



THE LAND COVER OF SCOTLAND 1988

EXECUTIVE SUMMARY

THE MACAULAY LAND USE RESEARCH INSTITUTE
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The Land Cover of Scotland 1988

EXECUTIVE SUMMARY

Contents

1. SCOPE OF THE REPORT	1
2. Objectives	2
3. Description of the data	3
4. Methodology	4
5. Results	5
6. Conclusions	6
7. Recommendations	7
8. Acknowledgements	8
9. References	9
10. Appendix	10
11. Glossary	11
12. Bibliography	12
13. Index	13
14. Summary	14
15. Conclusions	15
16. Recommendations	16
17. Acknowledgements	17
18. References	18
19. Appendix	19
20. Glossary	20
21. Bibliography	21
22. Index	22
23. Summary	23
24. Conclusions	24
25. Recommendations	25
26. Acknowledgements	26
27. References	27
28. Appendix	28
29. Glossary	29
30. Bibliography	30
31. Index	31
32. Summary	32
33. Conclusions	33
34. Recommendations	34
35. Acknowledgements	35
36. References	36
37. Appendix	37
38. Glossary	38
39. Bibliography	39
40. Index	40
41. Summary	41
42. Conclusions	42
43. Recommendations	43
44. Acknowledgements	44
45. References	45
46. Appendix	46
47. Glossary	47
48. Bibliography	48
49. Index	49
50. Summary	50
51. Conclusions	51
52. Recommendations	52
53. Acknowledgements	53
54. References	54
55. Appendix	55
56. Glossary	56
57. Bibliography	57
58. Index	58
59. Summary	59
60. Conclusions	60
61. Recommendations	61
62. Acknowledgements	62
63. References	63
64. Appendix	64
65. Glossary	65
66. Bibliography	66
67. Index	67
68. Summary	68
69. Conclusions	69
70. Recommendations	70
71. Acknowledgements	71
72. References	72
73. Appendix	73
74. Glossary	74
75. Bibliography	75
76. Index	76
77. Summary	77
78. Conclusions	78
79. Recommendations	79
80. Acknowledgements	80
81. References	81
82. Appendix	82
83. Glossary	83
84. Bibliography	84
85. Index	85
86. Summary	86
87. Conclusions	87
88. Recommendations	88
89. Acknowledgements	89
90. References	90
91. Appendix	91
92. Glossary	92
93. Bibliography	93
94. Index	94
95. Summary	95
96. Conclusions	96
97. Recommendations	97
98. Acknowledgements	98
99. References	99
100. Appendix	100
101. Glossary	101
102. Bibliography	102
103. Index	103
104. Summary	104
105. Conclusions	105
106. Recommendations	106
107. Acknowledgements	107
108. References	108
109. Appendix	109
110. Glossary	110
111. Bibliography	111
112. Index	112
113. Summary	113
114. Conclusions	114
115. Recommendations	115
116. Acknowledgements	116
117. References	117
118. Appendix	118
119. Glossary	119
120. Bibliography	120
121. Index	121
122. Summary	122
123. Conclusions	123
124. Recommendations	124
125. Acknowledgements	125
126. References	126
127. Appendix	127
128. Glossary	128
129. Bibliography	129
130. Index	130
131. Summary	131
132. Conclusions	132
133. Recommendations	133
134. Acknowledgements	134
135. References	135
136. Appendix	136
137. Glossary	137
138. Bibliography	138
139. Index	139
140. Summary	140
141. Conclusions	141
142. Recommendations	142
143. Acknowledgements	143
144. References	144
145. Appendix	145
146. Glossary	146
147. Bibliography	147
148. Index	148
149. Summary	149
150. Conclusions	150
151. Recommendations	151
152. Acknowledgements	152
153. References	153
154. Appendix	154
155. Glossary	155
156. Bibliography	156
157. Index	157
158. Summary	158
159. Conclusions	159
160. Recommendations	160
161. Acknowledgements	161
162. References	162
163. Appendix	163
164. Glossary	164
165. Bibliography	165
166. Index	166
167. Summary	167
168. Conclusions	168
169. Recommendations	169
170. Acknowledgements	170
171. References	171
172. Appendix	172
173. Glossary	173
174. Bibliography	174
175. Index	175
176. Summary	176
177. Conclusions	177
178. Recommendations	178
179. Acknowledgements	179
180. References	180
181. Appendix	181
182. Glossary	182
183. Bibliography	183
184. Index	184
185. Summary	185
186. Conclusions	186
187. Recommendations	187
188. Acknowledgements	188
189. References	189
190. Appendix	190
191. Glossary	191
192. Bibliography	192
193. Index	193
194. Summary	194
195. Conclusions	195
196. Recommendations	196
197. Acknowledgements	197
198. References	198
199. Appendix	199
200. Glossary	200
201. Bibliography	201
202. Index	202
203. Summary	203
204. Conclusions	204
205. Recommendations	205
206. Acknowledgements	206
207. References	207
208. Appendix	208
209. Glossary	209
210. Bibliography	210
211. Index	211
212. Summary	212
213. Conclusions	213
214. Recommendations	214
215. Acknowledgements	215
216. References	216
217. Appendix	217
218. Glossary	218
219. Bibliography	219
220. Index	220
221. Summary	221
222. Conclusions	222
223. Recommendations	223
224. Acknowledgements	224
225. References	225
226. Appendix	226
227. Glossary	227
228. Bibliography	228
229. Index	229
230. Summary	230
231. Conclusions	231
232. Recommendations	232
233. Acknowledgements	233
234. References	234
235. Appendix	235
236. Glossary	236
237. Bibliography	237
238. Index	238
239. Summary	239
240. Conclusions	240
241. Recommendations	241
242. Acknowledgements	242
243. References	243
244. Appendix	244
245. Glossary	245
246. Bibliography	246
247. Index	247
248. Summary	248
249. Conclusions	249
250. Recommendations	250
251. Acknowledgements	251
252. References	252
253. Appendix	253
254. Glossary	254
255. Bibliography	255
256. Index	256
257. Summary	257
258. Conclusions	258
259. Recommendations	259
260. Acknowledgements	260
261. References	261
262. Appendix	262
263. Glossary	263
264. Bibliography	264
265. Index	265
266. Summary	266
267. Conclusions	267
268. Recommendations	268
269. Acknowledgements	269
270. References	270
271. Appendix	271
272. Glossary	272
273. Bibliography	273
274. Index	274
275. Summary	275
276. Conclusions	276
277. Recommendations	277
278. Acknowledgements	278
279. References	279
280. Appendix	280
281. Glossary	281
282. Bibliography	282
283. Index	283
284. Summary	284
285. Conclusions	285
286. Recommendations	286
287. Acknowledgements	287
288. References	288
289. Appendix	289
290. Glossary	290
291. Bibliography	291
292. Index	292
293. Summary	293
294. Conclusions	294
295. Recommendations	295
296. Acknowledgements	296
297. References	297
298. Appendix	298
299. Glossary	299
300. Bibliography	300
301. Index	301
302. Summary	302
303. Conclusions	303
304. Recommendations	304
305. Acknowledgements	305
306. References	306
307. Appendix	307
308. Glossary	308
309. Bibliography	309
310. Index	310
311. Summary	311
312. Conclusions	312
313. Recommendations	313
314. Acknowledgements	314
315. References	315
316. Appendix	316
317. Glossary	317
318. Bibliography	318
319. Index	319
320. Summary	320
321. Conclusions	321
322. Recommendations	322
323. Acknowledgements	323
324. References	324
325. Appendix	325
326. Glossary	326
327. Bibliography	327
328. Index	328
329. Summary	329
330. Conclusions	330
331. Recommendations	331
332. Acknowledgements	332
333. References	333
334. Appendix	334
335. Glossary	335
336. Bibliography	336
337. Index	337
338. Summary	338
339. Conclusions	339
340. Recommendations	340
341. Acknowledgements	341
342. References	342
343. Appendix	343
344. Glossary	344
345. Bibliography	345
346. Index	346
347. Summary	347
348. Conclusions	348
349. Recommendations	349
350. Acknowledgements	350
351. References	351
352. Appendix	352
353. Glossary	353
354. Bibliography	354
355. Index	355
356. Summary	356
357. Conclusions	357
358. Recommendations	358
359. Acknowledgements	359
360. References	360
361. Appendix	361
362. Glossary	362
363. Bibliography	363
364. Index	364
365. Summary	365
366. Conclusions	366
367. Recommendations	367
368. Acknowledgements	368
369. References	369
370. Appendix	370
371. Glossary	371
372. Bibliography	372
373. Index	373
374. Summary	374
375. Conclusions	375
376. Recommendations	376
377. Acknowledgements	377
378. References	378
379. Appendix	379
380. Glossary	380
381. Bibliography	381
382. Index	382
383. Summary	383
384. Conclusions	384
385. Recommendations	385
386. Acknowledgements	386
387. References	387
388. Appendix	388
389. Glossary	389
390. Bibliography	390
391. Index	391
392. Summary	392
393. Conclusions	393
394. Recommendations	394
395. Acknowledgements	395
396. References	396
397. Appendix	397
398. Glossary	398
399. Bibliography	399
400. Index	400

The Land Cover of Scotland 1988

EXECUTIVE SUMMARY

Contents

1.	AIMS OF THE REPORT	1
1.1	Introduction	1
1.2	Intended audience	1
1.3	Scope of the report	1
2.	THE SURVEY	1
2.1	Project overview	1
2.2	Aerial photography	1
2.3	Land cover classification	3
2.4	Interpretation	4
2.5	Digitising	4
2.6	Digital datasets	4
2.7	Maps and statistics	4
2.8	Validation	6
2.9	Pilot applications of the data	7
3.	THE LAND COVER OF SCOTLAND 1988: PRELIMINARY STATISTICAL REPORT	8
3.1	Source of the statistics	8
3.2	Understanding the statistical reports	8
4.	FORMATS, MEDIA, COPYRIGHT AND CHARGING	10
4.1	Introduction	10
4.2	Formats and media	10
4.3	Copyright and charging	10
4.4	Map products	11
	<i>References</i>	12
	<i>Appendix: national and regional statistical summaries</i>	13
	<i>Map, scale 1:2 500 000, of land cover summary classes</i>	<i>inside back cover</i>

The Land Use of Scotland 1988
EXECUTIVE SUMMARY

Contents

1. Introduction	1
2. The Land Use of Scotland 1988	2
3. The Land Use of Scotland 1988	3
4. The Land Use of Scotland 1988	4

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5. The Land Use of Scotland 1988	5
6. The Land Use of Scotland 1988	6
7. The Land Use of Scotland 1988	7
8. The Land Use of Scotland 1988	8
9. The Land Use of Scotland 1988	9
10. The Land Use of Scotland 1988	10
11. The Land Use of Scotland 1988	11
12. The Land Use of Scotland 1988	12
13. The Land Use of Scotland 1988	13
14. The Land Use of Scotland 1988	14
15. The Land Use of Scotland 1988	15
16. The Land Use of Scotland 1988	16
17. The Land Use of Scotland 1988	17
18. The Land Use of Scotland 1988	18
19. The Land Use of Scotland 1988	19
20. The Land Use of Scotland 1988	20
21. The Land Use of Scotland 1988	21
22. The Land Use of Scotland 1988	22
23. The Land Use of Scotland 1988	23
24. The Land Use of Scotland 1988	24
25. The Land Use of Scotland 1988	25
26. The Land Use of Scotland 1988	26
27. The Land Use of Scotland 1988	27
28. The Land Use of Scotland 1988	28
29. The Land Use of Scotland 1988	29
30. The Land Use of Scotland 1988	30
31. The Land Use of Scotland 1988	31
32. The Land Use of Scotland 1988	32
33. The Land Use of Scotland 1988	33
34. The Land Use of Scotland 1988	34
35. The Land Use of Scotland 1988	35
36. The Land Use of Scotland 1988	36
37. The Land Use of Scotland 1988	37
38. The Land Use of Scotland 1988	38
39. The Land Use of Scotland 1988	39
40. The Land Use of Scotland 1988	40
41. The Land Use of Scotland 1988	41
42. The Land Use of Scotland 1988	42
43. The Land Use of Scotland 1988	43
44. The Land Use of Scotland 1988	44
45. The Land Use of Scotland 1988	45
46. The Land Use of Scotland 1988	46
47. The Land Use of Scotland 1988	47
48. The Land Use of Scotland 1988	48
49. The Land Use of Scotland 1988	49
50. The Land Use of Scotland 1988	50
51. The Land Use of Scotland 1988	51
52. The Land Use of Scotland 1988	52
53. The Land Use of Scotland 1988	53
54. The Land Use of Scotland 1988	54
55. The Land Use of Scotland 1988	55
56. The Land Use of Scotland 1988	56
57. The Land Use of Scotland 1988	57
58. The Land Use of Scotland 1988	58
59. The Land Use of Scotland 1988	59
60. The Land Use of Scotland 1988	60
61. The Land Use of Scotland 1988	61
62. The Land Use of Scotland 1988	62
63. The Land Use of Scotland 1988	63
64. The Land Use of Scotland 1988	64
65. The Land Use of Scotland 1988	65
66. The Land Use of Scotland 1988	66
67. The Land Use of Scotland 1988	67
68. The Land Use of Scotland 1988	68
69. The Land Use of Scotland 1988	69
70. The Land Use of Scotland 1988	70
71. The Land Use of Scotland 1988	71
72. The Land Use of Scotland 1988	72
73. The Land Use of Scotland 1988	73
74. The Land Use of Scotland 1988	74
75. The Land Use of Scotland 1988	75
76. The Land Use of Scotland 1988	76
77. The Land Use of Scotland 1988	77
78. The Land Use of Scotland 1988	78
79. The Land Use of Scotland 1988	79
80. The Land Use of Scotland 1988	80
81. The Land Use of Scotland 1988	81
82. The Land Use of Scotland 1988	82
83. The Land Use of Scotland 1988	83
84. The Land Use of Scotland 1988	84
85. The Land Use of Scotland 1988	85
86. The Land Use of Scotland 1988	86
87. The Land Use of Scotland 1988	87
88. The Land Use of Scotland 1988	88
89. The Land Use of Scotland 1988	89
90. The Land Use of Scotland 1988	90
91. The Land Use of Scotland 1988	91
92. The Land Use of Scotland 1988	92
93. The Land Use of Scotland 1988	93
94. The Land Use of Scotland 1988	94
95. The Land Use of Scotland 1988	95
96. The Land Use of Scotland 1988	96
97. The Land Use of Scotland 1988	97
98. The Land Use of Scotland 1988	98
99. The Land Use of Scotland 1988	99
100. The Land Use of Scotland 1988	100

1. Aims of the report

1.1 Introduction

The Land Cover of Scotland 1988 (LCS88) survey is the first ever national census of land cover in Scotland. It has been produced by the Macaulay Land Use Research Institute on behalf of The Scottish Office to assist in developing and monitoring the effectiveness of policies affecting the state of the countryside in Scotland. The aims of this report are: to provide a general background to the survey, to present some initial statistical results and to indicate how the data can be obtained.

1.2 Intended audience

This report is intended for a general readership and assumes little or no knowledge of the

technical issues relating to land cover mapping or associated computing. Readers interested in the technical aspects of the survey or more comprehensive statistical information are referred to the main project report (MLURI, 1993).

1.3 Scope of the report

The report is divided into three main sections. These provide background to the project, an outline of the methods used to produce the land cover information, general statistics on the land cover of Scotland on a national and regional basis and details of how the land cover information is released.

2. The survey

2.1 Project overview

The Land Cover of Scotland survey was announced in May 1987, by the then Under Secretary of State, Mr Michael Ancram. The decision to produce the first detailed census of the land cover of Scotland, resulted from increasing concern about the nature and rate of land use change in rural Scotland, and the need for objective baseline information on which to base future countryside policy.

The project was conducted in three main phases. The first phase involved obtaining medium scale aerial photography for the whole of Scotland (1987-89), and was undertaken by commercial contractors, principally Geonex Jasphot Ltd, with quality control by Mason Land Surveys Ltd. The second phase involved the interpretation of this photography to extract the land cover information, and subsequently the conversion of this information into a computer-readable dataset (1989-93). The final phase was a ground validation of the data. The final two phases were the responsibility of the

Macaulay Land Use Research Institute (MLURI) and the Scottish Agricultural Statistics Service (SASS) in Aberdeen.

Co-ordination of the project was achieved by a Steering Group comprising the sponsoring agencies: The Scottish Office Environment Department (SOEnD), The Scottish Office Agriculture and Fisheries Department (SOAFD), Scottish Natural Heritage (SNH) and the Forestry Commission (FC), together with MLURI.

2.2 Aerial photography

The decision to use aerial photography was based upon a thorough review of various land cover mapping initiatives in the UK by the Scottish Office consultants, Professor T. Coppock and Dr R. Kirby (Coppock and Kirby, 1987).

The photographic coverage was obtained over three flying seasons from 1987 to 1989, with

<i>Principal features</i>	<i>Major features</i>	<i>Main features</i>	<i>Sub-categories based on</i>
Farms and developed rural land	Isolated farmsteads and other buildings Miscellaneous developed features	Isolated farms etc. Factories Airfields Golf courses Cemeteries Recreational land	with trees with no trees
Bare ground	Miscellaneous bare ground	Cliffs, bare rock, crags and screes Quarries and opencast Bings and refuse tips Paths Hill roads Water	mapped areas, lines or points
Miscellaneous features	Built-up land Transport features in a rural context Cloud or shadow-obscured areas Snow-obscured areas Ski areas Estuary, below normal tidal limit No photo cover	Road Rail	
Woodland	Coniferous woodland Undifferentiated broadleaved woodland Undifferentiated mixed woodland Undifferentiated low scrub Rhododendron scrub Management features	Plantations Semi-natural Broadleaved woodland Mixed woodland Undifferentiated low scrub Rhododendron scrub Management features	mapped areas lines of trees clumps of trees recently ploughed land former woodland recently felled open canopy young plantation land recently 'ripped' for afforestation
Agricultural land	Agricultural land	Improved pasture Arable land	rock outcrops scattered trees clustered farmsteads
Semi-natural ground vegetation	Heather and dwarf shrub heathland	Dry heather moor Wet heather moor Undifferentiated heather moor	muirburn rock outcrops scattered trees

Table 2.1 Land cover features for interpretation

continued on next page

<i>Principal features</i>	<i>Major features</i>	<i>Main features</i>	<i>Sub-categories based on</i>
Semi-natural ground vegetation (continued)	Undifferentiated coarse grasslands	Undifferentiated coarse grasslands	rock outcrops scattered trees
	Smooth grasslands	Smooth grasslands with rushes Smooth grasslands with low scrub Undifferentiated smooth grasslands Undifferentiated bracken	rock outcrops scattered trees
	Blanket bog and other peatland vegetation	Blanket bog with dubh lochan Undifferentiated blanket bog Undifferentiated blanket bog	erosion scattered trees mechanised exploitation domestic exploitation
	Undifferentiated salt marshes	Undifferentiated salt marshes	scattered trees
	Maritime grasslands and heaths	Maritime grasslands and heaths	
	Wetlands	Wetlands	scattered trees drains
	Dunelands	Bare dunes Partially stabilised dunes Links with grassland Links with heathland	
	Montane vegetation	Undifferentiated montane vegetation	rock outcrops

Table 2.1 Land cover features for interpretation (continued)

most of the coverage obtained in 1988. Some 35% of the country was flown in the week 6 - 12 June 1988. The photography is at 1:24 000 scale (approximately two and one half inches to the mile) and is mostly monochrome. However, for commercial reasons the Central Valley is in colour. A set of photography is available for inspection at The Scottish Office Air Photographs Unit, and photographs may be purchased from Geonex UK Ltd.

2.3 Land cover classification

There is no standard land cover classification system in the UK although the need for a common classification framework is well recognised (Wyatt *et al.*, 1993). The classification used in the Land Cover of Scotland survey recognises the sponsors' requirement to have information on rural, and in particular semi-natural, land cover in Scotland.

The hierarchical classification system (Table 2.1) recognises principal, major and main land cover features with various sub-categories. For example, semi-natural ground vegetation (principal feature) may comprise heather and dwarf shrub heathland (major feature) which can be further split to dry heather moor (main feature) which may or may not have muirburn, rock outcrops or scattered trees (sub-categories).

The classification system allows for 126 land cover features to be identified as point, line or area features. Area features were delineated where they were >10 ha for semi-natural ground vegetation, >5 ha for built-up land or >2 ha for woodland.

An important aspect of the classification system is that it allows for mosaics of the single land cover features to be identified. Mosaics are defined as mixtures of two land cover features

where the patches of both are below the minimum mapping area criterion for separate identification. The recognition of mosaics in the Land Cover of Scotland survey expands the number of land cover features from 126 to 1323. Many of these mosaics prove to be nationally important (see Section 3), particularly those including heather moorland, whilst others are of highly localised importance (e.g. arable/dune mosaics in the Western Isles). In the full dataset some 354 single or mosaic features occupy 99% (77 900 km²) of the land area of Scotland. The remaining 1% (<800 km²) has some 969 different features!

In order to set the Land Cover of Scotland classification system in context, it has been compared to the classification systems currently being used in the Institute of Terrestrial Ecology's Countryside Survey 1990, the ITE Land Cover of Great Britain from Satellite Imagery, and the SNH National Countryside Monitoring Scheme (Table 2.2).

2.4 Interpretation

The air photo interpretation was done by 11 staff formerly involved in the Soil Survey of Scotland. Areas were allocated according to field experience so that all interpretation was done by individuals who had extensive local knowledge.

All interpreters followed the same procedure. Land cover was interpreted onto acetate overlays using mirror stereoscopes. The overlay information was then transferred onto 1:25 000 OS Pathfinder Series base maps (Figure 2.1) using a Sketchmaster, a simple optical-prism-based transfer instrument which superimposes two images. Editing and checking formed an integral part of the procedure.

2.5 Digitising

The 1:25 000 interpreted base maps were digitised using personal-computer-based digitising work stations running a digitising program. Four digitising work stations were run in parallel to ensure throughput. The maps were checked and double checked manually, and finally, as an aid to quality assurance, an in-house checking program was developed and applied to all sheets.

2.6 Digital datasets

The principal product from the Land Cover of Scotland survey is a computer-readable map or spatial dataset. This type of product is seen as being highly suited to the needs of professional staff advising policy makers. It is flexible, can be used to derive a wide range of statistical and cartographic products and, particularly when integrated with other types of map or census information, is capable of providing new insights. It is seen as a first step towards future decision-support systems for land use policies and management.

In reality, the technology needed to make use of such computer maps is not widely available at the moment. However, this is changing rapidly and many Scottish local authorities are acquiring the necessary computer-based geographic information systems (GIS). There are some difficulties because of the range of systems and the lack of standardisation.

The Land Cover of Scotland 1988 dataset is available in two releases:

- i) Release 1 is in raster (cell-based) form where the individual cells have a nominal ground resolution of 50 m (0.25 ha). This is available in ERDAS format;
- ii) Release 2 is in vector (x, y co-ordinate pairs) form where the line position error is ± 20 m. This release is fully edge-matched over the entire country and supersedes Release 1 in terms of data quality. It is available in ARC export format (see Section 4).

2.7 Maps and statistics

The Land Cover of Scotland 1988 dataset is map-derived. It can be used to produce single theme maps (e.g. all moorland areas in Scotland) or summary class maps such as the one included with this report. No standard published map series has been produced. Where maps are required they can be obtained on special request to the address on page 11. Examples of such maps might include land cover within defined river catchments, within set proximity to towns, settlements or roads, or

THE SURVEY

MLURI		NCMS		ITE		LANDSAT CLASSES
PRINCIPAL FEATURES	MAJOR FEATURES	PRINCIPAL FEATURES	MAJOR FEATURES	FIELD	PRIMARY FEATURES	
Semi-natural ground vegetation	Heather and dwarf shrub heathland Undifferentiated coarse grasslands Smooth grasslands Blanket bog and peatland vegetation Undifferentiated salt marsh Wetlands Dunelands Montane vegetation	Heather Grassland Mire Bracken Parkland	Moorland Unimproved Semi-improved Improved Blanket (heather- or grass-dominated), lowland	Agriculture/ natural vegetation	Moorland and shrub heath Moorland grass Upland grass Unmanaged grassland Lowland agricultural grass Calcareous grassland Lowland heath Blanket/ raised/ valley bog Saltmarsh Marsh/ flush/ fen Maritime vegetation Aquatic vegetation Tall herb vegetation	Upland dwarf shrub Grass moor Unimproved Pasture/ amenity Meadow/ verge Heather heath Grass heath Saltmarsh fen/ marsh Bracken
Agricultural land	Agricultural land	Arable			Arable crops	Arable
Woodland	Coniferous woodland Broadleaved woodland Mixed woodland Undifferentiated low scrub Trees; line/point; scattered Management features	Woodland Scrub Linear features	Coniferous wood Coniferous plantation Broadleaved wood Broadleaved plantation Mixed wood Young plantation Felled woodland Orchard Tall, low Hedgerow Treeline	Forest/ wood/ trees	Woodland/ forest Orchard Scrub: line/ patch/ scattered/ individual Trees: individual/ scattered/ line/ belt/ clump	Deciduous Evergreen Mixed Orchard Scrub
Farms and developed rural land	Isolated farmsteads and other buildings Miscellaneous developed features	Built land		Buildings/ structures/ communications	Building/ gardens/ open spaces/ amenity grass/ allotments/ car park/ glasshouse/ embankment/ other	
Bare ground	Miscellaneous bare ground	Bare rock and soil Wet ground Marginal inundation Open water Linear features (unsurfaced tracks, running water)	Standing (natural and man-made), running	Physiography/ inland water/ coastal	Cliffs/ scree/ boulders/ rock Outcrop/ pebble-sand shore/ mud/ Sea/ lade/ canal/ ditch/ stream Spring/ well/ drainage/ gorge/ levee/ waterfall/ soil erosion/ peat hags	Bare Felled Ruderal weed Sea/ estuary Inland water Beach
Miscellaneous features	Built-up land Transport features Cloud-obscured areas Snow-obscured areas	Recreation Transport corridor Quarry		Boundaries	Walls Fences Hedges Others	Urban/ industrial Suburban

Table 2.2 A comparison of current land cover land classification systems

within a specified administrative area. The statistics that appear in the Appendix were obtained by combining a digital 1:50 000 map of administrative regions with the land cover map.

Statistical output is equally flexible. In this report only the national and regional statistical breakdown of land cover is given. In the main report (MLURI, 1993) data for all districts are given. As above, it is possible to produce a wide range of alternative statistical summaries. Again, special requests should be directed to the address on page 11.

2.8 Validation

The accuracy of the air photo interpretation was validated. The land area of Scotland was divided into three classes according to distance from roads. Some 702 one-kilometre squares were randomly selected within these classes and these were inspected in the field.

Comparison between the field observations and the air photo interpretations indicate that at the principal feature level the error rate for interpretation is 3%, at the major feature level it is 16% and at the main feature level it is under 22%. However, average rates are misleading



Figure 2.1 Example of base map with superimposed land cover information; area shown is to the west of Aberdeen

and where the individual features are considered it is clear that the greatest errors are in identifying the precise features of some types of woodland (15%) and semi-natural ground vegetation (14%), with very little error in agricultural land identification.

The issues of error and uncertainty are comprehensively covered in Chapter 5 of the main report (MLURI, 1993).

2.9 Pilot applications of the data

The LCS88 dataset has already been used to support the work of the Loch Lomond and Trossachs and Cairngorm Working Parties for SOEnD and in developing a moorland map of Scotland for SOAFD. Two studies of historical land cover change between 1946 and 1988 have been made of the Cairngorms (Gauld *et al.*, 1992) and the Central Valley of Scotland (Dry *et al.*, 1992).

3. The Land Cover of Scotland: preliminary statistical report

3.1 Source of the statistics

The statistical reports presented in the Appendix are based upon analysis of the 50 m raster version of Release 1 of the LCS88 dataset. This digital map has been overlaid by computer on an administrative boundary map to produce national, regional and district land cover reports. A complete breakdown of the statistics appears in Appendix E of the main report (MLURI, 1993). However, in the Appendix to this report only the general summaries are presented for Scotland as a whole and for the regions.

The reader is advised that these are preliminary figures and no account is taken of the uncertainties associated with them due to interpretation errors (see Section 2.8 above). It is advisable, therefore, to treat the area estimates as first approximations.

3.2 Understanding the statistical reports

Because there are 126 land cover features in the classification, it was felt useful to group them together in order to give a more general impression of patterns and trends in land cover at national and regional levels. The summary categories were chosen through consultation with SOEnD, SOAFD, SNH and FC on the basis of their being helpful at a general policy level; they are: Open countryside, Woodland, Wet ground, Developed and Other. The precise definition of these in terms of the LCS88 classes is given in Table 6.2 of the main report (MLURI, 1993).

The Appendix to this Executive Summary provides the statistical tables by summary category for Scotland nationally and regionally. However, some guidance is needed to assist in their interpretation — particularly as to how the mosaics should be treated. The following provides some help using, as an annotated example, the summary table for the Western Isles. (Figure 3.1)

The table is split into three boxes. The land cover summary categories are split according to whether they occur as single features (top left box 1), or as features in mosaics (bottom left box 2 and top right box 3).

The top left box (1) provides the most straightforward breakdown of areas. In the Western Isles example, it can be seen that the area of single features is 1 179.2 km² (38.2%) with peatland as the dominant cover type (14.5%). Some 1 911.6 km² (61.8%) is, however, covered by mosaics of these features.

Moving to the bottom left box (2), the mosaics are broken down according to those that are nationally significant (based on the national land cover summaries) and those that may not be of national significance but are significant locally. In this box, it can be seen that of the 1 911.6 km² of mosaics in the Western Isles, some 1 248.5 km² are of heather moorland and peatland. Note that the components of these mosaics are in either order (i.e. includes areas where peatland is the primary feature). Another point to note is that all the percentage figures refer to the total area of the region (i.e. the mosaics of heather moorland and peatland cover 40.4% of the Western Isles).

Turning to the top right box (3): suppose one wanted to calculate the area of arable land in the Western Isles. From box 1, it can be seen that 6.0 km² of arable occurs as a single feature. From box 3, it can be seen that 18.0 km² occurs as a mosaic with arable as the primary feature (NB other feature not specified) and 10.0 km² occurs as a mosaic with arable as the secondary one (again with other feature unspecified).

To calculate the total area of arable it is necessary to understand how the concept of a mosaic affects the area calculations. Put simply, the area of arable does not mean adding up 6.0 km² + 18.0 km² + 10.0 km². This would give an over-estimate for the area of arable because it treats each component of a mosaic as covering the whole area of the mosaic.

Inspect boxes in order **1, 2, 3**

Refer to section 3.2 for additional notes

summary categories are defined
according to groups of LCSSB features**3.** Summary categories
in mosaics**1.** Simple
breakdown

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	6.0	0.2	18.0	10.0
B	Improved grassland	99.9	3.2	129.9	34.1
C	Good rough grassland	26.0	0.8	11.4	77.3
D	Poor rough grassland	12.4	0.4	14.1	17.7
E	Bracken	0	0	0.4	0.2
F	Heather moorland	348.8	8.0	791.9	508.7
G	Peatland	448.9	14.5	890.2	1180.1
H	Montane	48.9	1.5	23.5	15.9
I	Rock and cliffs	32.2	1.0	12.5	39.2
Woodland					
J	Felled woodland	0	0	0	0
K	Recent planting	3.9	0.1	N.S.	N.S.
L	Coniferous plantation	5.1	0.2	N.S.	0.6
M	Semi-natural coniferous	0	0	0	0
N	Mixed woodland	0.9	N.S.	0	0
O	Broadleaved	0.1	N.S.	0	0
P	Scrub	0.1	N.S.	0	0
Wet ground					
Q	Fresh waters	180.5	5.8	N.S.	0.2
R	Marshes	8.8	0.3	1.9	3.2
S	Saltmarshes	4.2	0.1	0.1	0.1
T	Dunes	46.8	1.5	17.5	22.3
U	Tidal waters	0	0	0	0
Developed					
V	Rural development	5.8	0.2	0.6	0.8
W	Urban	4.3	0.1	0	0
Other					
X	Missing photography/obscured land	1.9	0.1	0.1	0.1
SUBTOTAL		1179.2	38.2		
Y	Mosaics of types above	1911.6	61.8	1911.6	1911.6
ISLAND AUTHORITY TOTAL		3090.8	100.0		

Example:

ARABLE6 km² as single
feature18 km² total area with
arable as primary
feature of mosaic10 km² total area with
arable as secondary
feature of mosaicNB total area of
arable does not equal
6 + 18 + 10 km² (refer
to Section 3.2)**2.** Mosaics
aloneMosaics known to be
significant over
Scotland as a wholeMosaics of local but not
national significanceMosaics which have no
national or local
significance

Nationally significant mosaics				area	%
FG	Heather moorland	Peatland		1248.5	40.4
DF	Poor rough grassland	Heather moorland		5.6	0.2
CF	Good rough grassland	Heather moorland		5.8	0.2
GH	Peatland	Montane		39.5	1.3
CD	Good rough grassland	Poor rough grassland		3.6	0.1
BC	Improved grassland	Good rough grassland		89.3	2.2
CE	Good rough grassland	Bracken		0	0
DG	Poor rough grassland	Peatland		13.9	0.4
FH	Heather moorland	Montane		0	0
SUBTOTAL				1346.2	44.8
Locally significant mosaics				area	%
BD	Improved grassland	Peatland		45.0	1.5
GI	Peatland	Rock and cliffs		41.0	1.0
BF	Improved grassland	Heather moorland		35.1	1.1
AT	Arable	Dunes		28.0	0.9
GD	Improved grassland	Poor rough grassland		8.8	0.3
SUBTOTAL				157.9	5.1
Remaining mosaics				367.5	11.9
MOSAICS OF SUMMARY COVER TYPES				1911.6	61.8

* total area of mosaics
(same figure should appear in
boxes 1 and 3 also)all % figures are percentages
of the total areaTable 13. total area of
interpreted features**Western Isles**Land cover summary
categoriesAll areas are expressed in square kilometres
to 1 decimal place; the totals shown may not
match the totals of the columns due to
rounding error discrepancies; 0 = not
present; N.S. = not significant = < 0.05.
Please refer to Figure 6.2 for guidance in the
interpretation of this table.mosaic ordering is not
significant
i.e. Peatland/Montane includes
Montane/Peatland

Figure 3.1 Guidance notes for interpreting national and regional summary tables of the form xx.1. in Appendix E

To calculate the area of arable first requires an assumption to be made about the percentage contribution of the two features to the total area of the mosaic. As a working rule, a 60:40 ratio might be assumed. Using this assumption the area of arable land in the Western Isles can be estimated as shown in Figure 3.2.

The illustration for the Western Isles provides an insight into how to use the statistical reports. Cross-reference between the regional and national tables will allow further assessments of how significant each region's land cover is in terms of the national resource. The statistics have not been expressed this way in order to keep them relatively simple! However, once again it is emphasised that because these data are all held on computer, a wide range of different summaries are possible and readers

6.0 km ²	as a single feature	6.0
60% of 18.0 km ²	as the primary feature of a mosaic	10.8
40% of 10.0 km ²	as the secondary feature of a mosaic	4.0
total		20.8 km²

Figure 3.2 Area of arable land in the Western Isles

with particular concerns should contact the address on page 11 if they wish to pursue alternative approaches.

The Appendix also provides stacked histograms showing the areas of summary categories and mosaics, and a preliminary commentary on the statistical summaries.

4. Formats, media, copyright and charging

4.1 Introduction

The principal outputs from the Land Cover of Scotland are a digital dataset and statistical reports. This section covers the formats, media, copyright and charging arrangements associated with the release of the digital dataset.

It is impossible to avoid technical descriptions in this section, but as far as possible these are relegated to the accompanying tables.

4.2 Formats and media

The LCS88 dataset is available as two releases (Table 4.1). Release 1 represents an interim vector version, and a derived raster version. Both are superseded by Release 2 which is a fully edge-matched vector dataset provided in ARC export format. The format for the raster version of Release 2 will be 16-bit TIFF. Requests for data should be addressed to the address on page 11.

4.3 Copyright and charging

The Scottish Office and Ordnance Survey have retained copyright over their respective parts of the dataset. MLURI has negotiated agency

agreements with The Scottish Office and Ordnance Survey for marketing the dataset. An organisation may lease the data on an annual basis, and a single lease covers the entire organisation. The legal agreement is between the organisation and The Scottish Office. MLURI administers the leases and supplies the data.

Annual charges cover the information content of the dataset and are paid once only, irrespective of the number of copies of data acquired by an organisation in different formats.

For non-commercial users, the royalty charges (excluding VAT) for the whole dataset are as follows:

a) The Scottish Office Royalty:

1st year of lease: £18,500

2nd and subsequent years: £ 4,500

b) Ordnance Survey Royalty: 7.5% of a)

c) MLURI data maintenance: 10% of a)

For commercial users, the charges are increased by 50%.

Sub-sets of the full dataset may be leased in units of 10 km x 10 km tiles, aligned to the OS national grid. The annual charges given above are reduced according to the fraction of the dataset leased. This is calculated as the fraction by area within Scotland (79 000 km²).

Handling charges apply whenever data are delivered. Current handling charges, which include media, post and packing, but not VAT, are as follows:

<i>area leased, km²</i>	<i>data handling charge</i>
5 000	£80
10 000	£160
40 000	£220
79 000	£320

The dataset may subsequently be generalised to smaller scales, but there are no plans to do so at present. Possible datasets are 1:250 000, 1:625 000, 1 km x 1 km grid squares.

Transformed or combined datasets containing LCS88 data require to be licensed if the lease of the dataset itself is terminated.

4.4 Map products

The above covers the release of digital data. However, it is recognised that a great many users require map products. It was never the intention to produce a published map series for the Land Cover of Scotland survey. However, it is possible to provide:

- clean copies of the 1:25 000 interpreted base maps
- user-defined thematic maps (showing areas of specified land cover features in particular geographic regions, for example, woodland in Kincardine and Deeside District).

For further information on derived maps, statistical summaries, formats and media, please contact the Data Leasing Officer, Resource Consultancy Unit, MLURI, Aberdeen AB9 2QJ Tel 0224 318611.

FORMATS

<i>Release 1</i>		<i>Release 2</i>
Un-edge-matched, as digitised		Edge-matched data
<i>Vector</i>	SPANS VEC/VEH 6 files per tile (2 files each for area, line and point features)	<i>Vector</i> ARC/INFO Version 6.0.1 export, 3 files per tile
<i>Raster area features</i>	ERDAS Version 7.5, 50 metre pixels, 1 file per tile, per region or a single file for the whole dataset	<i>Raster</i> 16-bit TIFF
<i>line features</i>	not supplied	
<i>point features</i>	ASCII text, 1 file per tile, per region, or a single file for the whole dataset	

MEDIA

<i>3.5" diskette</i>	IBM-Compatible PC format. Self-unpacking program and data
<i>DAT</i>	UNIX cpio or tar
<i>EXABYTE tape</i>	UNIX cpio or tar
<i>9 track, 1/2" tape</i>	UNIX cpio ANSI; 1600 or 6250bpi
<i>Optical (WORM) disc</i>	This medium is being used for long-term backup. It will be made available to users if required
<i>CD-ROM</i>	This will be made available if required

Table 4.1 Formats and media for the LCS88 dataset

References

Coppock, J.T. and Kirby, R.P. 1987. *Review of approaches and sources for monitoring change in the landscape of Scotland*. Consultancy report for The Scottish Development Department. The Scottish Office, Edinburgh. 90pp.

Dry, F.T., Richman, A.G., Hipkin, J.A. and Miller, D.R. 1992. *The measurement and analysis of land cover changes in part of the Central Valley of Scotland with respect to interactions between agriculture, forestry, conservation and the impact of development policy*. The Macaulay Land Use Research Institute, Aberdeen.

Gauld, J.H., Bell, J.S., Towers, W. and Miller, D.R. 1992. *The measurement and analysis of land cover changes in the Cairngorms with respect to interactions between agriculture, forestry, conservation and the impact of development policy*. The Macaulay Land Use Research Institute, Aberdeen.

MLURI, 1993. *The Land Cover of Scotland 1988: final report*. The Macaulay Land Use Research Institute, Aberdeen.

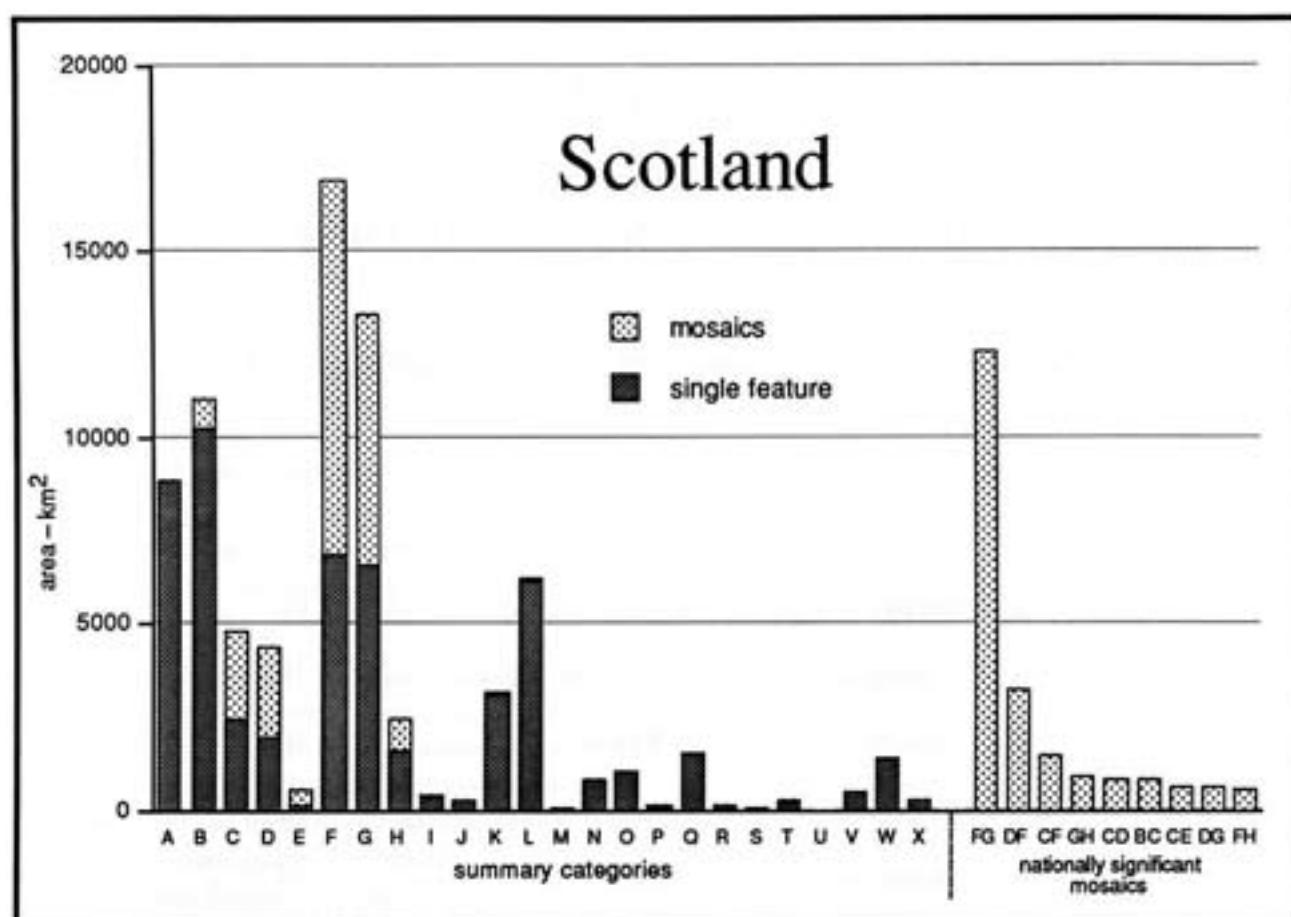
Wyatt, B.K., Greatedorex Davies, N., Bunce, R.G.H. and Hill, M.O. 1993. *Comparison of land cover definitions*. Final report. ITE Monks Wood.

Appendix

Land Cover of Scotland 1988

National and regional statistical summaries

	<i>page</i>
1. Scotland	14
2. Borders Region	16
3. Central Region	18
4. Dumfries & Galloway Region	20
5. Fife Region	22
6. Grampian Region	24
7. Highland Region	26
8. Lothian Region	28
9. Strathclyde Region	30
10. Tayside Region	32
11. Orkney Islands	34
12. Shetland Islands	36
13. Western Isles	38
<i>Map of summary categories</i>	<i>inside back cover</i>



Using the LCS88 dataset, the total land area for Scotland is shown to be 78 828 km². Of this, over 50% is covered by semi-natural ground vegetation, of which heather moorland (8.7%) and peatland (8.4%) are the largest single features. Together heather moorland and peatland as features in mosaics represent a further 22.3% of the total land area. Woodland cover types are found predominantly as a single features with coniferous plantation (7.8%), and recent planting (3.9%) accounting for the greatest area. Broadleaved woodland (1.3%), mixed woodland (1.1%) and semi-natural coniferous woodland (0.1%) account for (2.5%) of the area, roughly the same as urban (1.8%) and rural development (0.6%). The agricultural cover types arable (11.2%) and improved grassland (13.0%) are the most extensive single features and significantly they tend not to occur as mosaics, as is the case with woodland cover types. This contrasts markedly with the semi-natural cover the bulk of whose area occurs within mosaics.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	8826.9	11.2	18.1	10.1
B	Improved grassland	10281.1	13.0	1086.2	230.1
C	Good rough grassland	2472.2	3.1	1995.2	2847.3
D	Poor rough grassland	2011.0	2.6	1735.3	3371.8
E	Bracken	117.3	0.1	201.3	752.1
F	Heather moorland	6881.5	8.7	13685.9	4572.6
G	Peatland	6600.2	8.4	3661.1	11308.2
H	Montane	1604.5	2.0	1202.2	346.9
I	Rock and cliffs	348.1	0.4	46.7	98.2
Woodland					
J	Felled woodland	299.8	0.4	13.6	5.0
K	Recent planting	3092.0	3.9	94.7	110.7
L	Coniferous plantation	6142.1	7.8	85.5	29.5
M	Semi-natural coniferous	75.0	0.1	4.1	14.8
N	Mixed woodland	854.5	1.1	17.1	27.1
O	Broadleaved	1024.3	1.3	39.4	49.3
P	Scrub	74.4	0.1	8.6	82.3
Wet ground					
Q	Fresh waters	1532.0	1.9	N.S	9.7
R	Marshes	127.9	0.2	8.2	72.0
S	Saltmarshes	60.4	0.1	0.6	1.8
T	Dunes	193.1	0.2	55.7	43.7
U	Tidal waters	27.3	N.S	0	0
Developed					
V	Rural development	470.3	0.6	50.0	4.2
W	Urban	1444.8	1.8	1.0	1.3
Other					
X	Missing photography/obscured land	256.0	0.3	1.5	23.1
	SUBTOTAL	54816.7	69.5		
Y	Mosaics of types above	24011.8	30.5	24011.8	24011.8
	NATIONAL TOTAL	78828.5	100.0		

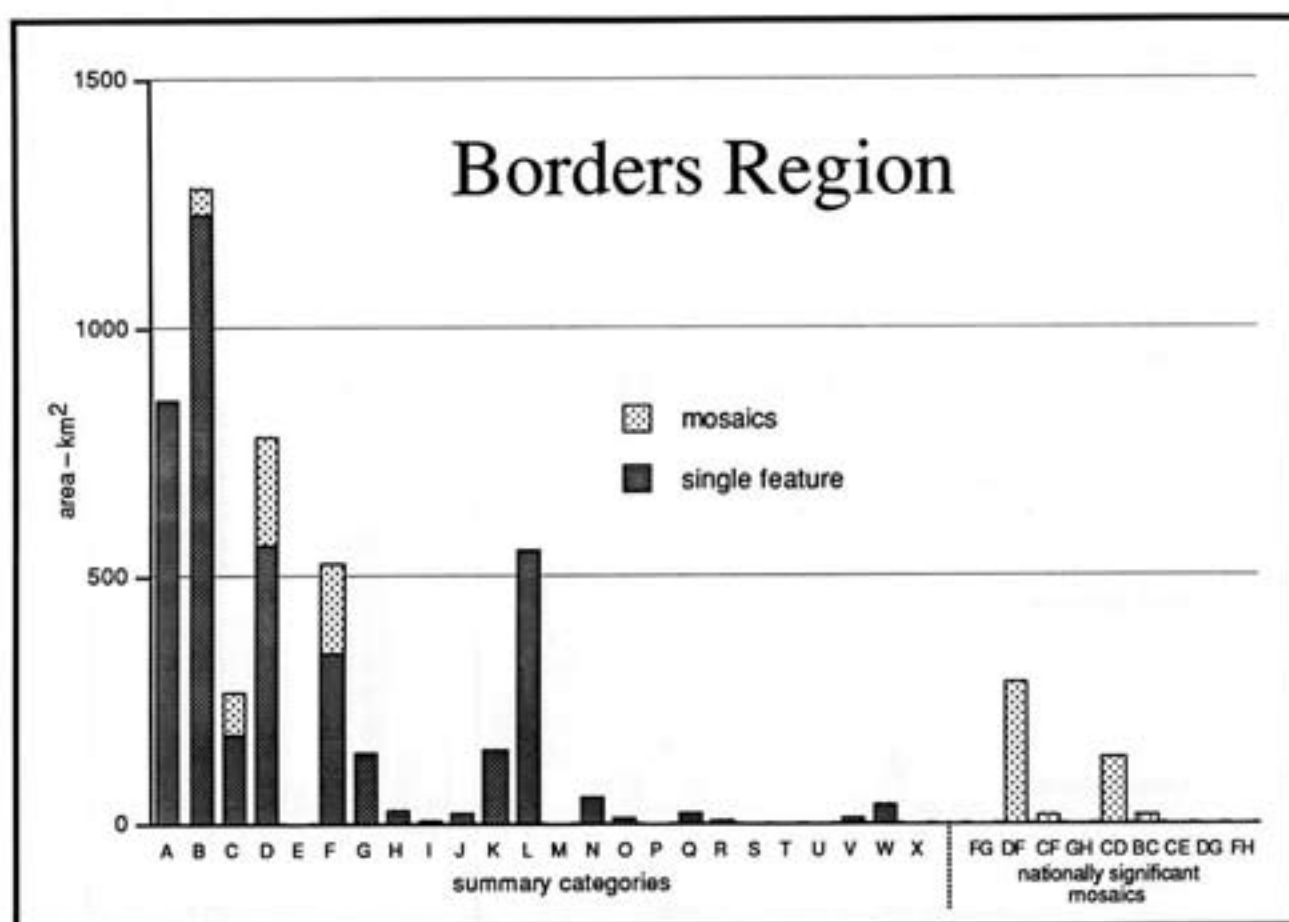
Nationally significant mosaics		area	%
FG	Heather moorland Peatland	12370.9	15.7
DF	Poor rough grassland Heather moorland	3230.0	4.1
CF	Good rough grassland Heather moorland	1452.9	1.8
GH	Peatland Montane	935.5	1.2
CD	Good rough grassland Poor rough grassland	848.0	1.1
BC	Improved grassland Good rough grassland	814.8	1.0
CE	Good rough grassland Bracken	660.9	0.8
DG	Poor rough grassland Peatland	634.0	0.8
FH	Heather moorland Montane	539.9	0.7
	SUBTOTAL	21486.9	27.3
	Remaining mosaics	2524.9	3.2
	MOSAICS OF SUMMARY COVER TYPES	24011.8	30.5

Table 1

Scotland

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset, the total land area for Borders Region is shown to be 4732 km². Of this, over 44% is arable and improved grassland as single features, whilst good rough grassland (3.9%) and poor rough grassland (12.0%) account for another 16%. This means that some 60% of the Region is arable or grassland. Of the remainder, recent planting (3.1%) and coniferous plantation (11.7%) account for 15%, and mosaics of poor rough grassland and heather moorland for a further 6%.

The Region is remarkable in the Scottish context for the predominance of the arable and grassland cover types (twice the national average), and the relative unimportance of heather moorland and particularly heather moorland mosaics. The low percentages of peatland should be noted. Overall the data indicate an area dominated by large land cover units reflected in the relative unimportance of mosaic features (11.3%).

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	857.8	18.1	0	0
B	Improved grassland	1230.5	26.0	81.9	2.7
C	Good rough grassland	177.6	3.8	66.3	113.5
D	Poor rough grassland	566.3	12.0	94.9	396.7
E	Bracken	0	0	0	0
F	Heather moorland	347.0	7.3	282.9	17.8
G	Peatland	136.8	2.9	3.3	4.5
H	Montane	25.0	0.5	1.1	0
I	Rock and cliffs	2.7	0.1	0	0
Woodland					
J	Felled woodland	19.0	0.4	0	0
K	Recent planting	145.7	3.1	4.9	0
L	Coniferous plantation	554.2	11.7	0	0
M	Semi-natural coniferous	N.S	N.S	0	0
N	Mixed woodland	53.4	1.1	0	0
O	Broadleaved	8.4	0.2	0	0
P	Scrub	1.8	N.S	0	0
Wet ground					
Q	Fresh waters	19.2	0.4	0	0
R	Marshes	5.0	0.1	0	0.3
S	Saltmarshes	0	0	0	0
T	Dunes	N.S	N.S	0	0
U	Tidal waters	0	0	0	0
Developed					
V	Rural development	10.7	0.2	0	0
W	Urban	36.0	0.8	0	0
Other					
X	Missing photography/obscured land	0.1	N.S	0	0
SUBTOTAL		4197.1	88.7		
Y	Mosaics of types above	535.4	11.3	535.4	535.4
REGIONAL TOTAL		4732.5	100.0		

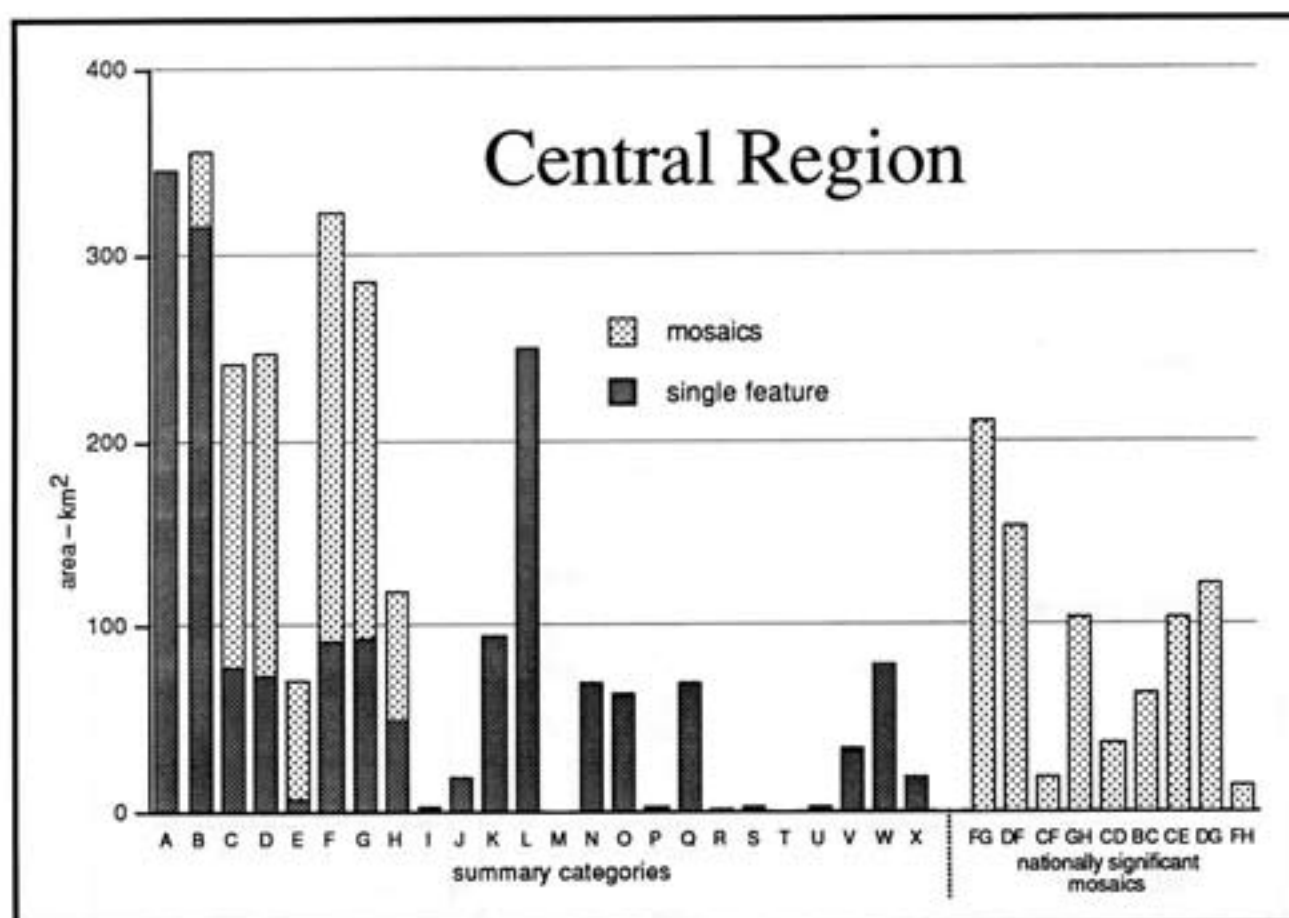
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	0	0
DF	Poor rough grassland	Heather moorland	286.5	6.1
CF	Good rough grassland	Heather moorland	13.5	0.3
GH	Peatland	Montane	1.1	N.S
CD	Good rough grassland	Poor rough grassland	131.8	2.8
BC	Improved grassland	Good rough grassland	16.2	0.3
CE	Good rough grassland	Bracken	0	0
DG	Poor rough grassland	Peatland	0	0
FH	Heather moorland	Montane	0	0
SUBTOTAL			449.1	9.5
Locally significant mosaics			area	%
BD	Improved grassland	Poor rough grassland	68.4	1.4
DK	Poor rough grassland	Recent planting	4.9	0.1
CR	Good rough grassland	Marshes	0.3	N.S
SUBTOTAL			73.7	1.6
Remaining mosaics			12.6	0.3
MOSAICS OF SUMMARY COVER TYPES			535.4	11.3

Table 2

Borders Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Central Region is shown to be 2703 km². Of this around 25% is made up of arable (12.8%) and improved grassland (11.7%) as single features. Rough grassland accounts for a further 6% including mosaics. Of the remaining area some 9% is accounted for by coniferous plantation and a further 5% by a combination of mixed woodland (2.5%) and broadleaved woodland (2.3%) which is over twice the national average. Some 35% of the Region is accounted for by mosaics in which heather moorland, peatland and poor rough grassland combinations predominate.

The Region is remarkable for the relatively high percentage of mixed and broadleaved woodland, and urban/ rural development. The breakdown of single feature and mosaic classes indicates an intermediate type of landscape which is more developed than average but which retains significant areas of the nationally extensive semi-natural vegetation types.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	346.0	12.8	0	0
B	Improved grassland	316.5	11.7	65.1	1.5
C	Good rough grassland	77.8	2.9	165.3	165.1
D	Poor rough grassland	73.5	2.7	189.0	154.6
E	Bracken	6.6	0.2	25.1	123.3
F	Heather moorland	91.7	3.4	322.7	93.1
G	Peatland	94.4	3.5	62.3	387.4
H	Montane	48.9	1.8	109.4	11.5
I	Rock and cliffs	0.7	N.S	0	2.1
Woodland					
J	Felled woodland	19.1	0.7	0.4	0.2
K	Recent planting	94.9	3.5	0.1	0
L	Coniferous plantation	250.9	9.3	0.1	0.7
M	Semi-natural coniferous	0	0	0	0
N	Mixed woodland	68.6	2.5	0.2	1.8
O	Broadleaved	62.3	2.3	0.4	0.8
P	Scrub	3.0	0.1	0	0.4
Wet ground					
Q	Fresh waters	69.1	2.6	0	0
R	Marshes	1.5	0.1	0.3	0.7
S	Saltmarshes	2.6	0.1	0	0
T	Dunes	0	0	0	0
U	Tidal waters	2.5	0.1	0	0
Developed					
V	Rural development	31.7	1.2	2.9	0
W	Urban	79.2	2.9	0	0
Other					
X	Missing photography/obscured land	18.5	0.7	0	0
SUBTOTAL		1759.9	65.1		
Y	Mosaics of types above	943.3	34.9	943.3	943.3
REGIONAL TOTAL		2703.2	100.0		

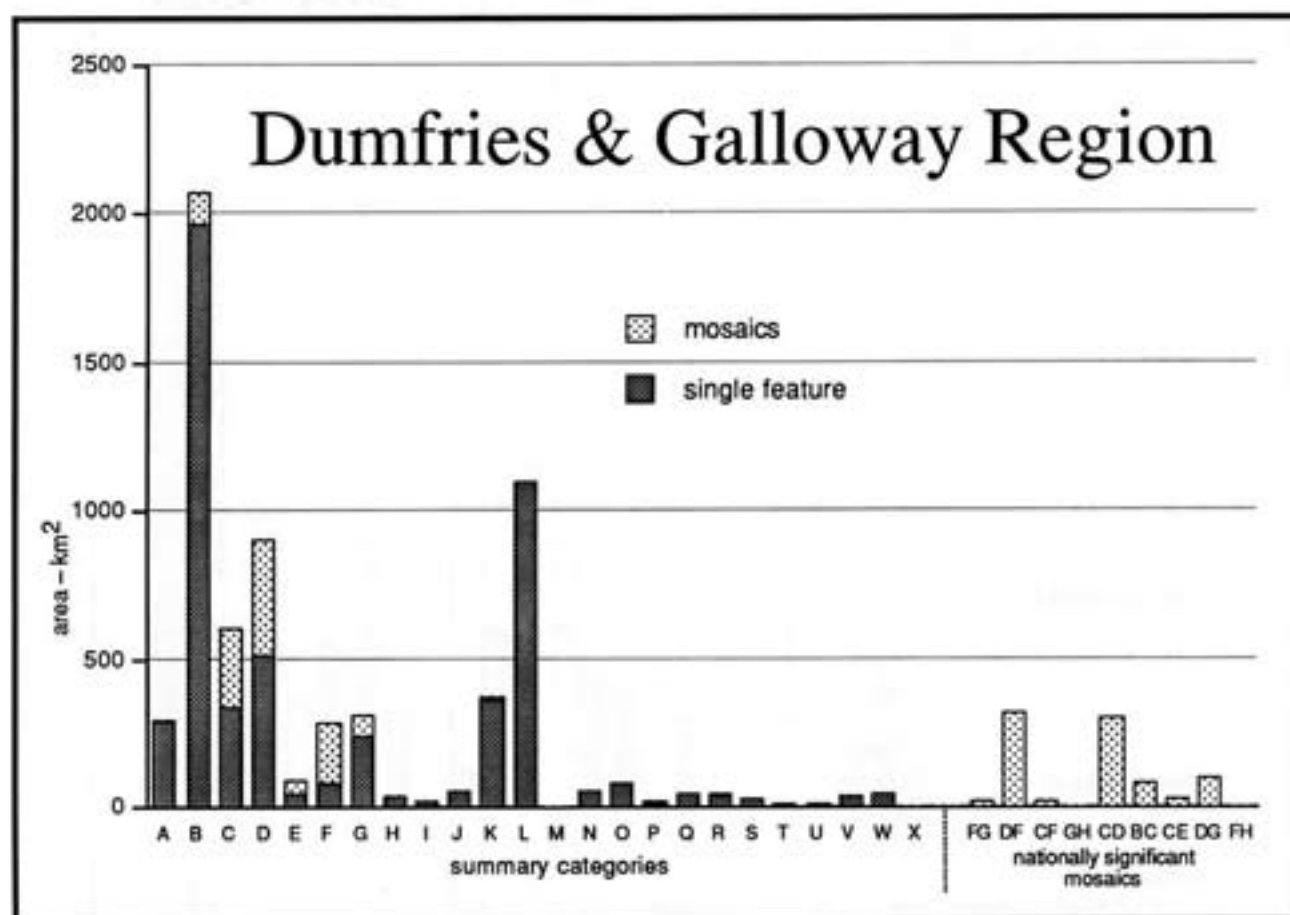
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	211.0	7.8
DF	Poor rough grassland	Heather moorland	154.5	5.7
CF	Good rough grassland	Heather moorland	17.9	0.7
GH	Peatland	Montane	104.5	3.9
CD	Good rough grassland	Poor rough grassland	36.9	1.4
BC	Improved grassland	Good rough grassland	62.5	2.3
CE	Good rough grassland	Bracken	104.8	3.9
DG	Poor rough grassland	Peatland	123.8	4.6
FH	Heather moorland	Montane	14.1	0.5
SUBTOTAL			830.1	30.7
Locally significant mosaics			area	%
DE	Poor rough grassland	Bracken	24.7	0.9
EF	Bracken	Heather moorland	17.0	0.6
CG	Good rough grassland	Peatland	8.7	0.3
BD	Improved grassland	Poor rough grassland	2.8	0.1
NV	Mixed woodland	Rural development	1.8	0.1
SUBTOTAL			55.1	2.0
Remaining mosaics			58.1	2.2
MOSAICS OF SUMMARY COVER TYPES			943.3	34.9

Table 3

Central Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Dumfries and Galloway Region is shown to be 6478 km². Of this, over 45% is represented by a combination of improved grassland (30.4%), good rough grassland (5.2%) and poor rough grassland (7.9%) as single features. Arable accounts for only 4.5%, less than half the national average, but recent planting (5.6%) and coniferous plantation (17.0%) account for over 22% of the area. This is over twice the national average. Only a very small proportion of the remaining area is accounted for by the nationally important semi-natural cover types of heather and peatland, the majority of the mosaics (totalling 16.8%) being grassland mixes.

The Region is remarkable for the very high percentage of grassland and coniferous plantation which together account for over 70% of the area. In contrast, the Region has very little in the way of nationally significant heather moorland or peatland cover.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	291.5	4.5	0	0
B	Improved grassland	1971.0	30.4	151.1	24.2
C	Good rough grassland	334.1	5.2	220.8	334.6
D	Poor rough grassland	512.0	7.9	340.0	460.2
E	Bracken	47.2	0.7	44.8	31.3
F	Heather moorland	83.3	1.3	253.5	108.8
G	Peatland	240.7	3.7	62.2	78.4
H	Montane	37.0	0.6	0	0
I	Rock and cliffs	14.4	0.2	2.4	0.4
Woodland					
J	Felled woodland	49.1	0.8	3.7	0
K	Recent planting	364.3	5.6	4.0	3.5
L	Coniferous plantation	1098.9	17.0	0.2	0.1
M	Semi-natural coniferous	N.S	N.S	0	0.2
N	Mixed woodland	55.4	0.9	0.6	0
O	Broadleaved	81.6	1.3	0.5	0.2
P	Scrub	3.8	0.1	0	38.8
Wet ground					
Q	Fresh waters	46.3	0.7	0	0
R	Marshes	38.3	0.6	1.9	4.5
S	Saltmarshes	24.4	0.4	0	0
T	Dunes	11.0	0.2	0.5	0.8
U	Tidal waters	5.3	0.1	0	0
Developed					
V	Rural development	34.6	0.5	0.1	0.3
W	Urban	45.5	0.7	0.1	0
Other					
X	Missing photography/obscured land	1.6	N.S	0	0
SUBTOTAL		5391.3	83.2		
Y	Mosaics of types above	1086.4	16.8	1086.4	1086.4
REGIONAL TOTAL		6477.6	100.0		

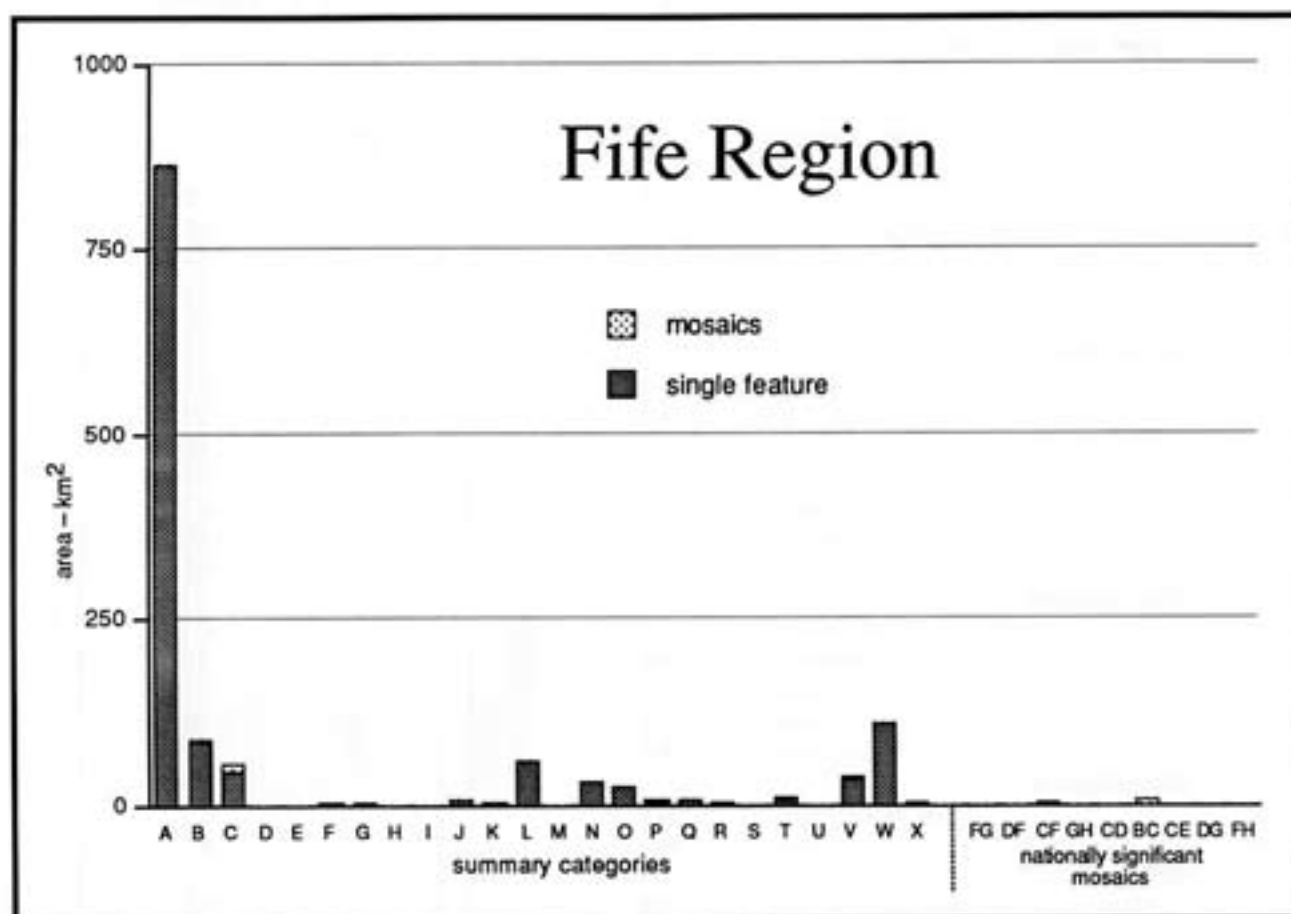
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	14.0	0.2
DF	Poor rough grassland	Heather moorland	315.8	4.9
CF	Good rough grassland	Heather moorland	14.3	0.2
GH	Peatland	Montane	0	0
CD	Good rough grassland	Poor rough grassland	300.7	4.6
BC	Improved grassland	Good rough grassland	75.2	1.2
CE	Good rough grassland	Bracken	25.7	0.4
DG	Poor rough grassland	Peatland	93.6	1.4
FH	Heather moorland	Montane	0	0
SUBTOTAL			839.3	13.0
Locally significant mosaics			area	%
BD	Improved grassland	Poor rough grassland	57.7	0.9
BP	Improved grassland	Scrub	33.0	0.5
DE	Poor rough grassland	Bracken	29.1	0.4
CG	Good rough grassland	Peatland	17.4	0.3
EF	Bracken	Heather moorland	14.7	0.2
SUBTOTAL			152.0	2.3
Remaining mosaics			95.1	1.5
MOSAICS OF SUMMARY COVER TYPES			1086.4	16.8

Table 4

Dumfries & Galloway Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Fife Region is shown to be 1319 km². Of this, over 65% is arable as a single feature with improved grassland (6.4%) and good rough grassland (3.5%) accounting for a further 10%. Of the remainder, over 10% is made up of urban (8.2%) and rural development (2.6%). Woodland is the largest remaining class with a total of just under 10% roughly divided between coniferous plantation, mixed woodland and broadleaved woodland. Only 2.2% of the area was mapped as mosaic and the nationally significant semi-natural communities of heather moorland and peatland are rare.

The Region is remarkable for the predominance of arable agriculture and improved grassland at some three times the national average. Likewise, the urban and rural development is some four times the average. The lack of the nationally significant semi-natural categories is unusual amongst the Scottish Regions, with only Lothian having a similarly low amount.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	863.5	65.4	N.S	0
B	Improved grassland	83.9	6.4	9.2	0.5
C	Good rough grassland	45.9	3.5	6.1	14.9
D	Poor rough grassland	0.9	0.1	0.1	0
E	Bracken	0.1	N.S	0	0.7
F	Heather moorland	2.3	0.2	2.7	0.2
G	Peatland	3.3	0.2	0	0
H	Montane	0	0	0	0
I	Rock and cliffs	0.2	N.S	0	0
Woodland					
J	Felled woodland	5.4	0.4	0	1.1
K	Recent planting	3.2	0.2	0	0.1
L	Coniferous plantation	59.7	4.5	1.3	0.7
M	Semi-natural coniferous	0	0	0	0
N	Mixed woodland	30.6	2.3	0	1.5
O	Broadleaved	25.3	1.9	0	1.3
P	Scrub	3.6	0.3	0	3.6
Wet ground					
Q	Fresh waters	7.3	0.5	0	0
R	Marshes	4.4	0.3	0	0.2
S	Saltmarshes	0.8	0.1	0	0
T	Dunes	4.7	0.4	3.6	3.6
U	Tidal waters	0.5	N.S	0	0
Developed					
V	Rural development	34.7	2.6	5.4	0
W	Urban	108.2	8.2	0	0
Other					
X	Missing photography/obscured land	2.6	0.2	0	0
SUBTOTAL		1291.1	97.8		
Y	Mosaics of types above	28.4	2.2	28.4	28.4
REGIONAL TOTAL		1319.5	100.0		

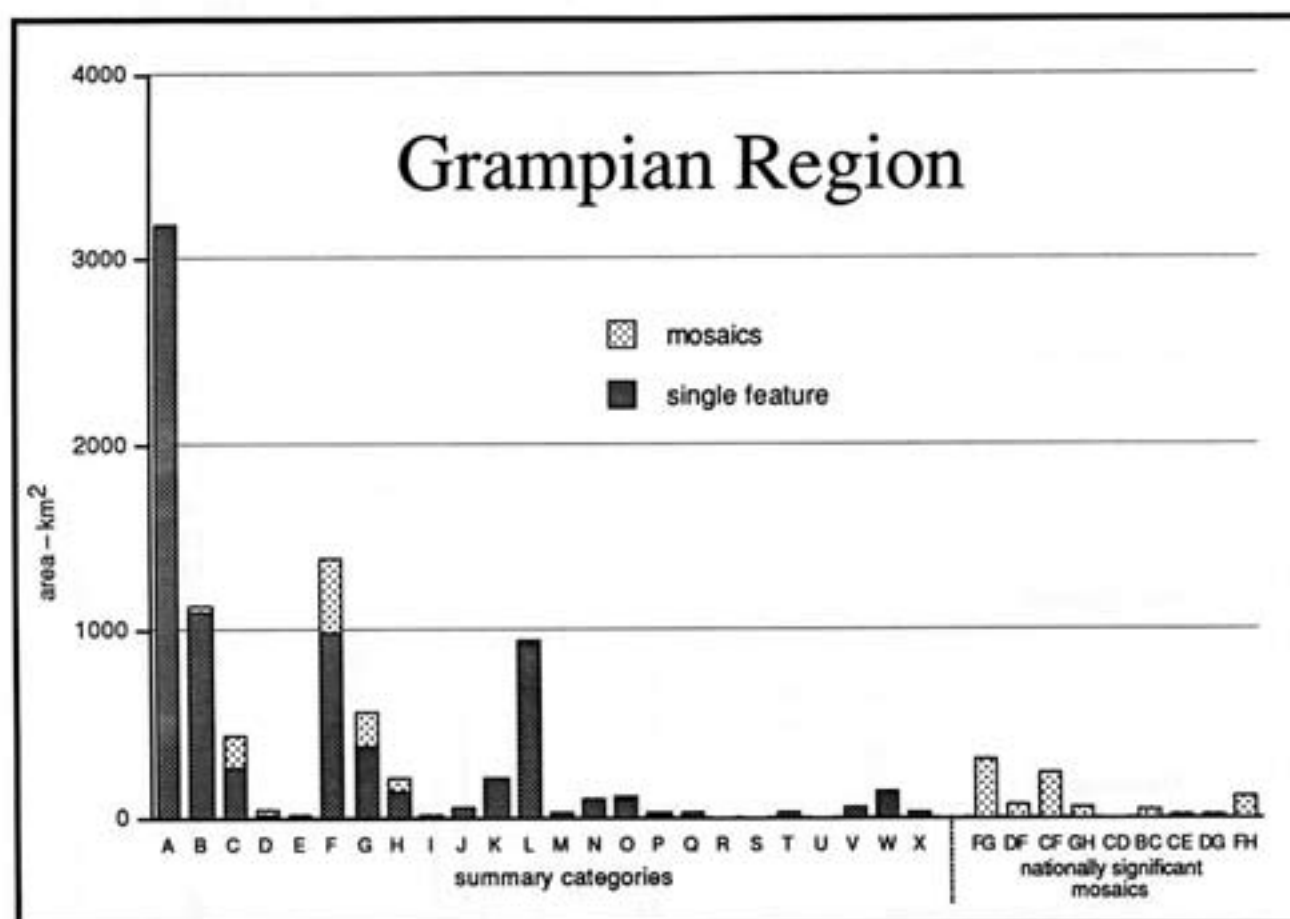
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	0	0
DF	Poor rough grassland	Heather moorland	0	0
CF	Good rough grassland	Heather moorland	2.8	0.2
GH	Peatland	Montane	0	0
CD	Good rough grassland	Poor rough grassland	0.1	N.S
BC	Improved grassland	Good rough grassland	6.4	0.5
CE	Good rough grassland	Bracken	0.6	N.S
DG	Poor rough grassland	Peatland	0	0
FH	Heather moorland	Montane	0	0
SUBTOTAL			9.9	0.8
Locally significant mosaics			area	%
BP	Improved grassland	Scrub	3.2	0.2
CV	Good rough grassland	Rural development	2.0	0.2
NV	Mixed woodland	Rural development	1.5	0.1
OV	Broadleaved	Rural development	1.3	0.1
JL	Felled woodland	Coniferous plantation	1.1	0.1
SUBTOTAL			9.1	0.7
Remaining mosaics			9.4	0.7
MOSAICS OF SUMMARY COVER TYPES			28.4	2.2

Table 5

Fife Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Grampian Region is shown to be 8755 km². Of this, around half is arable (36.5%) and improved grassland (12.6%) as single features, over twice the national average. Of the remaining area, heather moorland and peatland account for over 20% of which the majority is not mosaic. Recent planting (2.5%) and coniferous plantation (10.8%) account for another 13% represented as single features.

The Region is remarkable for the relatively high percentage of arable and improved grassland and the relatively low percentage of semi-natural features in mosaics.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	3192.3	36.5	0	0
B	Improved grassland	1099.8	12.6	39.6	8.0
C	Good rough grassland	268.7	3.1	115.6	261.1
D	Poor rough grassland	9.1	0.1	27.6	46.8
E	Bracken	1.4	N.S	2.4	9.0
F	Heather moorland	994.0	11.4	516.2	227.2
G	Peatland	383.5	4.4	136.4	256.7
H	Montane	138.1	1.6	70.7	86.7
I	Rock and cliffs	7.2	0.1	1.4	6.5
Woodland					
J	Felled woodland	56.2	0.6	0.2	0
K	Recent planting	214.6	2.5	1.5	0.2
L	Coniferous plantation	941.4	10.8	0.9	0.7
M	Semi-natural coniferous	25.4	0.3	0	0.7
N	Mixed woodland	100.0	1.1	2.3	0.8
O	Broadleaved	102.2	1.2	4.6	1.7
P	Scrub	15.8	0.2	0.9	14.4
Wet ground					
Q	Fresh waters	24.4	0.3	0	0
R	Marshes	5.1	0.1	0.2	0.2
S	Saltmarshes	3.1	N.S	0	0
T	Dunes	28.1	0.3	5.4	5.6
U	Tidal waters	4.3	N.S	0	0
Developed					
V	Rural development	56.4	0.6	3.0	1.6
W	Urban	133.6	1.5	0.1	1.0
Other					
X	Missing photography/obscured land	21.7	0.2	0	0
SUBTOTAL		7826.3	89.4		
Y	Mosaics of types above	929.0	10.6	929.0	929.0
REGION TOTAL		8755.3	100.0		

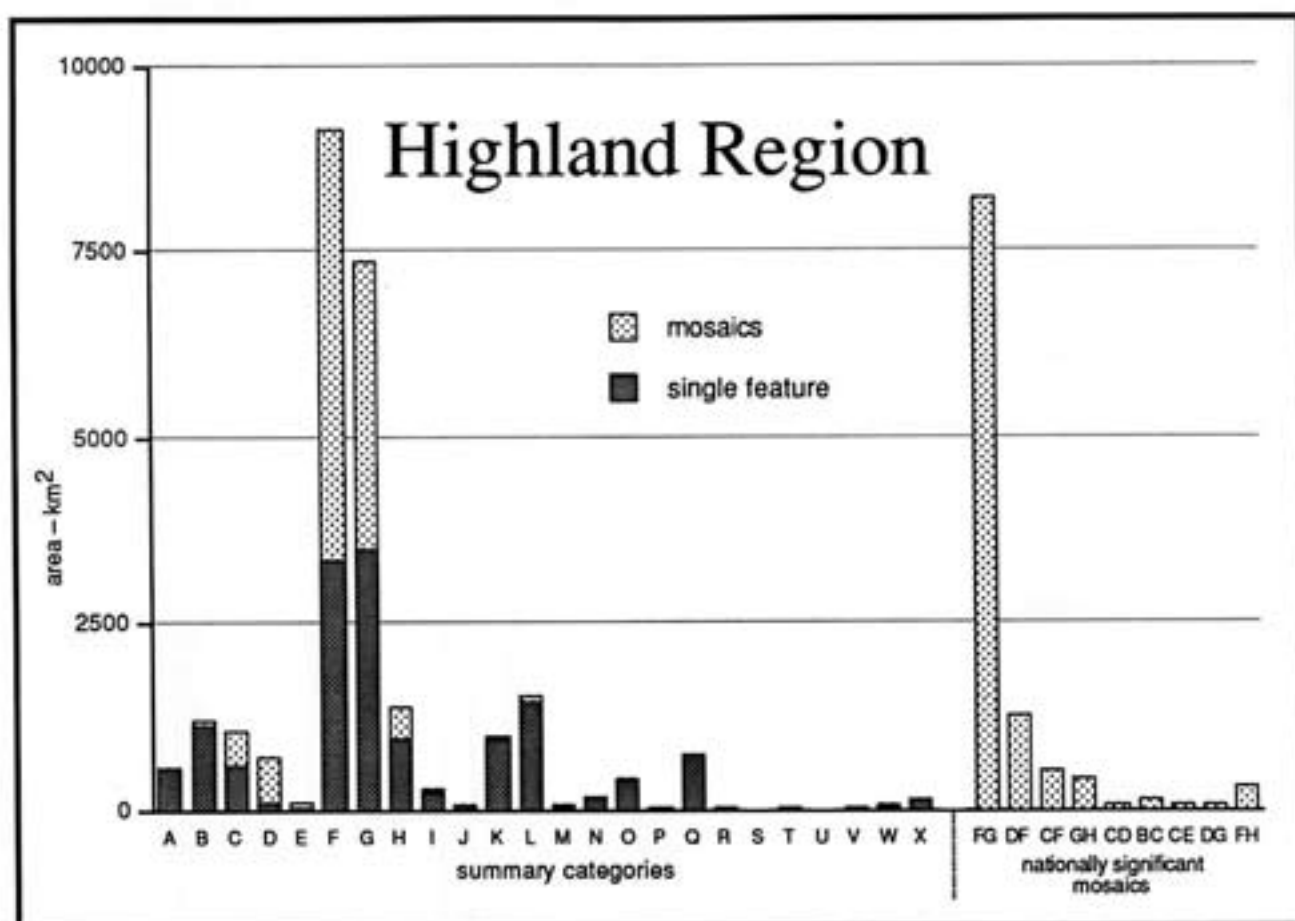
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	316.2	3.6
DF	Poor rough grassland	Heather moorland	65.0	0.7
CF	Good rough grassland	Heather moorland	233.5	2.7
GH	Peatland	Montane	48.8	0.6
CD	Good rough grassland	Poor rough grassland	1.3	N.S
BC	Improved grassland	Good rough grassland	42.0	0.5
CE	Good rough grassland	Bracken	7.9	0.1
DG	Poor rough grassland	Peatland	6.9	0.1
FH	Heather moorland	Montane	107.8	1.2
SUBTOTAL			829.3	9.5
Locally significant mosaics			area	%
CG	Good rough grassland	Peatland	19.8	0.2
FI	Heather moorland	Rock and cliffs	5.6	0.1
FP	Heather moorland	Scrub	4.8	0.1
BP	Improved grassland	Scrub	3.6	N.S
CO	Good rough grassland	Broadleaved	2.9	N.S
SUBTOTAL			36.8	0.4
Remaining mosaics			62.9	0.7
MOSAICS OF SUMMARY COVER TYPES			929.0	10.6

Table 6

Grampian Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Highland Region is shown to be 26 132 km². Around 44% of this area is represented by mosaic features of which heather moorland/ peatland mosaics (31.5%) predominate. Heather moorland (12.8%) and peatland (13.4%) individually account for another 26% as single features. Of the remaining area, coniferous plantation (5.6%) and recent planting (3.7%) account for over 9%, and arable (2.1%), improved (4.3%) and good rough grassland (2.4%) for a further 9%. Because of its size, Highland Region contains significant areas of rare cover types such as broadleaved woodland (around one-third of the national total), and montane (around two-thirds of the national total).

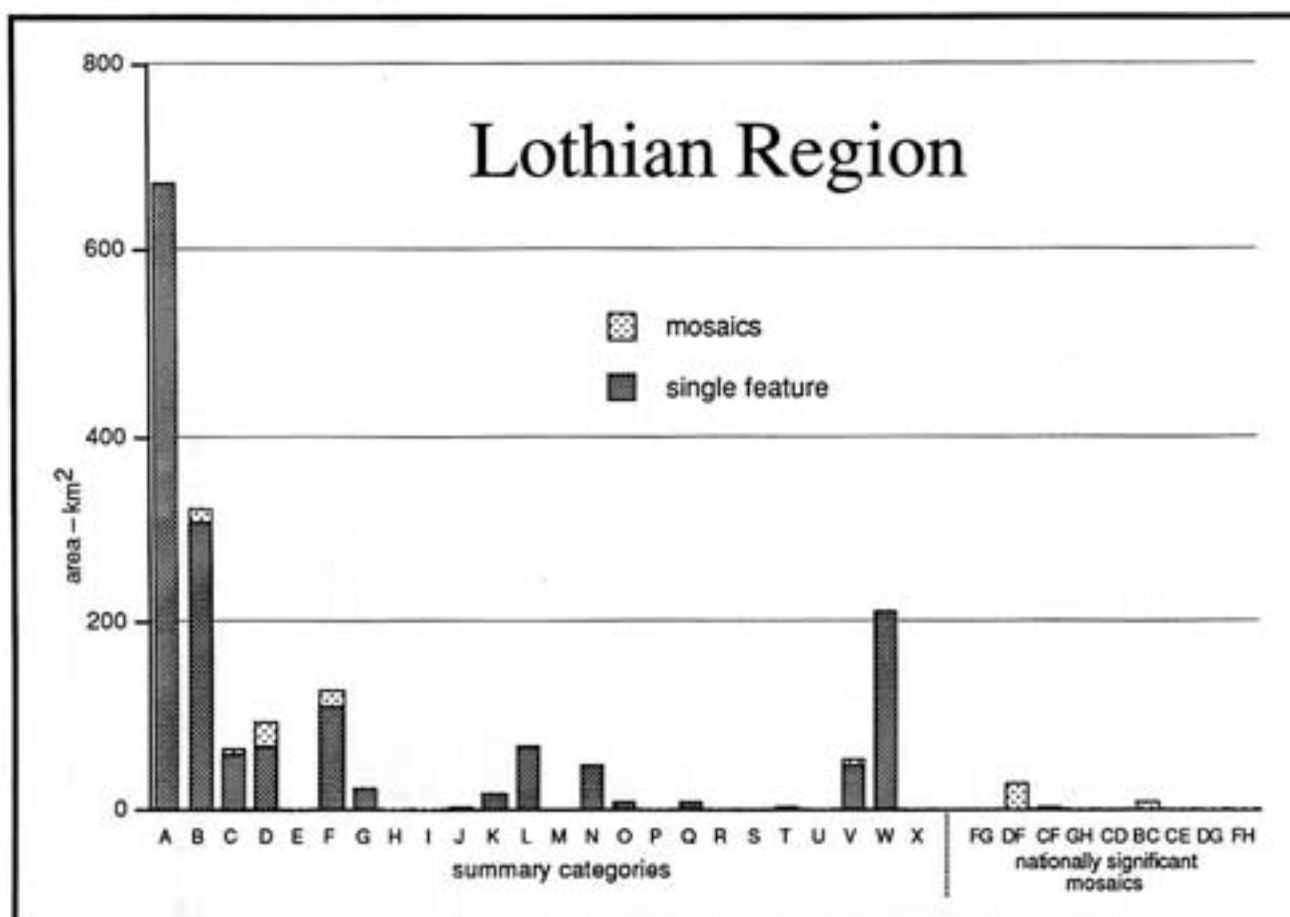
The Region is remarkable because of the predominance of the semi-natural heather moorland and peatland (over 60%) and the comparative lack of agricultural land at about one-third of the national average. The complexity of the landscape is reflected in the predominance of the mosaic features.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	560.5	2.1	N.S.	N.S.
B	Improved grassland	1117.0	4.3	146.1	26.0
C	Good rough grassland	616.1	2.4	313.9	605.9
D	Poor rough grassland	100.0	0.4	249.2	1167.5
E	Bracken	32.1	0.1	35.0	111.7
F	Heather moorland	3352.0	12.8	8098.5	2365.0
G	Peatland	3500.5	13.4	1868.6	6919.0
H	Montane	938.4	3.6	623.4	142.4
I	Rock and cliffs	248.9	1.0	17.7	22.9
Woodland					
J	Felled woodland	58.4	0.2	4.0	1.4
K	Recent planting	959.8	3.7	32.4	37.0
L	Coniferous plantation	1464.7	5.6	66.4	13.3
M	Semi-natural coniferous	45.5	0.2	4.1	12.3
N	Mixed woodland	160.6	0.6	10.8	2.8
O	Broadleaved	382.6	1.5	20.8	29.7
P	Scrub	21.3	0.1	7.3	17.9
Wet ground					
Q	Fresh waters	741.7	2.8	0	1.1
R	Marshes	26.8	0.1	3.2	7.0
S	Saltmarshes	11.4	N.S.	N.S.	1.4
T	Dunes	31.4	0.1	9.1	5.2
U	Tidal waters	3.7	N.S.	0	0
Developed					
V	Rural development	37.4	0.1	0.4	0.2
W	Urban	67.7	0.3	0.5	0.2
Other					
X	Missing photography/obscured land	141.0	0.5	1.4	23.0
SUBTOTAL		14619.6	55.9		
Y	Mosaics of types above	11512.9	44.1	11512.9	11512.9
REGIONAL TOTAL		26132.5	100.0		

Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	8231.0	31.5
DF	Poor rough grassland	Heather moorland	1265.0	4.8
CF	Good rough grassland	Heather moorland	528.2	2.0
GH	Peatland	Montane	406.4	1.6
CD	Good rough grassland	Poor rough grassland	66.8	0.3
BC	Improved grassland	Good rough grassland	144.0	0.6
CE	Good rough grassland	Bracken	76.8	0.3
DG	Poor rough grassland	Peatland	73.0	0.3
FH	Heather moorland	Montane	305.7	1.2
SUBTOTAL			11096.9	42.5
Locally significant mosaics			area	%
CG	Good rough grassland	Peatland	54.7	0.2
EF	Bracken	Heather moorland	52.9	0.2
KL	Recent planting	Coniferous plantation	36.1	0.1
FI	Heather moorland	Rock and cliffs	29.8	0.1
HX	Montane	Missing photography/obscured land	24.2	0.1
SUBTOTAL			197.7	0.8
Remaining mosaics			218.3	0.8
MOSAICS OF SUMMARY COVER TYPES			11512.9	44.1

Table 7
**Highland
Region**
Land cover summary
categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S. = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Lothian Region is shown to be 1730 km². Over 55% of this is arable (38.9%) and improved grassland (17.9%) as single features while urban (12.3%) and rural development (2.8%) accounts for a further 15%. Semi-natural cover types are relatively unimportant, for example, heather moorland and peatland account for only about 9% including mosaics. The lack of complexity in the landscape is reflected in the fact that only 4% of the area is covered by mosaics of which those with a rural development component are unusual.

The Region is remarkable because of its high proportion of urban and rural development, which at over 15%, is some six times the national average.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	672.6	38.9	0	0
B	Improved grassland	309.4	17.9	11.3	17.9
C	Good rough grassland	58.4	3.4	3.3	10.5
D	Poor rough grassland	67.9	3.9	16.5	36.3
E	Bracken	0	0	0	0
F	Heather moorland	110.3	6.4	29.8	0
G	Peatland	23.5	1.4	0.1	0
H	Montane	0	0	0	0
I	Rock and cliffs	N.S.	N.S.	0	0
Woodland					
J	Felled woodland	2.1	0.1	0	0
K	Recent planting	17.9	1.0	0	0
L	Coniferous plantation	69.0	4.0	0	0.7
M	Semi-natural coniferous	0.1	N.S.	0	0
N	Mixed woodland	46.5	2.7	0	1.3
O	Broadleaved	7.8	0.5	0	2.6
P	Scrub	1.0	0.1	0	0
Wet ground					
Q	Fresh waters	8.6	0.5	0	0
R	Marshes	0.8	N.S.	0	0
S	Saltmarshes	0.5	N.S.	0	0
T	Dunes	2.1	0.1	0	0
U	Tidal waters	0	0	0	0
Developed					
V	Rural development	49.1	2.8	8.1	0
W	Urban	213.0	12.3	0	0
Other					
X	Missing photography/obscured land	0.2	N.S.	0	0
SUBTOTAL		1660.5	96.0		
Y	Mosaics of types above	69.2	4.0	69.2	69.2
REGIONAL TOTAL		1729.7	100.0		

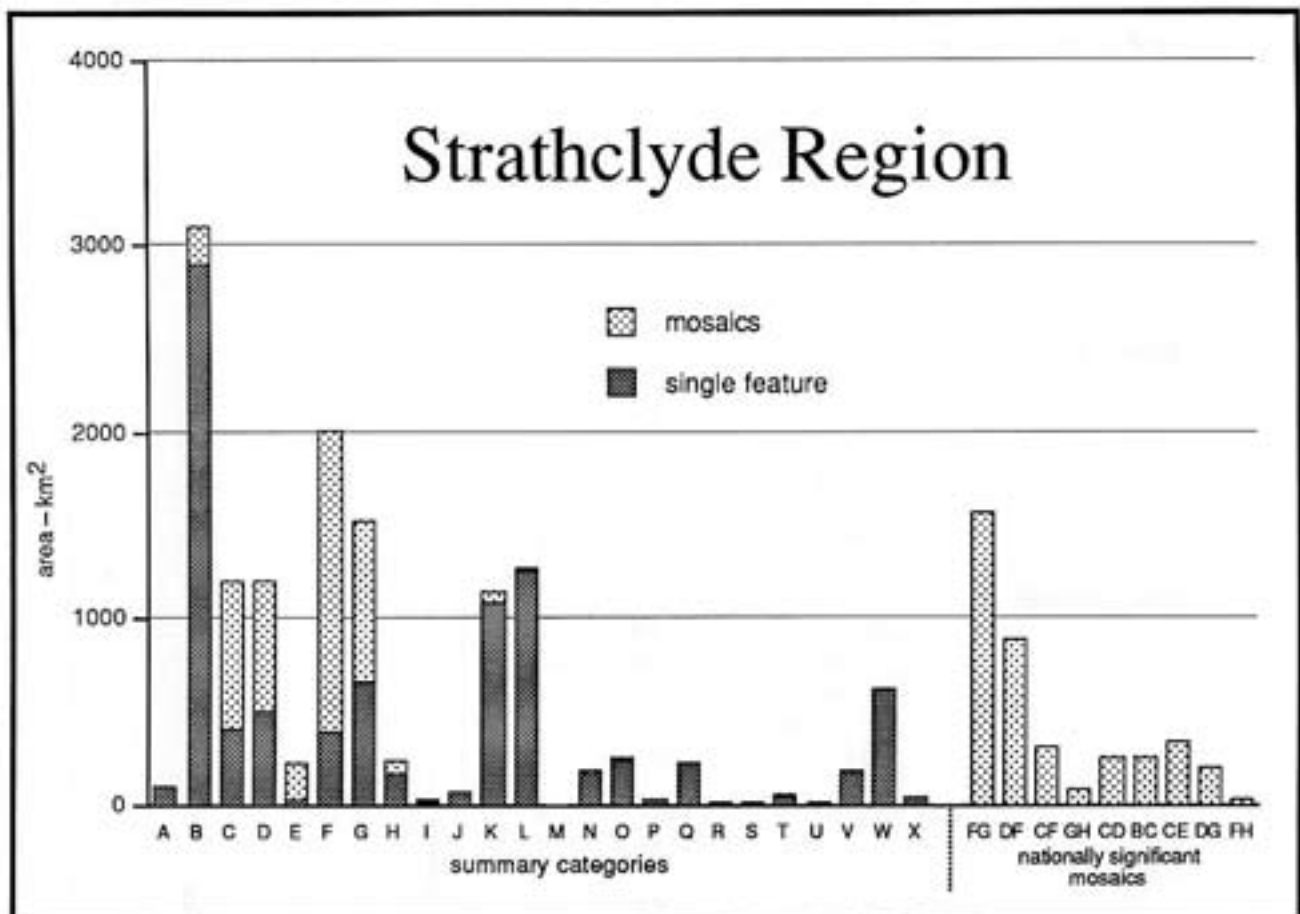
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	0	0
DF	Poor rough grassland	Heather moorland	27.8	1.6
CF	Good rough grassland	Heather moorland	2.1	0.1
GH	Peatland	Montane	0	0
CD	Good rough grassland	Poor rough grassland	0.3	N.S.
BC	Improved grassland	Good rough grassland	6.7	0.4
CE	Good rough grassland	Bracken	0	0
DG	Poor rough grassland	Peatland	0.1	N.S.
FH	Heather moorland	Montane	0	0
SUBTOTAL			36.9	2.1
Locally significant mosaics			area	%
BD	Improved grassland	Poor rough grassland	22.5	1.3
OV	Broadleaved	Rural development	2.6	0.1
DV	Poor rough grassland	Rural development	2.2	0.1
CV	Good rough grassland	Rural development	1.4	0.1
NV	Mixed woodland	Rural development	1.3	0.1
SUBTOTAL			29.9	1.7
Remaining mosaics			2.4	0.1
MOSAICS OF SUMMARY COVER TYPES			69.2	4.0

Table 8

Lothian Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S. = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Strathclyde Region is shown to be 13 756 km². The most important single feature is improved grassland (21.1%); coniferous plantation (9.2%) and recent planting (7.9%) together total 17% as the second most important features. Apart from these features there are no other predominant cover types, although the rural development/urban class is almost three times the national average, while the arable area is significantly less than the average (0.7% as opposed to 11.2%).

Some 33% of the Region's landscape has mosaics, of which the majority are nationally significant types, predominated by mosaics of heather moorland and peatland (11.5%).

The Region is remarkable in terms of the relatively high proportion of improved grassland and coniferous plantation and the relatively small amount of arable land.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	99.2	0.7	0	NS
B	Improved grassland	2906.9	21.1	286.0	63.6
C	Good rough grassland	416.2	3.0	760.8	830.4
D	Poor rough grassland	510.7	3.7	572.7	875.1
E	Bracken	24.7	0.2	92.9	351.6
F	Heather moorland	388.8	2.8	2200.9	753.7
G	Peatland	668.6	4.9	428.0	1513.4
H	Montane	173.2	1.3	96.0	31.9
I	Rock and cliffs	13.0	0.1	12.7	20.8
Woodland					
J	Felled woodland	66.7	0.5	5.2	2.2
K	Recent planting	1088.9	7.9	51.5	69.6
L	Coniferous plantation	1264.5	9.2	15.7	10.5
M	Semi-natural coniferous	1.2	NS	0	0
N	Mixed woodland	174.7	1.3	2.5	11.9
O	Broadleaved	240.4	1.7	12.8	12.1
P	Scrub	21.7	0.2	0.3	7.2
Wet ground					
Q	Fresh waters	221.1	1.6	0	NS
R	Marshes	13.4	0.1	0.5	11.9
S	Saltmarshes	6.9	0.1	0.1	NS
T	Dunes	42.5	0.3	14.8	4.7
U	Tidal waters	7.0	0.1	0	0
Developed					
V	Rural development	166.9	1.2	18.3	1.4
W	Urban	627.1	4.6	0.2	0.1
Other					
X	Missing photography/obscured land	39.6	0.3	0	0
SUBTOTAL		9183.7	66.8		
Y	Mosaics of types above	4572.1	33.2	4572.1	4572.1
REGIONAL TOTAL		13755.9	100.0		

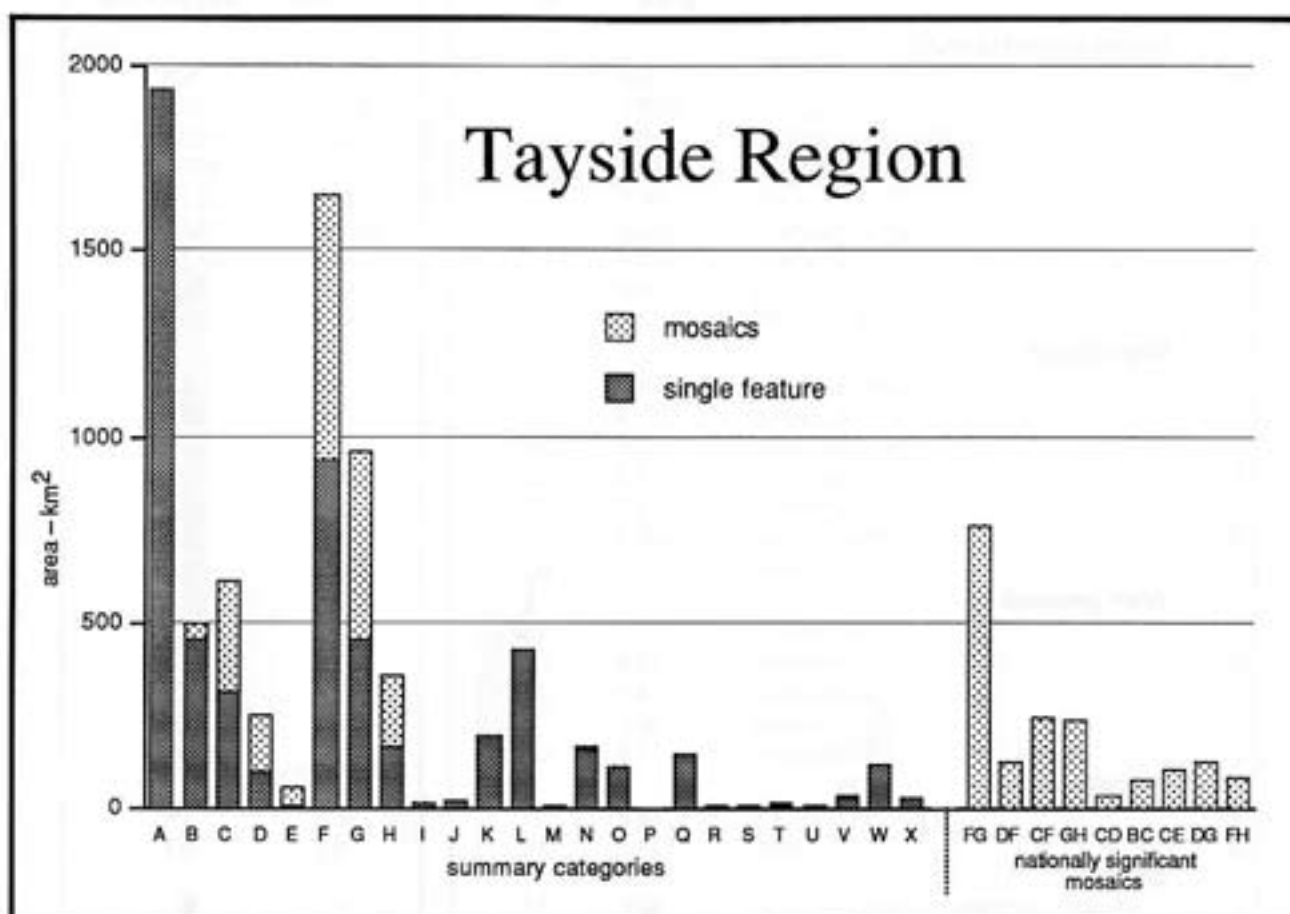
Nationally significant mosaics		area	%
FG	Heather moorland Peatland	1575.4	11.5
DF	Poor rough grassland Heather moorland	894.4	6.5
CF	Good rough grassland Heather moorland	306.8	2.2
GH	Peatland Montane	87.6	0.6
CD	Good rough grassland Poor rough grassland	258.6	1.9
BC	Improved grassland Good rough grassland	260.1	1.9
CE	Good rough grassland Bracken	341.6	2.5
DG	Poor rough grassland Peatland	191.0	1.4
FH	Heather moorland Montane	29.9	0.2
SUBTOTAL		3945.4	28.7
Locally significant mosaics		area	%
BD	Improved grassland Poor rough grassland	68.6	0.5
EF	Bracken Heather moorland	65.2	0.5
CG	Good rough grassland Peatland	62.2	0.5
FK	Heather moorland Recent planting	60.8	0.4
DE	Poor rough grassland Bracken	24.8	0.2
SUBTOTAL		281.5	2.0
Remaining mosaics		345.2	2.5
MOSAICS OF SUMMARY COVER TYPES		4572.1	33.2

Table 9

Strathclyde Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; NS = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of Tayside Region is shown to be 7646 km². Over 74% of the Region is covered by single feature categories reflecting a predominance of relatively homogeneous landscape types. The principal single features are arable (25.3%) and heather moorland (12.3%) with grasslands accounting for a further 11.5% and woodlands 12.2%. Mosaics of heather moorland and peatland (10%) are the most significant mosaic type.

The Region is remarkable for its high percentage of arable land, over twice the national average, combined with a relatively low percentage of improved grassland, less than half the national average.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	1937.4	25.3	0	0
B	Improved grassland	458.1	6.0	68.0	11.0
C	Good rough grassland	321.1	4.2	276.8	327.9
D	Poor rough grassland	100.1	1.3	166.9	128.4
E	Bracken	5.1	0.1	0.7	124.3
F	Heather moorland	943.8	12.3	963.3	325.2
G	Peatland	459.9	6.0	193.5	963.8
H	Montane	173.3	2.3	271.7	57.8
I	Rock and cliffs	10.4	0.1	0	3.4
Woodland					
J	Felled woodland	23.8	0.3	0.2	N.S
K	Recent planting	198.8	2.6	0.2	0.3
L	Coniferous plantation	433.5	5.7	0.9	2.0
M	Semi-natural coniferous	2.8	N.S	0	1.6
N	Mixed woodland	163.7	2.1	0.7	6.9
O	Broadleaved	113.4	1.5	0.2	0.8
P	Scrub	2.3	N.S	0	0
Wet ground					
Q	Fresh waters	145.0	1.9	0	0
R	Marshes	4.6	0.1	0.2	0.9
S	Saltmarshes	4.9	0.1	0.3	0.2
T	Dunes	8.7	0.1	1.5	1.5
U	Tidal waters	4.0	0.1	0	0
Developed					
V	Rural development	26.7	0.3	11.2	0
W	Urban	119.8	1.6	0	0
Other					
X	Missing photography/obscured land	28.9	0.4	0	0
SUBTOTAL		5690.2	74.4		
Y	Mosaics of types above	1956.2	25.6	1956.2	1956.2
REGIONAL TOTAL		7646.4	100.0		

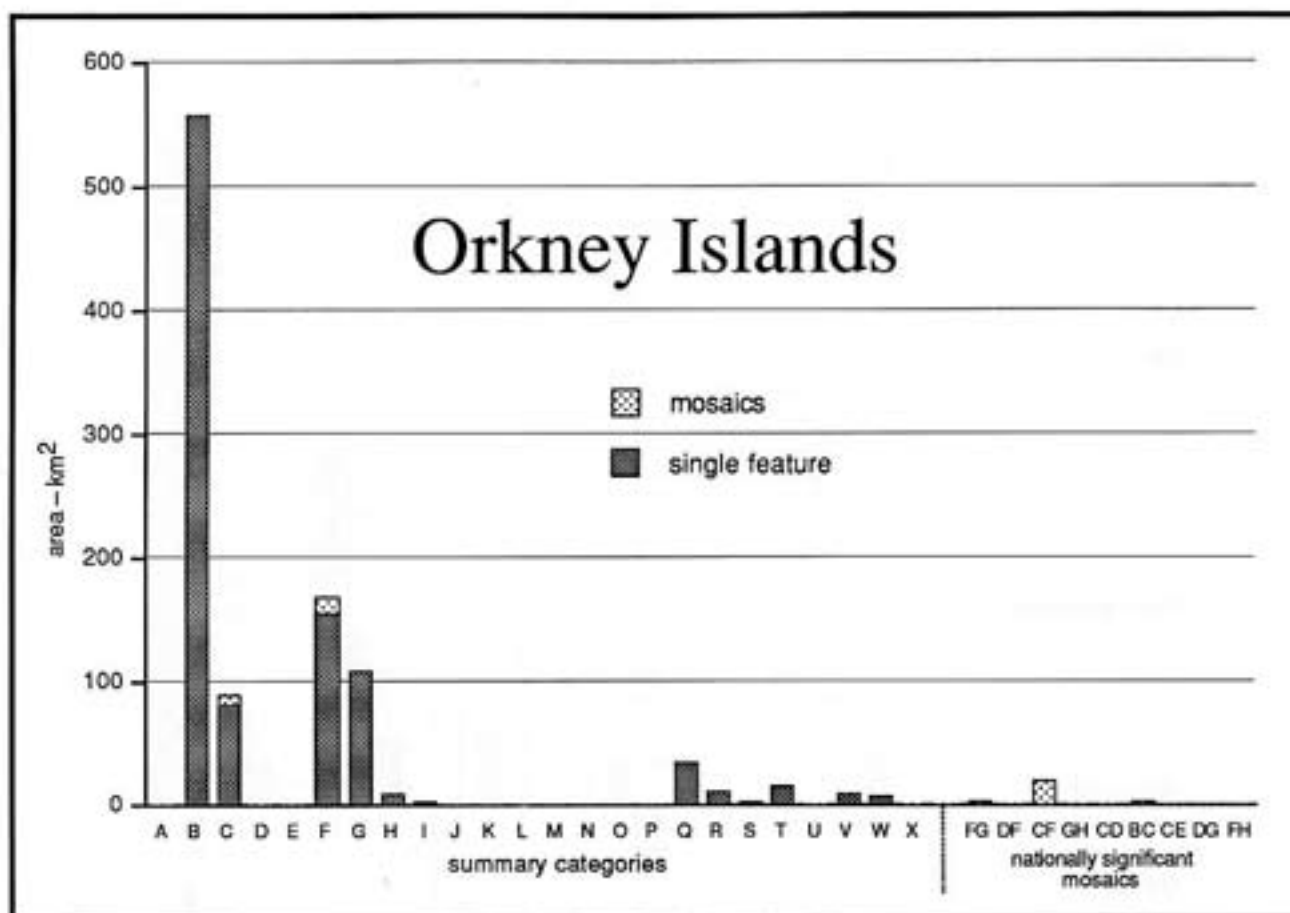
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	764.3	10.0
DF	Poor rough grassland	Heather moorland	126.9	1.7
CF	Good rough grassland	Heather moorland	248.6	3.3
GH	Peatland	Montane	243.4	3.2
CD	Good rough grassland	Poor rough grassland	37.3	0.5
BC	Improved grassland	Good rough grassland	78.3	1.0
CE	Good rough grassland	Bracken	103.4	1.4
DG	Poor rough grassland	Peatland	126.7	1.7
FH	Heather moorland	Montane	82.4	1.1
SUBTOTAL			1811.3	23.7
Locally significant mosaics			area	%
CG	Good rough grassland	Peatland	22.7	0.3
EF	Bracken	Heather moorland	18.7	0.2
NV	Mixed woodland	Rural development	6.9	0.1
HI	Montane	Rock and cliffs	2.7	N.S
DE	Poor rough grassland	Bracken	2.3	N.S
SUBTOTAL			53.4	0.7
Remaining mosaics			91.5	1.2
MOSAICS OF SUMMARY COVER TYPES			1956.2	25.6

Table 10

Tayside Region

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of the Orkney Islands is shown to be 1012 km². Over 97% of the area is covered by single feature categories reflecting a predominance of relatively homogeneous landscape types of which improved grassland (55.1%), heather moorland (15.4%) and peatland (10.7%) are the most significant single features. Only 2.3% of the Islands' area has a land cover with features in mosaics.

The Orkney Islands are remarkable for the relatively few cover types represented and the predominance of improved grassland, which at 55.1% is over four times the national average. Arable and woodland features are remarkable by their absence.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	0	0	0	0
B	Improved grassland	557.2	55.1	0	1.3
C	Good rough grassland	80.5	8.0	9.3	10.3
D	Poor rough grassland	0	0	0	0
E	Bracken	0	0	0	0
F	Heather moorland	156.3	15.4	13.0	7.9
G	Peatland	108.0	10.7	0.8	1.5
H	Montane	9.1	0.9	0	0
I	Rock and cliffs	2.1	0.2	0	0
Woodland					
J	Felled woodland	0	0	0	0
K	Recent planting	0	0	0	0
L	Coniferous plantation	0.1	N.S	0	0
M	Semi-natural coniferous	0	0	0	0
N	Mixed woodland	N.S	N.S	0	0
O	Broadleaved	0.2	N.S	0	0
P	Scrub	0	0	0	0
Wet ground					
Q	Fresh waters	32.9	3.3	0	2.0
R	Marshes	11.5	1.1	0	0
S	Saltmarshes	1.5	0.1	0	0
T	Dunes	15.4	1.5	0	0
U	Tidal waters	0	0	0	0
Developed					
V	Rural development	8.3	0.8	0	0
W	Urban	5.7	0.6	0	0
Other					
X	Missing photography/obscured land	0	0	0	0
SUBTOTAL		988.7	97.7		
Y	Mosaics of types above	23.1	2.3	23.1	23.1
ISLAND AUTHORITY TOTAL		1011.8	100.0		

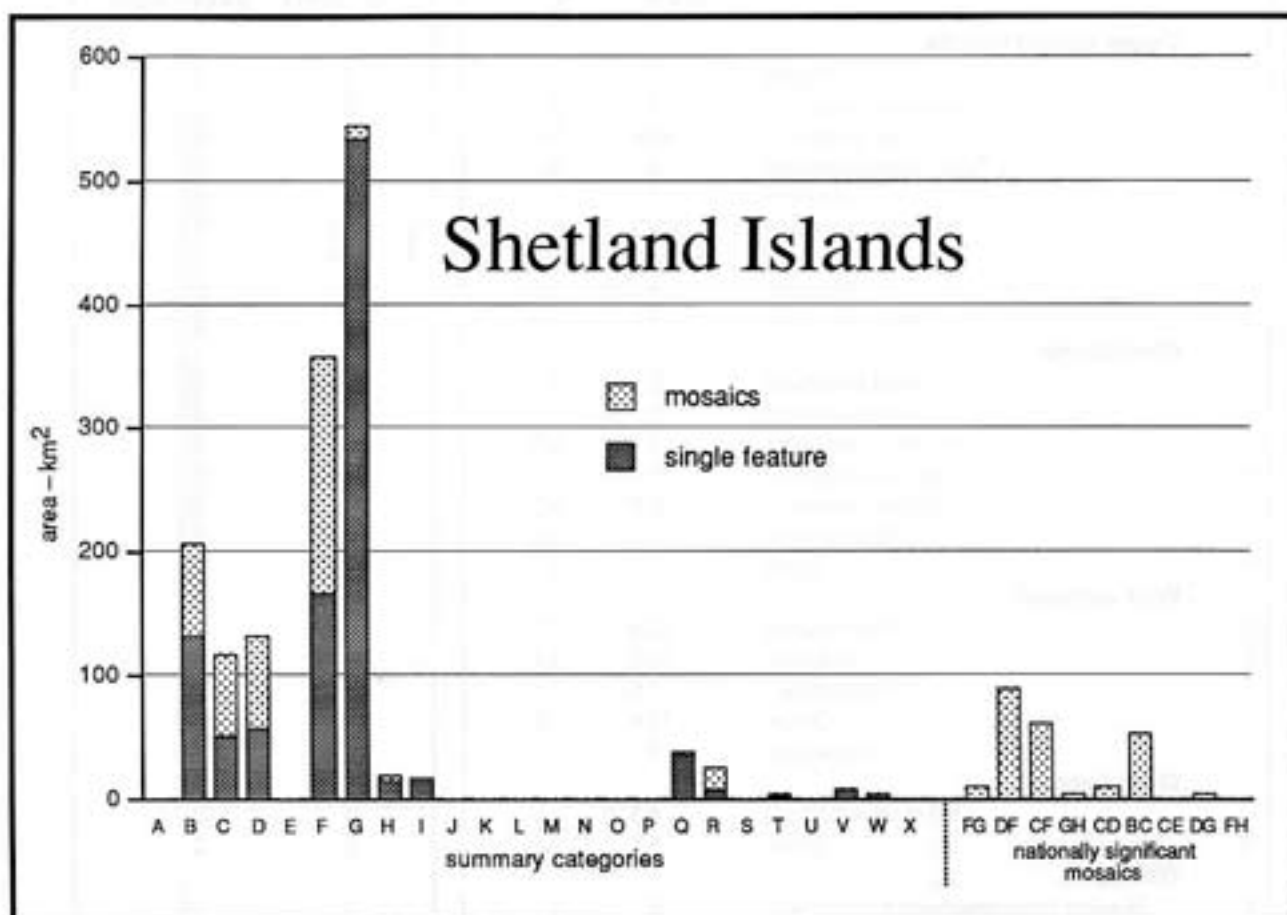
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	0.7	0.1
DF	Poor rough grassland	Heather moorland	0	0
CF	Good rough grassland	Heather moorland	18.2	1.8
GH	Peatland	Montane	0	0
CD	Good rough grassland	Poor rough grassland	0	0
BC	Improved grassland	Good rough grassland	1.3	0.1
CE	Good rough grassland	Bracken	0	0
DG	Poor rough grassland	Peatland	0	0
FH	Heather moorland	Montane	0	0
SUBTOTAL			20.2	2.0
Locally significant mosaic			area	%
FQ	Heather moorland	Fresh waters	2.0	0.2
SUBTOTAL			2.0	0.2
Remaining mosaics			0.8	0.1
MOSAICS OF SUMMARY COVER TYPES			23.1	2.3

Table 11

Orkney Islands

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of the Shetland Islands is shown to be 1473km². Almost 70% is covered by single feature cover types reflecting predominantly homogeneous landscape types dominated by peatland (36.3%), heather moorland (11.2%) and grassland (16.2%). Notably, of the 30.1% covered in mosaic features, the grassland/heather moorland mosaics predominate (10.2%).

The Shetland Islands, like the Orkney Islands, are remarkable for the restricted range of cover types present with insignificant areas of woodland and arable features. However, unlike Orkney, Shetland's landscape is dominated by semi-natural vegetation communities. Its peatland cover is over four times the national average.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	0	0	0	0
B	Improved grassland	131.1	8.9	98.6	39.3
C	Good rough grassland	49.9	3.4	45.7	95.8
D	Poor rough grassland	58.1	3.9	64.3	88.4
E	Bracken	0	0	0	0
F	Heather moorland	165.4	11.2	210.5	164.0
G	Peatland	534.3	36.3	15.6	3.4
H	Montane	14.7	1.0	6.3	0.8
I	Rock and cliffs	16.3	1.1	0	2.9
Woodland					
J	Felled woodland	0	0	0	0
K	Recent planting	0	0	0	0
L	Coniferous plantation	0.1	N.S	0	0
M	Semi-natural coniferous	0	0	0	0
N	Mixed woodland	N.S	N.S	0	0
O	Broadleaved	0	0	0	0
P	Scrub	0	0	0	0.1
Wet ground					
Q	Fresh waters	36.0	2.4	0	6.3
R	Marshes	7.9	0.5	0	43.1
S	Saltmarshes	0.1	N.S	0	0
T	Dunes	2.3	0.2	3.1	0
U	Tidal waters	0	0	0	0
Developed					
V	Rural development	8.0	0.5	0	0
W	Urban	4.9	0.3	0	0
Other					
X	Missing photography/obscured land	0	0	0	0
SUBTOTAL		1029.1	69.9		
Y	Mosaics of types above	444.1	30.1	444.1	444.1
ISLAND AUTHORITY TOTAL		1473.2	100.0		

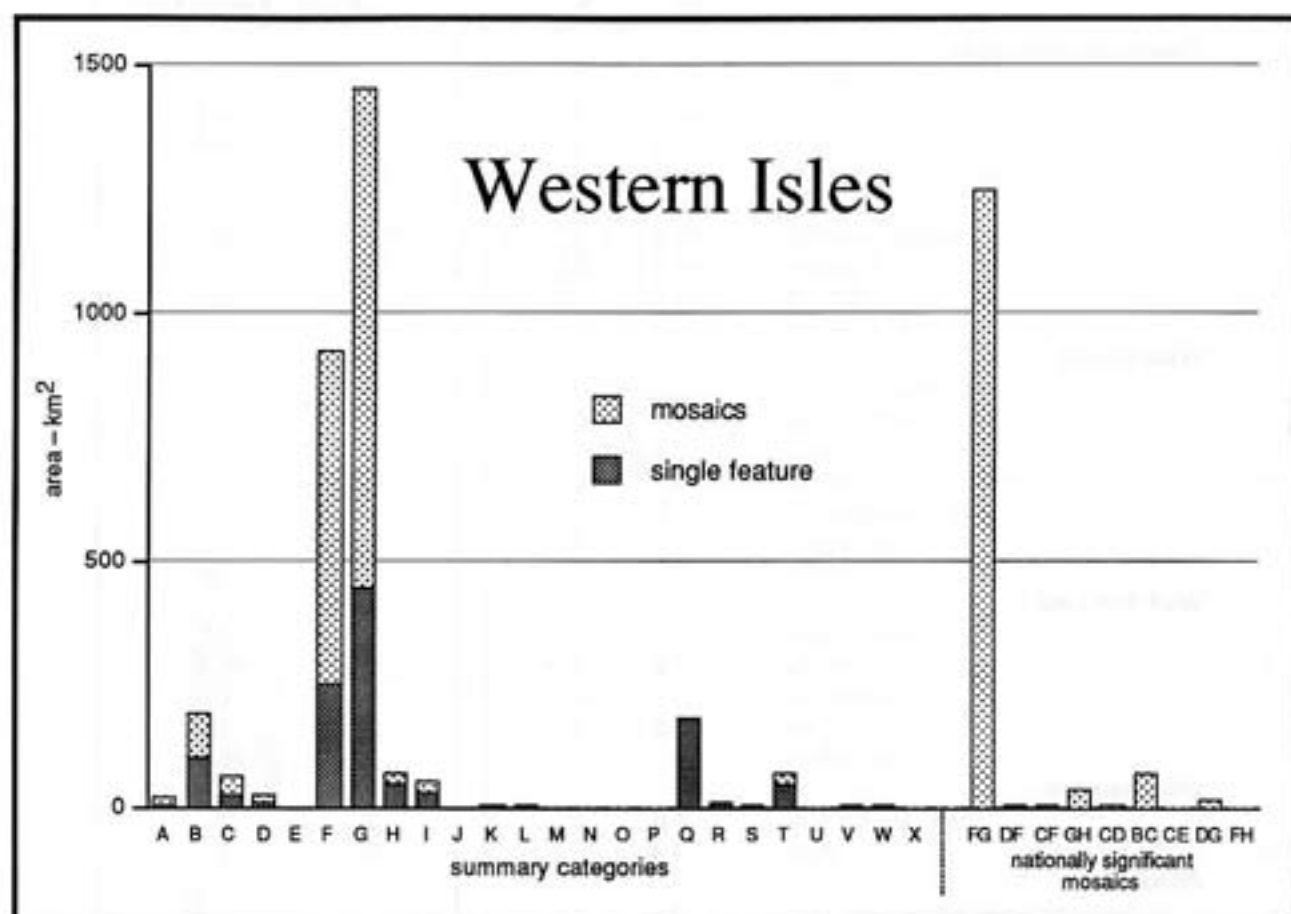
Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	9.8	0.7
DF	Poor rough grassland	Heather moorland	88.6	6.0
CF	Good rough grassland	Heather moorland	61.2	4.2
GH	Peatland	Montane	4.1	0.3
CD	Good rough grassland	Poor rough grassland	10.7	0.7
BC	Improved grassland	Good rough grassland	52.8	3.6
CE	Good rough grassland	Bracken	0	0
DG	Poor rough grassland	Peatland	5.0	0.3
FH	Heather moorland	Montane	0	0
SUBTOTAL			232.2	15.8
Locally significant mosaics			area	%
BD	Improved grassland	Poor rough grassland	45.0	3.1
BR	Improved grassland	Marshes	34.8	2.4
FQ	Heather moorland	Fresh waters	6.3	0.4
BF	Improved grassland	Heather moorland	5.3	0.4
DR	Poor rough grassland	Marshes	3.4	0.2
SUBTOTAL			94.8	6.4
Remaining mosaics			117.0	7.9
MOSAICS OF SUMMARY COVER TYPES			444.1	30.1

Table 12

Shetland Islands

Land cover summary categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.



Using the LCS88 dataset the total land area of the Western Isles is shown to be 3091 km². Just under 40% of this is represented by single feature cover types reflecting the relatively heterogeneous nature of the landscape. Of this, peatland (14.5%) heather moorland (8.0%) and fresh waters (5.8%) account for the largest area. Of the 62% of mosaics around two-thirds is accounted for by mosaics of heather moorland and peatland. The dataset indicates therefore that while the landscape of the Western Isles is extremely heterogeneous in terms of the mixing of features, it has little diversity in terms of the range of cover types identified by the LCS88 dataset.

The Western Isles are remarkable for the degree to which peatland and heather moorland dominate the landscape (over 75%). Arable, grassland and woodland cover types are all significantly below the national average while the area covered by fresh waters is about three times the national average.

Cover types		single feature		features in mosaics	
		area	%	primary	secondary
Open countryside					
A	Arable	6.0	0.2	18.0	10.0
B	Improved grassland	99.9	3.2	129.3	34.1
C	Good rough grassland	26.0	0.8	11.4	77.3
D	Poor rough grassland	12.4	0.4	14.1	17.7
E	Bracken	0	0	0.4	0.2
F	Heather moorland	246.6	8.0	791.9	509.7
G	Peatland	446.9	14.5	890.2	1180.1
H	Montane	46.9	1.5	23.5	15.9
I	Rock and cliffs	32.2	1.0	12.5	39.2
Woodland					
J	Felled woodland	0	0	0	0
K	Recent planting	3.9	0.1	N.S	N.S
L	Coniferous plantation	5.1	0.2	N.S	0.6
M	Semi-natural coniferous	0	0	0	0
N	Mixed woodland	0.9	N.S	0	0
O	Broadleaved	0.1	N.S	0	0
P	Scrub	0.1	N.S	0	0
Wet ground					
Q	Fresh waters	180.5	5.8	N.S	0.2
R	Marshes	8.8	0.3	1.9	3.2
S	Saltmarshes	4.2	0.1	0.1	0.1
T	Dunes	46.8	1.5	17.5	22.3
U	Tidal waters	0	0	0	0
Developed					
V	Rural development	5.8	0.2	0.6	0.8
W	Urban	4.3	0.1	0	0
Other					
X	Missing photography/obscured land	1.9	0.1	0.1	0.1
SUBTOTAL		1179.2	38.2		
Y	Mosaics of types above	1911.6	61.8	1911.6	1911.6
ISLAND AUTHORITY TOTAL		3090.9	100.0		

Nationally significant mosaics			area	%
FG	Heather moorland	Peatland	1248.5	40.4
DF	Poor rough grassland	Heather moorland	5.6	0.2
CF	Good rough grassland	Heather moorland	5.8	0.2
GH	Peatland	Montane	39.5	1.3
CD	Good rough grassland	Poor rough grassland	3.6	0.1
BC	Improved grassland	Good rough grassland	69.3	2.2
CE	Good rough grassland	Bracken	0	0
DG	Poor rough grassland	Peatland	13.9	0.4
FH	Heather moorland	Montane	0	0
SUBTOTAL			1386.2	44.8
Locally significant mosaics			area	%
BG	Improved grassland	Peatland	45.0	1.5
GI	Peatland	Rock and cliffs	41.0	1.3
BF	Improved grassland	Heather moorland	35.1	1.1
AT	Arable	Dunes	28.0	0.9
BD	Improved grassland	Poor rough grassland	8.8	0.3
SUBTOTAL			157.9	5.1
Remaining mosaics			367.5	11.9
MOSAICS OF SUMMARY COVER TYPES			1911.6	61.8

Table 13
Western Isles
 Land cover summary
 categories

All areas are expressed in square kilometres to 1 decimal place; the totals shown may not match the totals of the columns due to rounding error discrepancies; 0 = not present; N.S = not significant = < 0.05. Please refer to Figure 3.1 for guidance in the interpretation of this table.

Summary cover types - single feature

Nationally significant mosaics

Heather moorland Peatland	FG
Poor rough grassland Heather moorland	DF
Good rough grassland Heather moorland	CF
Peatland Montane	GH
Good rough grassland Poor rough grassland	CD
Improved grassland Good rough grassland	BC
Good rough grassland Bracken	CE
Poor rough grassland Peatland	DG
Heather moorland Montane	FH
Remaining mosaics	
Regional boundaries	

Missing photography/ obscured land

Arable	A
Improved grassland	B
Good rough grassland	C
Poor rough grassland	D
Bracken	E
Heather moorland	F
Peatland	G
Montane	H
Rock and cliffs	I
Felled woodland	J
Recent planting	K
Coniferous plantation	L
Semi-natural coniferous	M
Mixed woodland	N
Broadleaved	O
Scrub	P
Fresh waters	Q
Marshes	R
Saltmarshes	S
Dunes	T
Tidal waters	U
Rural development	V
Urban	
Missing photography/ obscured land	X

The Land Cover of Scotland 1988

0 50 100 km

SCALE 1 : 2.5 million



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