43. Wiltshire

43.1 Physical

Geology

The centre and east of Wiltshire are dominated by the massive outcrop of Chalk, with Jurassic clays and limestones to the north west. There are only very limited outcrops of acidic rocks, with a small area of Tertiary deposits of the Hampshire Basin in the far south, and patches of Lower Greensand below the Chalk scarp, either side of Calne and by Swindon.

Soils

Soil associations dominated by strongly acid or freely draining acidic soils are also very restricted, with podzolic soils occurring in small areas of the Tertiary deposits in the south and on the Lower Greensand west of Calne. Otherwise acid soils are likely to be largely confined to areas of brown earths developed on clay with flints, and on the drift capping some of the chalk plateaux, although these sorts are likely to be fairly damp. They are most extensive in the Savernake Forest area (**Map 1b**).

43.2 Landscape history

19th Century

In the early 19th century, extensive unenclosed commons existed on the Tertiary deposits to the south which would have been similar to the commons of the New Forest. On the Lower Greensand south west of Calne, there was a small heathy common. There were also heathlands south of Longleat.

Current landscapes and Natural Areas

The Chalk outcrop is occupied by the South Wessex Downs Natural Area (NA80), Berkshire and Marlborough Downs Natural Area (NA79) and a small part of the Hampshire Downs (NA78).

The South Wessex Downs includes an area of podzolic soils developed on an out-lying outcrop of Tertiary deposits south east of Salisbury (SU2027), but the common land here has been long enclosed and replaced with farmland and plantation. The Berkshire and Marlborough Downs includes Savernake Forest where relic acid grasslands survive in pasture woodland glades, on drift over the Chalk.

To the south of the County a small part of the New Forest Natural Area (NA71) occurs within Wiltshire and, for the most part, is on London Clay. It has much in common with the South Coastal Plain and Hampshire Lowlands Natural Area (NA75). However, to the south on more acid Tertiary deposits, the extensive Hamptworth and Landford Commons are enclosed with little semi-natural grassland left.

To the north west, Wiltshire is dominated by the Thames and Avon Vales Natural Area (NA63) and the Cotswolds Natural Area (NA55) where acid soils are rare or absent. The Thames and Avon Vale Natural Area is interrupted by the Midvale Ridge Natural Area (NA64). The Corallian limestones here are locally overlain by Upper Greensand which gives rise to small patches of acid soils. These are all in intensively farmed areas.

A small area of the Wessex Vales Natural Area (NA83) occupies the south west corner of the county. The heathlands that once occurred in this area have long gone.

43.3 Existing information

Flora

The coincidence maps (**Maps 2-4**) of lowland acid grassland species listed in **Table 1** show that the very high concentration found around the New Forest once extended into south Wiltshire, but these species have suffered a recent and serious decline. Otherwise, the rest of Wiltshire is poor in acid grassland species, although the Greensand outcrops on the Midvale Ridge can just be picked out.

The recent Wiltshire Flora (Gillam, 1993) records an impoverished acid grassland flora as would be expected in a county where acid soils are rare. Common acid grassland species are only local in the county. *Galium saxatile* is frequent only in the Savernake Forest area and the fringe of the New Forest but is scattered elsewhere, indicating small pockets of acid soil. *Rumex acetosella* is also local and several quite standard acid grassland species such as *Aira praecox* and *Plantago coronopus* are rare.

The characteristic lowland acid grassland recorded from the two Natural Areas in the north of the county with the highest concentrations of acid grasslands are listed in **Table 6** (relevant data extracted below). *Crassula tillaea* has also been recorded from the far west of the county but not recently.

Six of the other lowland acid grassland also appear to be extinct including *Filago minima*, *Hypochaeris glabra* and *Teesdalia nudicaulis* (**Table 6**). These were all recorded from ST96 (Perring & Walters, 1976 & Stewart et al, 1994), the area containing the largest Greensand outcrop at Spye Park. Another four species recorded from the south Wiltshire vice county recently are actually confined to grazed heathland within modern Hampshire. Only two acid grassland species, *Ornithopus perpusillus* and *Trifolium striatum*, have recently been recorded from the modern county of Wiltshire and these are rare. The flora picks out four areas which appear to support a surviving acid grassland flora:

- Spye Park (Tetrad ST9466): rabbit grazed, unimproved, turf on sandy soil on Lower Greensand with *Ornithopus perpusillus*, *Aphanes inexspectata* , *Plantago coronopus*, *Aira praecox* and *Vulpia bromoides*.

- Freeth Farm (Tetrad SU0272): an old sand pit on Upper Greensand with *Ornithopus perpusillus*, *Trifolium striatum*, *T. micranthum* and *Vulpia bromoides*.

- Okus Swindon (Tetrad SU1482): short turf, presumably on Upper Greensand, with *Trifolium striatum*.

- Savernake Forest (Tetrad SU26): several acid grassland species including *Ornithopus perpusillus*, *Nardus stricta*, *Trifolium micranthum*, *Aira praecox* and *Ulex minor*.

More limited acid grassland may occur at Fyfield Down NNR on drift over chalk. Here *Aira praecox* and *Aphanes inexspectata* are recorded. However, the grassland could be little more than some fragmentary parched acid grassland (U1) on anthills in grassland. No sites are mentioned within the New Forest Natural Area in modern Wiltshire and *Agrostis curtisii* is described as occurring mainly as relic populations on banks in reclaimed heathland.

Habitat surveys

In the Wiltshire County Grassland Inventory, acid grassland is noted only for the 904ha Savernake Forest SSSI (SU26), along with calcicolous and neutral grassland. No areas are given for the acid grassland.

A grassland survey concentrating on Wiltshire in general and the New Forest fringe of Hampshire in 1988 (Slade, 1988) recorded 1.8ha of semi-improved acid grassland near Landford (SU2617). This was recorded as U4 by Neil Sanderson and Lorna Slade but *Rumex acetosella* was present and it could equally have been described as U1e.

Survey of unimproved mesotrophic grassland and mire (Wilson 1995)

In 1995, a Phase 2 survey of the New Forest fringe in Wiltshire and the Vale of Wardour recorded some small areas of acid grassland. In the New Forest fringe, 0.6ha of U1f was recorded with H2c heath and a further 0.52ha of indeterminate acid grassland also recorded. In the Wiltshire fringes of the New Forest, the large areas of enclosed heathland have been reduced to improved farmland and forestry and the extensive areas of relic heath with acid grassland that exist in partially improved enclosed heathland in Hampshire are absent. A mown woodland glade in the Hamptworth Estate also supported a small area of U4, very similar to the pasture woodland glades of the New Forest. The Strip-winged Grasshopper *Stenobothrus lineatus*, was recorded from the glade in Hamptworth Estate and the owner claims New Forest Cicada *Cicadetta montana* also occurs here. This is conceivable as the glade is identical in structure to hundreds of glades in the New Forest pasture woodlands where it could also occur.

In the Vale of Wardour a single field with 2.24ha of U4b was recorded. This stand lacks *Festuca ovina* and has much bracken and tends towards U20b. *Rumex acetosella* is also noted as abundant so at least some of it is likely to be U1e.

Wiltshire Wildlife Trust Surveys

A Wiltshire Wildlife Trust survey of a a young, replanted, Forest Enterprise plantation adjacent to Spye Park outside the SSSI found areas of regenerating acid grassland with several species rare at a county level including *Plantago coronopus* and *Ornithopus perspusillus*. A second Wiltshire Wildlife Trust survey of a meadow at Emmett Hill (SU009) recorded a grassland which is intermediate between MG5c and U4, with locally frequent *Rumex acetosella* indicating a tendency to U1 as well.

Summary of consultations with Local Team Conservation Officers

Acid grassland is of limited extent in Wiltshire. It must have once been widespread in the south of the county, in the New Forest Natural Area, but this former heathland has been thoroughly enclosed and only tiny fragments of heath and acid grassland remains. Fragmentary U1f and U4 have been recorded and tiny patches of U3 may exist. Spye Park SSSI (in the Thames and Avon Vales Natural Area) is probably the best area for dry acid grassland species but there may be a possibility that parched acid grassland (probably U1b) here may have been omitted from the SSSI. Savernake Forest is a relic pasture woodland complex of great interest, with derelict U1e grasslands invaded by *Arrhenatherum* adjacent to CG2 communities in valley bottom glades. The grasslands here are in very poor condition and difficult to mow due to the presence of anthills. The Forest requires the restoration of extensive grazing and experiments are proposed to further this aim. Elsewhere there are a few areas of acid grasslands. It is possible that U1 grassland containing declining species survives in Longleat Park.

43.4 Summary of resource

Extent and composition

There is likely to be less than 50ha of acid grassland in Wiltshire with species-rich parched acid grassland (U1) restricted in extent and probably largely confined to the Midvale Ridge and the New Forest fringe.

Conservation value

None of the acid grasslands of Wiltshire are likely to be of national significance but some are clearly of great importance for maintaining the biodiversity of the county.

43.5 Future requirements for survey and conservation

Survey

The is a need to survey the remaining parched acid grasslands of the Midvale Ridge.

Conservation

The restoration of grazing to Savernake Forest and promotion of acid grassland restoration in the Calne area would be the two main priorities for acid grassland conservation in Wiltshire, outside the New Forest Natural Area. In the latter Area there are clear opportunities for heathland and acid grassland restoration in the areas of enclosed former heathland.

43.6 References

GILLAM, B. 1993. *The Wiltshire flora.* Oxford: Pisces Publications.

SLADE, L. 1989. *Neutral to acid grassland survey 1998-1990 (South Region): Interim report.* Newbury: Nature Conservancy Council, South Region.

WILSON, P.J. 1995. *Survey of unimproved mesotrophic grassland, mire and related habitats in the Wiltshire New Forest fringes and the Vale of Wardour. A summary and overview.* A report to English Nature.

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

County: Wiltshire		
Natural Area:	**64**	**79**
Chamaemelum nobile		0
Filago minima	0	
Hypochaeris glabra	0	
Moenchia erecta		0
Ornithopus perpusillus	1	1
Teesdalia nudicaulis	0	
Trifolium scabrum		0
Trifolium striatum	1	
Total no. of species extant	**2**	**1**
Total no. of species extinct	**3**	**3**
Total no. of species recorded	**5**	**4**

64 = Midvale Ridge
79 = Berkshire and Marlborough Downs

1 = Recent record
0 = Apparently extinct

Wiltshire acid grassland surveys

Survey Name	GR	Date	Landscape Types	Comments	No Sites	Site Area	Gr Area	AG Area	H Area	LHA
Grassland Inventory		1988	Pasture Woodland	Only Savernake Forest recorded	1	904	NI	NI		
Heathland Inventory		1986-95	Enclosure relic, Pasture Woodland	Dry heath confined to New & Savernake Forests	17	3283.0			6.9	
Wiltshire 1988		1988	Enclosure relic	Phase 2 survey (Slade,1988)	1			1.8		
New Forest 1995		1995	Enclosure relic	Phase 2 survey (Wilson, 1995)	3			1.4		
Vale of Wardour 1995		1995	Field	Phase 2 survey (Wilson, 1995)	1			2.2		
Estimates		1996		Neil Sanderson, EPR				A		

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.																						
Wilts 1998	1.8					1.8																
New Forest	0.6						0.6					0.3										
Wardour 1995												2.2		2.2								
Estimates, class	A		?			A	A				?	A		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

Appendix 1. Information used for describing the acid grassland resource for each county

Physical

Geology: a brief account of the geology.
Soils: a description of the soil associations found within the county.

Landscape history

19th Century: a brief description of the extent of unenclosed rough grazings in the early 19th century. The reprints of the old series, 1 inch, Ordnance maps (Harley and O'Donoghue 1975) were consulted for this data. These are the earliest versions of the 1 inch maps available.

Current Landscapes & Natural Areas: a description of the current landscape with reference to English Nature's Natural Areas (**Map 15**). The descriptions of the grassland resource for each of these Natural Areas given in Jefferson (1996) were found to be helpful (reference in Volume I).

Existing Information

Flora: Information on the acid grassland flora of the county from the Biological Records Centre is presented along with information gained from county floras. Special reference is made to the species generally faithful to acid grassland listed in **Table 1**. Species recorded from selected Natural Areas and counties, where information permitted, are listed in **Table 6** and the relevant extract from **Table 6** is given at the end of each county account.

Fauna: any information known to the contractor on the fauna of lowland acid grasslands of the county.

Habitat Surveys: information given by habitat surveys.

Results of Consultation: a summary of the information gained by consultation with EN Local Team staff and others. A list of all those consulted is given in **Appendix 3**.

Summary of Resource

Extent and composition: an assessment of the extent and composition of the lowland acid grassland resource in the county.

Conservation value: an initial assessment of the conservation value of acid grassland in the county.

Future requirements for survey and conservation

Survey: an assessment of the future requirements for lowland acid grassland survey in the county.

Conservation: an assessment of the future requirements for action to ensure the conservation of lowland acid grassland in the county.

References

HARLEY, J.B. AND O'DONOGHUE, Y. 1975. The Old Series Ordnance Survey maps of England and Wales (scale 1 inch to 1 mile). Lympne: Harry Margary.

Appendix 2. Fields used in the compilation of county spreadsheets

Survey Name

GR: grid reference, used for single site surveys.

Date of Survey

Landscape: landscape/habitat type in which the acid grassland is present. The following terms are used:

Heathland/heath: mosaics of acid grassland and ericaceous dwarf shrub vegetation.

Grass heath: grass dominated heathland, including Breckland acid and calcicolous grassland complexes.

Enclosure relic: fragment surviving as an obvious relic from enclosure of heathland or common.

Parkland: in landscape or deer park.

Calcicolous/drift: associated with patches of acid soil within chalk or limestone grassland landscapes

Field: in enclosed landscapes, often with neutral grassland or fen meadow

Common: common land sometimes dominated by neutral grassland or fen meadow

Pasture woodland: glades in pasture woodland.

Flood plain: on raised areas within floodplains.

Grazing marsh: shingle and banks within coastal grazing marsh.

Shingle: the non-maritime parts of shingle beaches.

Rock: hard rock outcrops.

Waste: industrial waste land, mine spoil heaps, quarries etc.

Coastal cliff: non-maritime acid grassland in coastal cliff top habitats

Comments: comments on features of specific interest, sources of information.

Site Area: area of whole site if known.

Gr Area: area of grassland if known. In some surveys this includes heath in mosaics with acid grassland.

AG Area: area of acid grassland if known.

H Area: area of dry heath if known. Mainly used for data from the Heathland Inventory. Most dry heath is likely to have at least some acid grassland associated with it.

LHA: area of lichen heath if known. Mainly used for data from the Heathland Inventory. Can include lichen-dominated acid grassland (U1a).

U1-U20r: Areas of NVC communities or sub-communities if known, or '+' if present or '?' as possibly present. (U20r is a species-rich variant of U20, see Volume I, Chapter 2).

The areas are also entered as estimates using the following classes:

A: up to 50ha.

B: 50-100ha.

C: 100ha-500ha.

D: 500-1,000ha.

E: 1,000-5,000ha.

F: 5,000ha-10, 000ha.

G: more than 10,000ha.

Appendix 3. List of consultees according to county

Avon: Basil Greenwood (English Nature)
Bedfordshire: Tim Barfield (English Nature)
Berkshire: Graham Steven & Ted Green (English Nature)
Buckinghamshire: Graham Steven (English Nature)
Cambridgeshire: Donna Radley (English Nature) and Chris Gardner (EN site manager of Castor Hanglands NNR)
Cheshire: Chris Walker (English Nature)
Cornwall: Jon Stewart & Simon Leach (English Nature)
Cumbria: Ian Slater (English Nature)
Derbyshire: Ian Taylor (English Nature)
Devon: Rob Wolton (English Nature) was consulted on acid grassland in general and Simon Leach (English Nature) on coastal cliff grassland
Dorset: Jonathan Cox (English Nature) and Brian Edwards (Dorset Environmental Records Centre).
Essex: Stephen Ayliffe (English Nature)
Gloucestershire: Mike Wilkinson (English Nature)
Greater London: Stephen Ayliffe (English Nature) and Dr Francis Rose
Greater Manchester: Selina Hill (English Nature)
Hampshire: Diana Westerhoff (English Nature), Paul Edgar (Hampshire Heathland Project)
Hereford & Worcester: Mike Wilkinson (English Nature) in consultation with other Local Team members
Hertfordshire: Stephen Ayliffe (English Nature)
Humberside: Colin Newlands (English Nature)
Isle of Wight: Dr Colin Pope (Isle of Wight Council)
Kent: Richard Collingridge and Rob Cameron (English Nature) and Dr Francis Rose
Lancashire: Jon Hickling (English Nature)
Leicestershire: Ian Butterfield (English Nature)
Lincolnshire: John Shackles (English Nature), Mark Crick (Lincolnshire Wildlife Trust), Tim Smith (Ecological Services Ltd) and Clive Chatters (Hampshire Wildlife Trust)
Merseyside: Selina Hill (English Nature), Christine Bennett, Joint Countryside Advisory Service, Peter Gateley, vice-county recorder (v.c.59), Dr Hilary Ash
Norfolk: Claire Warnsbury (English Nature) and Dr Francis Rose
Northamptonshire: Max Coleman (English Nature)
North East England: Stuart Hedley (English Nature)
North Yorkshire: Dave Clayden in consultation with other members of the North and East Yorkshire Team (English Nature)
Nottinghamshire: Ian Butterfield (English Nature)
Oxfordshire: Graham Steven (English Nature)
Shropshire: Chris Walker (English Nature)
Somerset: Flemming Ulf-Hansen and Mike Edgington (English Nature)
South Yorkshire: Colin Newlands in consultation with other members of the Humber to Pennines Team (English Nature)
Staffordshire: Chris Walker (English Nature)
Suffolk: Anne Brenchley and Nick Sibbett (English Nature)
Surrey: Peter Tinning (English Nature) and Dr Francis Rose
Sussex: Peter Tinning (English Nature) and Dr Francis Rose
Warwickshire: Chris Walker (English Nature)
West Midlands: Chris Walker (English Nature)
West Yorkshire: Colin Newlands in consultation with other members of the Humber to Pennines Local Team (English Nature)
Wiltshire: Claire Lambert (English Nature) and Paul Darby (Wiltshire Wildlife Trust)

Appendix 4. Questionnaire sent to Local Team Conservation Officers for each county

1. a. What is your estimate/best guess for the extent of lowland acid grassland in your Team's area? You may like to use the following categories: 0-50ha, 50-100ha, 500-1000ha, 1000-5000ha, over 10,000ha (estimate amount).

   b. Can you estimate amounts of different NVC communities, U1 to U4, or put them in order of likely amounts?

   c. How is the grassland distributed (e.g. patchily/uniformly) and can you define this in terms of Natural Areas or parts of Natural Areas.

2. From your local knowledge, what is the conservation significance and the characteristics of sites with acid grassland i.e.. in terms of their landscape position (e.g. river bluffs, mosaic with heath, parkland etc.), NVC types, or other characteristics such as soils, special fauna and flora, and management?

3. a. Are there other (recent) surveys available apart from those we know about from doing the Grassland Inventories for your area? County Trusts might also have relevant information and if so, the name of a contact person would be helpful.

   b. Which Natural Areas/parts of Natural Areas would you see as priorities for further Phase 2 survey, with the principal aim of targeting incentive scheme payments?

4. Some examples of sites we might use to illustrate the types and characteristics of lowland acid grassland already have data (e.g. Breckland). Are there types of acid grassland in your area that could be surveyed at Phase 2 level next year to provide other illustrations, particularly with regard to their landscape position? Perhaps a maximum of 1 or 2 sites might be selected in your area, depending on the returns from all teams.