Bransbury Common (Sanderson, 1996c)

An unusual site from which acid grassland has been recorded is Bransbury Common (SU4141). This is a calcareous, peaty flood plain site, with extensive base-rich fen meadows and associated calcicolous grassland (CG2c) on mounds of chalky gravel. In one part of the common the chalky gravel is replaced by flint gravel and the CG2 chalk grassland is replaced by incongruous stands of parched acid grassland (U1d) covering 2ha. The species present include four species on the provisional indicator list: *Aira caryophyllea, Aira praecox, Aphanes inexspectata* and *Koeleria macrantha* but no species from **Table 1**.

Summary of consultations with Local Team Conservation Officers

A management plan for the acid grasslands of the New Forest is to be produced in the next few years and there is therefore a need for research and survey of some aspects of these grasslands. In particular, research into the effects of the late cutting of Bracken is needed. This practice has been revived, with the litter composted for use in horticulture. The cutting has been very successful in increasing the habitat quality of the herb-rich bracken stands for the rare plants present, and in increasing the grazing value of the Bracken stands by preventing the build up of litter. The shade of the Bracken canopy prevents the parching of the grass sward beneath and provides an important grass resource in the latter part of the summer when the U1 grasslands have become parched. There is, however, a worry that the annual cutting of the Bracken is too severe a regime for butterflies using the Bracken stands. There may also be practical advantages in cutting on a longer rotation to permit treatment of a larger area of Bracken. More information is required on the best cutting regimes to avoid damage to the invertebrate fauna of herb-rich Bracken, and in particular, surveys are planned to examine the butterfly fauna of herb-rich Bracken.

Based on information from the heathland inventory currently being compiled, it is clear that U1 dominates over U2 in north Hampshire and in the Weald. It is not considered that there is a problem with *Deschampsia flexuosa* substituting for *Calluna* in Hampshire and great progress is being made in restoring grazing to heathlands in the north of the county and in the Weald.

17.4 Summary of resource

Extent and composition

The acid grasslands of Hampshire are mainly found as parts of habitat mosaics in heathland and coastal habitats. In both, acid grassland makes a significant contribution to the biodiversity of the sites in which it is found. In the case of vascular plants, acid grasslands are much more important than Heather-dominated heath in contributing to the diversity of the heathlands. This is especially marked in the New Forest.

The composition of Hampshire's acid grasslands spans much of the range of acid grasslands in the lowlands. A south western type of mixture exists in the New Forest with U1f and U3 dominant, and a very eastern mixture of U1b dominant with U1a, U1c and *Carex arenaria* communities (SD10 & SD11) is present in Woolmer Forest. Whilst the New Forest contains the bulk of Hampshire's acid grasslands, floristically rich areas also occur on the coast and in the other heathland areas.

Conservation value

The New Forest is an area of major international importance for its heathland habitats. The acid grasslands form an integral part of the heathland habitats and are of exceptionally high interest in their own right.

The Weald heathlands are also of high importance, with acid grasslands making a significant contribution to this interest. The Lower Greensand heathlands of the western Weald, including those of Sussex and Surrey collectively, form an important transition between the heathlands of the south west and the east.

The coast contains small but floristically important areas of acid grassland, whilst the north east still has large areas of U1d type acid grassland associated with air fields. However, in general, the heathlands of this area are much more degraded when compared to those of the south.

17.5 Future requirements for survey and conservation

Survey

Detailed Phase 2 surveys of selected areas of acid grassland in the New Forest are required to establish a more detailed overview of the resource and to provide data for monitoring. The existing Phase 2 surveys of the Woolmer Forest acid grasslands are valuable for these reasons and similar surveys would be appropriate for at least some of the more significant areas of acid grassland elsewhere in the county.

Conservation

The problems of the New Forest are those of a functioning, multi-use, extensive pastoral system, differing to those of most other lowland heathlands where extensive pastoral systems have collapsed. They include:

- the continued survival of the commoners in changing economic and social circumstances
- coping with the sheer weight of visitor numbers
- counteracting past habitat fragmentation by habitat restoration
- the problems of stock and traffic accidents on unfenced roads.

Beyond the New Forest the problems of heathlands and acid grasslands are much more standard: severe habitat fragmentation and the lack of grazing. The Hampshire Heathland Project is beginning to counteract these factors and there are proposals for restoring entire heathland landscapes in the future, particularly in the north east Hampshire, where it is especially required. As far as acid grasslands are concerned, the Lower Greensand would be an obvious priority for restoration of acid grassland from cultivated land.

17.6 References

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Extract from Table 6 for Hampshire: occurrence of plant species generally faithful to lowland acid grassland

County: Hampshire					
Natural Areas:	**77**	**70**	**66**	**78**	**75**
Grasses					
Vulpia ciliata ambigua	1	1			1
Other Vascular Plants					
Chamaemelum nobile	1	1	1	0	1
Crassula tillaea	1	1	1		1
Erodium maritimum	1				0
Filago minima	1	1	1	1	1
Gladiolus illyricus	1				
Herniaria glabra		1			
Hypochaeris glabra	1	1	0		1
Lotus angustissimus	1				1
Lotus subbiflorus	1	0			1
Moenchia erecta	1	1	1		1
Ornithopus perpusillus	1	1	1	1	1
Potentilla argentea		1	1	1	0
Sagina subulata	1		0		1
Stellaria pallida	1	1	1	1	1
Teesdalia nudicaulis	1	1	1		1
Trifolium glomeratum	1	1			0
Trifolium ornithopodioides	1	1	1		1
Trifolium scabrum	1	1			1
Trifolium striatum	1	1	1	1	1
Trifolium subterraneum	1	1	1	0	1
Trifolium suffocatum					1
Vicia lathyroides	1	1			1
Viola lactea	1		1		
Total no. of species extant	**21**	**17**	**12**	**5**	**18**
Total no. of species extinct	**0**	**1**	**2**	**2**	**3**
Total no. of species recorded	**21**	**18**	**14**	**7**	**21**

77 = New Forest (excludes coastal records of *Trifolium suffocatum*)
70 = Wealden Greensand (Wealden heaths)
66 = London Basin
78 = Hampshire Downs
75 = South Coast Plain and Hampshire Lowlands

1 = Recent record
0 = Apparently extinct

Hampshire acid grassland surveys

Survey Name	GR	Date	Landscape Types	Comments	No Sites	Site Area	Gr Area	AG Area	H Area	LHA
Grassland Inventory		1987-92	Heath, Pasture woodland, Field	Excludes many heathland & coastal sites	49	29511.7	52.0	7.3		
Heathland Inventory		1982-94	Heath, Enclosure relic	Mainly in NA77, 66 & 70.	175	42420.0			7231.2	0.5
New Forest Survey Ha		1992	Heath, Pasture woodland	Estimated from Clarke & Westerhoff (1992)	1	19773.8	3299.36	c 2300.0	5848.0	
New Forest Classes		1992	As above	Estimated from Clarke & Westerhoff (1992)				E		
South Hants Heath		1996		Outside of New Forest open grazings				C		
Weald Heath		1996		N. Sanderson, EPR				B		
North Hants Heath		1996		N. Sanderson, EPR				C		
Coastal Grazing Marsh		1996	Coastal marshes	N. Sanderson, EPR				B		
Brandsbury Common	SU415420	1996	Flood plain	Survey of flood plain common (Sanderson,1996c)	1	69.8	64.6	2.0		
Estimates, classes		1996		N. Sanderson, EPR				E		

Survey Name	U1	U1a	U1b	U1c	U1d	U1e	U1f	U2	U2a	U2b	U3	U4	U4a	U4b	U4c	U4d	U4e	U5	U6	SD10	SD11	U20r
Grassland Inv.																						
Heathland Inv.																						
New Forest ha	c1000		c30		c 600	c20	c350				c1100	c20										c 500
N. Forest Class	D		A		D	A	C				D	A										C
South Hants	B		A			A	B	A	A		B											
Weald Heath	B	A	A	A	A																	
North Hants	C				B	B	A	A	A		A											
Coastal Marsh	B	A			A		B															
Brandsbury	2.0				2.0																	
Estimates, class	E	A	B	A	D	A	D	B	B		E	A								A	A	C

Key

Column headings

GR = Grid reference if relevant
No Sites = Number of sites
Site Area = Area of sites
GR Area = Area of grassland
A G Area = Area of acid grassland
H Area = Area of dry heath
LHA = Area of lichen heath
NI = No information
NA = Natural Area
U1-U20r = NVC communities/sub-communities

Area estimates

A = Less than 50 ha
B = 50-100 ha
C = 100-500 ha
D = 500-1,000 ha,
E = 1,000-5,000 ha
F = 5,000-10,000 ha
G = Greater than 10,000 ha
+ = Present but no area given
? = Possibly present

18. Hereford and Worcester

18.1 Physical

Geology

The Silurian and Precambrian outcrops of the Malvern area are a striking contrast to the very uniform Old Red Sandstone to the west. New Red Sandstone dominates in the east, with Barren Red Carboniferous rocks in the north east and a small area of Silurian uplands in the north west.

Soils

In the east, areas dominated by acid soils are confined to the Malverns and around Kidderminster. The former are dominated by brown podzolic soils and the latter by brown sands. In Hereford there are areas of brown podzolic soils on hills to the west such as Hergest Ridge (**Map 1c**).

18.2 Landscape history

19th Century

The 1830 1inch maps show that beyond the Malvern area there were only limited areas of common or rough grazing at this time.

Current landscapes and Natural Areas

The extensive common grazings of the Malvern area still exist, extending across the Malvern Hills and Teme Valley (NA52and the Severn and Avon Vales (NA56) Natural Areas. Small areas of heathland also survive in the north east about Kidderminster, in the Midlands Plateau Natural Area (NA43). Other Natural Areas either have limited potential for acid grassland or are predominantly upland.

18.3 Existing information

Flora

Two areas stand out on the coincidence maps (**Maps 2** to **4**), the Malvern Hills and the Kidderminster area. The latter extends into Staffordshire and Shropshire (NA43) and the acid grassland flora listed in the extract of **Table 6** below is not restricted to Hereford and Worcester. This flora is a remarkable outlier of the eastern English lowland acid grassland flora, with *Silene conica* and *Corynephorus canescens* recorded (the latter as an assumed introduction) along with typical species including: *Dianthus deltoides, Teesdalia nudicaulis, Moenchia erecta, Filago minima* and *Hypochaeris glabra.* The area also once supported *Erodium maritimum* but this appears to be extinct. The area includes 12 acid grassland species, listed in **Table 1**, two of them are apparently extinct.

The Malvern Hills flora is not as spectacular but includes *Trifolium ornithopodioides.* Davis (1994) also mentions *Potentilla neumanniana, Ornithopus perpusillus, Cerastium semidecandrum, Moenchia erecta* and *Trifolium striatium* from the Malvern Hills. The Malvern Hills Natural Area includes 10 species generally faithful to acid grassland, 2 of them are apparently extinct (see **Table 6** and relevant extract below).

Fauna

The Bracken stands of the Malvern Hills support populations of High Brown Fritillary (*Argynnis adippe*). Gibbons *et al* (1993) record that whilst Wheatear bred in the 1968-72 period in the Malvern Hills it was absent in the 1988-91 period (but they may now breed again). This would be consistent with the reduction of grazing pressure reported by Davies (1994) during this period. Stonechat and Whinchat still bred in the 1988-91 period.

Habitat surveys

The Grassland Inventory records acid grassland as present in the Midlands Plateau Natural Area (NA43) in fields in the Wyre Forest area and in commons and enclosure relics on the Bunter Sandstone heaths around Kidderminster.

The Heathland Inventory notes that heathlands occur on the Malvern Hills and the Kidderminster area. Nothing has been recorded in the Inventory the west of the county.

The Malvern Hills SSSI: feasibility study (Davies, 1994)

A report on the Malvern Hills SSSI vegetation and the feasibility of reintroducing grazing (Davies, 1994) includes data on the grassland. Quadrat data was collected and an NVC determination given using the MATCH 1.2 program. Unfortunately constancy data is not fully described so interpretation is not easy.

Bracken now dominates due to the decline in grazing since the 1960s. A total of 113.32ha of acid grasslands were recorded from the Malvern Hills. The most extensive grassland type is Deschampsia flexuosa grassland Festuca-Agrostis sub-community (U2a). This is confined to the highest ground above 250m.

On the lower ridges, on thin droughty soils, parched acid grassland (Festuca-Agrostis-Rumex grassland, U1) replaces the U2a and makes up the bulk of the remaining open grasslands. The parched acid grasslands are recorded as including the Typical sub-community (U1b) and the Galium-Potentilla sub-community (U1e). The former includes the acid grassland specialist lichen *Cladonia foliacea* at a constancy of IV.

On the hill slopes, Bracken dominates but Festuca-Agrostis-Galium grassland typical sub-community (U4a) is also recorded. However, there are problems with this determination; *Rumex acetosella* is recorded at constancy IV, *Aira praecox* at II, *Pilosella officinalis* at IV, *Galium verum* III, *Helianthemum nummularia* IV and *Thymus polytrichus* at IV. The presence of these species effectively rule out the classification of these grasslands as U4a. They appear to have closer relationships to both Festuca-Agrostis-Rumex grassland Anthoxanthum-Lotus sub-community (U1d) and Festuca-Agrostis-Thymus grassland (CG10). Little heath was surveyed but there are areas of H8/H12.

Summary of consultations with Local Team Conservation Officers & observations by EPR

The Malvern Hills and Castlemorton Commons complex contain the main area of acid grassland in Worcestershire. Steep rocky slopes on the Malvern Hills support parched acid grassland and may account for many of the lowland acid grassland species recorded. The Castlemorton Commons also include significant areas of acid grassland but the type is not known.

In the Kidderminster area, on the Bunter Sandstones, sites of interest include the exceptionally rich Hartlebury Common, where lichen-rich U1a forms a mosaic with heath in a floristically very rich site.

To the north of this is Hurcott Pasture SSSI, an enclosed pasture with a well-developed stand of U1f, which occurs here at the northern edge of its generally south western range. Selected data from Hurcott Pasture are presented in Volume I, Appendix 1, to illustrate this type of grassland.

The Coal Measure areas in the north support transitions between MG5c and U4, probably about 50+ha. The parched acid grasslands of the Kidderminster area also contain about 50+ha. There is probably between 500-1,000ha of acid grassland in total, but the data are insufficient to give accurate estimates of the relative proportions of U1 and U4 (the estimates given in the table below are conjectured by EPR).

In the west of Herefordshire there are no hard data. Acid grasslands are concentrated in the western fringe of the county in what are basically upland commons. These commons were estimated as having 2,000ha of all types of grassland in 1979. Much is probably invaded by Bracken. The rich, parched acid grassland, flora of south-facing rocky slopes in upland situations typical of Shropshire to the north are absent. Some commons support important populations of the High Brown Fritillary (*Argynnis adippe*).

18.4 Summary of resource

Extent and composition

There is little evidence for any significant area of strictly lowland acid grassland in Herefordshire west of the Malverns (perhaps less than 50 ha). In the west of the county the acid grassland appears to be of the difficult upland fringe type as well as of more typical upland character. The fringes seem to be upland in character and have few special lowland characteristics. However, additional data would enable the extent, character and significance of these upland fringe grasslands to be assessed. They are not included in the estimates in this report.

In Worcester and eastern Herefordshire there is a significant acid grassland resource in the Malvern Hills/Castlemorton Common area and in the Kidderminster area, with the latter the more floristically rich although it is much smaller. The Wyre Forest grasslands would probably be regarded as acid MG5 stands rather than acid grasslands in the strict sense. The extent of parched acid grassland across the eastern half of the county is not clear and EPR conjectured that it belongs at in the lower end of the 100-500ha class, and that very little true U4 exists.

Conservation value

The relic grasslands of the Kidderminster area are of the greatest floristic value as lowland acid grasslands, and are nationally significant as an outlier of species-rich eastern and southern grasslands.

The Malvern Hills and Castlemorton Commons are of major importance as an area of extensive pastoral habitats in which acid grassland is an important component habitat. The parched acid grasslands are probably the most interesting and have a lowland acid grassland flora of considerable importance as a grassland habitat. However, the whole mosaic is likely to be of national importance.

18.5 Future requirements for survey and conservation

Survey

Both counties are clearly deficient in survey data and both have surveys due to commence in 1997. It appears unlikely that the Herefordshire survey will consider lowland acid grassland as a high priority, although it may find significant upland fringe grasslands in the western part of the county.

In contrast the Worcestershire Wildlife Trusts grassland survey should be an opportunity to cover the important acid grasslands of the Kidderminster Heaths and the Local Team suggests that this area is a high priority for funding to complete the survey. To be of most use this survey should be carried out in spring/early summer and NVC communities mapped to sub-community level. There is also a need to cover the Bunter Sandstone heaths in neighbouring counties, in the same Natural Areas (NA43).

Conservation

The Kidderminster heaths are an exceptionally high national priority for the restoration of grazing and extension of grassland by habitat restoration. The Malvern Hills/Castlemorton Commons are under-grazed and lacking in vital infrastructure such as cattle grids. It is suggested that contact is made with managers of the New Forest, the most comparable area with similar problems, but an area where the level of grazing has been maintained. A preferred solution would integrate all the interconnecting commons in the area, avoiding sub-division. Successful establishment of extensive pastoralism on semi-natural vegetation in the lowlands is likely to be of high value in maintaining nature conservation interest.

18.6 References

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Extract from Table 6 for Hereford & Worcester: occurrence of plant species generally faithful to lowland acid grassland

County: Hereford & Worcester		
Natural Area:	**57**	**43**
Grasses		
Corynephorus canescens		1
Other Vascular Plants		
Chamaemelum nobile	0	0
Dianthus deltoides		1
Erodium maritimum	0	0
Filago minima	1	1
Hypochaeris glabra	1	1
Moenchia erecta	1	1
Ornithopus perpusillus	1	1
Potentilla argentea	1	1
Silene conica		1
Stellaria pallida		1
Teesdalia nudicaulis	1	1
Trifolium ornithopodioides	1	1
Trifolium striatum	1	1
Vicia lathyroides		1
Total no. of species extant	**8**	**12**
Total no. of species extinct	**2**	**2**
Total no. of species recorded	**10**	**14**

57 = Malvern Hills and Teme Valley
43 - Midlands Plateau (may include records from other counties)

1 = Recent record
0 = Apparently extinct

Hereford & Worcestershire acid grassland surveys

Survey Name	GR	Date	Landscape Types	Comments	No Sites	Site Area	Gr Area	AG Area	H Area	LHA
Grassland Inventory		1986-92	Fields, Common, Heath	All in NA 43	11	427.8	52.5	3.8		
Heathland Inventory		1985-87	Common, Heath, Enclosure relic	NA 43 & 57. Area of heath not measured in NA57	14	1848			55.0	
Estimates, classes		1996		Peter Holmes EN & N. Sanderson EPR				D		

Survey Name	U1	U1a	U1b	U1c	U1d	U1e	U1f	U2	U2a	U2b	U3	U4	U4a	U4b	U4c	U4d	U4e	U5	U6	SD10	SD11	U20r
Grassland Inv.																						
Heathland Inv.																						
Worc. Estimate	C	A	+		+	+		B	B			B	+	+								+

Key

Column headings
GR = Grid reference if relevant
No Sites = Number of sites
Site Area = Area of sites
GR Area = Area of grassland
A G Area = Area of acid grassland
H Area = Area of dry heath
LHA = Area of lichen heath
NI = No information
NA = Natural Area
U1-U20r = NVC communities/sub-communities

Area estimates
A = Less than 50 ha
B = 50-100 ha
C = 100-500 ha
D = 500-1,000 ha,
E = 1,000-5,000 ha
F = 5,000-10,000 ha
G = Greater than 10,000 ha
+ = Present but no area given
? = Possibly present

19. Hertfordshire

19.1 Physical

Geology

Much of Hertfordshire lies on Chalk but parts of the Thames Basin Tertiary deposit is included to the south. To the east, the Chalk is covered by Boulder Clay whilst the rest lies under thick Clay-with-Flint caps. Extensive deposits of gravel occur in the river valleys.

Soils

Dry acid soils are nowhere dominant (**Map 1b**).

19.2 Landscape History

19th Century

In the early 18th century, commons may have covered over 10,000 ha but by the 19th Century only a scatter of small commons remained, apart from the Ashridge Commons. The remnant commons occured mainly on Clay with Flints deposits.

Current landscapes and Natural Areas

The county includes parts of the East Anglian Plain (NA50) and the East Anglian Chalk (NA51) Natural Areas, where there is little potential for extensive acid grassland. The rest of the county is split between the London Basin (NA66) and Chilterns (NA65). Some commons survive but are generally overgrown.

19.3 Existing information

Flora

The coincidence maps of the lowland acid grassland species listed in **Table 1** (**Maps 2** to **4**) show that there was a high concentration to the south, from Harpenden to Hertford. This flora has declined greatly this century. An extract from **Table 6** is given below.

Dony's Flora of Hertfordshire (Dony, 1967) indicates that the Clay-with-Flints and river gravels were as important as the Tertiary deposits for acid grassland. His habitat studies suggested that fragments of parched acid grassland (U1) were present in the 1960s, including U1d.

Habitat surveys

The Grassland Inventory records quite a large number of sites including acid grassland occurring on Tertiary deposits, Clay with Flints and on river gravel. Fewer heathland sites are recorded in the Heathland Inventory.

The maps in the NVC, Volume 3, show that U1b and U1e were sampled from the county.

Biological survey of common land: Hertfordshire (Francis et al, 1990)

This survey recorded 56ha of unimproved acid grassland, although this includes wet acid grassland (*Junco-Molinion*,) and 44ha of semi-improved acid grassland. The latter included some acid permanent pasture (MG6b). Interestingly, Francis *et al* (1990) point out that a Phase 1 survey of grassland in Hertfordshire by Hertfordshire County Council in 1988 recorded 480ha of acid grassland from common land.

The dry grassland is mostly parched acid grassland (U1) with some Deschampsia flexuosa Grassland (U2). Most of the commons seem to be very degraded.

Summary of consultations with Local Team Conservation Officers

Acid grassland is estimated as covering between 100-500ha. It is very patchy in its distribution and mainly found in degraded heathland sites. The East Anglian Plain has some scattered but locally important sites, eg Patmore Heath. The Chilterns historically had areas of importance for acid grassland and heath, eg in the St. Albans District, and gravel extraction sites could be the basis of recolonisation or restoration.

19.4 Summary of resource

Extent and composition

Hertfordshire's acid grassland resource is now mostly very degraded, consisting of overgrown or mown relics of once diverse heathlands.

Conservation value

The acid grassland resource of the county is now of limited value except in a county context.

19.5 Future requirements for survey and conservation

Survey

No national priorities for Phase 2 survey.

Conservation

The condition of the county's acid grassland could be improved by positive management and there are opportunities for re-creation, although at a national level other areas would have a higher priority.

19.6 References

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FRANCIS, I.S., PENFORD, N., FINCH, M. & AITCHISON, J.W. 1990. *Biological survey of common land No 12: Hertfordshire.* Peterborough: English Nature.

Extract from Table 6 for Hertfordshire: occurrence of plant species generally faithful to lowland acid grassland

County: Hertfordshire	
Natural Area:	**All**
Chamaemelum nobile	0
Dianthus deltoides	1
Filago minima	1
Moenchia erecta	0
Ornithopus perpusillus	1
Potentilla argentea	1
Teesdalia nudicaulis	0
Trifolium ornithopodioides	0
Trifolium striatum	1
Trifolium subterraneum	0
Total no. of species extant	**5**
Total no. of species extinct	**5**
Total no. of species recorded	**10**

1 = Recent record
0 = Apparently extinct

Hertfordshire acid grassland surveys

Survey Name	GR	Date	Landscape Types	Comments	No Sites	Site Area	Gr Area	AG Area	H Area	LHA
Grassland Inventory		1980-94	Enc relic, Field, Common, Flood plain	In NA66 and on drift in NA 65, 50 & 51	38	1434.0	15.1	9.6		
Heathland Inventory		1987-94	Enc relic, Common	In NA66 and on drift in NA 65	23	1545.0			16.6	
Commons Survey		1990	Common	Includes wet & semi-improved grassland (MG6b)				115ha		
Estimates, classes		1996		Stephen Ayliffe, English Nature				C		

Survey Name	U1	U1a	U1b	U1c	U1d	U1e	U1f	U2	U2a	U2b	U3	U4	U4a	U4b	U4c	U4d	U4e	U5	U6	SD10	SD11	U20r
Grassland Inv.																						
Heathland Inv.																						
Commons	+							+														
Estimates, class	B		+		+	+		A														

Key

Column headings
GR = Grid reference if relevant
No Sites = Number of sites
Site Area = Area of sites
GR Area = Area of grassland
A G Area = Area of acid grassland
H Area = Area of dry heath
LHA = Area of lichen heath
NI = No information
NA = Natural Area
U1-U20r = NVC communities/sub-communities

Area estimates
A = Less than 50 ha
B = 50-100 ha
C = 100-500 ha
D = 500-1,000 ha,
E = 1,000-5,000 ha
F = 5,000-10,000 ha
G = Greater than 10,000 ha
+ = Present but no area given
? = Possibly present

20. Humberside

20.1 Physical

Geology

The former county of Humberside lies on bedrocks ranging from New Red Sandstone to Upper Chalk but most are buried in recent sediments. The most significant sediments for the support of acid grasslands are periglacial, wind blown, sand deposits, known as Coversand.

Soils

The sandy drifts give rise to large areas of brown sands and podzolic soils to the south of the Humber, with smaller patches to the north (**Map 1e**).

20.2 Landscape history

19th Century

In Gibbons (1975) the extent and desolation of the Coversand areas in the 17th century are described, and active sand dunes recorded as present. On the 1820's 1 inch OS maps there were still extensive areas of heathland between Risby Warren and Manton Warren. North of the Humber a large area of heathland existed at South Cliffe Common.

Current landscapes and Natural Areas

Much of the heathland to the south of the Humber survived into the 1920's, but since then, quarrying, plantations and agriculture have destroyed huge areas. The Coversand is found in three Natural Areas; the North Lincolnshire Coversands and Clay Vales (NA34), Humberhead Levels (NA22) and The Vale of York and Mowbray (NA16)

20.3 Existing information

Flora

The coincidence maps (**Maps 2-4**) of species listed in **Table 1** pick out the importance of the Coversand as one of the last areas on the east coast, with the exception of Northumberland, where a rich lowland acid flora is found. The species recorded for the Natural Areas within Humberside and adjacent counties are listed in **Table 6** (relevant extract given below).

Fauna

Woodlark were been recorded as breeding by Gibbons *et al* (1993) in the Coversand area.

Habitat surveys

The Grassland and Heathland Inventories reflect the results of the surveys described below.

The English Nature Chalk grassland data set included records of MG5b/U4 transitions from Yorkshire Wolds in a mosaic with CG2 and CG4. About 50ha of this mosaic were recorded.

Wigginton (1990) carried out a detailed survey of the Humberside coversands grassland. This survey recorded a Breckland mixture of parched acid grasslands (U1) and Sand Sedge communities (SD10 & 11) and included lichen-rich stands (U1a & SD11), U1b and a little U1f.

Some ephemeral-rich U1c was recorded but the late summer sampling date makes the quadrat data difficult to interpret and few annual plants were recorded. The quadrats given for U4 appear to be either indeterminate rank grasslands or U1e. Patches of *Nardus* and *Juncus squarrosus* occur and were equated with U5 and U6 but were atypical. The survey indicates about 130ha of acid grassland survived in about 350ha of heathland but with many of the sites very small. Only one lowland acid grassland species from **Table 1** was recorded with 17 of the locally characteristic species (**Table 2**).

A visit to the area in May 1997 by EPR showed that the application of WES funds for cutting Bracken, combined with very high rabbit grazing had greatly improved the condition of some of the heath. Especially spectacular was the development of over 50ha of U1c in the largest site, Risby Warren, in response the rabbit grazing and Bracken mowing. Countryside Stewardship had also resulted in the creation of extensive areas of early succession U1c with mobile sand dunes developing. The nationally scarce species *Hypochaeris glabra* and *Vulpia ciliata ambigua* present within five years of abandonment of arable cropping. The spring ephemeral flora was found to be exceptionally rich indicating the importance of spring/early summer surveys. Selected data from Coversand acid grassland is presented in Appendix 1, Volume I, as examples of this type of grassland.

Summary of consultations with Local Team Conservation Officers

South of the Humber, all the major areas of heathlands are now within SSSIs. These contain acid grasslands as a mosaic with heath, Bracken, and birch woodland. There are also smaller areas of acid grassland on numerous non-statutory sites. The acid grasslands are of particular value as an invertebrate habitat within the heathland mosaic. All the main SSSIs, except Messingham Heath SSSI, are in the Coversand Heath and Peatland Wildlife Enhancement Scheme (WES). This has been very successful in stimulating positive management over the past five years. This principally involves scrub clearance, bracken control and the reintroduction of sheep grazing.

Arable production is often marginal in the Coversand area and rapid reversion to acidic communities can occur on land taken out of production. For this reason, the Countryside Stewardship Scheme has particularly targeted the Coversand and as shown by the examples at Manton Warren has been very successful (see Appendix 1, Volume I).

Woodlark has bred recently on the Coversand area and a male was seen by EPR during a visit in 1997, displaying over a mixture of very short rabbit grazed grass heath and arable reverting to U1.

Beyond the Coversand, small areas of acid grassland exist among birch/oak woodland on sand lenses, overlying peat deposits, in the Humberhead Levels.

North of the Humber the main areas are also on Coversand, are included within the WES. They are similar to those south of the river. The best and most extensive examples are within Allerthorpe Common and South Cliffe Common SSSI. Pockets of acid grassland do occur in the incised valleys of the Yorkshire Wolds but the total amount is likely to be less than 10 ha.

20.4 Summary of resource

Extent and composition

The area still contains significant areas of a very Breckland-like habitat with *Carex arenaria* communities as well as acid grassland. The North Lincolnshire Coversand and Clay Vales Natural Area is rich in scarce and local species, although the degree of habitat fragmentation is high.

Conservation value

The Coversand heathlands are clearly of at least national importance for their acid grassland habitat, the recent improvements in the condition of the habitat and the associated inland sand dune features may mean the site has international value.

20.5 Future requirements for survey and conservation

Survey

The vegetation is generally well surveyed although there may be a need to improve floristic data on some sites. The species lists of Wigginton (1990) are unlikely to be complete.

Conservation

This appears to be well in hand. The long term aim should be to reduce the degree of fragmentation and to restore as much as possible the old Coversand landscape, typified by extensive, treeless, heathland.

20.6 References

GIBBONS, D.W., RIED, J.B. & CHAPMAN R.A. 1993. *The new atlas of breeding birds in Britain and Ireland 1988-1991*. London: Poyser.

GIBBONS, E.L. 1975. *The flora of Lincolnshire*. Lincoln: Lincolnshire Naturalists' Union, Lincolnshire Natural History Brochure No. 6.

WIGGINTON, M.J. 1990. *Botanical survey and assessment of the Humberside coversands, 1988*. England Field Unit Project No. 88. Peterborough: Nature Conservancy Council.

Extract from Table 6 for Humberside: occurrence of plant species generally faithful to lowland acid grassland

County: Humberside			
Natural Areas:	**34 + 33**	**22 (part)**	**16 + 18 + 22 (part)**
Grasses			
Apera interrupta	1		
Festuca longifolia	1		
Other Vascular Plants			
Chamaemelum nobile			0
Crassula tillaea	1		
Dianthus deltoides			1
Filago minima	1	1	1
Hypochaeris glabra	1	1	0
Moenchia erecta	0	0	0
Ornithopus perpusillus	1		
Potentilla argentea	1	1	0
Stellaria pallida	1	1	1
Teesdalia nudicaulis	1	1	1
Trifolium scabrum			1
Trifolium striatum	1	0	1
Trifolium subterraneum	1		
Vicia lathyroides	1	1	1
Total no. of species extant	**12**	**6**	**7**
Total no. of species extinct	**1**	**2**	**4**
Total no. of species recorded	**13**	**8**	**11**

34 + 33 = North Lincolnshire Coversands and Clay Vales & Trent Valley and Rises
22 = Humberhead Levels (part)
16 + 18 +22 = The Vale of York and Mowbray, Vale of Pickering and Humberhead Levels (part)

1 = Recent record
0 = Apparently extinct
All the records for the Natural Areas may include species recorded beyond Humberside

Humberside acid grassland surveys

Survey Name	GR	Date	Landscape Types	Comments	No Sites	Site Area	Gr Area	AG Area	H Area	LHA
Grassland Inventory		1982-88	Enc relics, Heath, calc/drift	Enc relics, Heath in NA16, 34 & 22 + some in NA19	15	396.8	75.4	13.8		
Heathland inventory		1984-92	Enc relics, Heath	Enc relics, Heath in NA16, 34 & 22	21	2379.0			312.9	
Wigginton (1990)		1900	Enc relics, Heath	Phase 2 survey (Gr Area includes other habitats)	14	332.8	350.0	130.0		
EPR 1997		1997		Re-estimates from field visit				C		
Estimate, classes		1996		Fromm Wigginton (1990)				C		

Survey Name	U1	U1a	U1b	U1c	U1d	U1e	U1f	U2	U2a	U2b	U3	U4	U4a	U4b	U4c	U4d	U4e	U5	U6	SD10	SD11	U20r
Grassland Inv.																						
Heathland Inv.																						
Wigginton (1990)	95.0	23.6	34.6	5.4	4.2		0.1	8.0	7.8			8.0	1.2	5.8				4.3	3.6	1.3	1.2	
EPR, 1997				B																		
Estimates, class	C	A	A	B	A		A	A	A			A	A	A				A	A	A	A	

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