

8 CHALK GRASSLAND

8.1 CHALK GRASSLAND HABITATS

8.1.1 Summary

Chalk grasslands are some of the most botanically species-rich communities found in the UK. They are also home to a specialised and diverse invertebrate fauna. Chalk downland is the typical landscape feature of the chalk hills of southern England, with its open, treeless, rolling hills and coombes. These landscapes are highly valued by both the people who live in and visit them alike. All the major chalk hills in the country are covered by national landscape designations. Most downland areas are highly visited for informal recreation and relaxation and many of the most visited sites are also the most valuable sites for downland wildlife.

8.1.2 Chalk Grassland Ecology

Calcareous grasslands in the UK develop on nutrient-poor, base-rich substrates, almost invariably in response to many years of grazing. In Hertfordshire, they occur exclusively on chalk and will therefore be described from here on as chalk grassland.

Chalk grassland habitats originally developed following clearances several thousand years ago. The chalk hills of southern England may have been some of the first areas to be opened up because of the ease of clearance and cultivation on the thin, dry soils. The steeper slopes prevented cultivation, but could be used as common grazing. Grazing, of sheep mainly, continued as the major land use for centuries in many chalk hill areas, with important local pasture economies developing through the medieval period. These continued up to the present century. This long history of low intensity grazing management, combined with the particular physical conditions found on the chalk substrate, has exerted a strong influence on the development of the flora and fauna of this habitat, producing some of the most botanically species-rich communities found in the UK today.

The extremely stressful growing conditions found on the thin chalk soils, particularly on the steeper slopes, is one of the major factors responsible for the richness of the biological communities. The thin *rendzina* soils hold low levels of nutrient, little water and heat up very quickly, producing the stressed conditions which prevents domination by taller competitive grasses. This allows a diverse range of smaller herbs and lower plants to flourish. These conditions also allow the development of a specialised and diverse invertebrate fauna.

Some of the warmer microclimates provided by the chalk grassland habitat in southern England are particularly attractive to many species more usually associated with warmer,

continental European conditions, which find the northern limit of their European range on the chalk of southern England. Such species include some of the rarer British orchid species e.g. Military Orchid, and butterflies e.g. Adonis Blue.

A further major influence on chalk grasslands is the presence of rabbit populations. In small numbers they help to graze chalk grasslands and provide short turf and bare ground habitats, though in larger numbers they will damage the turf and create large amounts of bare ground.

Chalk grassland therefore typically comprises a species-rich short turf, especially where grazing pressure is relatively high. However, where grazing pressure is lower, more species-poor tussocky grassland may develop, and in the absence of grazing, chalk grassland will develop into scrub habitats. Associated with these grassland and scrub communities is a rich assemblage of invertebrates.

Where a species-rich chalk scrub community develops, this can have conservation value in its own right, both because of the species-richness and as an example of natural succession. The scrub may in some circumstances also support a rich epiphytic community of mosses and lichens.

A further interesting variation is the occurrence of **chalk heath** in some localities. The type of soils that form on chalk would be acidic but for the proximity and neutralising action of the underlying chalk, which pushes the pH up to between 7-8. Where thicker soils develop, for example on plateaus or where there are acidic surface deposits such as gravels, plants more typical of acidic conditions can grow to form chalk heath. Heather and gorses can typify such situations, and local variations in topography bringing the chalk closer to the surface can result in intimate mixtures of chalk grassland and dry heath / acid grassland.

The most ecologically diverse chalk grasslands are likely to contain a mixture of large areas of botanically rich short turf, smaller areas of longer turf, some bare ground and patches of scattered and more dense blocks of scrub. The greater the variety of these habitats, the greater the opportunities for associated species, particularly invertebrates.

The chalk grassland vegetation communities found in Hertfordshire are listed in Appendix 3. The Sheep's Fescue - Meadow Oat-grass (CG2) and Upright Brome (CG3) communities are the most important in Hertfordshire.

8.2 HISTORY OF CHALK GRASSLAND IN HERTFORDSHIRE

Chalk grassland once covered a much greater area of the county than at present. The precise extent of the chalk grasslands is unknown, however, it is likely that during the 18th century there was at least 3000 - 4000 hectares (ha) in the county, present in three major areas; the Chiltern scarp around Tring, the edge of the Chilterns west of Hitchin, and by far the largest area, North-East Herts between Baldock and Royston ("the East Anglian Heights").

The area of chalk grassland around Tring has always been limited, because the Chilterns scarp only outcrops in the county at a couple of places, the vast majority of the scarp and therefore chalk grassland being found in neighbouring Buckinghamshire.

Likewise the area of chalk grassland between Hitchin and Luton was probably limited because the scarp slopes of the Chilterns occur solely in Bedfordshire at this point. However, the rolling hills at the edge of the Chiltern Hills in this part of Hertfordshire, do show chalk at the surface with very little surface deposits. They are therefore capable of supporting chalk grassland. The extent of grassland would have varied depending on the amount of arable cultivation ongoing at any one time, but may have been quite extensive up to the 18th century. Since the late 18th century, with continued improvements in agricultural techniques, the proportion of arable to permanent grassland has increased to the point where today the vast majority of this area is given over to arable farming. The last major area of chalk heath in the county occurred on Lilley Hoo, before it was ploughed up in 1944.

The major area for chalk grassland in Hertfordshire in the past and today is the area known as the "East Anglian Heights" between Baldock and Royston. Here the chalk is exposed at the surface with thin soils. Until the advent of modern farming practices cultivation of this area would always have been short lived and large areas were therefore put down to permanent grassland. It is known that into the last century, from Therfield Heath to Deadman's Hill, there was an extensive chalk grassland of up to 1000 ha (T. James, Pers.Comm.)

Prior to the 19th century this area would have comprised mainly chalk grassland with only scattered areas of short-lived arable cultivation. However, as elsewhere in the county, from the late 18th century onwards improvements in agricultural techniques encouraged the conversion to arable cultivation. Large areas of chalk grassland survived up until the First World War, but increasing mechanisation and use of inorganic fertilisers rapidly put an end to the traditional sheep farming system after this.

In the county as a whole, the changes in agriculture ensured that by the Second World War only about 350 ha of unimproved chalk grassland remained. After the war, further agricultural intensification, cessation of livestock grazing, and the decline in rabbit numbers due to the 1950's myxomatosis outbreak, has resulted in further declines in this habitat.

8.3 CHALK GRASSLAND - CURRENT STATUS, TRENDS AND THREATS

8.3.1 Status

The precise extent of lowland dry calcareous grassland in the UK is unknown, but is estimated to now be less than 45000 ha, (The Lowland Grassland Management Handbook, English Nature and The Wildlife Trusts, 1994). Whatever the precise figures, the undisputed fact is that there has been a dramatic loss of this habitat in the UK over the past 200 years.

The European Community Habitats and Species Directive 92/43/EEC identifies calcareous grasslands as a habitat of Community importance which member states therefore have a duty to maintain at, or where appropriate, restore to a favourable conservation status in their natural range. In addition, within this general habitat description, calcareous grasslands which are also important orchid sites are a priority habitat, which should be given the greatest degree of protection under the directive.

The current extent of unimproved chalk grassland in Hertfordshire is only 177 ha, scattered over more than 30 sites (Herts Habitat Survey). In addition, there is approximately 300 ha of species rich semi-improved chalk grassland. A majority of the unimproved grassland is found on Therfield Heath SSSI. Of the other remaining fragments of unimproved chalk grassland, there are only 4 sites greater than 5 ha in size. Most sites are less than 1 ha.

The current extent of chalk grassland sites in the county mirrors the historical distribution. It also fits in well with English Nature's and the Countryside Commission's "Joint Character Map", which divides the English landscape into areas based on their distinctive natural and cultural characteristics. Chalk grassland sites occur in both the Chilterns and East Anglian Chalk Natural Areas. The "Landscape Zones" used by Herts County Council also reflect the occurrence of chalk grasslands, with most sites found in the Chilterns and North Herts Ridge Landscape Zones. Within these broad areas the important sites occur in three major concentrations which are shown on map 8.1 and are listed below. A comprehensive list of larger chalk grassland sites is included in Appendix 1.

Tring area: All the important sites occur where the Chilterns scarp outcrops either side of Tring.

Key Sites: Tring Park and Oddy Hill SSSI, Aldbury Nowers SSSI, Alpine Meadow SSSI & Aldbury Down (Ashridge SSSI).

Luton-Hitchin area: Most of the important sites occur near the county boundary with Bedfordshire, on the rolling chalk outlyers of the Chilterns beyond the scarp.

Key Sites: Hexton Chalk Pit, Tingley Down, Telegraph Hill / Hoo Bit and Ravensburgh Castle & banks near Little Offley.

Royston-Baldock area: The surviving important sites are now mostly situated at either end of the East Anglian Chalk area in Herts, around Royston and Baldock.

Key Sites: Therfield Heath SSSI; Coombe Bottom, Kelshall; Wing Hall chalk bank; Weston Hills; Newfield Hill & Ashwell Quarry nature reserve.

Other important surviving sites outside of the above major areas include, Roughdown Common SSSI and Sheethanger Common, both in the Chilterns natural area, Chadwell chalk bank at Kings Mead and the many grassland road verges in the major chalk areas of the county. In addition to the individual sites listed in Appendix 1, it is estimated that there is a total of 50 ha of chalk grassland distributed over road verges or sites under 0.2 ha.

The European Habitats Directive and the UK Biodiversity Action Plan Steering Group (BAPSG) report (HMSO, 1995) identify important or threatened species which are priorities for conservation action in Europe and the UK respectively. The Wildlife Trust has also identified other species which are important locally, because of being locally uncommon or threatened. Examples of key chalk grassland species found in Hertfordshire are listed below.

Flora:

Species from BAPSG Long List

- Burnt Tip Orchid *Orchis ustulata* * - Spotted Cat's-ear *Hypochoeris maculata* *
- Pasqueflower *Pulsatilla vulgaris* - Purple-stemmed Catstail *Phleum phleioides* *
- Early Spider Orchid *Ophrys sphegodes* (introduced)

Species regarded as rare or threatened in Herts

- Juniper *Juniperus communis* * - Lesser Meadow Rue *Thalictrum minus* *
- Wild Candytuft *Iberis amara* * - Perennial Flax *Linum perenne* (status doubtful)
- Kidney Vetch *Anthyllis vulneraria* * - Purple Milk-vetch *Astragalus danicus* *
- Dropwort *Filipendula vulgaris* - Bastard Toadflax *Thesium humifusum* *
- Autumn Gentian *Gentianella amarella*- Chiltern Gentian *Gentianella germanica* *
- Eyebright *Euphrasia pseudokernerii* * - Field Fleawort *Tephrosia integrifolia* *
- Wild Thyme *Thymus praecox* - Squinancywort *Asperula cynanchica*
- Great Pignut *Bunium bulbocastanum* - Spring Sedge *Carex caryophylla*
- Musk Orchid *Herminium monorchis** - Fragrant Orchid *Gymnadenia conopsea*
- Frog Orchid *Coeloglossum viride* * - Meadow Oat-grass *Helictotrichon pratense*
- Slender Bedstraw *Galium pumilum* * **(possibly extinct)**
- Autumn Lady's Tresses *Spiranthes spiralis* * **(possibly extinct)**
- Man Orchid *Aceras anthropophorum* * **(possibly extinct)**

* Species regarded as particularly threatened in Hertfordshire.

Invertebrates:

Species on BAPSG Lists

- Small Blue butterfly - Duke of Burgundy butterfly
- Chalkhill Blue butterfly

Chalk grasslands are also important for their archaeological remains. The chalk areas of north and west Herts were some of the first areas to be inhabited by people after the last

ice age. Unploughed chalk grasslands retain important archaeological remains dating back to the mesolithic period. The Hertfordshire Archaeology Strategy details this importance.

A few chalk grassland sites occur as a result of past quarrying for chalk. Where cliff faces have been left exposed these are often also a valuable geological resource. Their value is considered in the Hertfordshire Geology Strategy.

8.3.2 Trends

Most of the area which was formerly chalk grassland is now under arable cultivation, though some is permanent improved pasture. Other areas, particularly in the Chilterns, have been lost to scrub encroachment and the development of secondary woodland.

While the decline in the area of chalk grassland has largely halted, the remaining habitat is generally declining in quality. Many of the most valuable chalk grassland sites are now under sympathetic management and important examples are improving in quality. Others though are declining in quality in the absence of appropriate grazing regimes.

8.3.3 Threats

A major threat facing many remaining sites is the absence of controlled grazing. Most remaining sites are located within predominantly arable farming areas. Therefore the sites no longer form a relevant part of farm holdings, are expensive to manage and are often under-grazed or become neglected, resulting in scrub encroachment. However, at present the high and generally increasing rabbit population has started to cause over-grazing on many sites resulting in damage to the vegetation. Without management aimed at controlling numbers over-grazing may result in a loss of sensitive species.

Both under and over-grazing can damage the important vegetation and invertebrate communities associated with chalk grassland. Grazing regimes must be tailored to the needs of each individual site, because the same grazing intensity on two separate sites might result in over-grazing on one and under-grazing and scrub encroachment on the other.

A second and more insidious threat is that many rare species are in danger of local extinction due to the small number of sites on which they occur, the isolation of most of these remaining sites and the small size of remaining populations. If a species is lost from a site there is often no nearby population to provide a source for recolonisation.

The third major threat is from nutrient enrichment of soils due to fertiliser application, spray drift, agricultural run-off or air pollution as a result of traffic or more distant sources. The species diversity of chalk grassland is partly a result of the extremely nutrient poor soils. Enrichment encourages faster growing, rank species to out-compete the smaller herbs which are usually the species of greater conservation value.

A further source of enrichment, on publically accessible sites, results from dog faeces. On some sites, public access may also cause localised erosion problems.

8.4 THE FUTURE FOR CHALK GRASSLAND IN HERTFORDSHIRE

8.4.1 Management

Protection and appropriate management of the remaining unimproved chalk grassland sites, no matter how small, is an urgent priority, since these provide a reservoir of both common and rare species from which the essential expansion of this habitat can occur.

Ideal management of chalk grassland vegetation communities involves varying intensities of grazing, mainly by sheep but also cattle, ponies and goats. **Restoration of grazing management is therefore essential on the remaining chalk grassland sites if their conservation value is to be enhanced and maintained.**

CASE STUDY - THERFIELD HEATH SSSI

Therfield Heath SSSI is a nationally important chalk grassland site. It is also an important informal recreational area for local people and an important archaeological site. It is owned by Therfield Conservators, but the Royston Golf Club have an established lease over the site. There is a Ranger employed under the auspices of the Hertfordshire Countryside Management Service. The Herts & Middx Wildlife Trust organise volunteer work parties through their voluntary warden and his "heathwatchers" group. The current management plan was written by the Wildlife Trust. To help co-ordinate these different strands, the Conservators have a Conservation Joint Advisory Committee which meets annually and English Nature organise an annual management plan review involving the key management partners.

While a large part of the Heath is managed as a golf course, there are still parts which have remained as the original unimproved grassland, including the golf course roughs. By the 1980's, these areas were declining in wildlife value due to an absence of grazing. Volunteer work parties maintained the best areas clear of scrub, and ensured some grassland areas were cut, but this was insufficient. In 1986 the re-introduction of sheep grazing was organised. The sheep are supplied by a neighbouring farmer and grazed on the out of play areas using temporary grazing compartments. The areas grazed have been increased so that now some of the larger areas of rough on the golf course are also grazed. Areas which are too small to graze are now cut by the golf club under a management agreement with English Nature.

This case study demonstrates the successful management of a publicly accessible chalk grassland using both grazing and cutting. It is also a highly successful example of partnership action achieving more than individual organisations could in isolation. This was recently recognised by the presentation by English Nature, to all the organisations involved in managing the heath, of a SSSI Award 1996.

Grazing management of chalk grassland is often not profitable for farmers or landowners. For those landowners who do not have either the inclination or the means to subsidise the re-introduction of sensitive grazing management of chalk grassland sites, **adequate incentives and advice will need to be made to make management of their chalk grasslands worthwhile.** The Countryside Stewardship Scheme, formerly

run by the Countryside Commission, but now transferred to MAFF, is applicable to chalk grasslands.

Many of the most important remaining chalk grassland sites are now grazed regularly, though there are a few notable exceptions. Re-introducing grazing on some of these other sites is difficult because either they fall within solely arable landholdings or are part of a smallholding. Targeting of advice and incentives through Countryside Stewardship will only achieve sensitive management on these sites, if a source of grazing stock can be found. Other sources of livestock should also be considered in addition to commercially farmed sheep breeds. Rare breeds of livestock and other older more hardy breeds of sheep, cattle, goats and ponies, run by hobby farmers, could be a valuable alternative to sheep on some sites. In other areas such as parts of the Chilterns, horses may provide the only regular grazing stock.

A general increase in the numbers of grazing stock on the chalklands of the Chilterns and north Herts is required to ensure that there is adequate livestock available to graze the chalk grasslands. This will only come about if there is an increase in mixed farming and a move towards low input grazing in these areas. Designation of the Chilterns as an Environmentally Sensitive Area (ESA), would provide such incentives, encouraging a move towards mixed farming and low input grazing (see Chapter 7).

However, reliance on farmers to provide stock for grazing existing chalk grasslands will not necessarily guarantee ideal grazing management. In order to ensure grazing stock are available for management and available at the right times, the conservation organisations and public authorities will need access to their own grazing stock. A livestock operation would have to be run at a large enough scale to be profitable and would require access to farm facilities. Individual organisations would be unlikely to be in a position to establish a suitable livestock operation, but jointly there would be a greater chance of success.

Development and expansion of a scheme similar to the Bedfordshire chalk managers co-operative could provide a suitable mechanism for achieving better management, including grazing on chalk grasslands. This scheme currently involves sharing of management resources including equipment, advice and experience. An enlargement of this scheme to cover North Herts or a Chilterns wide scheme would be invaluable in ensuring the remaining chalk grasslands are managed appropriately. It would also be a suitable forum for establishing a livestock venture for the conservation management of grasslands.

A further area requiring co-operation is the control of rabbits. To successfully maintain the rabbit population at levels which are not damaging needs control over a wide area involving several landowners. Rabbit management schemes are required in all the major chalk grassland areas.

The narrow chalk grassland road verges found in much of north Herts can no longer be grazed for highway safety reasons. **Management must therefore be directed at achieving ecologically sensitive mowing regimes.** These are likely to be based around cutting the whole width of grassland verges in chalk areas twice per year, before flowering of most species in late April / early May and after seeding of most species in

September / early October. On some sites, particularly those which suffer less from nutrient enrichment, a single autumn cut may be sufficient.

Road verges can also potentially be used to provide links between fragmented grassland sites. The A505 corridor in particular is important, containing an almost continuous strip of chalk grassland road verge across north Herts. As such it is a priority for management. There are also many other important verges in north Herts.

In the future, expanded grassy field margins may also provide valuable links between sites and these will require similar management based on sensitive mowing regimes.

8.4.2 Restoration

Appropriate management on existing sites is unlikely to be sufficient to maintain the conservation value of chalk grasslands in the county. The extremely small and fragmented nature of many of the remaining sites, greatly increases the risks of localised species extinctions. **There is therefore a need to restore areas of former unimproved chalk grassland which are now either covered in scrub or have been partially improved for agriculture, through the use of fertilisers.**

On unimproved chalk grassland sites which have become covered in scrub over the past half century due to the cessation of grazing, clearance of scrub is required, where this will not damage a habitat which is of value in its own right. Scrub clearance is usually only worthwhile on areas where the scrub canopy is less than 75%. This may be done by mechanical methods or by using goats as has been successfully trialled at Smithcombe Hills, Bedfordshire. Development of the grassland must then be encouraged by grazing and interesting swards can begin to develop after 5-10 years. A high quality chalk grassland turf will however take decades to develop.

Secondly, on semi-improved chalk grassland sites, the introduction of management aimed at increasing the wildlife value of the sward and reversing the effects of past agricultural improvement is required. The wildlife value of these swards can be improved in the short term by increasing the area of rough grassland and over several decades also by increasing their species richness.

In Hertfordshire, however, the opportunities for restoration are limited, due to the fact that much former chalk grassland has been converted to arable. Only as much as 80 ha may be available on existing major sites for restoration management, as detailed in Appendix 2. Priority areas include scrub and semi-improved grassland around Aldbury Nowers SSSI, scrub at Tring Park and Oddy Hill SSSI, and semi-improved grassland on the gallops at Therfield Heath.

There is up to 300 ha of semi-improved chalk grassland which could be restored, with the radio station east of Baldock being a major opportunity. However, more drastic measures are required if we are to maintain and enhance the biodiversity associated with this habitat.

8.4.3 Creation

If Hertfordshire is to have a sufficiently large area of chalk grassland to maintain the presence of the species still associated with this habitat, and to consider reintroducing typical chalk grassland species now extinct from the county, then a programme of grassland re-creation will be required. Such grasslands will not be as species-rich as old unimproved grasslands, but will within 5-10 years still provide a suitable habitat for many species and over several decades will become more species -rich.

Such a programme should be aimed at creating large enough areas of grassland to form viable grazing blocks, and to support ecologically stable populations of vulnerable species. The likelihood of climatic changes arising from global warming makes the need for larger areas of habitat and links between habitats more essential. Without this species may have less opportunity to respond to the predicted changes and therefore decline or even become locally extinct.

Existing unimproved chalk grassland sites should wherever possible form the core areas for new chalk grassland creation. In this way they can act as a reservoir of species for the colonisation of the newly created habitats. An additional benefit of creating chalk grassland adjacent to existing sites is that larger, more valuable units will be formed and the new habitat can act as a **buffer** to the core unimproved areas, preventing enrichment as a result of fertiliser spray drift or run-off from neighbouring land. Where possible, existing fragmented chalk grassland sites should be **linked** by newly created grasslands.

Priority areas for grassland re-creation are from Therfield Heath to Deadman's Hill, which was the last major expanse of chalk grassland in the county; **around Lilley Hoo ("chalk heath") and Tingley Down**, linked to the important scarp downlands at Pegsdon and Knocking Hoe on the Bedfordshire side of the border; **around Offley Chalk Banks and adjacent to Aldbury Nowers**, which forms part of a larger site by being linked to Pitstone Hill SSSI and Pitstone Quarry, over the county boundary with Bucks.

An alternative economic use which may permit the expansion of chalk grassland is the expansion of the horse racing training facilities around Therfield Heath, currently limited to the gallops on the Heath. At Newmarket, there are large areas of chalk grassland which form such a training area, providing a possible model for this area of north Hertfordshire.

Other opportunities include the creation of a series of new chalk grassland sites linked to the A505 corridor and other road verges in north Herts and the widespread adoption of unploughed grassy field margins to provide valuable links between grassland sites in mainly arable areas. Bridleways and footpaths may also provide links in some areas.

The success of such a targeted re-creation approach is demonstrated by the set-aside field below Aldbury Nowers SSSI, which is already developing into a valuable addition to the SSSI after only 5 years out of arable production.

The major opportunity in Hertfordshire for creation of new chalk grassland habitats is on land coming out of arable production. The best areas will be where there are thin, bare chalk soils, usually on steep slopes or hill tops. These are often of

agricultural grade 3b in the MAFF farmland productivity classification and are therefore not priority areas for food production.

Over a period of typically 10-20 years on such areas, nutrient levels in the soils could be lowered, thereby encouraging species typical of the chalk to return. This can be achieved by a mixture of natural leaching processes, the growing of sacrifice crops and grazing. Land currently in set-aside would be very suitable for grassland creation. **Re-creation of chalk grassland habitats should be undertaken largely by allowing natural colonisation processes, supplemented by grazing. New chalk grassland habitats should include a mixture of rough and shorter grassland and include other key habitat components such as bare ground and scrub.**

Grazing will bring in seeds via the livestock and the use of hay crops taken from other grassland sites would further reinforce natural regeneration. However, often it will be necessary to sow a low density nurse crop of locally appropriate fine-leaved grasses, which will limit weed problems as well as allow natural colonisation. Re-seeding may be appropriate in some circumstances, though, it should only be considered after natural colonisation has been shown to fail or where, after full consideration, natural colonisation is deemed unlikely to succeed.

8.4.4 Agri-environment Schemes

Although the re-creation of chalk grasslands is possible in several areas of the county it will not occur as part of an economic farm or estate landholding. While arable land is currently put into set-aside by farmers, they are unlikely to enter this land into long-term habitat creation schemes, because such schemes do not count towards the set-aside requirement. In addition, farmers are unwilling to tie land up in long-term schemes, when it is likely that continuing moves towards a world agricultural market will enable arable production to begin again.

The other major constraint preventing arable land in set-aside from being put into long-term countryside schemes such as the grassland creation options of Countryside Stewardship is the levels of grant payment. It is more profitable for a landowner to keep land in set-aside than to enter the more positive Countryside Stewardship or ESA schemes.

If chalk grassland is to be re-created to any extent in Hertfordshire, it will only happen through a greatly improved incentive package for landowners. However, because the ideal management of chalk grasslands is based on agricultural systems (even if low input grazing) **farmers are in an ideal position to contribute towards achieving the targets set for chalk grassland re-creation.**

Even with enhanced agri-environment schemes, large scale re-creation is unlikely to be undertaken by landowners in the mainly arable areas of north Hertfordshire. A targeted approach therefore becomes more essential. This should identify the precise areas with greatest potential for re-creation (thin soils etc), whether around existing sites or as stepping stones between sites. It should also identify linking grassland corridors between these sites along road verges and field margins. These must be identified with the landowners and advice provided on management and available financial incentives.

8.4.5 Public Open Space

In many areas suitable for chalk grassland re-creation, farmers and landowners will want to continue specialising in arable production. **The only way to then meet the habitat creation targets will be through purchase and subsequent management of land by conservation organisations and public bodies.**

Such areas could fulfil a valuable role both as wildlife habitats and as accessible countryside for a large local population, particularly if created near to towns and villages. This would ensure they acquire an additional "beneficial" land use, without which there is unlikely to be any incentive to purchase land or promote habitat creation.

These areas would also provide larger areas on which to graze a conservation flock or herd and increase the chances of developing such a venture. One option would be the purchase of a whole farm, which could be run as a demonstration low input livestock or mixed farm. A farm on the chalk area between Royston and Baldock, would contribute towards achieving the biodiversity targets set out in both this action plan and the farmland action plan (see Chapter 9).

Through a mixture of improvements to agri-environment and countryside schemes, promotion and targeting of these schemes, and purchase of land by conservation and public bodies it should be possible to create at least 300 ha of new chalk grassland habitats in Hertfordshire, on land which has currently come out of agricultural production or may come out of production in the future.

8.5 A VISION FOR CHALK GRASSLAND

We would expect to see a significantly expanded chalk grassland (and associated) habitat in 50 years time, from 177 ha to a minimum of 600 ha. This would be concentrated in the three chalk grassland core areas. In each core area there would be at least one major large site. All chalk grasslands in the county will be sensitively managed, ideally by low intensity grazing.

In the Tring area, the existing chalk grassland area of 47 ha will be expanded to 90 ha, through restoration and creation of grassland. A large site with existing, restored and newly created chalk grassland and associated habitats will have been created based around Aldbury Nowers and Pitstone Hill SSSIs and Pitstone Quarry. A second major site will be developed around Tring Park and Oddy Hill SSSI.

In the Luton - Hitchin area, the existing 10 ha of chalk grassland will be expanded to an area of 160 ha, through restoration of 50 ha and creation of 100 ha of new grassland habitats. One or two larger sites with existing, restored and newly created chalk grassland will be created in the vicinity of Lilley Hoo and Tingley Down, linked to the important sites in Bedfordshire.

The Chilterns will be designated as an Environmentally Sensitive Area (ESA), to support environmentally sensitive low input grazing and mixed farming. Such a designation would cover both of the above core chalk grassland areas in Hertfordshire.

In the Royston - Baldock area, the chalk grassland resource will be expanded from 35 ha to at least 385 ha. A major chalk grassland site will be created based around Therfield Heath and Coombe Bottom, Kelshall, with 50 ha restored on the heath and new chalk grassland created on nearby arable land. New chalk grasslands will be created at selected locations and links developed between sites along road verges and field margins. In total, an additional area of about 100 ha of semi-improved chalk grassland will be restored, including Baldock Radio Station and 200 ha of new chalk grassland created.

A demonstration farm will be established in this area by a consortium of conservation organisations and public bodies, managed as a low input livestock and mixed farm. The farm will contribute towards the achievement of the targets in both this, the neutral grassland and the farmland action plans. Such a farm will also provide a source of livestock for conservation management of important grassland sites.

An improved Countryside Stewardship Scheme, with increased payments, better advice and targeted to chalk grasslands, will also be available in this area.

Road verges and field margins will be managed to provide links and corridors between fragmented chalk grassland sites across north Herts, with the A505 being a major chalk grassland corridor.

Species exclusively associated with chalk grassland and currently present will have been retained and no further local extinctions will have occurred. All chalk

grassland species will occur in large enough populations to be self-sustaining. Some chalk grassland species lost from Hertfordshire may be re-introduced to the county.

Some of both the existing and new chalk grassland sites will provide a valuable recreational resource for local people, particularly where access does not interfere with farming operations.

8.6 TEN YEAR TARGETS

To protect and prevent further loss or damage to important chalk grasslands.

To manage all remaining unimproved chalk grassland sites to ensure they retain their full wildlife interest.

To have begun restoration of at least 150 ha of chalk grassland from scrub and semi-improved grassland in the 3 core areas.

To have begun large scale creation of at least 100 ha of new grassland consisting of locally appropriate species across the 3 core areas.

8.7 PROPOSED ACTIONS

8.7.1 Policy and Legislation

CG1. Relevant local authorities to include chalk grassland habitat protection policies at the next review.

Action: LA's, DBC, NHDC, EHDC, TRDC.

8.7.2 Site Safeguard and Management

CG2. Designate suitable sites as Local Nature Reserves (LNR's) by 2002. Candidates include Tring Park / Oddy Hill and Weston Hills, Baldock.

Action: LA's, DBC, NHDC.

CG3. Landowners/managers to ensure that all chalk grassland nature reserves and publicly owned sites are managed sensitively by 2000.

Action: HMWT, CMS, LA's (NHDC / DBC), WT, Boxmoor Trust, Therfield Conservators.

CG4. Investigate the potential for running a conservation flock / herd to manage important grassland sites, either Chilterns wide and/or covering Bedfordshire and north Herts, by 2000.

Action: HCLC, CC, EN.

CG5. Seek to develop the A505 into a major chalk grassland corridor. Adopt road verge management practices which enhance and maintain the conservation value of chalk grassland road verges by 2002.

Action: HCC, landowners.

CG6. Landmanagers to restore a minimum of 2.5 ha of scrub to chalk grassland at Tring Park and Aldbury Nowers by 2007.

Action: WT (TP), HMWT (AN).

CG7. Establish a demonstration chalk grassland site in each of the 3 core areas by 2003, showing management and restoration of chalk grassland. Possible sites include Aldbury Nowers, Tring Park, Therfield Heath & Telegraph Hill / Hoo Bit.

Action: HMWT, CMS, WT, LA's.

CG8. Establish a demonstration chalk grassland re-creation site by 2003.

Action: HMWT, CMS, LA's.

8.7.3 Species Management and Protection

CG9. Implement species action plans and assess the need for additional individual action plans for the most threatened chalk grassland species by 2000.

Action: HERC, HNHS, HMWT, BC.

Pasqueflower. Maintain population at only known county site. Investigate re-introduction to Aldbury Nowers (see Chapter 27).

Chalkhill Blue. Restore regular breeding colonies in all 3 core chalk grassland areas (see Chapter 20).

Additional species:

Burnt-tip Orchid. Maintain ideal habitat conditions at only known county site with the aim of increasing regularity of occurrence.

Spotted Cat's-ear. Increase population at only known county site by 100%. A scientific introduction from seed may be required.

Chiltern Gentian. Maintain present county distribution, through maintaining open conditions at known sites.

Autumn Lady's Tresses. Survey last known site. Maintain ideal conditions and investigate the potential for re-introduction.

Fragrant Orchid. Maintain present county distribution.

Man Orchid. Survey last known site. Maintain ideal conditions and investigate the potential for re-introduction.

Musk Orchid. Maintain and monitor presence at known county sites.

Lesser Meadow Rue. Maintain presence at known county sites.

Bastard Toadflax. Maintain presence at only known county site.

Small Blue. Increase population at only known county site, with a peak annual count of at least 5 individuals. Investigate re-introduction to one former site. Work may need to include a strategy for encouraging its foodplant, Kidney Vetch.

Duke of Burgundy. Increase population at only known county site, with a peak annual count of at least 5 individuals.

Silver Spotted Skipper. Investigate re-introduction to a suitable site.

Adonis Blue. Investigate re-introduction to one former site.

8.7.4 Advisory

CG10. Actively target advice and if appropriate Countryside Stewardship or Countryside Heritage Project grants to unimproved chalk grassland Wildlife Sites. All sites should be in sensitive management by 2001 and grazing re-introduced to all sites capable of being grazed by 2007.

Action: FRCA, HMWT, CMS, FWAG, HCC, LA's.

CG11. Provide advice on management and restoration of semi-improved chalk grasslands, particularly where these are adjacent to and part of the same management unit as a Wildlife Site. Aim for 15 ha around Tring, 10 ha between Luton-Hitchin and 50 ha on Therfield Heath and 80 ha at Baldock Radio Station, by 2007.

Action: HMWT, CMS, Therfield Conservators, FWAG.

CG12. Promote the field margins option of Countryside Stewardship, as well as grassland creation, to landowners in the core areas, with the aim of creating chalk grassland corridors linking existing isolated sites. Aim for at least 10 ha around Tring, 30 ha between Luton-Hitchin and 60 ha between Royston and Baldock, by 2007.

Action: FRCA, HMWT, CMS, FWAG.

8.7.5 Research and Monitoring

CG13. Collate information on areas between Royston and Baldock, probably previously chalk grassland and adjacent to existing important sites, where new chalk grassland should be targeted, by 2000.

Action: HERC.

CG14. Monitor the management and quality of a sample of important chalk grassland sites every 5 years, beginning 1999.

Action: HERC, HMWT, EN.

8.7.6 Communication and Publicity

CG15. Organise regular guided walks and other participative activities on key sites such as Therfield Heath, Tring Park and chalk grassland nature reserves. Minimum 1 event annually. Promote chalk grasslands through relevant publications.

Action: CMS, WT, HMWT, EN.

CG16. Establish a co-operative management and advisory network between chalk grassland managers, either Chilterns wide or linked to the existing arrangement in Bedfordshire, by 2000.

Action: HCLC, EN.

