European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)

Second Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2001 to December 2006

Conservation status assessment for :

H6520: Mountain hay meadows

H6520 Mountain hay meadows

Audit trail compiled and edited by JNCC and the UK Lowland Grasslands Lead Coordination Network

This paper and accompanying appendices contain background information and data used to complete the standard EC reporting form (Annex D), following the methodology outlined in the commission document "Assessment, monitoring and reporting under Article 17 of the Habitats Directive, Explanatory Notes and Guidelines, Final Draft 5; October 2006". The superscript numbers below cross-reference to the headings in the corresponding Annex D reporting form. This supporting information should be read in conjunction with the UK approach for habitats (see 'Assessing Conservation Status: UK Approach').

1. National-biogeographic level information

1.1 General description and correspondence with National Vegetation Classification (NVC) and other habitat types

Table 1.1.1 provides a summary description of H6520 and its relations with UK classifications.

This Annex I type comprises species-rich upland hay meadows on brown earth soils. It is a northern and sub-montane counterpart to 6510 Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*).

In the UK this vegetation corresponds to NVC type MG3 *Anthoxanthum odoratum – Geranium sylvaticum* grassland. Various grasses, including common bent *Agrostis capillaris*, sweet vernal-grass *Anthoxanthum odoratum* and cock's-foot *Dactylis glomerata*, are prominent in the sward, and are accompanied by a range of associated species, such as wood crane's-bill *Geranium sylvaticum*, great burnet *Sanguisorba officinalis* and pignut *Conopodium majus*. Populations of rare lady's-mantle *Alchemilla* species are found in some meadows.

Mountain hay meadows in the UK meadows are very similar to one of the two major associations within this group, the Geranio sylvatici-Trisetetum Knapp 1951 which is essentially Sub-Atlantic in distribution. It has been described from the hills of the Ardennes in Belgium (Lambert 1965), the Rhineland mountains and Mittelgebirge of Germany (Büker 1942; Knapp 1951; Baeumer 1956; Wilmanns 1956; Boeker 1957; Oberdorfer 1957; Lötschert 1973), Austria (Mucina *et al*. 1993), the Czech Republic (Moravec *et al*. 1995) and Hungary (Borhidi 2003). Essentially similar meadows have been described by Påhlsson *et al.* 1994 as the 5.2.2.4 *Geranium sylvaticum*-typ, including the Skogstorkenebb from Norway, the Metsänkurjenpolviniitty of Finland and the Skogsnävaängs of Sweden.

Table 1.1.1 Summary description of habitat H6520 and its relations with UK vegetation/habitat classifications

Classification	Correspondence with Annex I type	Comments
EU Interpretation Manual	Mountain hay meadows (British types with *Geranium sylvaticum*) PAL.CLASS 38.31	
NVC	MG3 *Anthoxanthum odoratum-Geranium sylvaticum* grassland	H6250 is defined by a single NVC type. However, in wetter higher altitude meadows, vegetation transitional between MG3 and MG8 *Cynosurus cristatus-Caltha palustris* grassland occurs and may form part of SACs selected under H6250.
BAP priority habitat type	Upland Hay Meadow	The Upland Hay Meadow BAP Priority Habitat is also defined by the single NVC community MG3 *Anthoxanthum odoratum-Geranium sylvaticum* grassland.

2. Range [2.3]

2.1 Current range

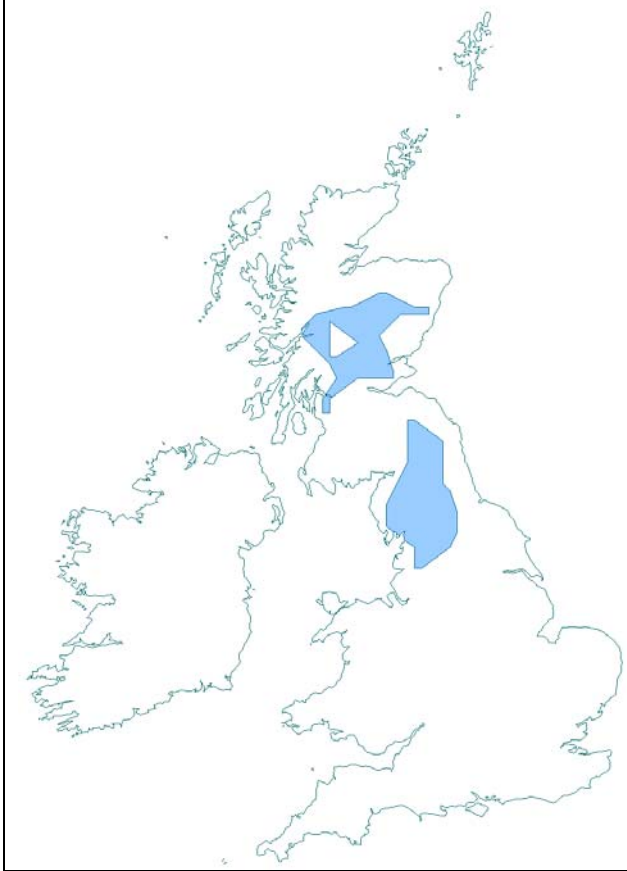
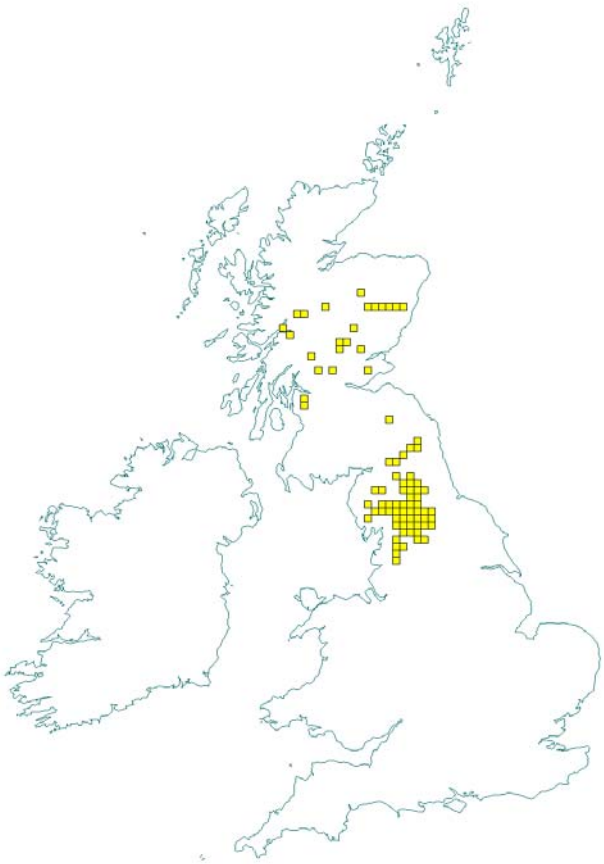
Range surface area [2.3.1]: **23,964 km²**
Date calculated [2.3.2]: **May 2007**
Quality of data [2.3.3]: **Good**

The surface area estimate was calculated within alpha hull software, using extent of occurrence as a proxy measure for range (see Map 2.1.1). The value of alpha was set at 25 km; the alpha was clipped to include inland areas only.

Mountain hay meadows now occur as scattered fields or small isolated groups of fields in a series of valleys in the sub-montane zone of northern England, with fragmentary outliers of the NVC type in Scotland. They have declined in extent due to agricultural intensification.

There is no obvious reason for the gap in the range in southern Scotland shown in Map 2.1.1. Rodwell (2007) suggests that the scarcity of the habitat in Scotland may be due to the earlier onset of agricultural improvement on big estates but this does not account for its virtual absence from Dumfries and Galloway and the Borders

Maps 2.1.1 and 2.1.2 show the range and distribution of H6520 in the UK.

Map 2.1.1 Habitat range map [1.1] for H6520	**Map 2.1.2** Habitat distribution map [1.2] for H6520
	
Range envelope shown in blue/grey shade in above map is a minimum convex polygon constructed using JNCC Alpha Shapes tool (see Technical note I for details of methodology).	Each yellow square represents a 10x10km square of the National Grid and shows the known and/or predicted occurrence of this habitat. 10-km square count: 82

See Section 7.1 for map data sources

2.2 Trend in range since c.1994

Trend in range[2.3.4]: **Stable**
Trend magnitude[2.3.5]: **Not applicable**
Trend period[2.3.6]: **1994-2006**
Reasons for reported trend[2.3.7]: **3 – Direct human influence**

2.3 Favourable reference range

Favourable reference range[2.5.1]: **23,964 km^2**

The range is thought to have stabilised at a viable level. Confidence in this judgement is low, due to the age of some of the records on which it is based.

Section 3.2.1.3 of 'Assessing Conservation Status: UK Approach' sets out how favourable reference range estimates for habitats have been determined in the UK. Based on this approach, the current surface area, 23,964 km^2, has been set as the favourable reference area. Reasons for this are discussed below.

2.4 Conclusions on range

Conclusion[2.6.i]: **Favourable**

In the last 10-15 years conservation programmes have helped to stem the loss of this habitat and hence the range has probably stabilised. In the absence of evidence that the range calculated by the JNCC Alpha Shapes tool, using the recorded distribution, is unviable, it is assumed to be equivalent to the favourable reference range. There remains some uncertainty as to whether the recorded distribution equates to that in 1994 and therefore confidence in this judgement is low.

There have been substantial but unquantified losses of this habitat due to agricultural intensification over the last 50 years (Jefferson 2005) which have caused a contraction in range. The significance of this range contraction in terms of representation of ecological variation is not known.

The range of this grassland type is strictly defined by edaphic and management conditions. H6520 occurs on neutral brown earth soils in sub-montane areas usually under low intensity traditional management involving a summer hay cut followed by grazing. For stands in England, the floristic composition is also a product of a long history of manuring, liming and maintenance of drainage systems. Restoration and re-creation of H6520 is challenging due primarily to the highly modified nature of the soils on which it could potentially occur.

3. Area [2.4]

3.1 Current area

Total UK extent [2.4.1]: **11km^2**
Date of estimation [2.4.2]: **May 2007**
Method [2.4.3]: **1 = only or mostly based on expert opinion**
Quality of data [2.4.4]: **Moderate**

Table 3.1.1 provides information on the area of H6520 in the UK.

The figures for area are taken from Blackstock *et al.* 1999, and J.MacKintosh *pers. comm.* - the figures provided are estimates based on the extrapolation of findings of survey work in different parts of the UK.

Table 3.1.1 Area of H6520 in the UK

	Area (ha)	Method [2.4.3]	Quality of data [2.4.4]
England	<1,000	1	Moderate
Scotland	<100	1	Moderate
Wales	not present	3	Good
Northern Ireland	not present	1	Poor
Total UK extent [2.4.1]	Approx.1,100	1	Moderate

Method used to estimate the habitat surface area: 1 = only or mostly based on expert opinion; 2 = based on remote sensing data; 3 = ground based survey. Only the most relevant class is given if more than one applies.
Quality of habitat surface area data: 'Good' e.g. based on extensive surveys; 'Moderate' e.g. based on partial data with some extrapolation; 'Poor' e.g. based on very incomplete data or on expert judgement.

3.2 Trend in area since c.1994

Trend in area[2.4.5]: **Stable**
Trend magnitude[2.4.6]: **Not applicable**
Trend period[2.4.7]: **1994-2006**
Reasons for reported trend[2.4.8]: **Not applicable**

3.3 Favourable reference area

Favourable reference area[2.5.2]: **at least 12.5km^2**

The remaining area of this habitat, although thought to be stable, is now very small and very scattered and fragmented. The recorded area has been assessed as unviable, on account of its small extent and high degree of fragmentation. Although it is not clear what area, configuration and connectivity the habitat needs to be considered favourable, it seems likely that the current area is less than the favourable reference area, and probably at least 10% below it.

3.4 Conclusions on area covered by habitat

Conclusion[2.6.ii]: **Unfavourable – Bad**

There have been substantial but unquantified losses of this habitat over the last 50-70 years primarily due to agricultural intensification (Jefferson 2005) by reseeding or increased use of fertilisers and herbicides coupled with a switch from traditional hay making to silage systems. The area of the habitat has also become more fragmented with increased isolation of sites in an unfavourable landscape context (Pacha 2004). The remaining area of this habitat, although thought to be stable, is now very small (<1,100 ha) and very scattered and fragmented, with a small but significant proportion confined to road- and track-side verges. The recorded area has been assessed as unviable, on account of its small extent and high degree of fragmentation.

4. Specific structures and functions **(including typical species)**

4.1 Main pressures [2.4.10]

101 Modification of cultivation practices
120 Fertilisation
162 Artificial planting
171 stock feeding
140 Grazing
702 air pollution

- Agricultural improvement

Excessive nutrient applications (particularly nutrient nitrogen) from both artificial and organic fertilisers leading to a loss of species diversity and increase in palatable grasses.

- Grazing

Decline in aftermath grazing on much of the resource, coupled with unsustainable levels of aftermath grazing (often accompanied by other agricultural improvement) on other parts of the resource.

- Inappropriate cutting regimes

The decline of hay cutting on much of the resource in favour of earlier silage cutting.

- Air pollution

Based on an assessment of the exceedence of relevant critical loads (see Technical note III), air pollution is considered to be a potentially significant pressure to the structure and function of this habitat.
Atmospheric sources are likely to be adding to the levels of nutrient nitrogen from excess fertiliser applications.

- Habitat fragmentation

The area of the habitat has also become more fragmented with increased isolation of sites in an unfavourable landscape context (Pacha 2004). This may have implications for ensuring favourable management regimes and the maintenance of key character species such as *Geranium sylvaticum*.

4.2 Current condition

4.2.1 Common Standards Monitoring (CSM) condition assessments

Condition assessments based on CSM (see http://www.jncc.gov.uk/PDF/CSM_lowland_grassland.pdf) provide a means to assess the structure and functioning of H6520 in the UK. The following attributes were examined for all CSM assessments relevant to the habitat:

- Extent
- Grass:herb ratio
- Positive indicator species
- Negative indicator species
- Indicators of local distinctiveness
- Height
- Litter
- Bare ground

Special Area of Conservation (SAC) condition assessments

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H6520. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 100% of the area and 100% of the number of assessments was unfavourable; and
- at least 66% of the total UK habitat area was in unfavourable condition.

Table 4.2.1 CSM condition assessment results for UK SACs supporting H6520. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Condition	Condition sub-categories	Area (ha)	Number of site features
Unfavourable	Declining		
	No change		
	Unclassified		
	Recovering	724	2
	Total	724	2
	% of all assessments	***100%***	***100%***
	% of total UK resource	***66%***	***unknown***
Favourable	Maintained		
	Recovered		
	Unclassified		
	Total		
	% of all assessments	***0%***	***00%***
	% of total UK resource	***0%***	***unknown***

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC. (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC).
3. Only assessments made for qualifying interest features on SAC have been included in this analysis.
4. Area figures for CSM assessments have been calculated using the data presented on the standard Natura 2000 data forms submitted to the EU.

Table 4.2.2 CSM condition assessment results for UK Sites of Special Scientific Interest (SSSI)/Areas of Special Scientific Interest (ASSIs) that were judged to be either strongly or weakly indicative of the condition of H6520 on SSSI/ASSIs. See notes below table and Technical note II for further details

Condition	Condition sub-categories	Number of assessments	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Unfavourable	Declining	5	24
	No change	14	9
	Unclassified		
	Recovering	24	7
	Total	43	40
	% of all assessments	***49%***	***67%***
Favourable	Maintained		20
	Recovered		
	Unclassified	44	
	Total	44	20
	% of all assessments	***51%***	***33%***

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006.

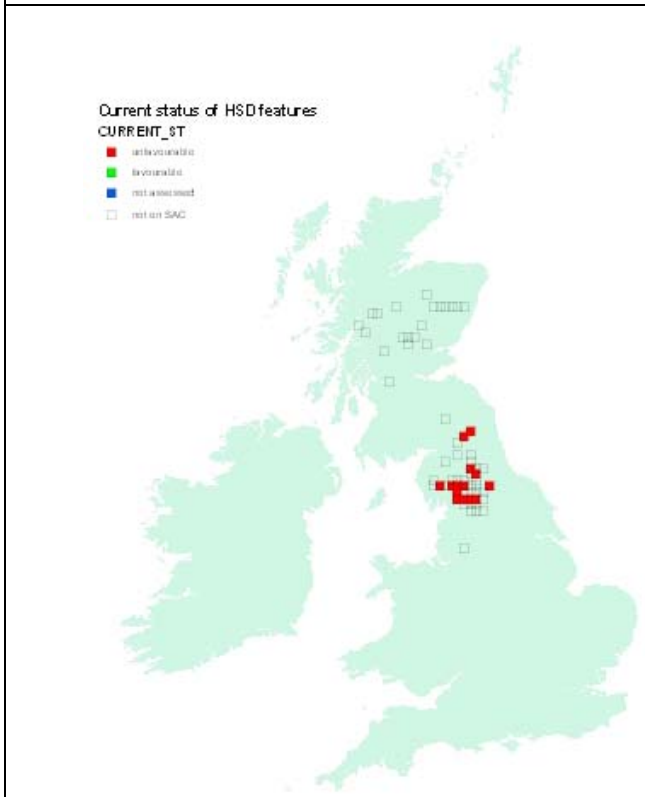
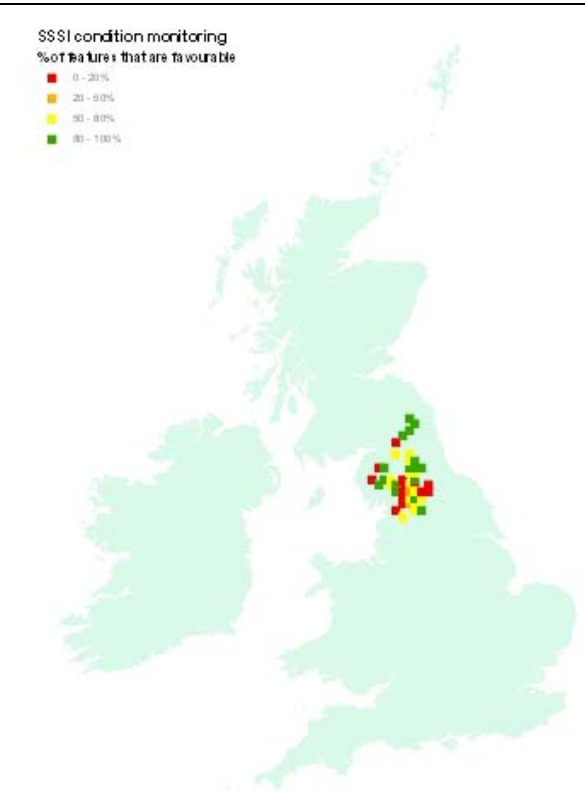
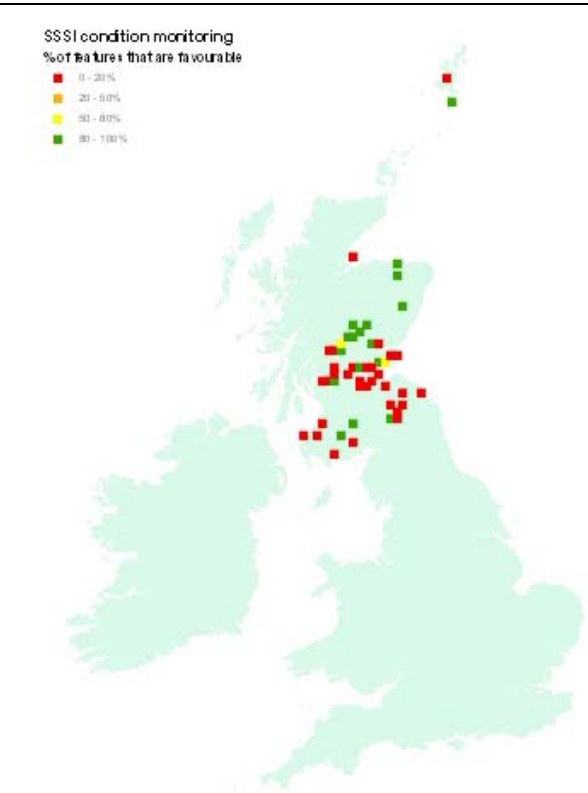
SSSI/ASSI condition assessments

Table 4.2.2 and Maps 4.2.2 and 4.2.3 summarise the CSM condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics

for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 49% of strongly indicative assessments and 67% of weakly indicative assessments were unfavourable.

Current Condition of H6520 based on CSM condition assessments (See Sections 4.2 and 7.2 for further information)

Map 4.2.1 SAC assessments	**Map 4.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs	**Map 4.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs
		
Key Red = unfavourable, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable Green = favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been assessed as favourable but there are no unfavourable SAC features Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type	Key* Green – 80 – 100% of assessed features on 10km square are favourable Yellow - 50 – 80% of assessed features on 10km square are favourable Orange - 20 – 50% of assessed features on 10km square are favourable Red - 0 – 20% of assessed features on 10km square are favourable *This is the same key as was used for JNCC CSM Report 2006	

4.3 Typical species

Typical species[2.5.3]: ***Geranium sylvaticum, Cirsium heterophyllum, Trollius europaeus*** **and some *Alchemilla* species.**

Typical species assessment[2.5.4]: Change in 10 km square occupancy across UK over last 25 years

Assessment of typical species forms a small part of the assessment of structures and functions for this habitat, in that it suggests a long-term decline in some species. This does not contradict the overall assessment of structures and functions which is principally based on site condition monitoring.

The typical* British plants of the community selected from the EU Interpretation Manual and positive indicator species from the CSM guidance (Robertson and Jefferson 2000) are listed in Table 4.3.1.

Table 4.3.1 Typical species

Typical species* considered	Trend in BSBI Atlas (Preston *et al.* 2002) [2.5.4]:	Trend in Braithwaite *et al.* 2006[2.5.4]:
Crepis mollis	Decline	-
Geranium sylvaticum	Decline	Decline
Trollius europaeus	Decline	Decline
Alchemilla spp. :-	-	-
A. acutiloba	Decline	-
A. glomerulans	Stable	-
A. monticola	Decline	-
A. subcrenata	Decline	-
A. wichurae	Stable	-
Cirsium heterophyllum	Decline	Decline

* Includes species with a strong affinity for the community and not normally occurring in other habitat types.

It is known that certain key species of this habitat such as *Geranium sylvaticum, Cirsium heteropyllum, Trollius europaeus* and some *Alchemilla* species have declined over the last 70-80 years which has led to a contraction in their range (Preston *et al.* 2002; Halliday 1997).

4.4 Conclusions on specific structures and functions (including typical species)

Conclusion[2.6.iii]: Unfavourable – Bad but improving

The EC Guidance states that where "more than 25% of the area of the habitat is unfavourable as regards its specific structures and functions", the conclusion should be Unfavourable – Bad. In the UK this was generally taken to mean that more than 25% of the habitat area in unfavourable condition.

The CSM data show that the two SACs are currently in unfavourable condition and that around 50% of the area of those SSSIs most closely referable to the Annex I type is unfavourable.

Furthermore a study by Hewins *et al.* 2005 showed that only 7% of all stands in non-statutory sites supporting H6520 in England were in favourable condition. However, action has been taken which is expected to lead to the improvement of a significant proportion of the resource. Thus the overall assessment for structure and function for this grassland type is Unfavourable – Bad but improving.

At a landscape scale, it is not entirely clear what area, configuration and connectivity the habitat needs to be considered favourable.

5. Future prospects

5.1 Main factors affecting the habitat

5.1.1 Conservation measures

This habitat is covered by a national action plan under the UK Biodiversity Action Plan (BAP) (see http://www.ukbap.org.uk/UKPlans.aspx?ID=11), with targets to maintain, improve, restore and expand the resource, concentrating on sites with > 0.5 hectare of the habitat. A number of local BAPs have targets for the habitat, including some which focus on road verges. For example, a recent initiative in the North Yorkshire Pennine Dales led by the Yorkshire Dales Millenium Trust aims to expand the resource including the provision of linkages between existing sites.

Relevant actions under the BAP include

- programmes to facilitate and encourage grazing of semi-natural grasslands for conservation; and
- socio-economic/marketing research and initiatives to investigate and promote the benefits of food produced from such grasslands.

The habitat is also covered by agri-environment schemes in the UK, most notably the Higher Level Environmental Stewardship in England, which can contract landowners to maintain, restore and create this type of grassland.

5.1.2 Main future threats[2.4.11]

101 Modification of cultivation practices
120 Fertilisation
162 Artificial planting
171 stock feeding
140 Grazing
702 air pollution

The most obvious major future threats to H6520 are listed below, several of which are referred to in Section 4.1.

- Agricultural improvement

Excessive nutrient applications (particularly nutrient nitrogen) from both artificial and organic fertilisers leading to a loss of species diversity and increase in palatable grasses. Restoration or re-creation is also hampered by a lack of suitable sites with relatively low fertility soils.

- Grazing

The decline in aftermath grazing on much of the resource, coupled with unsustainable levels of aftermath grazing (often accompanied by other agricultural improvement) on other parts of the resource is likely to continue but should slow as agri-environment measures begin to take place.

- Inappropriate cutting regimes

The decline of hay cutting on much of the resource in favour of earlier silage cutting is likely to continue but should slow as agri-environment measures begin to take place. Significant remnants of the habitat on road verges continue to be vulnerable to inappropriate cutting.

- Air pollution

Based on an assessment of the exceedence of relevant critical loads (see Technical note III), air pollution is considered to be a potentially significant threat to the future condition of this habitat.
Atmospheric sources are likely to continue to add to the levels of nutrient nitrogen from excess fertiliser applications.

- Habitat fragmentation

The area of the habitat has also become more fragmented with increased isolation of sites in an unfavourable landscape context (Pacha 2004). This may have implications for ensuring favourable management regimes and the maintenance of key character species such as *Geranium sylvaticum*, as well as limiting expansion or re-creation of the habitat.

- Climate change

Based on the literature review (see Technical note IV) climate change is considered a potentially significant threat to the future condition of this habitat especially in the long term. There is evidence from other sources that climate change may, now and in the future, threaten populations of key sub-montane species such as *Geranium sylvaticum* (Berry *et al* 2002). *Geranium sylvaticum* is a Northern Montane plant with a striking lower altitudinal limit in Britain. This may be partly related to its vernalisation requirement but also important may be a need for low winter temperatures to prevent respiratory rundown of its carbohydrate and protein resources in the bulky rhizome, a reserve which it is able to draw on quickly after the temperature rises above the growing point in early May (Rodwell *et al* 2007). Rising winter temperatures, already recorded in the Upland Hay Meadow landscape (Rodwell *et al*. 2001*b*) might be expected to threaten this plant's ability to retain such resources and its key role in this kind of vegetation.

However, there is a high degree of uncertainty in defining future climate threats on habitats and species due to uncertainty in: future greenhouse gas emissions; the consequential changes in climatic features (for instance temperature, precipitation CO_2 concentrations); the responses of habitats and species to these changes (for instance location, phenology, community structure) and the role of other socio-economic drivers of environmental change. The scale of change in habitats and species as a result of climate change will vary across ecosystems. Small changes in the climate are more likely to have a substantial impact on habitats and species which exist within a narrow range of environmental conditions. The future impacts of climate change on UK biodiversity will be exacerbated when coupled with other drivers of environmental change.

5.2 Future condition **(as regards range, area covered and specific structures and functions)**

5.2.1 CSM condition assessments

The CSM condition assessments reported in Sections 4.2.1-2 provide a basis to predict the potential future condition of H6520 in the UK. This involved treating all assessments currently identified as either favourable or unfavourable recovering as future-favourable: remaining categories were treated as future-unfavourable – see Table 5.2.1. There are a number of caveats to this approach, which are set out beneath this table.

SAC condition assessments

Table 5.2.1 and Map 5.2.1 summarise the predicted potential future condition of H6520 on UK SACs. This is based on the approach described above. The maps give an impression of the overall spread of where future-unfavourable and future-favourable sites are predicted to occur (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 100% of the area and 100% of the number of assessments fall within the future-favourable category;
- at least 66% of the total UK habitat area falls within the future-favourable category.

Table 5.2.1 Predicted future condition of UK SACs supporting H6520 based on current CSM condition assessments. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Future condition	Present condition	Area (ha)	Number of site features
Future-unfavourable	Unfavourable declining		
	Unfavourable no change		
	Unfavourable unclassified		
	Total		
	% of assessments	***00%***	***00%***
	% of total UK extent	***0%***	***Unknown***
Future-favourable	Favourable maintained		
	Favourable recovered		
	Unfavourable recovering	724	2
	Favourable unclassified		
	Total	724	2
	% of assessments	***100%***	***100%***
	% of total extent	***66%***	***Unknown***

Note that the scenario presented above is based on the same information as used to construct the Table in section 4.1. It is based on the following premises:
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;
(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.
IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

SSSI/ASSI condition assessments

Table 5.2.2 and Maps 5.2.2 and 5.2.3 summarise the predicted potential future condition of H6520 on UK SSSI/ASSIs. This is based on the approach described above and utilises condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 78% of strongly indicative assessments and 45% weakly indicative assessments fall within the future-favourable category.

Table 5.2.2 Predicted future condition of H6520 on SSSI/ASSIs based on CSM assessments that were judged to be either strongly or weakly indicative of the condition. See notes below table and Technical note II for further details

Future condition	Present condition	Number of assessments	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Future-unfavourable	Unfavourable declining	5	24
	Unfavourable no change	14	9
	Unfavourable unclassified		
	Total	19	33
	% of assessments	***22%***	***55%***
Future-favourable	Favourable maintained		20
	Favourable recovered		
	Unfavourable recovering	24	7
	Favourable unclassified	44	
	Total	68	27
	% of assessments	***78%***	***45%***

Note that the scenario presented above is based on the same information as used to construct the Table in section 4.1. It is based on the following premises:

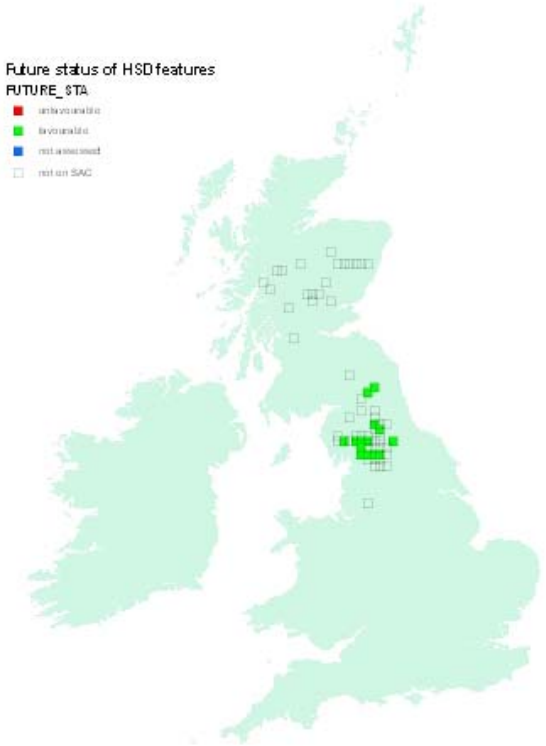
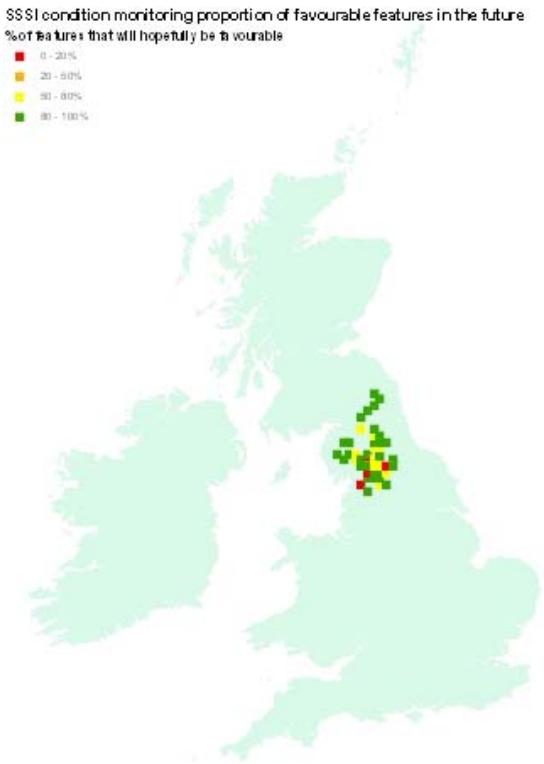
(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;

(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;

(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.

IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

Predicted Future Condition of H6520 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)

Map 5.2.1 SAC assessments	**Map 5.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs	**Map 5.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs
		
Key Red = future-unfavourable, i.e. the square contains one or more SACs where this habitat feature is present and has been predicted to be future-unfavourable Green = future-favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been predicted to be future-favourable Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type	Key* Green – 80 – 100% of assessed features on 10km square are favourable Yellow - 50 – 80% of assessed features on 10km square are favourable Orange - 20 – 50% of assessed features on 10km square are favourable Red - 0 – 20% of assessed features on 10km square are favourable *This is the same key as was used for JNCC CSM Report 2006	

5.3 Conclusions on future prospects (as regards range, area covered and specific structures and functions)

Conclusion[2.6.iv]: Unfavourable – Inadequate

The EC Guidance states that where habitat prospects are intermediate between "good with no significant impacts from threats expected and long-term viability assured" and "bad with severe impacts from threats expected and long-term viability not assured", the judgement should be Unfavourable – Inadequate. In the UK, this was generally taken to mean that range and/or area are stable or decreasing, and between 75-95% of the habitat area is likely to be in favourable condition in 12-15 years.

CSM data predict that favourable condition of statutory sites could be attained but no timescale is provided. However, 10-15 years would seem a reasonable estimate to achieve favourable condition for all SAC and c78% of SSSI. However, despite the imposition of favourable management regimes, many meadows are still exhibiting a decline in floristic richness (Critchley *et al.* 2004). The causes are unclear but may be due to later shut-up dates, more intensive spring grazing, excessive levels of farmyard manure and the impact of climate change on sub-montane character species. Further research on these topics is currently underway or planned.

The position for sites outside of statutory sites is more uncertain. Only a small proportion are currently favourable and it is predicted that to bring the remaining resource into favourable condition will take several decades. Careful targeting of agri-environment schemes will help to ensure that this resource is brought into favourable condition. The site–specific factors relating to agricultural management can be addressed using incentive and regulatory measures as appropriate. Air pollution, particularly nitrogen deposition, and climate change are more insidious and can only be tackled by national policy changes.

Re-creation targets for this habitat site have been set in the UK BAP (UK Biodiversity Group (1998)) but progress to date has been slow. Re-creating stands that resemble existing semi-natural examples will probably take several decades.

On balance the conservation status has been assessed as Unfavourable – Inadequate, but the mixed evidence, especially with regard to site condition, does not rule out a decline.

6. Overall conclusions and judgements on conservation status [2.6]

Conclusion[2.6.iv]: Unfavourable – Bad but improving

On the basis of the Area and Structure and Function assessments, the overall conclusion for this habitat feature is Unfavourable – Bad.

Table 6.1 Summary of overall conclusions and judgements

Parameter	Judgement	Grounds for Judgement	Confidence in judgement*
Range	Favourable	Current range is stable and not less than the favourable reference range.	3
Area covered by habitat type within range	Unfavourable – Bad	The recorded area has been assessed as unviable, on account of its small extent and high degree of fragmentation.	2
Specific structures and functions (including typical species)	Unfavourable – Bad but improving	More than 25% of the habitat area is considered to be unfavourable as regards its specific structures and functions. Significantly more of the resource in unfavourable condition is improving than declining.	1
Future prospects (as regards range, area covered and specific structures and functions)	Unfavourable – Inadequate	Habitat prospects considered to be intermediate between "good with no significant impacts from threats expected and long-term viability assured" and "bad with severe impacts from threats expected and long-term viability not assured.	3
Overall assessment of conservation status	Unfavourable – Bad but improving	At least one Unfavourable – Bad.	1

Key to confidence in judgement: 1 = High; 2 = Medium; 3 = Low

7. Annexed material **(including information sources used 2.2)**

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Map data sources

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7.2 Further information on CSM data as presented in Sections 4.2 and 5.2

Table 7.2.1 Summary of the coverage of the data shown in Tables 4.2.1 and 5.2.1

Data	Value
Number of SACs supporting feature (a)	2
Number of SACs with CSM assessments (b)	2
% of SACs assessed (b/a)	100
Extent of feature in the UK – hectares (c)	1,100
Extent of feature on SACs – hectares (d)	724
Extent of features assessed – hectares (e)	724
% of total UK hectarage on SACs (d/c)	66
% of SAC total hectarage that has been assessed (e/d)	100
% of total UK hectarage that has been assessed (e/c)	66

Table 7.2.2 Summary of grid square map data shown in Maps 4.2.1-3 and 5.2.1-3

Status	Number of squares	Proportion of all squares
Current – Unfavourable (red)	14	22%
Current – Favourable (green)		%
On SAC but not assessed (blue)		%
Not on SAC (transparent)	50	78%
Total Number of 10km squares (any colour)	64	
Future – Unfavourable (red)		%
Future – Favourable (green)	14	22%