

Grassland Features

Areas of grassland occupy a large proportion of the Highways Agency soft estate.

Grasslands usually require management by cutting and/or grazing in order to increase species diversity and to prevent encroachment by shrubs and trees. The more valuable grassland communities are those that support a diversity of forbs (herbaceous species which are not grasses). They also tend to support a wide variety of invertebrates, and other fauna, including reptiles.

Grasslands are usually classified according to the types of plant species present. These are affected by a number of factors, but the main influences are soil pH, the availability of soil nutrients and grassland management. The main soil types are calcareous, acid and neutral. Grasslands are defined as unimproved, semi-improved and improved, according to the degree to which they have been altered by agricultural management.

Road verges can support important grassland types that are often remnants of long-established habitats. In many cases, these remnants have persisted whilst the adjacent land has been subject to agricultural intensification or development. In several counties the extent of grassland habitat surviving on road verges makes a significant contribution to the total area of valuable grassland in the county.

Calcareous and dry acid grassland habitats occur on the soft estate, and both of these have separate action plans in the UKBAP. However the UKBAP does not describe the majority of valuable grassland habitat found on HA land which is classified as species-rich neutral grassland.

Current status

General

Grasslands are normally classified in terms of their degree of agricultural improvement, a system which cannot be readily applied to road verges. Nevertheless, verges tend to comprise low-diversity swards typical of improved grassland as a result of the seed mixes used and subsequent management. However, many road verge ecological reports identify plots of 'good quality grassland', which are likely to be relatively species-rich, and this is a potentially valuable resource for biodiversity on the soft estate.

UKBAP habitats

Separate habitat action plans have been prepared in the UKBAP for six different types of grassland: lowland and upland calcareous grassland, lowland and upland hay meadows, purple moor grass and rush pasture, and lowland dry acid grassland.

Although any of these habitats could potentially occur on or adjacent to the soft estate, the available network ecological information currently holds records only for calcareous and dry acid grassland.

Calcareous grasslands occur on alkaline soils (pH above 7.0) that have not been heavily fertilised, usually where the underlying geology comprises limestone or chalk. The cover of calcareous grassland has declined sharply over the last 50 years, and the bulk of the remaining habitat is found in Wiltshire, Dorset and the South Downs. Calcareous grassland is notable for the diversity of rare invertebrates it supports, including the Adonis blue butterfly (*Lysandra bellargus*), the ground beetle (*Harpalus dimidiatus*), the striped lychnis moth (*Cucullia lychnitis*) and the straw belle moth (*Aspitates gilvaria*).



It was the UKBAP habitat most frequently recorded on the soft estate (81 sites), where it often occurs on large chalk embankments.

Dry acid grassland occurs on acidic soils (pH less than 5.5), and is often found as an integral part of lowland heath landscapes. It tends to be relatively species-poor, but often supports a significant number of plant and invertebrate species which do not occur in other types of grassland.

Current factors affecting the habitat

Habitat loss and deterioration

Large areas of valuable grassland have been lost to development, and the UKBAP has identified road building (and the resultant fragmentation) as a significant threat to both calcareous and dry acid grassland. Road widening schemes or improvements to road junctions may also damage established road verge grassland. Road maintenance works may cause degradation of sensitive grassland habitats on road verges through reparation of services beneath, and storage of materials on, road verges. Illegal dumping, accidental pollution or spillage from vehicles, and damage by vehicles driving or parking on verges may also cause degradation of the habitat.

Grasslands can be particularly sensitive to spray drift, and salt spray from the road surface, as well as pollutants from vehicle emissions, may damage the habitat and the species it supports. Herbicide and insecticide drift usually originates from adjacent farmland, while salt spray is thrown up from the carriageway. Plant species that characterise calcareous and acid grasslands depend upon low soil nutrient levels for their survival, so these habitats are also vulnerable to the input of nutrients, such as from fertilisers and vehicle emissions.

Inappropriate management

Inappropriate management can threaten species diversity, particularly on calcareous grassland. Forbs may not persist if they are unable to flower and set seed because the grassland is cut too frequently. Conversely if the grassland is not managed by cutting or grazing, coarse grasses and shrubs may out-compete the more delicate forbs also leading to a drop in species-richness. Alien species such as Japanese Knotweed (*Fallopia japonica*) and agricultural weeds such as Ragwort (*Senecio jacobaea*) often out-compete native grassland species.

Planting trees and shrubs can also have a detrimental effect on plant species diversity, either through the direct effect of herbicides used to encourage tree growth, or through the shading effect from the woody species.

Planting cultivated plants such as Daffodils (*Narcissus pseudonarcissus*), or seeding grasslands with non-native or inappropriate seed mixes, will also have a detrimental effect on the nature conservation value of the grassland on the road verge.

Current action

A number of LBAPs identify road verges which support valuable grassland (in particular calcareous grassland), and some Wildlife Trusts and Local Authorities have developed management regimes for particular verges designed to optimise the value of the habitat for plant and invertebrate diversity.

The TRMM indicates that grassland verges that have developed botanical interest or nature conservation value should be managed to conserve and enhance this value. It also states that 'where designated sites lie within or adjacent to the highway boundary, the soft estate should be maintained on the advice of English Nature or local wildlife trusts'.

Advice on the creation, translocation and management of valuable grassland habitat on road verges is provided in the DMRB. Some areas of the soft estate (e.g. the A303 in Wiltshire) are already under specific management for plant and invertebrate species associated with calcareous grassland.

HA is committed to controlling 'injurious' weeds, as listed in the Weeds Act (1959). Gorse control is ongoing on dry acid grassland verges. The HA road verge at Udders Heath is part of the Dorset Heaths cSAC. This wide verge used to support a population of silver-studded blue butterflies (*Plebejus argus*), but has recently become overgrown with gorse. This is now being cleared primarily in order to maintain clear sightlines, but there will also be additional benefits for the dry acid grassland habitat and for the silver-studded blue.

Several studies have been made of the effect of management and other factors such as spray drift on plant species diversity in grasslands. Data obtained from long-term studies of particular road verges are also being used to study changes in biodiversity that may be due to global warming.

Objectives

To maintain and enhance the nature conservation value of the grassland habitats found on road verges, particular attention should be paid to the UKBAP habitats that are known to be present on the soft-estate: calcareous grassland and dry acid grassland.

	Objective	Proposed actions
A	To protect, maintain and enhance the nature conservation value of road verges that have been found to support UKBAP and other valuable grassland habitats.	1, 2, 3, 4, 5, 6, 10
B	To ensure that new road developments avoid areas of UKBAP grassland, wherever possible.	2, 7
C	To ensure that any unavoidable impacts of new roads or road improvement schemes on valuable grassland are adequately mitigated.	7, 8, 9, 11, 12
D	To ensure that UKBAP grassland road verges adjacent to designated sites of nature conservation value are managed appropriately.	1, 4, 5, 6, 10
E	To raise awareness with HA staff, Managing Agents and consultants regarding the importance of grassland habitats on the network, and to provide detailed advice to contractors on beneficial management.	1, 4, 5, 6, 9, 13, 14, 15
F	To create road verges which support valuable grassland habitats, particularly where these verges link known sites of nature conservation value.	8, 9, 11, 12

Proposed action

The following table lists the actions required to achieve the objectives set out in this Plan. For some of the actions, potential partners have been assigned as likely

sources of cooperation. Targets are provided to give an indication of the timescale for the proposed action.

	Action	Potential partners	Target
	<i>Policy, guidance and advice</i>		
1	Provide detailed information in TRMM/DMRB on the management of the soft estate for the benefit of grassland, in particular calcareous and dry acid grassland.	-	2004
	<i>Surveying</i>		
2	Carry out further surveys to ensure that all valuable grassland habitats that fall within the soft estate, including UKBAP habitats and species-rich neutral grassland, are mapped. Identify potential sites for the re-creation/re-establishment of valuable grassland. Include all records on the HA Environmental Database.	-	2006
3	Record all existing road verge sites for the barn owl, Adonis blue butterfly, Tower Mustard and Deptford Pink on the HA Environmental Database.	-	2007
4	Once all calcareous and dry acid grassland verges have been mapped, survey them to identify species composition as a basis for ongoing management and monitoring. Review the potential presence of UK Priority Species.	-	2012
	<i>Research and monitoring</i>		
5	Monitor vegetation composition at a selection of sites where calcareous grassland and dry acid grassland have been enhanced through management.	-	2002-12

	<i>Action (continued)</i>	Potential partners	Target
	<i>Research and monitoring (continued)</i>		
6	Investigate optimal verge management regimes for Deptford Pink and Tower Mustard.	EN, local WT	2004
	<i>Mitigation and Management</i>		
7	Ensure that valuable grassland habitats are taken into account when designing new roads/road widening schemes. Where at all possible avoid direct impacts, particularly on designated sites.	-	Ongoing
8	Where the loss of valuable grassland habitat is unavoidable, consider habitat translocation or creating similar plant communities within the road scheme.	-	Ongoing
9	During road construction, ensure that any valuable grassland habitats that are retained within/adjacent to the road scheme are protected by fencing.	-	Ongoing
10	Ensure that existing calcareous and dry acid grassland sites are managed appropriately to maintain and enhance their nature conservation value. Draw up a management statement where these are within or adjacent to nationally or internationally designated sites and/or where protected or UKBAP Priority Species are found to be present.	-	2005
11	As part of new infrastructure or ongoing maintenance, create/enhance calcareous grassland habitat (40 sites) and dry acid grassland habitat (15 sites). Create specific Adonis blue habitat (5 sites), Deptford Pink habitat (5 sites) and Tower Mustard habitat adjacent or near to existing populations (once habitat requirements are properly understood).	-	by 2012
12	Whenever possible use a wildflower and grass seed mix in preference to an amenity grass seed mix. Take care to ensure that all seed used is native and appropriate to the geographical region and soil type. Wherever possible, avoid using imported agricultural topsoil.	-	Ongoing
	<i>Communications and publicity</i>		
13	Raise awareness within the HA of the value of UKBAP grassland habitats, for example through the use of internal news publications.	-	2003
14	Raise awareness of local road verge protection schemes and of nature conservation designations that affect the management of valuable grassland road verges.	LAs, EN, Wildlife Trusts	2003
15	Ensure that HA staff members involved in road verge management are aware of the HABAP and of any updating of TRMM/DMRB with regard to grassland management.	-	2004

Links with other plans

This plan should be read in conjunction with the SAPs for barn owl, Adonis blue butterfly, Western Ramping-fumitory, Deptford Pink and Tower Mustard.

Lead partners

The lead partners for grassland habitats are:
 Lowland calcareous grassland - English Nature
 Lowland dry acid grassland - English Nature
 Upland calcareous grassland - CCW
 Purple moor-grass and rush pasture - CCW.