to the character of the Antrim hills and plateau. Their wildlife value is limited and they are often associated with of derelict agricultural land.

Restoration for hill farming is possible on the better drained, shallow peats, using minimum improvement methods such as surface drains, top dressing and controlled grazing. Subsequent vegetation changes would involve differences in the relative abundance of species, leading to an increase in preferred agricultural grasses. Alternatively, encouragement might be given to cutting peat by hand and by mechanical methods so as to take pressure off the deeper upland peats with a high conservation value.

The area of this peaty vegetation is so great that afforestation would result in extensive landscape change

At lower elevation, the rehabilitation of cut-over lowland raised bog for nature conservation should be encouraged, particularly in land class 3 in the south.

Upland oligotrophic peat, where not planted, drained or cut-over for peat should be set aside for its conservation value. There are a range of vegetation types remaining, representing valuable remnants of formerly more extensive bogs.

Turf cutting and tree planting are the main threats to oligotrophic peats. Whilst afforestation is not considered to be an option at present, peat extraction is popular and likely to remain so. There is the possibility that lower quality peat under secondary vegetation might be exploited in its

place. Efforts should be made to identify these alternative sites. The construction of farm access tracks may lead to further exploitation of currently inaccessible peats and for this reason should be discouraged. They do however, enable easier stock control.

8.3 Agriculture

In those parts of the area where intensive farming predominates, mainly in land class 2, there is little seminatural vegetation and it is usually of low quality. Prescription here is limited to the maintenance and positive rehabilitation, both of fragmentary parcels, particularly riverside woodland and field boundaries.

The large non-vernacular farm buildings, frequent on the better parts of land classes 1-3 are often obtrusive. A tree planting programme would moderate their influence with time.

Reclamation of land is not a major problem except locally in the south and parts of the north east. Land in the south with ericaceous heath and hill pasture, is particularly vulnerable to modern methods of cultivation. Land owners with such grassland and heath are unlikely to forgo reclamation without substantial financial encouragement.

Large field sizes, in quantity, with a bright green colour, have a detrimental effect on landscape quality, especially on peaty soils at higher elevation. Reclamation of peaty soils is not extensive but is often linked with the construction of new farm roads and tracks into hill land giving better access to land classes 5,6 and 7.

Methods of limiting the obtrusive nature of access tracks is needed, for example, by following contours, using the line of older, narrower tracks and tree or hedge planting which match existing patterns of field boundaries. The use of chalk hardcore and concrete should be avoided.

The effects of recent increases in the numbers of sheep are difficult to predict. Detrimental effects on recently managed or regenerating hedges will occur if they are not properly fenced. The influence of sheep on hedges may be greater in the uplands where soil fertility is low and on outfarms where there is a minimum of stock control.

In order to maximise the contribution of the farming community, their skills should be harnessed to the maintenance and enhancement of landscape quality. It is not realistic, for example, to expect that farmers should be able to make and implement decisions on the management of seminatural vegetation. Their greatest contribution is likely to be in field boundary restoration and the implementation of less intensive farming techniques. Special attention to the better habitats on farms might be given through the involvement of a FWAG. The preparation of appropriate management and advisory leaflets is important in this respect. The main interest is in species-rich grasslands, hazel woods, oak woods, heath and bog.

8.4 Dereliction

Agricultural dereliction is widespread in the northern glens. Efforts to improve the poorer agricultural grasslands and hill pastures should be a priority. Help for the farming community is essential if land is not to be abandoned. The scale of agricultural dereliction is so great that measures to maintain landscape attributes should be directly and practically related to the farm regime, for example the maintenance of stockproof field boundaries following existing field patterns.

It is likely that land at higher elevation will remain derelict. Small scale broadleaf farm woods, maximising the potential of natural regeneration may provide an alternative land use which matches the scale of landscape variation.

Large areas of poor, rush infested grassland and poor fen on marginal land in the west are a problem. Some form of economic help for farmers is also needed here if agricultural dereliction is not to increase. This should be linked, as above, with landscape structures.

There is scope for the rehabilitation of derelict farm buildings for stock or the storage of farm materials. Roofing other than corrugated iron is preferable. There are vernacular farm cottages which are still in good condition and which may be suitable for sale or tourist accommodation. These options should be brought to the attention of the owners. Abandoned access tracks to the hills might be opened to facilitate recreation in the area. This could be linked to a programme of field boundary restoration.

8.5 Field boundaries

The high rate of field boundary removal in land class 2 should be halted or reversed if the contrast with other landscape types is not to be made more obvious. In other farmed areas, boundary removal is not so extensive but these are local problems which disrupt field boundary patterns, particularly on ladder farms in the glens.

Tree planting in hedges should only be attempted at low elevation sites away from the coast. It should follow the pattern of local hedge composition and use native species. Beech, however is a popular tree in the south where it could be used as a hedging shrub near farm buildings.

Hedgebank dereliction in the low elevation land classes deserves special attention. Whilst mechanical trimming to a flat top was popular on the larger, more profitable farms, there was little regard for retaining emergent trees, replanting gaps or using hedge shrubs to stockproof the boundary. When overgrown hedges are cut, encouragement should be given to proper laying techniques and protection from grazing animals if they are to regenerate successfully. Ditches alongside hedges should be cleared, with the soil being incorporated into the hedge bank. It is important that any dry stone structures associated with the hedge are properly rebuilt.

Species-rich hedgebanks, however, should not be extensively rebuilt since this would deplete their species composition. Further research is needed on their management. Hedges and banks along public roads and hedges with double walls are particularly valuable for wildlife. Wide headlands/margins alongside these field boundaries would be appropriate.

At higher elevation, hedges become less important and are replaced largely by earth or wall banks. These have accumulated shrub and tree species naturally but they can be confused with neglected hedgebanks and impart a derelict aspect to the landscape. They could be supplemented with trees to improve their shelter value and increase their diversity. Other management could include attention to accompanying ditches. This would improve land drainage and contribute to the value of the bank as a stockproof barrier.

Earth and wall banks are an important landscape attribute in coastal areas where they often support gorse. Little else will grow where exposure is so great and there is no real point in any tree planting programme. Effort should be concentrated on maintaining the bank structure and protecting against overgrazing and poaching.

Dry stone walls are usually much less substantial than, for example, in the Mourne AONB. As a result, post and wire fencing is integral to maintaining them as stock-proof barriers. Hedgebanks and earth banks often have a dry stone component which is in need of extensive rebuilding. This is an enormous problem in marginal farmland.

Post and wire fences have taken over the functional role of stockproofing field boundaries in the area. Their siting, if considered in relation to associated field boundary structures, can be beneficial to wildlife and landscape. For example, if positioned to the side rather than on top of an earth bank or next to an associated ditch, a fence can restrict access by farm stock and prevent damage by overgrazing. New post and wire fences are obtrusive in the uplands where they can be seen on the plateau from a long way. The provision of stiles would facilitate access and be beneficial to farmers in terms of protecting fences from walkers.

9. References

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Appendix 1. Field data recording sheets.

This grid reference, page 99, has been removed to preserve the confidentiality of the sample square locations.

UNIVERSITY OF ULSTER

March 1987

ANTRIM AONB LANDSCAPE ECOLOGICAL STUDY

FIELD DATA SHEET

O.S. Grid Ref

[REDACTED]

Antrim Land Class No.

1/76

Field Sample Square No.

5

Date

9/4/87

Surveyor

RM

TYPE	
1.	Broadleaf woodland, seminatural
2.	Broadleaf woodland, plantation
3.	Coniferous woodland, seminatural
4.	Coniferous woodland, plantation
5.	Mixed woodland, seminatural
6.	Mixed woodland, plantation
7.	Dense scrub
8.	Scattered scrub
9.	Parkland
10.	Scattered/isolated trees
11.	Lines of trees

LANDSCAPE		
12.	Riverside	18. Flat
13.	Field	19. Sloping
14.	Farm buildings	20. Steep
15.	Roadside	21. Hill top
16.	Damside	22. Escarpment
17.	Coast	23. Valley bottom

STRUCTURE	
24.	Woodland height 0-1m
25.	1-3m
26.	3-10m
27.	>10m

GROUND FLORA	
28.	Species-rich ground flora
29.	Species-poor ground flora
30.	Grass dominated flora
31.	Other

Landclass - /
Square - 5

Par	Area (ha)	Type	Land		Str	Gro flo	Soil	Manag.				Undrst.				Regen.				Trees				
			1	2				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5
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GRASSLAND	
1.	Species-rich dry grassland
2.	Species-rich wet grassland
3.	Bent/fescue hill pasture
4.	Mat grass hill pasture
5.	Molinia grassland
6.	Calcareous grassland
HEATH	
7.	Corse heath-continuous
8.	-scattered
9.	Ericaceous heath
10.	Wet heath
11.	Lichen/bryophyte heath
12.	Dry heath/grassland mosaic
13.	Wet heath/grassland mosaic
MIRE	
14.	Wet bog
15.	Dry bog
16.	Poor fen/peaty flush
17.	Reedbeds
18.	Fen/swamp
19.	Freshwater vegetation
COASTAL	
20.	Intertidal
21.	Saltmarsh
22.	Shingle gravel/ridge
23.	Strandline
24.	Fore-dune
25.	Dune grassland
26.	Dune heath
27.	Dune scrub
28.	Bird cliff vegetation
29.	Crevices/ledge vegetation
30.	Cliff top grassland
31.	Cliff top heathland
TALL HERB/FERN	
32.	Bracken - continuous
33.	- scattered
34.	Ruderal
35.	Other

Landclass - /
Square - 5

Par	Area (ha)	Type	Struct.				Manag.				Species			
			1	2	3	4	1	2	3	4	1	2	3	4
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- TYPE
1. Boundary removed
 2. Hedge bank
 3. Hedgerow
 4. Dry stone wall (old)
 5. Dry stone wall (new)
 6. Ruined dry stone wall
 7. Mortar/brick/concrete wall
 8. Hedge on wall
 9. Stone heap
 10. Earth bank
 11. Wood post and wire fence
 12. Other fence

- STRUCTURE
13. Boundary with gaps
 14. Boundary with filled gaps
 15. Boundary complete
 16. Hedge with scattered shrubs
 17. Hedge with overgrown shrubs
 18. With wood post and rail fence
 19. With other fence
 20. Species rich
 21. Permanently wet ditch
 22. Seasonally wet ditch
 23. Managed
 24. Trees 2-5m
 25. Trees > 5m

Landclass - /
Square - 5

Par	Len	Type	Struct					Shrubs			Trees		Trees	
	m		1	2	3	4	5	1	2	3	2-5m	>5m		
1	25	7	13											
2	20	2	16											
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Par	Len	Type	Struct					Shrubs			Trees		Trees	
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AGRICULTURE

- CROPS
1. Wheat
 2. Barley
 3. Oats
 4. Potatoes
 5. Brassicas
 6. Legumes
 7. Italian ryegrass
 8. Perennial ryegrass
 9. Mixed species
 10. Ploughed/fallow
 11. Other grassland

- HORTICULTURE
12. Orchard
 13. Soft fruit
 14. Vegetables
 15. Flowers
 16. Other

- MANAGEMENT/STRUCTURE
17. Conservation hay/silage
 18. Grazed
 19. Reclamation
 20. Rush infested
 21. Weed infested (broadleaf)
 22. Drainage
 23. Neglected
 24. New sown
 25. Erosion

- FARM ANIMALS
25. Store cattle
 26. Dairy cattle
 27. Suckler Cattle
 28. Sheep
 29. Donkey
 30. Other animals

Landclass - /
Square - 5

Par	Area	Type	Man/		Cattle		Shp	Oth anim	
	(ha)		struct		Typ	No.	No.	Typ	No.
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Par	Area	Type	Man/		Cattle		Shp	Oth anim	
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- URBAN-RURAL ARTEFACTS
1. Urban area
 2. New urban
 3. New domestic building
 4. New agricultural building
 5. New metalled road
 6. New unmetalled road
 7. Silo 35, Other new buildings

- DERELICTION
8. Derelict farm building (vernacular)
 9. Derelict modern building
 10. Derelict industrial building
 11. Abandoned road/track
 12. Old railway
 13. Domestic rubbish
 14. Commercial rubbish
 15. Litter
 16. Spoil
 17. Abandoned vehicles
 18. Land fill
 19. Bare/disturbed ground
 20. Quarry- used
 21. disused

- RECREATION
22. Recreation trails/parks
 23. Path/track erosion
 24. Managed footpath
 25. Land erosion
 26. Amenity grassland
 27. Caravan park/camping
 28. Other artefact

- EXPOSURE
29. Sea Cliff
 30. Inland Cliff
 31. Scree
 32. Rock outcrops
 33. Surface borders
 34. River bank canalised

Landclass - /
Square - 5

Par	Area (ha)	U-R Type	Dereltn				Recrtn				Expos			
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3.2 Vegetation types, land use, landscape attributes, field boundaries and descriptors

3.2.1 Woodland

1. Type

Seminatural broadleaf woodland: woodland which has not been planted and where conifers comprise <10% of trees. Scrub is excluded.

Scrub: immature seminatural broadleaf woodland and shrub cover. The main species are european gorse, hawthorn or blackthorn. The category includes both dense and scattered scrub but excludes gorse scrub without trees.

Coniferous plantation: planted stands with uniform age structure primarily (90%) of conifer species. Sites include new plantings and mature plantations.

Broadleaf plantation: planted stands with <10% conifers.

Mixed plantation : planted stands comprising 10-90% broadleaf or conifer species.

Scattered, isolated or lines of trees: trees occurring singly or in short lengths (<10m), one tree wide.

Seminatural coniferous woodland, seminatural mixed woodland and parkland were not recorded.

2. Structure

Height: mean height of woodland canopy.

3. Ground flora

Species-rich: high plant diversity, particularly of forbs.

4. Management

Unenclosed: open to farmstock on at least one side.

3.2.2 Seminatural vegetation

1. Type

Coastal vegetation: saltmarsh, shingle gravel/ ridge, strandline, fore dunes, dune grassland, dune scrub, bird cliff vegetation, crevice/ledge vegetation and cliff top grassland/vegetation with maritime species.

Species-rich dry grassland: unimproved grassland, moderately well drained and forb-rich where ryegrass species are absent. The grasses crested dogstail, bent and fescue are usually conspicuous.

Species-rich wet grassland: unimproved, poorly drained grassland containing soft rush or compact rush. The forbs include creeping buttercup, yellow flag, meadowsweet, marsh marigold, and lesser celandine. The grasses rough stalked meadow grass, yorkshire fog and bent are also usually present.

Ruderal vegetation: vegetation associated with disturbed or waste ground.

Reedbeds, Fen/swamp and Freshwater vegetation: vegetation of waterlogged nutrient-rich soils. Reedbeds were recorded infrequently and mainly comprise stands of common reed. Sweet-grass, marsh horsetail, yellow flag and brooklime are common components of fen/swamp. Many parcels are located in ditches or small hollows. Freshwater vegetation was recorded less frequently than fen/swamp and contained a range of species. Watercress in particular, is not uncommon.

Bent/fescue hill pasture: moderately well-drained grassland where bent and fescue are dominant. Sweet vernal-grass, Yorkshire fog and smooth-stalked meadow-grass are common components on wetter soils and crested dog's tail on drier soils.

Mat-grass hill pasture: grassland where mat-grass is dominant. Species associated with bent/fescue hill pasture frequently occur as do species of rush.

Bracken: areas where bracken is dominant or more dispersed but invading other vegetation types principally grassland. The category combines continuous and scattered bracken recorded on data sheets.

Gorse: areas where european gorse is dominant or more dispersed but invading other vegetation types principally grassland. The category combines continuous and scattered gorse recorded on the data sheets.

Ericaceous heath and ericaceous heath/grassland mosaic: mainly ling heather in association with bilberry and bell heather or ling heather forming a mosaic with bent/fescue hill pasture. The category also includes dwarf gorse/ling heath as found on Rathlin Island. It is located mainly on drier, exposed slopes.

Wet heath and wet heath/grassland mosaic: mainly ling heather in association with bilberry and purple moor-grass or ling heather forming a mosaic with mat-grass hill pasture. Cotton-grasses and bog-moss are usually present but not dominant. Also included under this heading is the small quantity of purple moor-grass heath that was found.

Dry bog: less wet peat comprising bog-moss and usually polytrichum together with grasses such as mat-grass or wavy hair-grass. Species of rush and the cotton-grasses are also common components.

Mixed upland vegetation: comprising primarily bilberry, Polytrichum, heath rush, compact rush, soft rush, mat-grass or fescue on moderately wet sites, usually with shallow peat.

Poor fen/peaty flush: waterlogged peat comprising sharp-flowered rush and/or sedges. Drier sites also have grasses such as sweet vernal-grass, fescue or mat-grass. Wetter more acidic sites contain bog-moss and Polytrichum but may be species-rich at lower elevation.

Wet bog with ling heather: waterlogged peat comprising bog moss, cotton grasses and ling heather as dominants. Cross-leaved heath and bilberry are common components.

Wet bog without ling heather: waterlogged peat comprising bog-moss and cotton-grasses or bog-moss and compact rush as dominants. The latter occurs in flushes and hollows although not exclusively so.

2. Structure

Mosaic: vegetation containing patches of different species or vegetation types.

3.2.3 Field boundaries

Boundary removed: boundaries shown as present on the 1:10,000 O.S. maps but absent at the time of survey.

Hedge: a linear boundary comprising shrubs.

Hedgebank: a hedge associated with either an earth bank or a wall bank.

Hedgerow: a hedge not associated with a bank.

Stockproof hedge: a complete hedge with no gaps.

Hedge with gaps: a hedge with gaps forming <10% of its length.

Scattered shrubs: a hedge with gaps forming >10% of its length. It is generally not stockproof unless the gaps have been filled with wire strands or miscellaneous items.

Overgrown shrubs: a hedge with shrubs >2m tall and gaps between adjacent individuals, especially near the base. It is also generally not stockproof.

Managed hedge: a hedge with signs of recent cutting or trimming.

Dry stone wall: a stone wall constructed without mortar.

Maintained dry stone wall: a complete wall with less than 2 gaps or gaps forming <5% of its length.

Dry stone wall with gaps: an otherwise maintained wall with more than 2 gaps or >5% of its length with gaps.

Ruined dry stone wall: a mainly derelict wall with no agricultural function.

Hedge on wall: a hedge planted on top of a dry stone wall.

Mortar, brick or concrete wall: a stone wall constructed with mortar or made from brick or concrete.

Bank: an earth bank or an earth bank with a dry stone component on one side with no accompanying shrubs.

Post and wire fence: mainly comprising fences of wood post and wire but also concrete post and wire alone or in association with other boundary types.

3.2.4 Agricultural Land

1. Type

Italian/perennial ryegrass: relatively recently sown grassland with these species.

Perennial ryegrass: grassland in which perennial ryegrass is dominant.

Mixed species grassland: long-established grassland comprising various forbs and grass species especially crested dog'stail and usually but not always some perennial ryegrass.

Other grassland: occurs on less well drained soils or shallow peat. The main species are common foxtail, sweet vernal-grass, rough-stalked meadow-grass, creeping bent and in some instances timothy. Many swards are deteriorated leys.

Arable and fallow land: Mainly barley and potatoes with some brassicas. A small proportion of land had no grass or crop.

2. Management/Structure

Reclamation: reseeding or cultivation of seminatural vegetation.

Rush/weed infested: species ubiquitous and forming major component of sward.

Drainage: either open or closed drains.

Neglected: under-utilized, rank vegetation.

3.2.5 Landscape

Urban area and domestic building: land forming part of towns or areas developed for housing other than isolated groups which comprise rural domestic buildings.

Derelict building: unmaintained and not used for its primary purpose.

Rubbish, litter, spoil, abandoned vehicles: sites of artefact.

Appendix 3. The computer data base.

The field data is stored in the form of dBASE III PLUS (Ashton-Tate 1985) data base files on floppy disks. These are suitable for use on an IBM personal computer or some compatible machine. The files, together with the field data sheets, are held by the Department of Environmental Studies, University of Ulster and the Countryside and Wildlife Branch, Department of the Environment for Northern Ireland. Each main resource type described on the data sheet is held on a separate disk as follows:

<u>Disk Number</u>	<u>Resource</u>	<u>Data base file (.dbf)</u>
1	Woodland	Anwood.dbf
2	Seminatural vegetation	Ansemin.dbf
3	Field Boundaries	Anbound.dbf
4	Agriculture	Anagric.dbf
5	Landscape attributes	Anlandsc.dbf

Data base fields and numeric codes are detailed on the field data sheet in Appendix 1. All records are indexed in numerical order by landclass, square number and parcel number with the index file LCSQPA.ndx.

A report form file (LCSQ.frm) groups records separately by landclass and square number and lists data from specified fields either on screen or to the printer when used with the dBASEIII software.

For users without dBASEIII, the data files are in ASCII format, leaving open the option for using them on some other system.

Appendix 4 Species codes used on the field data sheets and common and botanical names of plant species recorded in the text. Species with no code are mentioned in the text but were not recorded as dominants on the data sheets.

Code	Common Name	Botanical Nomenclature
Alg	Alder	<i>Alnus glutinosa</i>
Fre	Ash	<i>Fraxinus excelsior</i>
Fas	Beech	<i>Fagus sylvatica</i>
Erc	Bell heather	<i>Erica cinerea</i>
Ags	Bent	<i>Agrostis</i> spp.
Vam	Bilberry	<i>Vaccinium myrtillus</i>
Bep	Birch (woodland)	<i>Betula</i> spp.
Loc	Birdsfoot trefoil	<i>Lotus corniculatus</i>
Prs	Blackthorn	<i>Prunus spinosa</i>
Fus	Bladderwrack	<i>Fucus</i> spp.
Hns	Bluebell	<i>Hyacinthoides non-scriptus</i>
Myg	Bog myrtle	<i>Myrica gale</i>
Sps	Bog-moss	<i>Sphagnum</i> spp.
Met	Bogbean	<i>Menyanthes trifoliata</i>
Pta	Bracken	<i>Pteridium aquilinum</i>
Ruf	Bramble	<i>Rubus fruticosus</i>
Ruo	Broad-leaved dock	<i>Rumex obtusifolius</i>
Veb	Brooklime	<i>Veronica beccabunga</i>
	Bulbous buttercup	<i>Ranunculus bulbosus</i>
Vis	Bush vetch	<i>Vicia sepium</i>
	Carnation-grass	<i>Carex panicea</i>
Raf	Celandine	<i>Ranunculus ficaria</i>
Prl	Cherry laurel	<i>Prunus laurocerasus</i>
Dag	Cocksfoot	<i>Dactylis glomerata</i>
Tuf	Coltsfoot	<i>Tussilago farfara</i>
Alp	Common foxtail	<i>Alopecurus pratensis</i>
Phc	Common reed	<i>Phragmites australis</i>
Coo	Common scurvey-grass	<i>Cochlearia officinalis</i>
Ers	Cotton-grass	<i>Eriophorum angustifolium/vaginatum</i>
Ans	Cow parsley	<i>Anthriscus sylvestris</i>
Rar	Creeping buttercup	<i>Ranunculus repens</i>
Cyc	Crested dogstail	<i>Cynosurus cristatus</i>
Ert	Cross-leaved heath	<i>Erica tetralix</i>
Emn	Crowberry	<i>Empetrum nigrum</i>
Chs	Cypress	<i>Chamaecyparis/Cupressocyparis</i> spp.
Bep	Daisy (seminatural vegetation)	<i>Bellis perennis</i>
Scc	Deer-grass	<i>Scirpus caespitosus</i>
Vir	Dog violet	<i>Viola riviniana</i>
Ulg	Dwarf gorse	<i>Ulex gallii</i>
Orm	Early purple orchid	<i>Orchis mascula</i>
San	Elder	<i>Sambucus nigra</i>
Uls	Elm	<i>Ulmus</i> spp.
Ule	European gorse	<i>Ulex europaeus</i>
Euo	Eyebright	<i>Euphrasia</i> spp.
	False oat-grass	<i>Arrhenatherum elatius</i>

Code Common Name

Botanical Nomenclature

Fes Fescue
 Luc Field rush
 Mys Forget-me-not
 Fum Fuchsia
 Lio Garden privet
 Pra Gean
 Abg Giant fir
 Lus Great-wood rush
 Sev Groundsel
 Harebell
 Crm Hawthorn
 Coa Hazel
 Gas Heath bedstraw
 Jns Heath rush
 Dam Heath spotted orchid
 Ger Herb Robert
 Ila Holly
 Aeh Horse chestnut
 Eqs Horsetail
 Lom Italian ryegrass
 Cen Knapweed
 Alv Lady's mantle
 Crp Lady's smock
 Las Larch
 Arm Lesser burdock
 Rnf Lesser spearwort
 Cls Lichen
 Tis Lime
 Cav Ling heather
 Pic Lodgepole pine
 Aum Lords and Ladies
 Pes Lousewort
 Dfm Male fern
 Ama Marram-grass
 Ptp Marsh cinquefoil
 Marsh horsetail
 Cap Marsh marigold
 Hyv Marsh pennywort
 Nas Mat-grass
 Lap Meadow vetchling
 Fiu Meadowsweet
 Pov Milkwort
 Ara Monkey-puzzle tree
 Cum Monterey cyprus
 Pnr Monterey pine
 Poc Moss
 Rhs Moss
 Bra Moss

Festuca spp.
 Luzula campestris
 Myosotis spp.
 Fuchsia magellanica
 Ligustrum ovalifolium
 Prunus avium
 Abies grandis
 Luzula sylvatica
 Senecio vulgaris
 Campanula rotundifolia
 Crataegus monogyna
 Corylus avellana
 Galium saxatile
 Juncus squarrosus
 Dactylorhiza maculata
 Geranium robertianum
 Ilex aquifolium
 Aesculus hippocastanum
 Equisetum spp.
 Lolium multiflorum
 Centaurea nigra
 Alchemilla vulgaris
 Cardamine pratensis
 Larix spp.
 Arctium minus
 Ranunculus flammula
 Cladonia spp.
 Tilia spp.
 Calluna vulgaris
 Pinus contorta
 Arum maculatum
 Pedicularis sylvatica
 Dryopteris filix-mas
 Ammophila arenaria
 Potentilla palustris
 Equisetum palustre
 Caltha palustris
 Hydrocotyle vulgaris
 Nardus stricta
 Lathyrus pratensis
 Filipendula ulmaria
 Polygala vulgaris
 Araucaria araucana
 Cupressus macrocarpa
 Pinus radiata
 Polytrichum commune
 Rhytidiadelphus spp.
 Brachythecium albicans

Code Common Name

Botanical Nomenclature

Hys Moss
 Ras Moss
 Tht Moss
 Urd Nettle
 Pia Norway spruce
 Qus Oak
 Lop Perennial ryegrass
 Pignut
 Pos Poplar
 Prv Primrose
 Liv Privet
 Moc Purple moor-grass
 Trp Red clover
 Pha Reed canary-grass
 Rhp Rhododendron
 Pll Ribwort plantain
 Epa Rose-bay willow-herb
 Pot Rough-stalked meadow-grass
 Soa Rowan
 Pus Saltmarsh-grass
 Sae Sanicle
 Pns Scot's pine
 Hir Sea buckthorn
 Cas Sedge
 Jua Sharp flowered/jointed rush
 Pea Silverweed
 Pis Sitka spruce
 Pop Smooth-stalked meadow-grass
 Sym Snowberry
 Aml Snowy mespil
 Brh Soft brome
 Jus Soft rush/compact rush
 Nos Southern beech
 Spring sedge
 Eus Spurge
 Stag's horn clubmoss
 Csa Sweet chestnut
 Ano Sweet vernal-grass
 Gls Sweet-grass
 Acp Sycamore
 Cis Thistle
 Php Timothy
 Poe Tormentil
 Dec Tufted hair-grass
 Nao Water cress
 Oes Water dropwort
 Mea Water mint
 Apa Water plantain

Hylocomium splendens
 Rhacomitrium lanuginosum
 Thuidium tamariscinum
 Urtica dioica
 Picea abies
 Quercus spp.
 Lolium perenne
 Conopodium majus
 Populus spp.
 Primula vulgaris
 Ligustrum vulgare
 Molinia caerulea
 Trifolium pratense
 Phalaris arundinacea
 Rhododendron ponticum
 Plantago lanceolata
 Epilobium angustifolium
 Poa trivialis
 Sorbus aucuparia
 Puccinellia spp.
 Sanicula europaea
 Pinus sylvestris
 Hippophae rhamnoides
 Carex spp.
 Juncus acutiflorus/articulatus
 Potentilla anserina
 Picea sitchensis
 Poa pratensis
 Symphoricarpos rivulare
 Amelanchier laevis
 Bromus hordeaceus
 Juncus effusus/conglomeratus
 Nothofagus spp.
 Carex caryophylla
 Euphorbia spp.
 Lycopodium clavatum
 Castanea sativa
 Anthoxanthum odoratum
 Glyceria spp.
 Acer pseudoplatanus
 Cirsium spp.
 Phleum pratense
 Potentilla erecta
 Deschampsia caespitosa
 Nasturtium officinale
 Oenanthe spp.
 Mentha aquatica
 Alisma plantago-aquatica

Code	Common Name	Botanical Nomenclature
Vaa	Water speedwell	Veronica anagallis-aquatica
Def	Wavy hair-grass	Deschampsia flexuosa
Thp	Western red cedar (woodland)	Thuja plicata
Tho	White cedar	Thuja occidentalis
Trr	White clover	Trifolium repens
Sea	White stonecrop	Sedum album
Sra	Whitebeam	Sorbus aria
Alu	Wild garlic	Allium ursinum
Ros	Wild rose	Rosa canina/tomentosa
Thp	Wild thyme (seminatural vegetation)	Thymus praecox
Sas	Willow	Salix spp.
Ann	Wood anemone	Anemone nemorosa
Tes	Wood sage	Teucrium scorodonia
Oxa	Wood sorrel	Oxalis acetosella
Acm	Yarrow	Achillea millifolium
Irp	Yellow flag	Iris pseudacorus
Rhm	Yellow rattle	Rhinanthus minor
Tab	Yew	Taxus baccata
Hol	Yorkshire fog	Holcus lanatus

Appendix 5. Comparison of the Antrim AONB and NCC (Phase I) habitat classifications.

Antrim AONB classification

1. Woodland

Seminatural broadleaf- Same as the NCC classification woodland.

Scrub - Corresponds to scrub in the NCC classification. *Ulex europaeus* stands without scattered trees are classified as gorse heath under seminatural vegetation in the AONB classification.

Coniferous plantation

Broadleaf plantation - Same as the NCC classification

Mixed plantation

Scattered, isolated, and lines of trees - Corresponds to parkland scattered trees in the NCC classification. The AONB category includes lines of trees. No parkland was recorded in the AONB survey.

2. Seminatural vegetation

Coastal vegetation - Same as the coastland categories in the NCC classification.

Species-rich dry grassland - Probably would be included as unimproved neutral grassland in the NCC classification. The AONB category is delimited by soil drainage and a richness of species, particularly forbs.

Species-rich wet grassland	- Would be included as marsh/marshy grassland in the NCC classification. Our definition is more precise: the category includes parcels with <u>Juncus effusus</u> and <u>J. conglomeratus</u> , with <u>Filipendula ulmaria</u> and other wetland forbs. It excludes those parcels primarily comprising <u>Juncus squarrosus</u> , <u>J. articulatus/acutiflorus</u> or <u>Carex</u> spp. Parcels with these species would be more commonly classified under poor fen/peaty flush. The NCC <u>Molinia</u> grassland is combined with wet heath in the AONB classification.
Ruderal vegetation	- Incorporates tall ruderal other tall herb and fern categories with ephemeral/short perennial vegetation in the cultivated/disturbed ground category in the NCC classification.
Reedbeds, fen and swamp	- Same as the swamp, marginal and inundation categories in the NCC classification.
Bent/fescue hill pasture	- Would be included as unimproved or semi-improved acidic grassland in the NCC classification. Definition in the AONB classification is based primarily on the presence of <u>Agrostis</u> and <u>Festuca</u> spp.

Mat-grass hill pasture	- Would be included as unimproved or semi-improved acidic grassland in the NCC classification. Its definition in the AONB classification is based primarily on the presence of <u>Nardus stricta</u> .
Bracken	- Same as the NCC classification.
Gorse heath	- Would be included as woodland scrub in the NCC classification.
Ericaceous heath and grassland mosaic	- Same as the dry dwarf shrub heath and dry heath/acidic grassland mosaic in the NCC classification.
Wet heath and grassland mosaic	- Same as the wet dwarf shrub heath and the wet heath/acidic grassland and the wet heath/acidic grassland mosaic in the NCC classification. <u>Molinia caerulea</u> is much less abundant in the AONB than <u>Eriophorum</u> spp.
Dry bog	- No corresponding category in the NCC classification. Generally comprising heterogeneous secondary peat communities.
Mixed upland vegetation	- No corresponding category in the NCC classification. Generally comprising transition communities between hill pasture and poor-fen or bog.
Poor fen and peaty flush	- Parcels containing <u>Juncus acutiflorus/articulatus</u> and <u>Carex</u> spp. would be included with marsh/marshy grassland in the NCC classification.
Wet bog with ling heather	- Same as <u>Sphagnum</u> bog in the NCC classification.
Wet bog without ling heather	- Same as <u>Sphagnum</u> bog, valley mire or acidic flush in the NCC classification.

These grid references, page 125, have been removed to preserve the confidentiality of the sample square locations.

Class	Sample No.	N. Ireland O.S. Land Class Grid Ref. Number
** Antrim Land Class 5		
5	46	20
5	47	20
5	48	20
5	49	20
5	50	20
5	51	20
5	52	20
5	53	20
5	54	20
5	55	20
** Antrim Land Class 6		
6	56	22
6	57	22
6	58	22
6	59	22
6	60	22
6	61	22
6	62	22
6	63	22
6	64	22
6	65	22
6	66	22
6	67	22
6	68	22
6	69	22
6	70	22
** Antrim Land Class 7		
7	71	23
7	72	23
7	73	23
7	74	23
7	75	23
7	76	23
7	77	23
7	78	23
7	79	23
7	80	23
7	81	23
7	82	23
7	83	23
7	84	23
7	85	23

Appendix 7.

Types of data, statistics and sampling considerations

The resources recorded, cover a wide range of types, differing in terms of their frequency, amount, distribution pattern and complexity. With such variation, a sampling programme designed to estimate less common resource types to within the usually accepted confidence limits would be too great in terms of cost efficiency. The problems of undersampling or oversampling certain resources cannot be solved but their relative effects can be rationalised in terms of the objectives of the work and the constraints imposed by cost and time. Sampling at an intensity of 2.8% cover reflects our attempts at the rationalisation process.

The large numbers of zero entries in the data set and certain other intrinsic properties of the data mean that many resources have a positively skewed distribution. It is therefore inappropriate to calculate standard deviations to summarise variability. Quartiles have been presented for each resource type (Tables 33-37) to indicate dispersion within the data set. The lower quartile point is commonly zero. The quartile points can be used in conjunction with the mean values given in the main body of the report to assess resource abundance.

Running means of the data have also been prepared (Tables 38-42). These show reasonably, that for most of the resource types, means reach a fairly constant value in each land class at the given levels of sampling intensity.

Few unreliable estimates of resources have been noticed during the course of the work. Resources with a clumped distribution, i.e. occurring primarily in one locality, can lead to undersampling or oversampling. Coniferous plantation in land class 5, primarily associated with Ballypatrick Forest, was undersampled (none of our sample squares was located in this forest). In contrast, ericaceous heath in land class 3, associated with the southwest of the AONB, was probably overestimated (one square had a large proportion of heath).

Validation of the estimates of coniferous plantation predicted from the sampling programme has been carried out against independent full cover survey data sets provided by the Forest Service (Department of Agriculture). The total predicted area of coniferous plantation is within approximately 3% of the actual value (Table 43). Estimates for land classes 1-4 are particularly good but in land class 5 there is a large discrepancy. The reasons for this relate to the small size of the land class and the clumping of the resource around Ballypatrick forest.

Comparison of deciduous woodland estimates with those given by Tomlinson, Butcher and Kerr (1987) in a full cover survey of the AONB, has also been made. The following points should be considered when drawing comparisons:

1. The categories of woodland types differ between the two surveys.
2. Relatively small areas and numbers of woodland sites are involved.

Tomlinson et al (1987) recorded a total of 7.11 km² of woodland, excluding state forests, farm trees and scrub but including parkland. This figure represented approximately 1% of the AONB. It compares with our predicted total of 2% (16.8km²) or 2.5% (20.7km²) if small parcels of seminatural scrub are included. Differences may be explained partly by the fact that the land classification study took into account small and fragmented parcels of woodland not normally represented on maps and woodland which had regenerated since O.S. maps were surveyed.

Since none of the agricultural districts for which the Department of Agriculture provides production statistics, correspond to the boundaries of the AONB, comparisons have not been drawn.

Table 33 The upper (U) and lower (L) quartile values of the percentage area of woodland in the 25ha sample squares of the Antrim AONB.

		Land Class							AONB
		1	2	3	4	5	6	7	
Seminatural broadleaf woodland	U	1.2	1.9	1.0	1.9	1.3	0	-	0.3
	L	0	0	0	0	0	0	-	0
Scrub	U	1.0	1.0	1.0	0.5	0.4	0	-	0.4
	L	0	0	0	0	0	0	-	0
Coniferous plantation	U	0.2	0	0	1.7	0	58.7	0	0.4
	L	0	0	0	0	0	0	0	0
Broadleaf plantation	U	1.2	1.8	0	0	0	0	-	0
	L	0	0	0	0	0	0	-	0
Mixed plantation	U	0	-	0	0	0	-	0	0
	L	0	-	0	0	0	-	0	0

Tables 34 The upper (U) and lower (L) quartile values of the percentage area of seminatural vegetation in the 25ha sample squares of the Antrim AONB.

		Land Class							AONB
		1	2	3	4	5	6	7	
Coastal vegetation	U	14.1	-	-	0	-	-	-	0
	L	0	-	-	0	-	-	-	0
Species rich dry grassland	U	0.8	0.8	0.4	0.2	0	-	-	0.2
	L	0	0	0	0	0	-	-	0
Species-rich wet grassland	U	3.0	3.0	10.3	3.0	13.0	0	0	2.2
	L	0	0	1.2	0	0	0	0	0
Ruderal vegetation	U	0.1	0.2	0.7	0	0	0	0	0
	L	0	0	0	0	0	0	0	0
Reedbeds, fen & swamp, freshwater veg.	U	0.3	0.4	0.8	0	0	0	-	0.1
	L	0	0	0	0	0	0	-	0
Bent/fescue hill pasture	U	2.6	2.1	20.0	21.2	10.6	1.2	0	5.2
	L	0	0	0	1.9	1.0	0	0	0
Mat-grass hill pasture	U	-	-	0	2.4	21.9	1.0	7.8	0.7
	L	-	-	0	0	0	0	0	0
Bracken	U	0.4	-	0	4.6	4.1	0	-	0
	L	0	-	0	0	0	0	-	0
Gorse heath	U	1.1	0.7	1.1	5.4	1.6	-	-	0.5
	L	0	0	0	0	0	-	-	0
Ericaceous heath & grassland mosaic	U	0	-	0	0.3	0	0	0	0
	L	0	-	0	0	0	0	0	0
Wet heath & grassland mosaic	U	-	-	0	0.9	9.6	4.8	0	0
	L	-	-	0	0	0	0	0	0
Dry bog	U	-	-	1.0	10.6	14.1	12.5	9.3	7.6
	L	-	-	0	0	2.4	0	0	0
Mixed upland vegetation	U	-	-	-	0	17.0	0	0	0
	L	-	-	-	0	0	0	0	0
Poor fen/peaty flush	U	0	-	2.0	11.4	16.8	7.0	4.5	5.6
	L	0	-	0	0	0	0	0	0
Wet bog with ling heather	U	-	-	0	0	10.6	44.0	97.1	6.8
	L	-	-	0	0	0	0	0	0
Wet bog without ling heather	U	-	-	0	1.6	11.6	4.0	24.2	0.8
	L	-	-	0	0	0	0	0	0

Table 35 The upper (U) and lower (L) quartile values of the percentage area of agricultural land in the 25ha sample squares of the Antrim AONB.

		Land Class							AONB
		1	2	3	4	5	6	7	
Italian/perennial ryegrass	U	2.3	15.1	0	-	-	0	-	0
	L	0	3.9	0	-	-	0	-	0
Perennial ryegrass	U	44.2	71.2	70.1	7.7	1.6	0	0	28.0
	L	6.2	41.2	1.9	0	0	0	0	0
Mixed species grassland	U	25.6	8.4	10.6	22.6	9.8	-	-	4.6
	L	0	0.3	0	0	0	-	-	0
Other grassland	U	15.6	9.6	5.4	12.5	1.0	0	0	4.0
	L	0	0	0	0	0	0	0	0
Arable crops	U	6.1	8.0	5.9	0	0	-	-	0
	L	0	0	0	0	0	-	-	0

Table 36 The upper (U) and lower (L) quartile values of the number of abandoned vehicles, derelict buildings and rubbish/litter, the length of abandoned roads/tracks (km) and the area of bare/disturbed ground (km²) in the 25ha sample squares of the Antrim AONB.

		Land Class							AONB
		1	2	3	4	5	6	7	
Abandoned vehicles	U	0	4	5	4	4	-	-	0
	L	0	0	0	0	0	-	-	0
Derelict buildings	U	8	2	5	4	4	0	0	0
	L	0	0	0	0	0	0	0	0
Rubbish/litter	U	8	14	4	4	1	0	0	4
	L	0	0	0	0	0	0	0	0
Abandoned roads/tracks	U	0	0.9	0.2	-	-	0	-	0
	L	0	0	0	-	-	0	-	0
Bare/disturbed ground	U	0.5	1.5	0.6	0	-	0	0	0
	L	0	0.2	0	0	-	0	0	0

Table 37 The upper (U) and lower (L) quartile values of the length of field boundaries (km) in 25ha sample squares of the Antrim AONB.

		Land Class							AONB
Boundary Type		1	2	3	4	5	6	7	
1	U	1.0	5.5	1.4	1.1	0.4	0	0	1.2
	L	0	0.5	0.2	0	0	0	0	0
2	U	0.2	1.3	0.6	0	-	-	-	0
	L	0	0.7	0	0	-	-	-	0
3	U	0.5	0.5	0	0	-	-	-	0
	L	0	0	0	0	-	-	-	0
4	U	1.0	1.1	0.7	0	-	-	-	0
	L	0	0	0	0	-	-	-	0
5	U	0.4	0.5	0.4	0	0	-	-	0
	L	0	0	0	0	0	-	-	0
6	U	3.8	10.8	3.0	1.8	0	-	-	1.8
	L	0	0	1.1	0	0	-	-	0
7	U	2.0	3.3	2.0	0.5	0	-	-	0.4
	L	0	0	0	0	0	-	-	0
8	U	0.1	0.6	0.2	0.2	-	-	0	0
	L	0	0	0	0	-	-	0	0
9	U	0	0.7	2.3	0.3	0	0	-	0
	L	0	0	0	0	0	0	-	0
10	U	0	6.7	5.3	0	0	0	-	0
	L	0	0	0	0	0	0	-	0
11	U	0.5	0.2	1.5	0.6	0	0	0	0
	L	0	0	0	0	0	0	0	0
12	U	0	1.6	1.7	0	-	0	0	0
	L	0	0	0	0	-	0	0	0
13	U	0.8	1.0	3.4	2.5	1.4	0	0	1.0
	L	0	0	0.4	0	0	0	0	0
14	U	1.2	2.2	4.4	4.2	3.7	0.5	0	1.7
	L	0	0	0.8	0	0	0	0	0
15	U	0.5	0.3	0	0	-	0	-	0
	L	0	0	0	0	-	0	-	0
16	U	0	2.8	0.8	0.2	-	0	-	0
	L	0	0	0	0	-	0	-	0
17	U	3.8	2.9	4.4	3.6	2.7	0.6	0	2.5
	L	0.3	0.1	0.2	0.8	0	0	0	0
18	U	1.3	0.4	1.4	5.6	0.8	0.1	0	1.1
	L	0	0	0	1.0	0	0	0	0
19	U	4.5	2.5	4.0	3.6	4.6	2.3	3.2	3.5
	L	1.9	1.5	0.8	1.8	1.5	0	0	1.2

Table 38 Running means of percentage area of woodland with increase in sample size in the 7 land classes and Antrim AONB.

Broadleaf seminatural woodland								Scrub							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.8	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.2	0.0	0.0	0.0	0.1
0.0	0.0	0.4	0.9	0.0	0.0	0.0	0.2	2.3	0.0	0.4	0.3	0.0	0.0	0.0	0.4
0.0	0.3	0.3	0.6	0.7	0.0	0.0	0.2	1.5	0.0	0.2	0.2	0.5	0.5	0.0	0.5
0.0	0.9	1.4	0.5	0.6	0.0	0.0	0.4	1.1	0.5	0.9	0.2	0.4	0.4	0.0	0.5
0.0	0.9	1.1	0.4	0.4	0.0	0.0	0.3	0.8	0.4	0.8	0.1	0.3	0.4	0.0	0.4
0.1		0.9	0.3	3.4	0.0	0.0	0.5	0.6		0.8	0.1	0.2	0.4	0.0	0.3
1.5		0.9	0.8	3.0	0.0	0.0	0.8	0.7		0.7	0.1	0.4	0.3	0.0	0.4
1.6		1.0	0.7	2.7	0.0	0.0	0.8	0.7		0.8	0.5	0.4	0.3	0.0	0.4
1.8		0.9	1.1	2.4	0.0	0.0	1.0	0.7		0.7	0.5	0.3	0.2	0.0	0.4
1.5		0.8	3.7	2.1	0.0	0.0	1.3	0.6		0.6	1.0	0.3	0.2	0.0	0.5
1.4			3.4		0.0	0.0	1.2	0.8			0.9		0.2	0.0	0.5
1.4			3.1		0.0	0.0	1.2	0.7			0.8		0.2	0.0	0.4
1.4			3.0		0.0	0.0	1.1	0.7			1.3		0.2	0.0	0.5
1.3			2.8		0.0	0.0	1.2	0.7			1.2		0.2	0.0	0.5
1.3			2.6		0.0	0.0	1.0	0.8			1.2		0.1	0.0	0.5
1.2							1.0	0.7							0.5
1.1							1.0	0.7							0.5

Coniferous plantation								Broadleaf plantation							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	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	33.8	0.0	9.0	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	52.8	0.0	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.7	0.1	0.0	0.0	0.0	39.6	0.0	10.9	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	43.4	0.0	11.9	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.8
1.7		0.0	14.6	0.0	42.6	11.8	16.0	4.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6
1.4		0.0	12.5	0.3	36.5	10.1	13.7	3.5		0.0	0.0	0.0	0.0	0.0	0.5
1.2		0.0	11.1	0.3	32.0	8.9	12.0	2.9		0.0	0.0	0.0	0.0	0.0	0.4
1.2		0.0	10.0	0.2	28.4	7.9	10.7	2.5		0.0	0.0	0.0	0.0	0.0	0.4
1.0		0.0	9.2	0.2	31.9	7.1	11.4	2.4		0.0	0.1	0.0	0.0	0.0	0.4
1.0		10.7			29.0	6.5	10.8	2.1		0.1	0.0	0.0	0.0	0.0	0.3
1.0		9.8			26.6	5.9	9.9	1.9		0.7		0.0	0.0	0.0	0.4
1.0		9.0			24.7	5.5	9.2	3.1		0.8		0.0	0.0	0.0	0.6
0.9		8.4			23.0	5.1	8.6	3.0		0.7		0.0	0.0	0.0	0.6
0.8		7.8			27.4	10.0	10.3	2.9		0.7		0.0	0.0	0.0	0.6
0.8							10.3	2.6		0.6		0.0	0.0		0.5
0.7							10.3	2.5							0.5
							10.3	2.4							0.5

Mixed plantation							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2
0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1
0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.1
0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1
0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1
0.5	0.0	0.7	0.0	0.0	0.0	0.0	0.2
0.4		2.0		0.0	0.0	0.0	0.5
1.6		1.9		0.0	0.0	0.0	0.6
1.4		1.8		0.0	0.0	0.0	0.6
1.3		2.1		0.0	0.0	0.0	0.6
1.2		1.5		0.0	0.2	0.5	0.5
1.2						0.5	0.5
1.1						0.5	0.5

Table 39 Running means of percentage area of seminatural vegetation with increase in sample size in the 7 land classes and Antrim AONB.

Coastal vegetation								Species rich dry grassland							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
39.5	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1
24.3	0.0	0.0	0.0	0.0	0.0	0.0	3.7	12.8	0.0	0.0	0.2	0.0	0.0	0.0	2.0
22.3	0.0	0.0	0.0	0.0	0.0	0.0	3.4	8.6	0.4	0.0	0.1	0.0	0.0	0.0	1.3
14.3	0.0	0.0	0.0	0.0	0.0	0.0	2.2	5.5	0.3	0.0	0.1	0.0	0.0	0.0	0.9
10.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6	4.1	0.4	0.0	0.1	0.0	0.0	0.0	0.7
8.4		0.0	0.0	0.0	0.0	0.0	1.3	3.2		0.5	0.1	0.0	0.0	0.0	0.6
6.9		0.0	0.0	0.0	0.0	0.0	1.0	2.7		0.5	0.1	0.1	0.0	0.0	0.5
6.0		0.0	0.0	0.0	0.0	0.0	0.9	3.2		0.5	0.1	0.1	0.0	0.0	0.6
6.7		0.0	0.0	0.0	0.0	0.0	1.0	3.0		0.4	0.4	0.1	0.0	0.0	0.6
5.9		0.0	0.5	0.0	0.0	0.0	1.0	2.7		0.4	0.4	0.0	0.0	0.0	0.5
5.2			0.5		0.0	0.0	0.9	2.5			0.3		0.0	0.0	0.5
4.7			0.4		0.0	0.0	0.8	2.4			1.3		0.0	0.0	0.7
4.3			0.4		0.0	0.0	0.7	2.2			1.2		0.0	0.0	0.6
4.0			0.4		0.0	0.0	0.7	2.0			1.1		0.0	0.0	0.6
3.7			0.4		0.0	0.0	0.6	1.8			1.0		0.0	0.0	0.5
4.4							0.7	1.8							0.5
4.4							0.7	1.7							0.5

Species rich wet grassland								Ruderal vegetation							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	16.2	3.0	8.2	0.0	0.3	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	19.1	2.0	7.4	0.0	0.2	3.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
0.0	0.0	14.9	1.7	16.1	0.0	0.1	3.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
0.0	1.5	12.3	1.3	12.1	0.0	0.1	2.8	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
0.0	1.2	10.1	1.0	9.7	0.0	0.1	2.3	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
0.3		9.3	0.9	8.2	0.0	0.1	2.1	0.0		0.3	0.0	0.0	0.0	0.0	0.0
1.7		9.2	0.9	7.1	0.0	0.0	2.2	0.0		0.3	0.0	0.0	0.0	0.0	0.0
1.8		8.7	1.5	6.3	0.0	0.0	2.2	0.0		0.4	0.0	0.0	0.0	0.0	0.1
1.8		7.7	4.9	5.6	0.0	0.0	2.7	0.0		0.4	0.0	0.0	0.0	0.0	0.1
1.8		7.0	4.4	8.3	0.0	0.0	2.7	0.1		0.3	0.0	0.0	0.0	0.0	0.1
1.6			4.0		0.0	0.0	2.6	0.2		0.3	0.0	0.0	0.0	0.0	0.1
1.4			4.2		0.2	0.0	2.7	0.5			0.1		0.0	0.0	0.1
1.6			3.9		3.4	0.2	3.5	0.4			0.0		0.0	0.0	0.1
1.8			3.6		3.1	0.2	3.5	0.4			0.0		0.0	0.0	0.1
2.1			3.4		3.0	0.2	3.4	0.3			0.0		0.0	0.1	0.1
2.0							3.4	0.3							0.1
1.9							3.4	0.3							0.1

Reedbeds, fen & swamp								Bent/fescue hill pasture							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	35.1	1.3	0.0	13.3	8.7
0.1	0.0	1.4	0.1	0.0	0.0	0.0	0.2	1.6	0.0	24.1	23.6	5.8	0.0	6.6	8.9
0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.1	2.8	0.0	24.2	17.6	5.4	0.0	4.4	7.6
0.2	0.2	0.7	0.0	0.0	0.0	0.0	0.1	1.8	1.0	19.2	18.5	6.9	1.2	3.3	7.5
0.3	0.1	0.6	0.0	0.0	0.0	0.0	0.1	1.3	0.8	19.1	15.6	5.5	1.0	2.7	6.5
0.3		0.8	0.0	0.0	0.0	0.0	0.1	1.1		16.1	13.2	7.9	0.8	2.2	5.8
0.2		0.7	0.0	0.0	0.0	0.0	0.1	1.0		13.8	17.3	7.8	0.7	1.9	6.3
0.2		0.6	0.0	0.0	0.0	0.0	0.1	1.3		12.1	18.5	7.9	0.6	1.7	6.3
0.2		0.6	0.0	0.0	0.0	0.0	0.1	1.3		10.8	17.2	7.0	2.2	1.5	6.2
0.2		0.5	0.0	0.0	0.0	0.0	0.1	1.1		9.7	15.5	7.3	2.0	1.3	5.7
0.1		0.0			0.0	0.0	0.1	1.0			14.2		1.8	1.2	5.4
0.1		0.0			0.0	0.0	0.1	0.9			13.4		1.7	1.2	5.2
0.1		0.0			0.0	0.0	0.1	0.8			13.0		2.4	1.3	5.3
0.1		0.0			0.0	0.0	0.1	0.7			12.2		2.2	1.2	5.5
0.1		0.0			0.0	0.0	0.1	0.7			14.4		2.4	1.1	5.5
0.2							0.1	1.9							5.7
0.3							0.1	1.9							5.7

Mat-grass hill pasture

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	7.5	0.0	1.0	18.6	4.1
0.0	0.0	0.0	3.8	0.0	0.5	9.3	2.1
0.0	0.0	2.7	2.5	0.0	0.3	6.2	1.7
0.0	0.0	2.0	1.9	0.0	1.4	4.6	1.5
0.0	0.0	1.6	1.5	0.0	1.1	3.7	1.2
0.0		1.3	1.4	0.0	0.9	3.1	1.1
0.0		1.1	1.2	0.3	0.8	5.4	1.3
0.0		1.0	1.3	9.4	0.7	5.7	2.2
0.0		0.9	1.2	18.6	2.1	5.3	3.3
0.0		0.8	2.5	17.2	1.9	4.8	3.3
0.0			2.3		7.7	4.7	4.8
0.0			2.1		7.1	10.9	5.4
0.0			2.0		6.6	10.3	5.2
0.0			2.3		6.1	9.6	5.0
0.0			2.2		5.7	9.0	4.8
0.0							4.8
0.0							4.8

Gorse heath

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	1.1	3.7	0.0	0.0	0.0	0.8
0.3	0.0	0.6	7.6	0.0	0.0	0.0	1.6
0.2	0.2	0.4	5.0	3.1	0.0	0.0	1.4
0.1	0.4	1.6	5.2	2.3	0.0	0.0	1.4
0.1	0.3	1.4	4.4	1.8	0.0	0.0	1.2
0.4		1.2	3.7	1.6	0.0	0.0	1.1
0.5		1.1	3.9	2.1	0.0	0.0	1.2
0.7		1.1	3.5	1.9	0.0	0.0	1.1
1.7		1.0	3.1	1.6	0.0	0.0	1.1
1.5		0.9	2.8	1.5	0.0	0.0	1.0
1.3			2.5		0.0	0.0	1.0
1.2			2.3		0.0	0.0	0.9
1.1			2.7		0.0	0.0	1.0
1.0			2.5		0.0	0.0	0.9
1.0			2.6		0.0	0.0	0.9
0.9							0.9
2.1							1.1

Wet heath & grassland mosaic

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	3.4	0.0	48.6	0.0	13.6
0.0	0.0	0.0	1.7	0.0	26.7	0.0	7.4
0.0	0.0	0.0	1.1	0.0	17.8	0.0	5.0
0.0	0.0	0.0	0.8	1.7	13.4	0.0	3.9
0.0	0.0	0.9	7.6	15.6	10.7	0.0	5.9
0.0		0.7	6.5	16.1	8.9	0.0	5.2
0.0		0.6	5.6	13.8	10.9	0.0	5.4
0.0		0.6	4.9	12.1	11.3	1.2	5.3
0.0		0.5	4.3	10.7	10.1	1.1	4.7
0.0		0.4	3.9	9.7	9.1	1.0	4.3
0.0			3.5		8.3	0.9	4.0
0.0			3.3		7.7	0.8	3.7
0.0			3.0		7.1	0.7	3.5
0.0			6.2		6.6	0.7	4.0
0.0			5.8		6.1	1.1	3.9
0.0							3.9
0.0							3.9

Bracken

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
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	0.1
0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
0.3	0.0	0.0	0.2	1.0	0.0	0.0	0.2
0.2	0.0	0.1	1.6	0.8	0.0	0.0	0.4
0.2		0.1	1.4	1.5	0.0	0.0	0.4
0.1		0.1	1.8	2.7	0.0	0.0	0.6
0.7		0.1	1.6	2.4	0.0	0.0	0.7
0.7		0.1	2.2	2.1	5.0	0.0	2.1
0.6		0.1	2.1	1.9	4.5	0.0	1.9
0.5			1.9		4.1	0.0	1.7
0.5			1.7		3.7	0.0	1.6
0.4			1.6		3.5	0.0	1.5
0.4			1.8		3.2	0.0	1.5
0.4			2.1		3.0	0.0	1.5
1.1							1.5
2.8							1.6
							1.8

Ericaceous heath & grassland mosaic

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3
1.6	0.0	0.0	0.5	0.0	0.0	0.0	0.3
1.0	0.0	0.0	1.5	0.0	0.0	0.0	0.5
0.8	0.0	11.2	1.2	0.0	0.0	0.0	1.6
0.6		9.3	1.0	0.0	0.0	0.0	1.3
0.5		8.0	0.9	0.0	0.0	0.0	1.1
0.4		7.0	0.8	0.3	0.0	0.0	1.0
0.4		6.2	0.7	0.3	0.8	0.0	1.1
0.4		5.6	0.6	0.3	0.7	0.0	1.0
0.3			0.6		0.7	0.0	1.0
0.3			0.5		1.3	0.0	1.1
0.3			0.5		1.2	0.0	1.1
0.2			0.7		1.1	0.0	1.1
0.2			0.7		1.1	0.0	1.1
0.5							1.1
0.9							1.2

Dry bog

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	1.1	23.2	20.8	0.0	52.2	13.4
0.0	0.0	0.6	14.1	22.2	0.7	26.9	8.6
0.0	0.0	8.6	33.2	14.8	1.4	19.0	11.7
0.0	0.0	6.7	25.2	11.1	20.0	14.7	13.9
0.0	0.0	5.3	22.3	9.6	16.0	11.8	11.6
0.0		4.5	18.6	8.5	15.2	9.8	10.2
0.0		3.8	15.9	8.8	14.3	15.7	10.2
0.0		3.3	17.9	9.2	14.7	15.5	10.7
0.0		3.0	15.9	8.9	13.5	14.8	9.8
0.0		2.7	14.3	8.8	12.2	13.4	8.9
0.0			13.0		13.7	12.1	8.9
0.0			11.9		12.9	11.1	8.3
0.0			11.0		11.9	10.8	7.8
0.0			10.6		11.9	10.0	7.3
0.0			9.9		11.3	9.4	7.3
0.0							7.3
0.0							7.3

Mixed upland vegetation

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
0.1	0.0	0.0	3.2	0.0	0.0	0.0	0.6
0.0	0.0	0.0	6.8	0.0	0.0	0.5	1.4
0.0	0.0	0.0	5.1	3.7	0.0	0.4	1.4
0.0	0.0	0.0	10.6	2.9	0.0	0.3	2.4
0.0		0.0	8.8	7.7	0.0	0.3	2.5
0.0		0.0	7.6	10.1	1.4	0.2	2.8
0.0		0.0	6.6	8.8	1.3	0.2	2.5
0.0		0.0	5.9	7.8	1.1	0.2	2.2
0.0		0.0	5.3	7.1	1.0	0.2	2.0
0.0			4.8		0.9	0.1	1.9
0.0			4.4		0.9	0.1	1.8
0.0			4.1		0.8	1.0	1.8
0.0			3.8		0.8	1.0	1.7
0.0			3.5		0.7	0.9	1.7
0.0							1.7
0.0							1.7

Wet bog with ling heather

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	44.0	0.0	11.7
0.0	0.0	0.0	0.0	1.0	32.2	49.4	15.1
0.0	0.0	0.0	0.0	0.7	22.6	60.7	13.9
0.0	0.0	0.0	0.2	2.2	16.9	70.1	13.8
0.0	0.0	0.1	0.8	3.9	21.7	56.4	13.6
0.0		0.1	0.6	3.3	26.1	51.8	14.1
0.0		0.0	0.5	5.2	30.1	44.5	14.4
0.0		0.0	0.5	4.5	32.6	42.9	14.7
0.0		0.0	0.4	4.0	29.0	43.6	13.8
0.0		0.0	0.4	3.6	28.5	48.5	14.2
0.0			0.3		25.9	52.9	14.1
0.0			0.3		24.3	48.5	13.1
0.0			0.3		22.4	44.8	12.1
0.0			0.5		25.4	44.7	13.0
0.0			0.5		23.7	41.8	12.1
0.0							12.1
0.0							12.1

Poor fen/peaty flush

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
32.9	0.0	2.4	18.2	12.3	0.0	10.6	11.3
16.1	0.0	2.2	29.5	7.8	0.0	5.3	9.9
10.7	0.0	1.4	20.2	18.0	0.0	3.5	7.9
6.9	0.0	3.4	15.1	13.5	1.8	2.6	6.5
5.1	0.0	2.8	12.2	10.8	1.4	2.1	5.1
4.0		2.3	10.2	9.0	1.2	1.8	4.2
3.5		2.0	8.8	10.0	1.1	5.1	4.3
3.0		1.8	9.0	8.8	1.0	4.7	4.1
2.9		1.6	8.0	7.9	2.5	4.2	4.1
2.5		1.4	7.2	9.0	2.7	4.2	4.1
2.2			6.6		2.7	3.8	3.8
2.0			8.4		3.9	5.1	4.7
1.8			8.2		4.1	5.1	4.6
1.7			7.6		4.3	4.7	4.4
1.6			7.8		4.0	4.4	4.4
1.9							4.5
1.9							4.5

Wet bog without ling heather

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	11.2	5.1	0.0	2.4
0.0	0.0	0.1	0.0	33.8	2.6	0.0	3.9
0.0	0.0	0.1	1.2	22.5	1.7	3.8	3.3
0.0	0.0	0.0	0.9	18.8	1.3	2.9	2.7
0.0	0.0	0.1	1.5	17.6	1.0	22.0	5.1
0.0		0.1	1.5	14.7	0.9	18.3	4.3
0.0		0.1	1.3	12.7	0.8	16.5	3.8
0.0		0.1	1.1	11.3	2.8	18.6	4.4
0.0		0.1	1.0	10.0	2.5	20.2	4.4
0.0		0.1	0.9	9.0	2.6	18.3	4.1
0.0			0.8		2.4	16.7	3.8
0.0			0.8		2.3	15.3	3.6
0.0			0.7		2.1	16.0	3.6
0.0			0.8		3.1	14.8	3.6
0.0			0.6		2.9	13.8	3.6
0.0							3.6
0.0							3.6

Table 40 Running means of percentage area of Agricultural land with increase in sample size in the 7 land classes and Antrim AONB.

Italian/perennial ryegrass								Perennial ryegrass							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	11.2	0.0	0.1	0.0	0.0	0.0	0.6	0.0	62.2	36.0	0.0	8.6	0.0	3.2	8.6
0.1	7.7	0.0	0.1	0.0	0.0	0.0	0.4	6.7	56.8	18.0	0.7	4.3	0.0	1.6	6.9
0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.6	18.8	50.0	21.9	1.8	4.7	0.0	1.1	8.9
0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.5	12.1	49.0	30.6	6.0	6.4	0.0	0.8	9.7
0.0	7.6	0.0	0.0	0.0	0.0	0.0	0.4	20.6	55.3	24.5	4.8	5.2	0.0	0.6	10.3
0.0		3.0	0.0	0.0	0.0	0.0	0.8	29.1		20.8	5.3	4.3	0.0	0.5	11.2
1.4		2.5	0.0	0.0	0.0	0.0	0.9	31.6		29.6	4.5	3.7	0.0	0.5	12.3
1.2		4.1	0.0	0.0	0.0	0.0	1.1	30.1		31.5	4.9	3.2	0.0	0.4	12.3
1.2		3.6	0.0	0.0	0.0	0.0	1.0	29.1		35.4	4.3	2.9	0.0	0.4	12.5
1.0		3.2	0.0	0.0	0.0	0.0	0.9	29.0		40.6	7.2	2.6	0.0	0.3	13.5
0.9			0.0		0.0	0.0	0.9	30.4			6.6		0.0	0.3	13.6
0.8			0.0		1.2	0.0	1.2	32.6			6.4		0.5	0.3	14.0
1.2			0.0		1.1	0.0	1.2	34.5			6.1		0.8	0.2	14.4
1.8			0.0		1.0	0.0	1.3	33.9			5.7		0.7	0.2	14.2
2.5			0.0		0.9	0.0	1.4	34.3			5.9		0.7	0.2	14.2
2.4							1.4	32.9							14.0
2.2							1.4	31.5							13.8

Mixed species grassland								Other agricultural grassland							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	1.6	8.6	5.6	30.7	0.0	0.0	5.0	0.0	0.8	0.0	3.4	0.0	0.0	0.0	0.7
12.3	2.5	14.0	9.8	15.4	0.0	0.0	6.9	0.0	0.4	0.0	2.2	0.0	0.0	0.0	0.5
8.2	1.8	9.3	6.6	10.3	0.0	0.0	4.6	0.0	0.3	0.0	1.8	0.0	0.0	0.0	0.4
5.3	4.7	7.1	14.4	16.8	0.0	0.0	6.2	0.0	4.8	0.0	1.4	0.0	1.4	0.0	0.9
8.8	3.8	6.9	11.6	13.5	0.0	0.0	5.8	0.0	3.9	0.0	1.1	0.0	1.1	0.0	0.7
12.7		7.0	9.7	11.2	0.0	0.0	5.8	0.0		9.2	0.9	0.0	0.9	0.0	1.6
11.3		6.0	11.9	9.6	0.0	0.0	5.8	2.7		8.5	1.8	0.6	0.8	0.0	2.2
17.1		5.6	10.4	8.4	0.0	0.0	6.2	2.6		8.5	1.6	0.5	0.7	0.0	2.1
16.2		6.8	11.7	7.5	0.0	0.0	6.4	2.5		7.8	3.2	0.4	0.6	0.0	2.3
17.7		6.1	10.5	7.0	0.0	0.0	6.3	6.6		7.0	2.9	1.9	0.5	0.0	2.9
16.8			10.4		0.0	0.0	6.1	7.2			2.6		0.5	0.0	2.9
15.1			11.4		0.0	0.0	6.1	6.7			4.4		3.5	0.0	3.9
14.1			12.3		0.0	0.0	6.1	8.0			5.4		5.8	3.4	5.4
15.9			11.4		0.0	0.0	6.2	8.6			5.0		5.4	3.2	5.3
15.0			11.1		0.0	0.0	6.0	10.6			5.5		5.0	3.0	5.6
14.4							5.9	10.2							5.5
14.5							5.9	9.5							5.4

Arable crops							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	6.6	25.6	0.0	0.0	0.0	0.0	3.2
0.0	21.2	12.8	0.0	0.0	0.0	0.0	2.6
0.0	23.5	8.7	0.0	0.0	0.0	0.0	2.2
23.5	17.7	6.6	0.0	0.0	0.0	0.0	5.2
20.4	14.1	5.2	0.0	0.0	0.0	0.0	4.4
16.1		4.4	0.0	0.0	0.0	0.0	3.7
13.6		3.9	0.0	0.0	0.0	0.0	3.3
11.9		4.4	0.0	0.0	0.0	0.0	3.0
11.2		4.5	0.0	0.0	0.0	0.0	3.0
9.8		4.0	0.0	0.3	0.0	0.0	2.7
8.7			0.0		0.0	0.0	2.6
8.8			0.3		0.0	0.0	2.6
8.0			0.3		0.0	0.0	2.5
7.3			0.5		0.0	0.0	2.5
7.1			0.5		0.0	0.0	2.4
6.8							2.4
6.9							2.4

increase in sample size in the 7 land classes and Antrim AONB. Number of sites per square kilometre: abandoned vehicles; derelict buildings; disposed rubbish/litter. Length (km) per square kilometre: abandoned roads/tracks. Percentage area: Bare/disturbed ground.

Sites of abandoned vehicles								Derelict buildings							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.8
0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.7	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.5
0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.4	0.0	1.3	0.0	1.3	1.3	0.0	0.0	0.5
0.0	1.0	3.0	0.0	1.0	0.0	0.0	0.5	2.9	1.0	4.0	1.0	1.0	0.0	0.0	1.2
0.0	1.6	2.4	0.0	0.8	0.0	0.0	0.4	5.3	0.8	3.2	0.8	0.8	0.0	0.0	1.4
0.0		2.7	0.7	0.7	0.0	0.0	0.6	5.0		3.3	0.7	1.3	0.0	0.0	1.4
0.0		2.9	1.7	1.1	0.0	0.0	0.8	4.1		2.9	4.0	2.9	0.0	0.0	2.0
0.0		3.5	1.5	2.0	0.0	0.0	1.0	4.2		3.0	3.5	2.5	0.0	0.0	1.9
1.1		3.6	2.2	1.8	0.0	0.0	1.3	4.6		3.6	3.6	2.2	0.0	0.0	2.0
2.0		3.2	2.0	1.6	0.0	0.0	1.3	4.0		3.2	3.6	2.0	0.0	0.0	1.9
1.8			1.8		0.0	0.0	1.2	3.6			3.3		0.0	0.0	1.8
1.6			1.7		0.0	0.0	1.2	3.2			3.0		0.0	0.0	1.7
1.8			1.8		0.0	0.0	1.2	2.9			2.8		0.3	0.0	1.6
1.7			1.7		0.0	0.0	1.2	3.3			2.6		0.3	0.0	1.7
1.5			1.6		0.0	0.0	1.1	3.1			2.4		0.3	0.3	1.6
1.5							1.1	3.0							1.6
1.7							1.2	3.3							1.7

Sites of rubbish/litter								Length of abandoned road/track							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	8.0	0.0	0.0	4.0	0.0	0.0	0.8	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.1
0.0	4.0	2.0	0.0	2.0	0.0	0.0	0.6	0.0	0.9	0.3	0.0	0.0	0.0	0.0	0.1
2.2	9.3	1.3	0.0	1.3	0.0	0.0	1.1	0.0	0.6	0.2	0.0	0.0	0.0	0.0	0.1
2.9	7.0	1.0	1.0	1.0	0.0	0.0	1.2	0.0	0.4	0.3	0.0	0.0	0.2	0.0	0.1
6.3	6.4	0.8	0.8	0.8	0.8	0.0	1.8	0.0	0.4	0.2	0.0	0.0	0.1	0.0	0.1
9.2		1.3	0.7	0.7	1.3	0.0	2.4	0.0		0.2	0.0	0.0	0.1	0.0	0.1
9.0		1.1	0.6	1.1	1.1	0.0	2.4	0.0		0.2	0.0	0.0	0.1	0.0	0.1
7.8		2.0	0.5	1.0	1.0	0.0	2.2	0.0		0.2	0.0	0.0	0.1	0.0	0.1
9.7		1.8	0.4	0.9	0.9	0.0	2.4	0.0		0.1	0.0	0.0	0.1	0.0	0.1
9.0		1.6	0.8	0.8	0.8	0.0	2.3	0.0		0.1	0.0	0.0	0.1	0.0	0.0
8.4			1.1		0.7	0.0	2.3	0.1		0.0			0.1	0.0	0.1
7.6			1.3		0.7	0.0	2.2	0.2		0.0			0.1	0.0	0.1
6.9			1.5		0.6	0.0	2.1	0.1		0.0			0.0	0.0	0.1
6.3			1.4		0.6	0.0	2.0	0.1		0.0			0.0	0.0	0.1
5.8			1.3		0.5	0.5	2.0	0.3		0.0			0.0	0.0	0.1
5.6							1.9	0.3							0.1
5.8							1.9	0.3							0.1

Bare/disturbed ground							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
5.8	0.3	1.4	0.0	0.0	0.0	0.0	1.0
2.9	0.2	0.7	0.0	0.0	0.0	0.0	0.5
2.2	1.0	0.5	0.1	0.0	0.0	0.0	0.5
1.4	0.8	0.4	0.1	0.0	0.0	0.0	0.3
3.7	0.6	0.3	0.1	0.0	0.0	0.0	0.6
2.9		0.3	0.1	0.0	0.0	0.0	0.5
2.4		0.3	0.1	0.0	0.0	0.0	0.5
2.1		0.3	0.1	0.0	0.0	0.0	0.4
2.4		0.3	0.1	0.0	0.0	0.5	0.5
2.1		0.3	0.1	0.0	0.0	0.5	0.5
1.8			0.1		0.0	0.4	0.4
1.7			0.1		0.1	0.4	0.4
1.5			0.0		0.1	0.4	0.4
1.4			0.0		0.1	0.3	0.3
1.3			0.0		0.1	0.4	0.3
1.2							0.3
1.1							0.3

Table 42 Running means of length (km) of field boundaries per kilometre square with increase in sample size in the 7 land classes and Antrim AONB.

Boundary removed								Complete hedgebank with p & w fence							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.5	3.4	0.0	0.7	0.0	0.0	0.5	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.1
0.1	3.5	1.7	0.1	0.4	0.0	0.0	0.5	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
0.5	3.8	1.4	0.1	0.3	0.0	0.1	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
0.3	3.0	1.3	1.7	0.2	0.0	0.1	0.7	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0
0.4	2.7	1.0	1.4	0.2	0.0	0.0	0.6	0.1	0.6	0.1	0.0	0.0	0.0	0.0	0.1
0.4		1.0	1.2	0.2	0.4	0.0	0.7	0.3		0.1	0.0	0.0	0.0	0.0	0.1
0.5		0.9	1.1	0.1	0.3	0.0	0.6	0.3		0.1	0.0	0.0	0.0	0.0	0.1
0.6		0.8	1.0	0.1	0.3	0.0	0.6	0.2		0.2	0.0	0.0	0.0	0.0	0.1
0.6		0.8	0.9	0.1	0.2	0.0	0.6	0.2		0.1	0.0	0.0	0.0	0.0	0.1
0.6		1.0	0.8	0.2	0.3	0.0	0.6	0.2		0.2	0.0	0.0	0.0	0.0	0.1
0.7			0.8		0.3	0.0	0.6	0.3			0.0	0.0	0.0	0.0	0.1
0.7			0.9		0.4	0.0	0.6	0.2			0.0	0.0	0.0	0.0	0.1
0.7			0.9		0.3	0.0	0.6	0.3			0.0	0.0	0.0	0.0	0.1
0.8			0.8		0.3	0.0	0.6	0.3			0.0	0.0	0.0	0.0	0.1
0.7			0.8		0.3	0.0	0.6	0.3			0.0	0.0	0.0	0.0	0.1
0.7							0.6	0.2							0.1
0.6							0.6	0.2							0.1

Complete hedgebank without p & w fence								Hedgebank with gaps and p & w fence							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	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	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.1
0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1
0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.1	0.0	0.0	0.0	0.1
0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.6	0.3	0.1	0.0	0.0	0.0	0.2
0.2		0.0	0.0	0.0	0.0	0.0	0.0	0.9		0.3	0.0	0.0	0.0	0.0	0.2
0.2		0.0	0.0	0.0	0.0	0.0	0.0	0.7		0.2	0.0	0.0	0.0	0.0	0.2
0.2		0.2	0.0	0.0	0.0	0.0	0.1	0.7		0.3	0.0	0.0	0.0	0.0	0.2
0.1		0.1	0.1	0.0	0.0	0.0	0.1	0.6		0.2	0.0	0.0	0.0	0.0	0.2
0.4		0.1	0.1	0.0	0.0	0.0	0.1	0.6		0.1	0.0	0.0	0.0	0.0	0.2
0.4			0.1		0.0	0.0	0.1	0.9			0.0	0.0	0.0	0.0	0.2
0.3			0.1		0.0	0.0	0.1	0.8			0.0	0.0	0.0	0.0	0.2
0.5			0.1		0.0	0.0	0.1	0.7			0.0	0.0	0.0	0.0	0.2
0.5			0.0		0.0	0.0	0.1	0.8			0.0	0.0	0.0	0.0	0.2
0.5			0.1		0.0	0.0	0.1	0.8			0.0	0.0	0.0	0.0	0.2
0.5							0.1	0.7							0.2
0.5							0.1	0.7							0.2

Hedgebank with gaps, without p & w fence								Hedgebank with scattered or overgrown shrubs and p & w fence							
LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB	LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.5	0.0	0.0	0.2	0.0	0.0	0.0	0.0	6.5	1.9	0.0	3.4	0.0	0.0	0.9
0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.4	3.3	2.2	0.2	1.7	0.0	0.0	0.7
0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.3	2.2	3.0	0.1	1.1	0.0	0.0	0.6
0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	1.0	4.3	2.9	0.2	0.9	0.0	0.0	0.8
0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.3	5.6	2.3	0.2	0.7	0.0	0.0	1.0
0.1		0.1	0.0	0.0	0.0	0.0	0.0	2.4		2.3	0.1	0.6	0.0	0.0	1.0
0.2		0.1	0.0	0.0	0.0	0.0	0.1	2.5		2.0	0.3	0.5	0.0	0.0	1.0
0.1		0.4	0.0	0.0	0.0	0.0	0.1	2.5		2.0	0.2	0.4	0.0	0.0	1.0
0.1		0.4	0.0	0.0	0.0	0.0	0.1	2.5		2.8	0.9	0.4	0.0	0.0	1.2
0.3		0.4	0.0	0.0	0.0	0.0	0.1	2.8		2.7	0.8	0.4	0.0	0.0	1.2
0.2			0.0		0.0	0.0	0.1	2.7			0.8		0.0	0.0	1.2
0.2			0.0		0.0	0.0	0.1	2.4			0.9		0.0	0.0	1.2
0.3			0.0		0.0	0.0	0.1	2.4			0.9		0.0	0.0	1.2
0.3			0.0		0.0	0.0	0.1	3.3			0.9		0.0	0.0	1.3
0.3			0.1		0.0	0.0	0.1	3.8			1.0		0.0	0.0	1.4
0.3							0.1	3.7							1.4
0.3							0.1	3.4							1.4

Hedgebank with scattered or overgrown shrub without p & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.1
0.3	0.6	1.3	0.0	0.0	0.0	0.0	0.2
0.2	0.4	1.1	0.0	0.0	0.0	0.0	0.2
0.1	1.7	1.3	0.0	0.0	0.0	0.0	0.3
0.4	1.6	1.0	0.0	0.0	0.0	0.0	0.3
0.6		1.1	0.0	0.0	0.0	0.0	0.3
0.7		1.0	0.1	0.0	0.0	0.0	0.3
0.6		1.1	0.1	0.0	0.0	0.0	0.3
0.6		1.7	0.2	0.0	0.0	0.0	0.4
0.8		1.5	0.3	0.0	0.0	0.0	0.4
0.8			0.2		0.0	0.0	0.4
0.8			0.2		0.0	0.0	0.4
1.0			0.4		0.0	0.0	0.5
1.1			0.4		0.0	0.0	0.5
1.2			0.4		0.0	0.0	0.5
1.1							0.5
1.1							0.5

Maintained dry stone wall with p & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.7	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	0.4	0.5	0.1	0.0	0.0	0.0	0.1
0.0	0.3	0.5	0.1	0.0	0.0	0.0	0.1
0.0		0.9	0.1	0.0	0.0	0.0	0.1
0.0		1.0	0.1	0.0	0.0	0.0	0.2
0.0		0.9	0.1	0.0	0.0	0.0	0.1
0.0		0.8	0.1	0.0	0.1	0.0	0.1
0.0		1.0	0.0	0.3	0.1	0.0	0.2
0.0			0.0		0.1	0.0	0.2
0.1			0.2		0.5	0.0	0.3
0.1			0.3		0.4	0.0	0.3
0.1			0.3		0.4	0.0	0.3
0.1							0.3
0.1							0.3

Dry stone wall with gaps and p & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
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	0.2	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0
0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0
0.0		0.5	0.0	0.0	0.0	0.0	0.1
0.0		0.8	0.0	0.0	0.0	0.0	0.1
0.1		0.8	0.0	0.0	0.0	0.0	0.1
0.1		0.9	0.0	0.0	0.0	0.0	0.1
0.3		0.9	0.0	0.1	0.0	0.0	0.2
0.3			0.0		0.0	0.0	0.2
0.3			0.1		0.1	0.2	0.2
0.3			0.2		0.1	0.2	0.2
0.3			0.2		0.1	0.1	0.2
0.3			0.5		0.1	0.1	0.3
0.2							0.3
0.4							0.3

Hedgerow

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0
0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0
0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0
0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0
0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.1
0.5		0.1	0.0	0.0	0.0	0.0	0.1
0.4		0.1	0.0	0.0	0.0	0.0	0.1
0.3		0.1	0.0	0.0	0.0	0.0	0.1
0.3		0.1	0.1	0.0	0.0	0.0	0.1
0.3		0.1	0.1	0.0	0.0	0.0	0.1
0.3		0.1	0.1	0.0	0.0	0.0	0.1
0.2		0.1			0.0	0.0	0.1
0.4		0.1			0.0	0.0	0.1
0.3		0.1			0.0	0.0	0.1
0.3		0.1			0.0	0.0	0.1
0.3		0.1			0.0	0.0	0.1
0.3		0.1			0.0	0.0	0.1
0.3		0.1			0.0	0.0	0.1

Maintained dry stone wall without p & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	3.8	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	0.2
0.0	3.4	0.7	0.0	0.0	0.0	0.0	0.3
0.0	2.7	0.7	0.0	0.0	0.0	0.0	0.2
0.0		1.5	0.0	0.0	0.0	0.0	0.

Ruined dry stone wall with u & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.1	0.0	0.3	0.0	0.0	2.3	0.3
0.4	0.7	0.2	0.1	0.0	0.0	1.1	0.3
0.3	0.7	0.3	0.1	0.2	0.0	0.8	0.2
0.5	0.5	1.7	1.2	0.1	0.3	0.6	0.7
0.4	0.5	1.6	1.5	0.1	0.2	0.5	0.7
0.3		1.7	1.3	0.5	0.2	0.4	0.6
0.2		2.4	1.5	0.5	0.1	0.3	0.8
0.4		2.4	1.4	0.4	0.1	0.6	0.8
0.3		2.3	1.2	0.5	0.1	0.5	0.7
0.6		2.1	1.1	0.9	0.1	0.5	0.7
0.5			1.0		0.1	0.4	0.7
0.4			1.4		0.3	0.4	0.8
0.5			1.4		0.3	0.4	0.8
0.4			1.4		0.2	0.3	0.8
0.4			1.3		0.2	0.3	0.8
0.4							0.8
0.5							0.8

Mortar, brick or concrete wall

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.5	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	0.0
0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.1
0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1
0.5		0.0	0.0	0.0	0.0	0.0	0.1
0.4		0.0	0.0	0.0	0.0	0.0	0.1
0.3		0.1	0.0	0.0	0.0	0.0	0.1
0.3		0.1	0.0	0.0	0.0	0.0	0.1
0.3		0.1	0.1	0.0	0.0	0.0	0.1
0.3			0.1		0.0	0.0	0.1
0.3			0.1		0.0	0.0	0.1
0.3			0.1		0.0	0.0	0.1
0.3					0.0	0.0	0.1
0.3						0.0	0.1
0.3							0.1
0.3							0.1

Earth or wall bank with p & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	4.4	6.6	3.8	5.6	0.0	0.0	2.2
4.4	2.3	6.2	2.8	2.8	0.0	0.0	2.3
5.2	1.5	5.4	2.5	2.3	0.0	0.0	2.2
3.5	1.5	4.1	3.0	1.8	1.5	0.0	2.2
3.3	1.4	3.3	2.6	1.4	1.2	0.0	1.9
3.6		3.1	2.1	1.2	1.0	0.0	1.8
4.3		2.9	2.8	1.4	0.8	0.1	1.9
4.4		2.7	2.7	1.3	0.7	0.0	1.9
4.2.		2.4	2.8	1.2	0.6	0.0	1.8
3.9		2.1	2.5	1.4	0.6	0.0	1.7
3.8			2.4		0.5	0.0	1.6
3.4			2.4		0.5	0.0	1.6
3.2			2.4		0.7	0.0	1.6
3.2			2.2		0.7	0.0	1.5
3.0			2.1		0.7	0.0	1.5
2.9							1.5
2.7							1.5

Ruined dry stone wall without u & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	7.3	0.0	0.0	3.0	1.8
1.1	1.5	1.2	3.7	0.0	0.0	1.5	1.3
0.7	1.5	1.0	2.4	2.9	0.0	1.0	1.2
0.5	1.1	2.0	1.8	2.2	0.5	0.8	1.1
0.4	0.9	3.6	2.4	1.7	0.4	0.6	1.3
0.4		3.7	2.0	2.1	0.3	0.5	1.3
0.3		3.5	2.3	2.3	0.3	0.4	1.3
0.3		3.2	2.2	2.0	0.2	0.4	1.2
0.3		2.9	2.0	1.8	0.3	0.3	1.1
0.4		2.8	1.9	1.8	0.3	0.3	1.1
0.4			1.7		0.3	0.3	1.0
0.3			1.8		0.3	0.3	1.0
0.4			2.2		0.3	0.3	1.1
0.4			2.2		0.3	0.3	1.1
0.4			2.1		0.3	0.2	1.1
0.5							1.1
0.8							1.2

Hedge on wall

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	1.3	0.3	0.0	0.0	0.0	0.0	0.0
0.0	1.8	0.2	0.0	0.0	0.0	0.0	0.1
0.2	1.4	0.2	0.0	0.0	0.0	0.0	0.1
0.1	1.2	0.1	0.0	0.0	0.0	0.0	0.1
0.1		0.3	0.0	0.0	0.0	0.0	0.1
0.1		0.3	0.3	0.0	0.0	0.0	0.2
0.1		0.5	0.2	0.0	0.0	0.0	0.2
0.1		0.4	0.2	0.0	0.0	0.0	0.2
0.3		0.4	0.2	0.0	0.0	0.0	0.2
0.3			0.2		0.0	0.0	0.2
0.2			0.3		0.0	0.0	0.2
0.3			0.3		0.0	0.0	0.2
0.3			0.3		0.0	0.0	0.2
0.2			0.3		0.0	0.0	0.2
0.2							0.2
0.2							0.2
0.2							0.2

Earth or wall bank without p & w fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
1.1	0.1	2.4	9.2	3.9	0.0	1.8	2.8
3.3	0.2	2.4	11.7	2.0	0.0	0.9	3.1
2.3	0.1	1.9	7.8	1.4	0.0	0.6	2.3
2.1	0.2	1.5	6.7	1.1	0.1	0.5	2.0
1.5	0.2	1.2	5.8	0.8	0.1	0.4	1.7
1.2		1.1	5.0	0.8	0.5	0.3	1.5
1.2		1.0	4.9	1.0	0.4	0.3	1.5
1.2		1.0	5.2	0.8	0.3	0.3	1.5
1.3		0.9	5.3	0.7	0.3	0.3	1.5
1.1		0.8	4.7	0.7	0.3	0.2	1.4
1.2			4.6		0.3	0.2	1.3
1.0			4.4		0.2	0.2	1.3
0.9			4.1		0.2	0.2	1.2
0.9			3.8		0.2	0.2	1.1
0.8			3.7		0.2	0.2	1.1
0.8							1.1
0.7							1.1

Post and wire fence

LC1	LC2	LC3	LC4	LC5	LC6	LC7	AONB
4.4	1.6	4.2	1.3	1.7	2.0	2.5	2.5
3.7	1.9	2.6	1.5	1.6	1.0	1.2	1.8
4.9	1.7	3.4	2.8	2.5	0.7	2.5	2.5
3.7	1.7	3.1	2.6	3.2	0.8	1.9	2.2
3.7	1.9	2.5	2.8	2.5	0.8	1.8	2.2
3.9		2.5	2.7	2.1	1.1	1.6	2.2
4.0		2.2	2.8	3.2	1.2	1.4	2.3
3.8		2.4	3.0	3.5	1.3	1.2	2.4
4.2		2.3	3.6	3.3	1.4	1.1	2.5
4.0		2.2	4.1	3.3	1.5	1.0	2.6
3.8			4.0		1.5	1.0	2.5
4.0			3.9		1.5	0.9	2.6
3.8			3.9		2.0	1.1	2.6
3.7			3.8		1.8	1.3	2.6
3.5			3.6		1.7	1.5	2.5
3.4							2.5
3.4							2.5

Table 43 Comparison of predicted percentage mean area of coniferous plantation in the Antrim AONB with current Forest Service records. The total area in the AONB is also compared.

	Land Class								Total 2 (km
	1	2	3	4	5	6	7	AONB	
Present study	0.7	<0.1	<0.1	7.8	0.2	27.4	10.0	10.2	80.8
Map data	0.8	0.3	0.7	8.4	10.7	20.0	14.2	9.9	78.2