

LOWLAND CALCAREOUS GRASSLAND

LOCAL HABITAT ACTION PLAN FOR CAMBRIDGESHIRE AND PETERBOROUGH

Last Updated: December 2008

1 CURRENT STATUS

- 1.1** The definition of calcareous grasslands covers a range of plant communities in which calcicole plants are prominent. Within Cambridgeshire and Peterborough the following calcareous grassland National Vegetation Classification (NVC) communities CG2, CG3, CG4, CG5 and CG7 (Rodwell, 1992) are known to occur, with CG3 *Bromus erectus* grassland being very much the predominant type, though much of this is the result of undergrazing. Additionally MG1 type grasslands with a high proportion of chalk loving plants may have developed from CG type grasslands through lack of appropriate management.
- 1.2** Lowland calcareous grasslands are developed on shallow lime-rich soils generally overlying limestone rocks, including chalk. Very chalky boulder clay may also support calcareous grassland. These grasslands are now largely found on distinct topographic features such as escarpments or dry valley slopes. However in Cambridgeshire & Peterborough they are more often associated with ancient earthworks, disused limestone or chalk extraction sites and road side verges. More rarely, remnant examples occur on flatter topography, such as the gallops and Racecourse around Newmarket and at Bassingbourn Barracks. Nationally the typical management is as components of pastoral or mixed farming systems, supporting sheep, cattle or sometimes horses; a few examples are cut for hay. However, the situation in Cambridgeshire is markedly different, with arable farming dominating and few sites actively grazed.
- 1.3** The large majority of calcareous grassland in Cambridgeshire is found in two distinct areas. The largest of these lies within the East Anglian Chalk Natural Area. The chalk belt runs through Cambridgeshire from the county boundary west of Royston north-eastwards to the Newmarket area. The gentle topography of this area has allowed the vast majority to be utilised for arable production and only fragments of the once extensive areas of calcareous grassland now remain. Much the largest areas are to be found around Newmarket, where they are used for horse-racing and training. The best of these sites support large areas of unimproved calcareous grassland; others support mosaics of unimproved and semi-improved calcareous grasslands and more mesotrophic grassland. These Newmarket sites account for over 50% of the unimproved calcareous grassland resource in the county.
- 1.4** The impressive linear defensive earthworks of the Devil's Ditch and Fleam Dyke, which run northwest-southeast across the chalk belt, support extensive areas of calcareous grassland. The only other large calcareous grasslands in this Natural Area occur on the Gog Magog Hills and the training area at Bassingbourn Barracks. The small grasslands at Hildersham Furze Hills show a Breck influence and occur in a mosaic with acidic and mesotrophic grasslands. Many tiny fragments of calcareous grassland survive in small disused chalkpits, road, railway and green lane verges and other marginal situations.

- 1.5** Some of the rare or scarce species associated with calcareous grassland and/or bare chalk occur at sites such as disused chalk pits where no development of mature calcareous grassland has yet occurred or where scrub is predominant. The continued interest of such sites may be dependent on arresting the development of grassland or on the retention of scrub.
- 1.6** The second principal locus of calcareous grasslands occurs within the Peterborough City Council unitary authority area within the Rockingham Forest Natural Area. Here the underlying rock is Jurassic Limestone and again the principal land use is arable production. Calcareous grassland survives in a number of long-disused limestone quarries, the most important being Barnack Hills and Holes NNR. Elsewhere, small areas or linear strips of grassland are found on railway embankments such as Sutton disused railway, on road verges such as the extensive verges around Barnack, along a few woodland rides and very sparingly on the valley slopes produced by streams cutting through the limestone.
- 1.7** Current estimates put the amount of lowland calcareous grassland remaining in the UK at around 33,000 to 41,000 ha. Nationally the cover of lowland calcareous grassland has suffered a sharp decline in extent over the last 50 years and Cambridgeshire has mirrored this trend. Within Cambridgeshire the area of unimproved calcareous grassland remaining amounts to some 641ha, while there is 70 ha of unimproved limestone grassland around Peterborough (see chalk grassland and limestone grassland sites spreadsheets).
- 1.8** Calcareous grasslands in Cambridgeshire support a very rich flora including many nationally rare and scarce species such as Lizard Orchid *Himantoglossum hircinum*, Moon Carrot *Seseli libanotis*, Pasqueflower *Pulsatilla vulgaris* and Perennial flax *Linum perenne ssp anglicum*. The invertebrate fauna is also diverse and includes scarce species like Chalkhill Blue and Small Blue butterflies, the RDB robber fly *Machimus rusticus*, the ground beetle *Harpalus punctatulus* and the bumblebee *Bombus ruderatus*. These grasslands also provide feeding or breeding habitat for a number of scarce or declining birds including stone curlew *Burhinus oedicnemus* and skylark *Alauda arvensis*.
- 1.9** Scrub is frequently associated with calcareous grassland and can contribute to local biodiversity by providing a varied micro-climate, shelter and nectar for invertebrates and scrub edge conditions suitable for species such as Bloody Cranesbill *Geranium sanguineum*. Fleam Dyke supports the county's only population of Juniper *Juniperus communis*. The scrub on chalk sites is often species rich in its own right.
- 1.10** Even as species poor isolated stands, scrub forms an important habitat resource for birds such as Song Thrush, small mammals such as mice and shrews and a host of invertebrates. In an intensively farmed landscape, small areas of scrub along with hedgerows, provide cover, shelter, nesting and feeding opportunities and are often associated with small areas of grassland and tall herbs. Long list birds such as Garden Warbler, Blackcap, Whitethroat, Lesser Whitethroat, Willow Warbler, Nightingale, Goldfinch and Linnet all rely on various forms of scrub habitat. Scrub stands in close association with grassland, particularly where there is a naturally advancing scrub front, form complex mosaics which are particularly valuable for a wide variety of invertebrates including butterflies such as Brown Argus, Grizzled

and Dingy Skippers and also Chequered Skipper, now extinct in England but which was last seen in the Soke of Peterborough.

1.11 Links with species action plans

Lowland calcareous grassland is an important habitat for a number of local priority invertebrates, plants and birds. During plan implementation their requirements should be taken into account. The priority species include Stripe-winged Grasshopper *Stenobothrus lineatus*; Small Blue *Cupido minimus*, Marbled White *Melanargia galathea* and Chalkhill Blue *Lysandra coridon* butterflies; and plants including, Perennial Flax *Linum perenne*, Spotted Cat's-ear *Hypochaeris maculata*, Pasqueflower *Pulsatilla vulgaris*, Lizard Orchid *Himantoglossum hircinum*, Moon Carrot *Seseli libanotis* and bryophytes such as *Tortula vahliana*, *Tortella inflexa*, *Aloina brevirostris* and *Lophozia perssonii*. In addition there are a large number of other invertebrate species associated with this habitat. They may also be significant for priority species bats and reptiles.

2 CURRENT FACTORS CAUSING LOSS OR DECLINE

- 2.1** Historically, agricultural intensification by use of fertilisers, herbicides and other pesticides, re-seeding or ploughing for arable crops was the main cause of the decline in this habitat. However, this is no longer the major threat to the remaining chalk grasslands.
- 2.2** The major threat today is the lack of appropriate management, particularly the lack of grazing resulting in the increasing dominance of coarse grasses and tall herbs and invasion by scrub and woodland, leading to losses of calcareous grassland flora and fauna. The linear chalk sites have suffered particularly in this way. Similarly, many of the small, marginal sites in chalk pits, road and railway verges etc. have been neglected and under-managed for long periods of time.
- 2.3** Another significant local issue is the long term impacts of changes in management, such as alteration in the grazing or cutting regime or the replacement of sheep grazing with horse grazing. Some of the largest remaining tracks of grassland are managed as gallops and could be threatened over the long-term by the mowing regime or even potentially the injudicious use of fertilisers.
- 2.4** Overgrazing by rabbits is a very serious problem on some sites, exacerbated by the fragmentation of the grasslands and fencing to keep the rabbits off adjacent cropped land.
- 2.5** Spray drift and enrichment through fertiliser run-off may also be a problem on some sites. Atmospheric pollution, particularly eutrophication from nitrogen deposition and climate change are recognised as potentially significant issues for the future; however, the influence of these factors has not been fully assessed nationally and very little is known locally, though anecdotal evidence suggests that some road verges are moving from a calcareous to a more mesotrophic sward. Salt spray is also having an impact on road verges.
- 2.6** Although not a significant local issue, most chalk grasslands do not have a statutory designation and there could still be loss of habitat due to development activities such

as mineral extraction, road building, housing and landfill. However restoration of sites following mineral extraction may also provide opportunities for re-creation of calcareous grassland.

- 2.7** Road verges are particularly vulnerable to changes whether management or development related. A long list of factors adversely affecting road verges have been recorded; road improvement schemes, conversion of verge to hard surfaced footpaths or cycle paths, essential cable and pipe laying work, modification of verge for agricultural access to adjoining farm land, modification through introduction of new roadside ditch systems or widening of existing roadside drainage ditches, encroachment on verge by adjacent landowner (including ploughing of the verge), leachate run-off from adjoining agricultural land, spray drift from adjacent fields, lack of cutting and associated scrub encroachment, inappropriate cutting regimes and timing of cutting and even in some cases hedge and tree planting.
- 2.8** Recreational pressure bringing about floristic changes associated with soil compaction or soil erosion, or eutrophication from dog faeces.
- 2.9** The factors currently affecting calcareous grassland reduce the quality and quantity of the habitat, and its fragmentation brings increased risk of species extinctions in the small remnant areas. Many of the county's remaining areas of calcareous grassland are so small and isolated that chance extinctions due to unfavourable conditions, even if temporary, mean that the sites' diversity becomes impoverished over time. The less mobile fauna species are particularly at risk in this way.

3 CURRENT ACTION

3.1 Legal status

- 3.1.1** Lowland calcareous grassland features prominently in the SSSI series in Cambridgeshire; a rough estimate suggests that approximately 25% of the unimproved calcareous grassland resource has been designated. In addition, two sites, Barnack Hills and Holes and Castor Hanglands, are National Nature Reserves and Limekiln Close (at Cherry Hinton Pits) is a Local Nature Reserve.
- 3.1.2** The County Wildlife Site designation covers virtually all the remaining unimproved calcareous grassland in the county in addition to those sites containing a mosaic of unimproved and semi-improved grassland or the better examples of semi-improved calcareous grassland.
- 3.1.3** Several plant, invertebrate and bird species of calcareous grassland are protected under the Schedules of the Wildlife and Countryside Act 1981.
- 3.1.4** There is a range of national, regional and local planning policies that, along with other legislation, set out requirements for biodiversity conservation. Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation (ODPM, 2005) is the key national planning policy document for biodiversity in England. It sets out the key principles that regional planning bodies and local planning authorities should adhere to in order to

ensure that biodiversity is fully considered in the development of planning policy and determination of planning applications. The seven policies within the Environment chapter of the Regional Spatial Strategy for the East of England (GO-East, May 2008) set out the requirements for proper consideration to be given to the potential effects of development on the natural, built and historic environment of the East of England. At the local level, the planning policy documents of local planning authorities should take account of BAP and HAP targets and priorities, setting overarching policies for the protection and enhancement of biodiversity.

3.2 Management, research and guidance

- 3.2.1** Initiatives such as Environmental Stewardship (and Countryside Stewardship and the English Nature Wildlife Enhancement Scheme beforehand) have played a significant role in effective management of calcareous grassland sites.
- 3.2.2** The condition of calcareous grassland SSSIs is regularly monitored by Natural England.
- 3.2.3** In Cambridgeshire a major restoration project to safeguard the future of one the county's most important chalk grassland sites and ancient monuments, the Devil's Ditch (or Dyke) commenced in 2002, thanks to a grant award from HLF. The HLF project was a five year project to restore the species-rich grassland clear scrub, fence a majority of the grassland sections and re-introduce grazing to these sections. A 10 year management plan was also prepared and all the landowners signed up to the aims of the project. This project was successful in achieving its aims and the project steering group has continued to meet to implement the management plan. The next stage of the project is to bring all the landowners into the Environmental Stewardship scheme to ensure that the desired annual grazing and / or mowing regimes continue. Natural England is currently drawing up the first such scheme to cover the Jockey Club part of the Dyke around Newmarket.
- 3.2.4** In parallel with the Devil's Dyke project, another partnership has been progressing restoration and management work on two of the county's other most important chalk grassland sites, Fleam Dyke and Roman Road, both also ancient monuments. Management plans are currently being prepared for both sites, in liaison with the landowners and the aim will be for all landowners to enter Environmental Stewardship to ensure that the desired annual grazing and / or mowing regimes continue. Both of the projects are joint ventures between the County and District Councils, Natural England, English Heritage, the Wildlife Trust and Friends of Groups.
- 3.2.5** A significant contribution has been made by various non-governmental organisations to the conservation of calcareous grassland in the county through the establishment of nature reserves. The local Wildlife Trust has 5 nature reserves in Cambridgeshire & Peterborough that are SSSIs with calcareous grassland a major or significant feature of their interest. Other voluntary bodies like the Butterfly Conservation, Cambridge Preservation

Society and the Magog Trust undertake action on many calcareous grassland sites, including reserves, SSSIs and some County Wildlife Sites.

3.2.6 Sympathetic management is also undertaken by landowners on several sites. The Wildlife Trust in partnership with the County Council, Peterborough City Council, the district councils, Natural England, FWAG and the Environment Agency established a group under the umbrella of the Biodiversity Partnership to run the local County Wildlife Sites system. The Wildlife Trust employ a Wildlife Sites Officer, whose role is to co-ordinate surveys and provide management advice and support to landowners of CWS. FWAG also provide advice on some sites and help landowners to apply for the Environmental Stewardship scheme.

3.2.7 The Wildlife Trust regularly organises walks/talks to publicise the wildlife interest of chalk grassland sites and to explain management activities undertaken thereon. Regular work parties involve members of the public in practical measures for calcareous grassland conservation.

4 OBJECTIVES AND TARGETS (Revised 2007)

4.1 Objectives

- Halt the loss of unimproved chalk and limestone grassland.
- Re-habilitate unimproved chalk and limestone grassland on known sites, bringing all significant stands of these habitats on SSSIs and CWSs into favourable condition.
- Buffer unimproved grassland sites to prevent damage by external factors, such as agricultural spray drift.
- Create new areas of unimproved chalk and limestone grassland, aiming to enlarge and link existing sites wherever possible.

4.2 Lowland Calcareous Grassland Targets for Peterborough Limestone Grassland

1. Maintain the current extent of limestone grassland in Peterborough (estimated to be 70 Ha, 2006).
2. Maintain at least the current condition for limestone grassland within SSSIs & County Wildlife Sites in Peterborough.
3. Achieve favourable or recovering condition for 90% by area of limestone grassland within SSSIs & County Wildlife Sites, by 2010 (95% by 2015 and 98% by 2020).
4. Restore 15 Ha of limestone grassland from semi-improved grassland and scrub on existing sites, by 2015.
5. Create 90 Ha of limestone grassland from improved grassland, arable, or former minerals extraction sites, on, adjacent to and linking existing sites, by 2015 (and 180 ha by 2020; there is long-term potential for 270 ha).

4.3 Lowland Calcareous Grassland Targets for Cambridgeshire Chalk Grassland

1. Maintain the current extent of chalk grassland in Cambridgeshire (estimated to be 641 Ha, 2006).
2. Maintain at least the current condition for chalk grassland within SSSIs & County Wildlife Sites in Cambridgeshire.
3. Achieve favourable or recovering condition for 40% by area of chalk grassland within SSSIs & County Wildlife Sites, by 2010 (80% by 2015 and 90% by 2020).
4. Restore 70 Ha of chalk grassland from semi-improved grassland and scrub on existing sites, by 2015 (and 85 ha by 2020).
5. Create 75 Ha of chalk grassland from improved grassland or arable, on, adjacent to and linking existing sites, by 2015 (and 150 ha by 2020; there is long-term potential for up to 550 ha).

5. ACTIONS

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Peterborough Limestone Grassland: Habitat management, restoration & creation

BAP TARGET	PROGRESS TO 2006	ACTION	LEAD PARTNER	PRIORITY / DATE	RESOURCES
P1. Maintain the current extent of limestone grassland in Peterborough (estimated to be 70 Ha, 2006)	No known loss of or damage to sites through development or agricultural intensification since 2000	P1.1 Ensure that all landowners and managers of SSSIs & County Wildlife Sites supporting limestone grassland habitats are aware of their importance, through provision of site information	NE (SSSI) WT / PCC (CWS)	High On-going	This is the role of Natural England for SSSIs. A local Wildlife Sites partnership is being formed to address the needs of County Wildlife Sites (see below). This will require support from all local authorities, including financial backing.
	Plans published recently all have site protection policies	P1.2 Ensure all planning policy documents (LDF, Minerals & Waste Plans, etc.) have strong policies protecting SSSIs and County Wildlife Sites	PCC / CCC	High On-going	Existing staff resources
		P1.3 Continue to assess planning applications that may affect limestone grassland sites and comment on those that may have an adverse impact	PCC / CCC	Medium On-going	Existing staff resources
		P1.4 Alert Natural England if a landowner is proposing / thinking of undertaking agricultural improvement activities on a site supporting limestone grassland, so that the provisions of the EIA Regulations for Uncultivated Land can be implemented	NE, WT, FWAG	Medium On-going	Existing staff resources

<p>P2. Maintain at least the current condition for limestone grassland within SSSIs & County Wildlife Sites in Cambridgeshire & Peterborough.</p> <p>P3. Achieve favourable or recovering condition for 90% (by area) of limestone grassland within SSSIs & County Wildlife Sites, by 2010 (95% by 2015 and 98% by 2020)</p>	<p>16% (8.5 out of 52.7 ha) SSSI favourable; 84% (44.2 ha) unfavourable recovering</p> <p>57% (9.1 out of 16 ha) CWS favourable</p>	<p>P2./3.1 Implement appropriate grazing or cutting regimes on all limestone grassland sites, including road verges ensuring that this is appropriate for plants and invertebrates</p> <p>Ensure that all landowners and managers are provided with information, advice and support regarding management of their sites to enable them to achieve this action</p>	<p>NE (SSSIs) WT / PCC (CWS)</p>	<p>High 2010</p>	<p>This is the role of Natural England for SSSIs.</p> <p>A local Wildlife Sites partnership is being formed to address the needs of County Wildlife Sites (see below). This will require support from all local authorities, including financial backing.</p>
	<p>Current contract for rural road verge maintenance includes clauses dealing with County Wildlife Site / "Protected Road Verges".</p>	<p>P2./3.2 Continue a conservation mowing regime, including removal of arisings, for all CWS limestone grassland road verges.</p> <p>Implement a restoration management regime on selected CWS limestone grassland road verges (as determined by site surveys), to include a second early spring cut, removal of inappropriate planted trees to prevent shading of the species-rich grassland, and gapping up of adjacent hedgerows</p>	<p>PCC / Highways Agency</p>	<p>High On-going</p>	<p>Current contract for rural road verge maintenance includes clauses dealing with "Protected Road Verges", however, no restoration cut or tree removal is currently undertaken.</p>
	<p>The Wildlife Trust has secured funding for advisory work through the Rural Enterprise Scheme until March 2009 and both PCC & the County Council have committed staff time.</p>	<p>P2./3.3 Support the development of a local Wildlife Sites partnership to ensure monitoring & assessment of County Wildlife Sites and to provide information, advice & support to landowners</p>	<p>PCC / CCC / WT / other biodiversity partners</p>	<p>High 2007</p>	<p>Additional support will be required from all local authorities, including financial backing.</p>

		P2./3.4 After March 2009, secure alternative funding to support County Wildlife Site advisory work and management of the local Wildlife Sites system	LAs / Biodiversity Partnership	High 2009	It is estimated that the cost of one full-time officer to manage the system on behalf of the partners would be £30,000 - £35,000 per year for both Cambridgeshire & Peterborough (2007 prices)
		P2./3.5 Undertake site condition monitoring of all limestone grassland SSSI sites at least once every 6 years to record the extent and condition of limestone grassland habitats	NE (SSSI)	High On-going	This is the role of Natural England for SSSIs.
	PCC funded the Wildlife Trust to undertake site surveys through an SLA for the period 2003-2006	P2./3.6 Undertake site condition monitoring of all limestone grassland CWS sites at least once every 5 years to record the extent and condition of limestone grassland habitats. All local authorities to fund a rolling programme of site re-surveys / site condition monitoring through an SLA with the Wildlife Trust until 2009 (beyond 2009 this could become part of the broader support of the local Wildlife Sites system – see action above)	PCC / WT	High On-going	An SLA for the period 2007-2010 has been agreed at £3500 per year (covering all CWS in Peterborough).
P4. Restore 15 Ha of limestone grassland from semi-improved grassland and scrub on existing sites, by 2015	Scrub has been cleared from Barnack Hills & Holes	P4.1 Identify and implement opportunities through individual site management plans for restoration of limestone grassland on existing sites Key sites for action: Southorpe Roughts, Southorpe disused railway, Sutton disused railway & Nene valley railway (scrub control); Walcot Hall Park, road verge CWS, Ermine Street (restoration of species-poor grassland)	NE, WT, PCC	High 2015	This is the role of Natural England for SSSIs. A local Wildlife Sites partnership is being formed to address the needs of County Wildlife Sites (see above). This will require support from all local authorities, including financial backing.

P5. Create 90 Ha of limestone grassland from improved grassland, arable, or former minerals extraction sites, on, adjacent to and linking existing sites, by 2015 (and 180 ha by 2020)	The Wildlife Trust ran a limestone grassland project from 2002-04 from which a report identifying creation opportunities was produced	P5.1 Develop a partnership project to take forward the identified limestone grassland creation opportunities and to work with landowners to commence the creation process Major opportunity areas are around Barnack, Castor Hanglands and Bedford Purlieus. Creation of calcareous grassland should not destroy existing Open Mosaic Habitats on Previously Developed Land and their invertebrate interest.	NE, WT	High 2008	While this could form part of the roles of current staff, it may be that a dedicated project officer could progress action more rapidly. Natural England are progressing a link from Castor Hanglands to Barnack through Higher Level Stewardship applications.
	Minerals plan includes these policies	P5.2 Ensure Minerals & Waste planning policy documents have strong policies promoting biodiversity after-use and habitat creation.	PCC	Medium On-going	Part of the work of current staff including the Wildlife Officer and Minerals Planning officers
		P5.3 Identify and secure limestone grassland creation opportunities through minerals restoration plans for the following sites: Thornaugh Quarry 1 – already has a restoration plan, but this could be revised if some landfilling were to occur; Thornaugh Quarry 2 – some opportunity depending on future plans; Cross Leys – although restoration has been agreed, there might still be opportunities to gain additional habitat; Southorpe – significant opportunity; Cook's Hole – depends on future extraction plans, but significant opportunity	PCC	Medium On-going	Part of the work of current staff including the Wildlife Officer and Minerals Planning officers
		P5.4 Implement the plans to restore bare limestone to limestone grassland at Swaddywell Pit	Langdyke Countryside Trust	High On-going	The Trust will need to raise funds for capital works and on-going management.

		P5.5 Work with landowners adjacent to all limestone grassland linear sites, including disused railways and road verges, to establish buffer strips of limestone grassland 20 metres wide	WT, NE, FWAG	High 2010	While this could form part of the roles of current staff, it may be that a dedicated project officer could progress action more rapidly.
	The Wildlife Trust has successfully secured funding from RES for a pilot seed harvesting project	P5.6 Harvest local seed from suitable limestone grassland sites for use in restoration and creation schemes	WT	High 2007-2008	The Wildlife Trust is currently running a local seed harvesting project, funded through the Rural Enterprise Scheme Wildlife Sites project.
		P5.7 Monitor and record the extent of limestone grassland being created through restoration of minerals extraction sites	PCC	Medium On-going	Should be achievable through the work programme of the Minerals Planning Officer, Wildlife Officer and LDF process
		P5.8 Monitor and record the extent of limestone grassland being created through agri-environment schemes	NE	Medium On-going	This should form part of government monitoring of agri-environment schemes
		P5.9 Monitor the condition of newly created limestone grassland, assessing sites against the County Wildlife Sites criteria every 10 years	NE / PCC / WT, Developers	Medium On-going	No resources are currently made available for this. (If created as part of a development, should be covered by planning conditions / S106 agreement) Ideally it would become part of the rolling programme of CWS re-surveys and the work of the CWS partnership in reviewing the CWS criteria.

CALCAREOUS GRASSLAND

Cambridgeshire Chalk Grassland: Habitat management, restoration & creation

BAP TARGET	PROGRESS TO 2006	ACTION	LEAD PARTNER	PRIORITY / DATE	RESOURCES
C1. Maintain the current extent of chalk grassland in Cambridgeshire (estimated to be 641 Ha, 2006)	No known loss of or damage to sites through development or agricultural intensification, since 2000	C1.1 Ensure that all landowners and managers of SSSIs & County Wildlife Sites supporting chalk grassland habitats are aware of their importance, through provision of site information	NE (SSSI) WT / PCC (CWS)	High On-going	This is the role of Natural England for SSSIs. A local Wildlife Sites partnership is being formed to address the needs of County Wildlife Sites (see below). This will require support from all local authorities, including financial backing.
	Plans published recently all have site protection policies	C1.2 Ensure all planning policy documents (LDF, Minerals & Waste Plans, etc.) have strong policies protecting SSSIs and County Wildlife Sites	CCC/LAs	High On-going	Existing staff resources
		C1.3 Continue to assess planning applications that may affect chalk grassland sites and comment on those that may have an adverse impact	CCC	Medium On-going	Existing staff resources
		C1.4 Alert Natural England if a landowner is proposing / thinking of undertaking agricultural improvement activities on a site supporting chalk grassland, so that the provisions of the EIA Regulations for Uncultivated Land can be implemented	NE, WT, FWAG	Medium On-going	Existing staff resources

<p>C2. Maintain at least the current condition for chalk grassland within SSSIs & County Wildlife Sites in Cambridgeshire & Peterborough.</p> <p>C3. Achieve favourable or recovering condition for 40% (by area) of chalk grassland within SSSIs & County Wildlife Sites, by 2010 (80% by 2015 and 90% by 2020)</p>	<p>0.3% (1 out of 348 ha) SSSI favourable; 19.0% (66 ha) unfavourable recovering</p> <p>51% (150 out of 293 ha) favourable for CWS</p>	<p>C2/3.1 Implement appropriate grazing or cutting regimes on all chalk grassland sites, including road verges ensuring that this is appropriate for plants and invertebrates</p> <p>Ensure that all landowners and managers are provided with information, advice and support regarding management of their sites to enable them to achieve this action</p>	<p>NE (SSSIs) WT / CCC (CWS)</p>	<p>High 2010</p>	<p>This is the role of Natural England for SSSIs.</p> <p>A local Wildlife Sites partnership is being formed to address the needs of County Wildlife Sites (see below). This will require support from all local authorities, including financial backing.</p>
	<p>Fencing of most of DD to allow grazing; sensitive cutting regime implemented on other sections.</p> <p>Parts of FD fenced. Sensitive cutting introduced to a few parts of FD & RR</p>	<p>C2/3.2 Continue the work of the "Linear Sites" partnership in co-ordinating and implementing the agreed management plans for the Devil's Dyke, Fleam Dyke and Roman Road</p>	<p>NE, CCC, WT, English Heritage, Landowners, Friends of Roman Road and Fleam Dyke</p>	<p>High On-going</p>	<p>The Linear Sites partnership has managed the HLF funded Devil's Dyke Restoration Project from 2002-2006 and organised low key work on the other two sites.</p> <p>Annual management costs for next 5 years estimated to be £10k / annum.</p> <p>Costs for FD / RR work being developed through new management plans, to be completed by December 2007</p>

	Current contract for rural road verge maintenance, starting in 2007, includes clauses dealing with "Protected Road Verges"	C2/3.3 Implement a conservation mowing regime, including removal of "arisings", for all CWS chalk grassland road verges. Implement a restoration management regime on selected CWS chalk grassland road verges (as determined by site surveys), to include, removal of inappropriate planted trees to prevent shading of the species-rich grassland, and gapping up of adjacent hedgerows	CCC / Highways Agency	High On-going	Current contract for rural road verge maintenance includes clauses dealing with "Protected Road Verges". No tree removal is currently undertaken, unless for safety reasons. Hedgerow planting is the responsibility of the neighbouring landowner
	The Wildlife Trust has secured funding for advisory work through the Rural Enterprise Scheme until March 2009 and both PCC & the County Council have committed staff time.	C2/3.4 Establish and support a local Wildlife Sites partnership to ensure monitoring & assessment of County Wildlife Sites and to provide information, advice & support to landowners	CCC / LAs / WT / other biodiversity partners	High 2007	This will require support from all local authorities, including financial backing.
		C2/3.5 After March 2009, secure alternative funding to support County Wildlife Site advisory work and management of the local Wildlife Sites system	LAs / Biodiversity Partnership	High 2009	It is estimated that the cost of one full-time officer to manage the system on behalf of the partners would be £30,000 - £35,000 per year for both Cambridgeshire & Peterborough (2007 prices)
		C2/3.6 Undertake site condition monitoring of all chalk grassland SSSI sites at least once every 6 years to record the extent and condition of chalk grassland habitats	NE (SSSI)	High On-going	This is the role of Natural England for SSSIs.

	SCDC have funded site re-surveys / site condition monitoring in 2005 & 2006	C2/3.7 Undertake site condition monitoring of all chalk grassland CWS sites at least once every 5 years to record the extent and condition of chalk grassland habitats. All local authorities to fund a rolling programme of site re-surveys / site condition monitoring through an SLA with the Wildlife Trust until 2009 (beyond 2009 this could become part of the broader support of the local Wildlife Sites system – see action above)	SCDC / CCC / WT	High On-going	The cost for all the chalk grassland CWS over the period 2007-2011 is estimated to be £9000 (at 2007 prices).
C4. Restore 85 Ha of chalk grassland from semi-improved grassland and scrub on existing sites, by 2015	<p>Approximately 5.5 ha of scrub has been cleared from DD since 2002.</p> <p>Approximately 1 ha of scrub has been cleared on each of FD / RR</p> <p>Limited scrub control on several CWS</p>	<p>C4.1 Identify and implement opportunities through individual site management plans for restoration of chalk grassland on existing sites.</p> <p>Key sites are: Devil's Dyke, Fleam Dyke & Roman Road (scrub & improved grassland); Litlington Chalk Pit, Heydon Pit (scrub, improved grassland & bare chalk); Gog Magog Golf Course SSSI, Orwell Clunch Pit, Orwell Hill RSV, Ashwell Street, Ickleton (Coploe Hill Pit), Haslingfield Pit, Fowlmere nature reserve, Beacon Course green lane & Heath Road / Street Way (scrub); Bassingbourn Barracks, Great Wilbraham Pit, Wandlebury (semi-improved grassland)</p>	NE, WT, Cambridge Preservation Society, SCDC	High 2015	<p>This is the role of Natural England for SSSIs.</p> <p>A local Wildlife Sites partnership is being formed to address the needs of County Wildlife Sites (see above). This will require support from all local authorities, including financial backing.</p>
		C4.2 Continue the work of the "Linear Sites" partnership in co-ordinating and implementing the agreed management plans for the Devil's Dyke, Fleam Dyke and Roman Road	NE, CCC, WT, English Heritage, Landowners, Friends of Roman Road and Fleam Dyke	High On-going	<p>Restoration of DD to continue through on-going management phase.</p> <p>Costs for FD / RR work being developed through new management plans, to be completed by December 2007</p>

C5. Create 75 Ha of chalk grassland from improved grassland, arable, or former minerals extraction sites, on, adjacent to and linking existing sites, by 2015 (and 150 ha by 2020)	English Nature and FWAG, with significant input from the Wildlife Trust produced a report identifying creation opportunities in 2004	C5.1 Develop a broader partnership to take forward the identified chalk grassland creation opportunities and to work with landowners to commence the creation process (see c-i below) Major opportunity areas are: adjacent to the linear sites (Devil's Dyke, Fleam Dyke & Roman Road); the Gog Magog Hills area south of Cambridge, including Magog Down; sites around Newmarket; around Litlington & Morden Grange Quarry; between Barrington and Orwell; land surrounding Heydon Pit; land surrounding Fowlmere nature reserve; and Great Wilbraham quarry to Wadlow Farm area	NE, WT	High 2008	While this could form part of the roles of current staff, it may be that a dedicated project officer could progress action more rapidly.
	Minerals plan includes these policies	C5.2 Ensure Minerals & Waste planning policy documents have strong policies promoting biodiversity after-use and habitat creation.	CCC	Medium On-going	Part of the work of current staff including Minerals Planning officers and Biodiversity Officer
		C5.3 Identify and secure chalk grassland creation opportunities through minerals restoration plans for the following sites: Steeple Morden Quarry; Barrington Cement Works & Great Wilbraham Quarry	CCC / SCDC	Medium On-going	Part of the work of current staff including Minerals Planning officers and Biodiversity Officer
		C5.4 Expand the work of the "Linear Sites" partnership to work with landowners to establish buffer strips of chalk grassland 20 metres wide	WT, NEn, FWAG, CCC, Friends of Roman Road and Fleam Dyke	High 2010	Current steering group staff time allocated. A dedicated project officer could progress action more rapidly, but would cost £15-30K depending on days per week worked.

		C5.5 Work with landowners adjacent to other chalk grassland linear sites, including disused railways and road verges, to establish buffer strips of chalk grassland 20 metres wide	WT, NE, FWAG, CCC	Medium 2015	Action would be difficult within current staff time. A dedicated project officer could progress action more rapidly, but would cost £15-30K depending on days per week worked.
	Project idea included in Green Infrastructure Strategy, Cambridge Nature Conservation Strategy & South Cambs Biodiversity Strategy	C5.6 Establish a wider partnership to promote and implement the proposal for a "Gog Magogs Countryside Enhancement Area", to provide a strategic open space on the southern edge of Cambridge	Cambridge Preservation Society, Wildlife Trust (CCC, SCDC, Cambridge City), Magog Trust	High Long-term	Significant resources to acquire land and create habitats and new access, likely to be in the region of £3 million
		C5.7 Work with landowners adjacent to the chalk grassland sites around Litlington, Ashwell and the Mordens, to establish new chalk grasslands buffering & linking existing sites	FWAG, WT	High 2012	One HLS application submitted that includes chalk grassland creation adjacent to Litlington Chalk Pit (decision awaited at Feb '07)
		C5.8 Work with the Jockey Club to identify and implement opportunities for the creation of species-rich chalk grassland from improved grassland on their estate Key sites include: Links Golf Course; July Course grasslands; Warren Hill & The Limekilns	NE, WT	Medium 2015	Part of the work of current staff including NE officers and Wildlife Sites Officer

		C5.9 Work with landowners of other CWS with the potential to create chalk grassland within or adjacent to the sites. Key sites include: Bottisham Park, Heydon Chalk Pit, Ickleton (Coploe Hill) Pit, Fowlmere nature reserve	FWAG, WT, NE	Medium 2012	Part of the work of current staff
	The Wildlife Trust has successfully secured funding from RES for a pilot seed harvesting project	C5.10 Harvest local seed from suitable chalk grassland sites for use in restoration and creation schemes	WT	High 2007-2008	The Wildlife Trust is currently running a local seed harvesting project, funded through the Rural Enterprise Scheme Wildlife Sites project.
		C5.11 Monitor and record the extent of chalk grassland being created through restoration of minerals extraction sites	CCC	Medium On-going	Should be achievable through the work programme of the Minerals Planning Officer and LDF process
		C5.12 Monitor and record the extent of chalk grassland being created through agri-environment schemes	NE	Medium On-going	This should form part of government monitoring of agri-environment schemes
		C5.13 Monitor the condition of newly created chalk grassland, assessing sites against the County Wildlife Sites criteria every 10 years	NE / PCC / WT	Medium On-going	No resources are currently made available for this. Ideally it would become part of the rolling programme of CWS re-surveys and the work of the CWS partnership in reviewing the CWS criteria.

Abbreviations

BSG	Cambridgeshire Biodiversity Steering Group
CCC	Cambridgeshire County Council
CPBRC	Cambridgeshire and Peterborough Biological Records Centre
CWS	County Wildlife Site
FWAG	Farming & Wildlife Advisory Group

HLS	Higher Level Stewardship
LAs	Local authorities
LDF	Local Development Framework
NE	Natural England, Local Team
PCC	Peterborough City Council
RES	Rural Enterprise Scheme
RSPB	Royal Society for the Protection of Birds
SCDC	South Cambridgeshire District Council
WT	Wildlife Trust for Bedfordshire, Cambridgeshire, Northamptonshire and Peterborough

6. LINKS WITH OTHER PLANS

Lowland Acid Grassland HAP, Neutral Grassland HAP.

List of BAP priority species associated with this habitat and found in Cambridgeshire & Peterborough:

- Small Blue *Cupido minimus*,
- Pasqueflower *Pulsatilla vulgaris*,
- bryophytes such as *Tortula vahliana*
- Stone Curlew *Burhinus oedicephalus*
- Skylark *Alauda arvensis*.
- Basil Thyme *Clinopodium acinos*
- Chalk Carpet *Scotopteryx bipunctaria*
- Dingy Skipper *Erynnis tages*
- Duke of Burgundy *Hamearis lucina* (extinct in county)
- Early Gentian *Gentianella anglica*
- Eyebright *Euphrasia ostenfeldii*
- Fly Orchid *Ophrys insectifera*
- Frog Orchid *Coeloglossum viride*
- Grizzled Skipper *Pyrgus malvae*
- Juniper *Juniperus communis*
- Man Orchid *Aceras anthropophorum*
- Musk Orchid *Herminium monorchis* (extinct)
- Purple Milk-vetch *Astragalus danicus*
- Spanish Catchfly *Silene otites*
- Wild Candytuft *Iberis amara*

The list of invertebrates and lower plants have not been assessed.

For plant indicator species associated with calcareous grassland see Appendix 1.

7. REFERENCES

An **Appendix of Cambridgeshire and Peterborough site specific actions** on calcareous grassland SSSIs and CWSs is available from the Biodiversity Partnership Coordinator. This complements this Calcareous Grassland Habitat Action Plan.

Buglife: Managing priority habitats for Invertebrates, 2nd edition. For Neutral Grassland see <http://www.buglife.org.uk/conservation/adviceonmanagingbaphabitats/lowlandcalcareousgrassland.htm>

Clark J S 1996. *The Birds of Huntingdon and Peterborough*.

Colston A, Gerrard C & Parslow P 1997. *Cambridgeshire's Red Data Book*.

English Nature. 1994 *The grassland inventory*.

Ewen AH, Prince CT (eds) 1975 *Ray's flora of Cambridgeshire*. Hitchin: Wheldon & Wesley.

Planning Policy Statement 9 Biological and Geological Conservation, available on www.communities.gov.uk/publications/planningandbuilding/pps9

Rodwell, J. S. 1992. *British plant communities volume III. Grasslands and montane communities.*

Whitehouse, A.T. (2008): Managing Aggregates Sites for Invertebrates: a best practice guide. Buglife – The Invertebrate Conservation Trust, available on www.buglife.org.uk/Resources/Buglife/Documents/Managing%20Aggregates%20Sites%20for%20Invertebrates.pdf

8. LIST OF INDIVIDUALS AND ORGANISATIONS CONSULTED

ADAS
Anglian Water
Beetle Specialists
Biodiversity Partnership Co-ordinator
Bird specialists
Buglife
Butterfly Conservation
Cambridge City Council
Cambridge Preservation Society
Cambridgeshire County Council
Cambridgeshire and Peterborough Biological Records Centre
Countryside Restoration Trust
East Cambridgeshire District Council
Environment Agency
Farming and Wildlife Advisory Group
Fenland District Council
Flies specialists
Flowering plants specialists
Friends of Roman Road and Fleam Dyke
Froglife
Fungi specialists
Highways Agency
Huntingdonshire District Council
Huntingdonshire Fauna and Flora Society
Landowners
Langdyke Trust
Magog Trust
Moth specialists
Natural England
Nene Park Trust
Opportunity Peterborough
Peterborough City Council
RSPB, East Anglia
RSPB, Fowlmere Nature Reserve
South Cambridgeshire District Council
The National Trust
The Wildlife Trust

APPENDIX 1: CAMBRIDGESHIRE GRASSLAND INDICATORS

Nomenclature follows *New Flora of the British Isles* 1st Edition C.A.Stace CUP 1991

*signifies a strong indicator

Neutral Grassland

Achillea ptarmica*
 Agrimonia eupatoria
 Ajuga reptans
 Alchemilla filicaulis ssp. vestita*
 Briza media*
 Bromus commutatus*
 Caltha palustris*
 Cardamine pratensis
 Carex caryophylla*
 Carex disticha*
 Carex flacca*
 Carex hirta
 Carex nigra*
 Carex panicea*
 Carex spicata*
 Centaurea nigra
 Centaurium erythraea
 Cirsium acaule*
 Conopodium majus
 Dactylorhiza fuchsii*
 Dactylorhiza incarnata*
 Danthonia decumbens*
 Eleocharis palustris

Man Orchid
 Sneezewort
 Agrimony
 Bugle
 Lady's-mantle
 Pyramidal Orchid
 Kidney Vetch
 Squinancywort
 Purple Milk-vetch
 Yellow-wort
 Tor Grass
 Quaking Grass
 Upright Brome
 Meadow Brome
 Great Pignut
 Marsh-marigold
 Clustered Bellflower
 Harebell
 Cuckooflower
 Spring Sedge
 Brown Sedge
 Rare Spring Sedge
 Glaucous Sedge
 Hairy Sedge
 Common Sedge
 Carnation Sedge
 Spiked Sedge
 Carlina Thistle
 Black Knapweed
 Greater Knapweed
 Common Centaury
 Dwarf Thistle
 Woolly Thistle
 Basil-thyme
 Wild Basil
 Pignut
 Common Spotted Orchid
 Early Marsh Orchid
 Heath Grass
 Common Spike-rush

Calcareous Grassland

Aceras anthropophorum*
 Agrimonia eupatoria
 Anacamptis pyramidalis*
 Anthyllis vulneraria*
 Asperula cynanchica*
 Astragalus danicus*
 Blackstonia perfoliata*
 Brachypodium pinnatum*
 Briza media*
 Bromopsis erecta*
 Bunium bulbocastanum*
 Campanula glomerata*
 Campanula rotundifolia*
 Carex caryophylla*
 Carex ericetorum*
 Carex flacca*
 Carlina vulgaris*
 Centaurea nigra
 Centaurea scabiosa*
 Centaurium erythraea
 Cirsium acaule*
 Cirsium eriophorum*
 Clinopodium acinos*
 Clinopodium vulgare*
 Dactylorhiza fuchsii*

APPENDIX 1 CONTINUED

Neutral Grassland

Euphrasia nemorosa*

Filipendula vulgaris*
Fritillaria meleagris*
Galium uliginosum*
Galium verum
Genista tinctoria*

Geranium pratense

Helictotrichon pratense*
Helictotrichon pubescens*

Hordeum secalinum

Hypericum tetrapterum

Juncus compressus
Knautia arvensis*
Koeleria macrantha*
Lathyrus nissolia*
Lathyrus pratensis
Leontodon hispidus*
Leontodon saxatilis*
Leucanthemum vulgare
Linum catharticum*

Lotus corniculatus
Luzula campestris
Lychnis flos-cuculi*
Lysimachia nummularia
Oenanthe fistulosa*
Oenanthe lachenalii*
Oenanthe silaifolia*

Ononis repens*
Ononis spinosa*
Ophioglossum vulgatum*
Orchis morio*

Eyebright
Chalk Eyebright
Sheep's Fescue
Dropwort
Fritillary
Fen Bedstraw
Lady's Bedstraw
Dyer's Greenweed
Autumn Gentian
Meadow Crane's-bill
Fragrant Orchid
Common Rock-rose
Meadow Oat-grass
Downy Oat-grass
Lizard Orchid
Horseshoe Vetch
Meadow Barley
Perforate St.John's-wort
Square-stemmed St.
John's-wort
Spotted Cat's-ear
Ploughman's-spikenard
Round-fruited Rush
Field Scabious
Crested Hair-grass
Grass Vetchling
Meadow Vetchling
Rough Hawkbit
Lesser Hawkbit
Oxeye Daisy
Fairy Flax
Perennial Flax
Bird's-foot-trefoil
Field Woodrush
Ragged-Robin
Creeping-Jenny
Tubular Water-dropwort
Parsley Water-dropwort
Narrow-leaved
Water-dropwort
Sainfoin
Common Restharrow
Spiny Restharrow
Adder's-tongue Fern
Green-winged Orchid

Calcareous Grassland

Euphrasia nemorosa*
Euphrasia pseudokerneri*
Festuca ovina*
Filipendula vulgaris*

Galium verum
Genista tinctoria*
Gentianella amarella*

Gymnadenia conopsea*
Helianthemum nummularium*
Helictotrichon pratense*
Helictotrichon pubescens*
Himantoglossum hircinum*
Hippocrepis comosa*

Hypericum perforatum

Hypochaeris maculata*
Inula conyzae*

Knautia arvensis*
Koeleria macrantha*

Leontodon hispidus*
Leontodon saxatilis*
Leucanthemum vulgare
Linum catharticum*
Linum perenne*
Lotus corniculatus

Onobrychis viciifolia*
Ononis repens*
Ononis spinosa*

