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

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Conservation status assessment for the habitat:

H6520 - Mountain hay meadows

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this habitat, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the habitat are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level and/or UK offshore-level reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; and/or (ii) completion of the field was not obligatory.
- The UK-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Habitat code	**6520 - Mountain hay meadows**

2. Maps

2.1 Year or period	1986-2018
2.3 Distribution map	Yes
2.3 Distribution map Method used	Complete survey or a statistically robust estimate
2.4 Additional maps	No

BIOGEOGRAPHICAL LEVEL

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	**Atlantic (ATL)**
3.2 Sources of information	England Rodwell, J.S., Morgan, V., Jefferson, R.G. and Moss, D., 2007. The European Context of British Lowland Grasslands. JNCC Report 394. Joint Nature Conservation Committee, Peterborough. Natural England and RSPB 2014 Climate Change Adaptation Manual: Evidence to support nature conservation in a changing climate. Natural England Commissioned Research Report no. 546. Janssen, J.A.M. and 48 others 2016 European Red List of habitats. Part 2. Terrestrial and freshwater habitats. European Union, Luxembourg. JNCC reporting data for H6520 submittted to EU for the 2013 Article 17 reporting round. Bullock, J.M., Jefferson, R.G., Blackstock, T.H., Pakeman, R. J., Emmett, B. A., Pywell, R. J., Grime, J. P. and Silvertown, J. W. 2011. Chapter 6: Semi-natural grasslands. In: The UK National Ecosystem Assessment Technical Report. UK National Ecosystem Assessment, UNEP-WCMC, Cambridge. Hewins, E.J., Pinches, C., Arnold, J., Lush, M., Robertson, H. and Escott, S. 2005. The condition of lowland BAP priority grasslands: results from a sample survey of non-statutory stands in England. English Nature Research Reports 636. English Nature, Peterborough. Jefferson, R.G. (2005) The conservation of upland hay meadows in Britain: a review. Grass and Forage Science, Volume 60, Issue 4, 322 -331 Pinches, C.E., Gowing, D. Stevens, C., Fagan, K & Brotherton, P. (2013) Upland Hay Meadows: What management regimes maintain the diversity of meadow flora and populations of breeding birds. Natural England Evidence Review 005. Natural England Commissioned Report 138 (2014) Long term effectiveness of Environmental Stewardship in conserving upland hay meadows in the Pennine Dales. Natural England. Natural England Commissioned Report 139 (2014) Upper Teesdale: changes in upland hay meadow vegetation over the past twenty to thirty years - results presented from botanical surveys. Natural England. Natural England CMSi condition data Wheeler, B. & Wilson, P. (2014) The effectiveness of Higher Level Stewardship for maintaining and restoring species-rich grasslands:a resurvey of a sample of grasslands under HLS options HK6 and HK7. LM0443. Report to Defra.

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Scotland
basic data sources used for 2007, 2013 and 2018 reporting : SNH Lowland Grassland Database, containing data collected during NCC and SNH grassland surveys, 1986 - 2000, MacKintosh, J. 2005. Distribution and Extent of Unimproved Lowland Grassland National Vegetation Classification (NVC) Types in Scotland. Bot. J. Scotl. 56(2) 119-146, Dadds, N.J. and Averis, A.B.G. In press. Review of the extent and condiition of lowland grassland Priority BAP habitats and Annex 1 habitats. Scottish Natural Heritage Commissioned Report. SCM data. 2019 areas based on HABMoS measurements with some additional expert interpretation

4. Range

4.1 Surface area (in km²)	20954.52	
4.2 Short-term trend Period	2007-2018	
4.3 Short-term trend Direction	Stable (0)	
4.4 Short-term trend Magnitude	a) Minimum	b) Maximum
4.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
4.6 Long-term trend Period		
4.7 Long-term trend Direction		
4.8 Long-term trend Magnitude	a) Minimum	b) Maximum
4.9 Long-term trend Method used		
4.10 Favourable reference range	a) Area (km²)	20954.52
	b) Operator	
	c) Unknown	No
	d) Method	The FRR is approximately equal to the current range area. The FRR value has been updated to take account of improved information on the habitat range. The approach taken to set the FRR is explained in the 2007 and 2013 UK Article 17 habitat reports (see http://jncc.defra.gov.uk/page-4064 and http://jncc.defra.gov.uk/page-6563).
4.11 Change and reason for change in surface area of range	Improved knowledge/more accurate data Use of different method	
	The change is mainly due to:	Improved knowledge/more accurate data
4.12 Additional information		

5. Area covered by habitat

5.1 Year or period	1983-2018			
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value	9.26
5.3 Type of estimate	Best estimate			
5.4 Surface area Method used	Complete survey or a statistically robust estimate			
5.5 Short-term trend Period	2007-2018			
5.6 Short-term trend Direction	Decreasing (-)			
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval	
5.8 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data			
5.9 Long-term trend Period				

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5.10 Long-term trend Direction			
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.12 Long-term trend Method used			
5.13 Favourable reference area	a) Area (km²)		
	b) Operator	Much more than (>>)	
	c) Unknown	No	
	d) Method	The FRA is more than 10% above the current area. An FRA operator has been used as it is not clear what the exact area of the FRA is. The approach taken to set the FRA is explained in the 2007 and 2013 UK Article 17 habitat reports (see http://jncc.defra.gov.uk/page-4064 and http://jncc.defra.gov.uk/page-6563).	
5.14 Change and reason for change in surface area of range	Improved knowledge/more accurate data Use of different method		
	The change is mainly due to:	Improved knowledge/more accurate data	
5.15 Additional information	The short term trend direction is considered to be decreasing by more than 1%/yr, based on the rates of decline identified in England and Scotland.		

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum	1.68	Maximum	1.68
	b) Area in not-good condition (km²)	Minimum	1.03	Maximum	1.03
	c) Area where condition is not known (km²)	Minimum	6.55	Maximum	6.55
6.2 Condition of habitat Method used	Based mainly on extrapolation from a limited amount of data				
6.3 Short-term trend of habitat area in good condition Period	2007-2018				
6.4 Short-term trend of habitat area in good condition Direction	Decreasing (-)				
6.5 Short-term trend of habitat area in good condition Method used	Complete survey or a statistically robust estimate				
6.6 Typical species	Has the list of typical species changed in comparison to the previous reporting period?	No			
6.7 Typical species Method used					
6.8 Additional information					

7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	M
Mowing or cutting of grasslands (A08)	H
Intensive grazing or overgrazing by livestock (A09)	H
Reseeding of grasslands and other semi-natural habitats (A13)	M

Application of natural fertilisers on agricultural land (A19)	H
Application of synthetic (mineral) fertilisers on agricultural land (A20)	M
Use of plant protection chemicals in agriculture (A21)	M
Mixed source air pollution, air-borne pollutants (J03)	H
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	H
Increases or changes in precipitation due to climate change (N03)	M

Threat	Ranking
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	M
Mowing or cutting of grasslands (A08)	H
Intensive grazing or overgrazing by livestock (A09)	H
Reseeding of grasslands and other semi-natural habitats (A13)	M
Application of natural fertilisers on agricultural land (A19)	H
Application of synthetic (mineral) fertilisers on agricultural land (A20)	M
Use of plant protection chemicals in agriculture (A21)	M
Mixed source air pollution, air-borne pollutants (J03)	H
Temperature changes (e.g. rise of temperature & extremes) due to climate change (N01)	H
Increases or changes in precipitation due to climate change (N03)	M

7.2 Sources of information	
7.3 Additional information	J03: Mixed source air pollution, air-borne pollutants is ranked as a High ranked pressure and threat, due to the nutrient N critical load for the habitat being exceeded across >25% of the habitat area

8. Conservation measures

8.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken		Maintain the current range, population and/or habitat for the species
8.3 Location of the measures taken		Both inside and outside Natura 2000
8.4 Response to the measures		Medium-term results (within the next two reporting periods, 2019-2030)
8.5 List of main conservation measures		

Recreate Annex I agricultural habitats (CA07)
Manage the use of natural fertilisers and chemicals in agricultural (plant and animal) production (CA09)
Manage drainage and irrigation operations and infrastructures in agriculture (CA15)
Adopt climate change mitigation measures (CN01)

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Implement climate change adaptation measures (CN02)

Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land (CA01)

Maintain existing extensive agricultural practices and agricultural landscape features (CA03)

Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures (CA04)

Adapt mowing, grazing and other equivalent agricultural activities (CA05)

8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters

a) Range: Unknown
b) Area: Bad
c) Structure and functions: Bad

9.2 Additional information

Future trend of Range is Unknown; Future trend of Area is Negative - decreasing <=1% (one percent or less) per year on average; and Future trend of Structure and functions is Very negative - important deterioration.
The Future prospects for Structure and functions takes into account that at least 25% of the habitat area is expected to be in unfavourable (not good) condition in c.2030 due to nutrient N critical load exceedance, unless measures are taken to reduce N deposition impacts.

10. Conclusions

10.1. Range	Favourable (FV)
10.2. Area	Unfavourable - Bad (U2)
10.3. Specific structure and functions (incl. typical species)	Unfavourable - Bad (U2)
10.4. Future prospects	Unfavourable - Bad (U2)
10.5 Overall assessment of Conservation Status	Unfavourable - Bad (U2)
10.6 Overall trend in Conservation Status	Deteriorating (-)

10.7 Change and reasons for change in conservation status and conservation status trend

a) Overall assessment of conservation status

No change

The change is mainly due to:

b) Overall trend in conservation status

No change

The change is mainly due to:

10.8 Additional information

Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range.
Conclusion on Area covered by habitat reached because: (i) the short-term trend direction in Area is decreasing by more than 1% per year; and (ii) the current Area is more than 10% below the Favourable Reference Area.
Conclusion on Structure and functions reached because habitat condition data indicates that more than 25% of the habitat is in unfavourable (not good) condition.

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Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Area covered by habitat are bad; and (iii) the Future prospects for Structure and functions are bad.
Overall assessment of Conservation Status is Unfavourable-bad because one or more of the conclusions is Unfavourable-bad.
Overall trend in Conservation Status is based on the combination of the short-term trends for Range - stable, Area covered by habitat - decreasing, and Structure and functions - decreasing.

11. Natura 2000 (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/ marine region)	a) Minimum b) Maximum c) Best single value 5.15
11.2 Type of estimate	Best estimate
11.3 Surface area of the habitat type inside the network Method used	Complete survey or a statistically robust estimate
11.4 Short-term trend of habitat area in good condition within the network Direction	Decreasing (-)
11.5 Short-term trend of habitat area in good condition within network Method used	Based mainly on extrapolation from a limited amount of data
11.6 Additional information	

12. Complementary information

12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Distribution Map

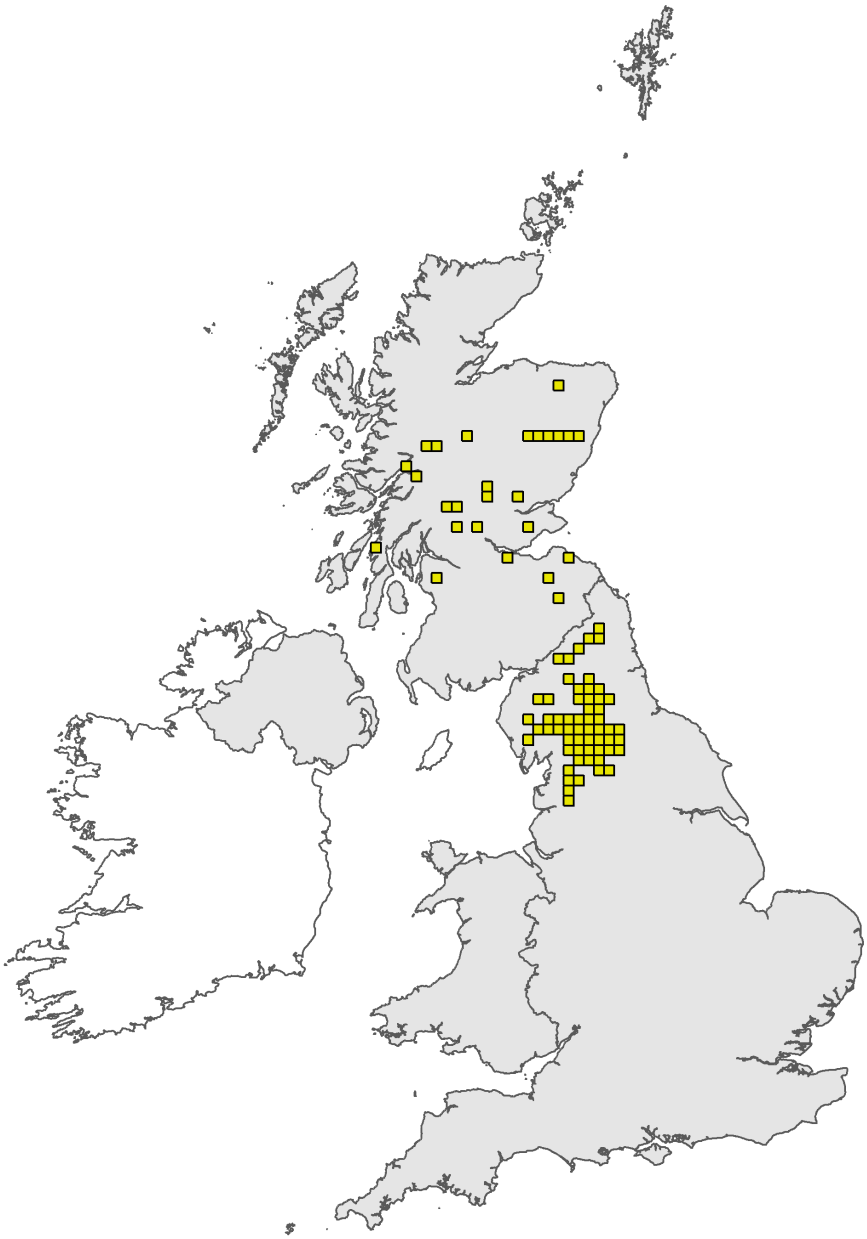

Figure 1: UK distribution map for H6520 - Mountain hay meadows. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available habitat records which are considered to be representative of the distribution within the current reporting period. For further details see the 2019 Article17 UK Approach document.

Range Map

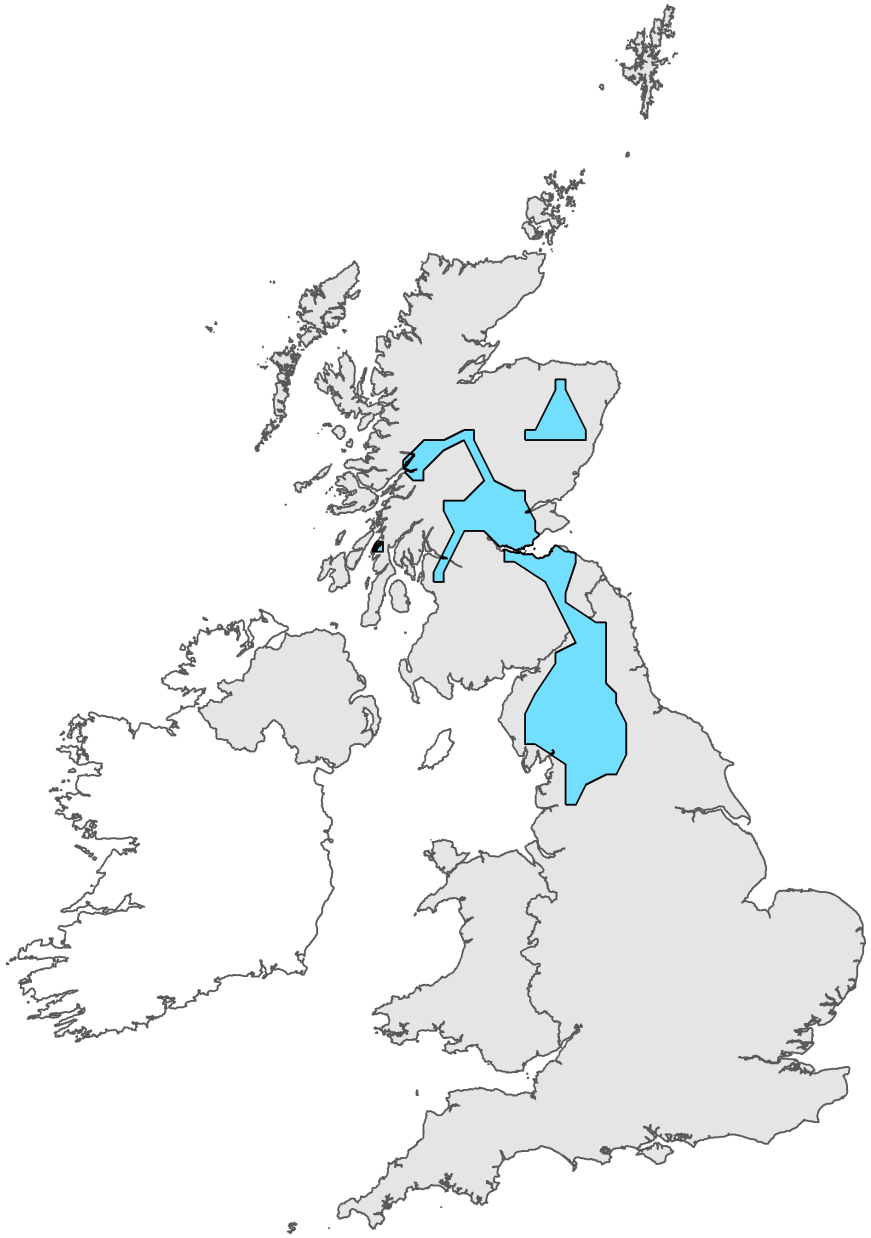

Figure 2: UK range map for H6520 - Mountain hay meadows. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by applying a bespoke range mapping tool for Article 17 reporting (produced by JNCC) to the 10km grid square distribution map presented in Figure 1. The alpha value for this habitat was 25km. For further details see the 2019 Article 17 UK Approach document.