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:

H6510 - Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*)

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	**6510 - Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)**

2. Maps

2.1 Year or period	2009-2018
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 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. Natural England CMSi condition data 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. Englsih nature Research Reoprt No 636. English nature, Peterborough Jefferson, R.G. and Pinches, C.E.2009 The conservation of flood-plain meadows in Great Britain: an overview. Fritillary, 5, 4-17. Gowing, D.J.G., Tallowin, J.R., Dise, N.B.and Lodge, R. 2002 A review of the ecology, hydrology and nutrient dynamics of floodplain meadows in England English Nature Research Report 446. English Nature, Peterborough Rothero, E., Lake, S. & Gowing, D.J.G. 2016 Floodplain Meadows - beauty and utility: a technical handbook. Floodplain Meadows Partnership, Milton Keynes. 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. Jefferson, R.G.1997. Distribution, status and conservation of Alopecurus pratensis - Sanguisorba officinalis flood-plain meadows in England. English Nature Research Reports No. 249. English Nature, Peterborough. Stevens, C.J., Smart, S.M., Henrys, P.A., Maskell, L.C., Walker, K.J., Preston, C.D., Crowe, A., Rowe, E.C., Gowing, D.J. & Emmett, B.A. 2011. Collation of evidence of nitrogen impacts on vegetation in relation to UK biodiversity objectives. JNCC Report, No.447. JNCC reporting data for H6410 submiittted to EU for the 2013 Article 17 reporting round.

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Wheeler, B. R. & Wilson, P.J. (2018) Interim Progress Report to Natural England on Year 1 of 2: the 2017 field survey results. Re-survey of a sample of priority grasslands outside of SSSIs to determine impact and effectiveness of Environmental Stewardship agreements in delivering outcomes.
Wales
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Carey, P.D. 2013. Impacts of Climate Change on Terrestrial Habitats and Vegetation Communities of the UK in the 21st Century. Terrestrial Biodiversity climate change report card technical paper. UK National Ecosystem Assessment, UNEPWCMC, Cambridge.
CCW. 2005. Supplementary CCW guidance on performance indicators for monitoring designated sites: lowland grasslands. CCW HQ internal report.
Guest, D. 2012 (a). Assessing pressures and threats for article 17 reporting based on information in CCW's Actions Database. CCW HQ internal document.
Guest, D. 2012 (b). Assessing N deposition as a pressure for Article 17 reporting on habitats. CCW HQ internal document.
JNCC. 2004. Common standards monitoring guidance for lowland grasslands.JNCC. Available from: http://jncc.defra.gov.uk/PDF/CSM_lowland_grassland.pdf [Accessed 22/05/2018]
Mitchell, R.J., Morecroft, M.D., Acreman, M. et al. 2007. England Biodiversity Strategy - Towards adaptation to climate change. Final Report to Defra for contract CR0327.
Natural England and RSPB, 2014. Climate Change Adaptation Manual.
NRW. 2015. Natura 2000 Thematic Action Plan. Air pollution: Nitrogen deposition. LIFE Natura 2000 Programme for Wales.
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Rodwell, J.S. (ed.). 1992. British plant communities. Volume 3. Grasslands and montane communities. Cambridge University Press, Cambridge.
Rothero, E., Lake, S. and Gowing, D. (eds). 2016. Floodplain Meadows - Beauty and Utility. A Technical Handbook. Milton Keynes, Floodplain Meadows Partnership.
Stevens, J. & Smith, S. 2012. H6510 Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis): Wales GIS inventory. CCW HQ dataset.
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4. Range

4.1 Surface area (in km²)	43420.37	
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

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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)	43420.37
	b) Operator	
	c) Unknown	No
	d) Method	The FRR is approximately equal to the current range area. 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	No change	
	The change is mainly due to:	
4.12 Additional information		

5. Area covered by habitat

5.1 Year or period	2004-2018			
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value	15.897
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				
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	More than (>)		
	c) Unknown	No		
	d) Method	The FRA is not 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	No change			
	The change is mainly due to:			
5.15 Additional information	The short term trend direction is considered to be decreasing by 1%/yr or less,			

based on the rate of decline identified in England.

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km^2)	Minimum	8.79	Maximum	8.79
	b) Area in not-good condition (km^2)	Minimum	4.09	Maximum	4.09
	c) Area where condition is not known (km^2)	Minimum	2.517	Maximum	3.017
6.2 Condition of habitat Method used	Complete survey or a statistically robust estimate				
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	Stable (0)				
6.5 Short-term trend of habitat area in good condition Method used	Based mainly on extrapolation from a limited amount of data				
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
Conversion into agricultural land (excluding drainage and burning) (A01)	M
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	H
Extensive grazing or undergrazing by livestock (A10)	M
Application of synthetic (mineral) fertilisers on agricultural land (A20)	M
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell) (C01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Droughts and decreases in precipitation due to climate change (N02)	M
Increases or changes in precipitation due to climate change (N03)	H

Threat	Ranking
Conversion into agricultural land (excluding drainage and burning) (A01)	M

Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	H
Extensive grazing or undergrazing by livestock (A10)	M
Application of synthetic (mineral) fertilisers on agricultural land (A20)	M
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell) (C01)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Droughts and decreases in precipitation due to climate change (N02)	M
Increases or changes in precipitation due to climate change (N03)	H

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

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)
Adapt mowing, grazing and other equivalent agricultural activities (CA05)
Manage the use of natural fertilisers and chemicals in agricultural (plant and animal) production (CA09)
Reduce diffuse pollution to surface or ground waters from agricultural activities (CA11)
Manage drainage and irrigation operations and infrastructures in agriculture (CA15)
Adapt/manage extraction of non-energy resources (CC01)
Reduce impact of mixed source pollution (CJ01)
Adopt climate change mitigation measures (CN01)
Implement climate change adaptation measures (CN02)

8.6 Additional information

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9. Future prospects

9.1 Future prospects of parameters	a) Range	Good
	b) Area	Poor
	c) Structure and functions	Bad
9.2 Additional information	Future trend of Range is Overall stable; Future trend of Area is Negative - decreasing <=1% (one percent or less) per year on average; and Future trend of Structure and functions is Negative - slight/moderate 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 - Inadequate (U1)
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 Genuine change Use of different method The change is mainly due to: Genuine change
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 1% per year or less; and (ii) the current Area is not 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. Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Area covered by habitat are poor; 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 - stable. The Overall trend in Conservation Status has changed between 2013 and 2019

because the Area trend has changed from stable to decreasing, the Structure and functions trend has changed from increasing to stable, and because of the removal of the Future prospects trend from the 2019 method used to assess Overall trend.

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 7.58
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	Stable (0)
11.5 Short-term trend of habitat area in good condition within network Method used	Complete survey or a statistically robust estimate
11.6 Additional information	

12. Complementary information

12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Distribution Map

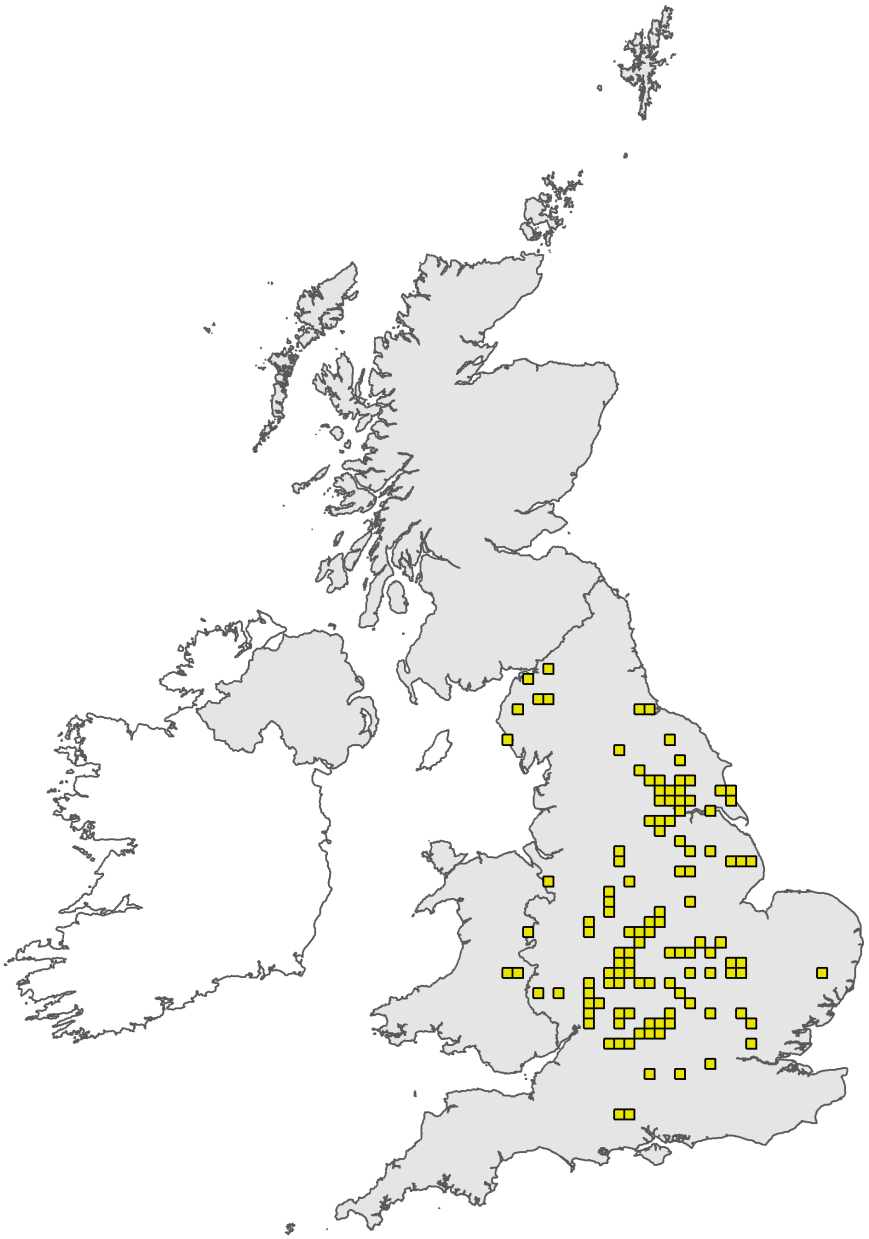

Figure 1: UK distribution map for H6510 - Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil 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

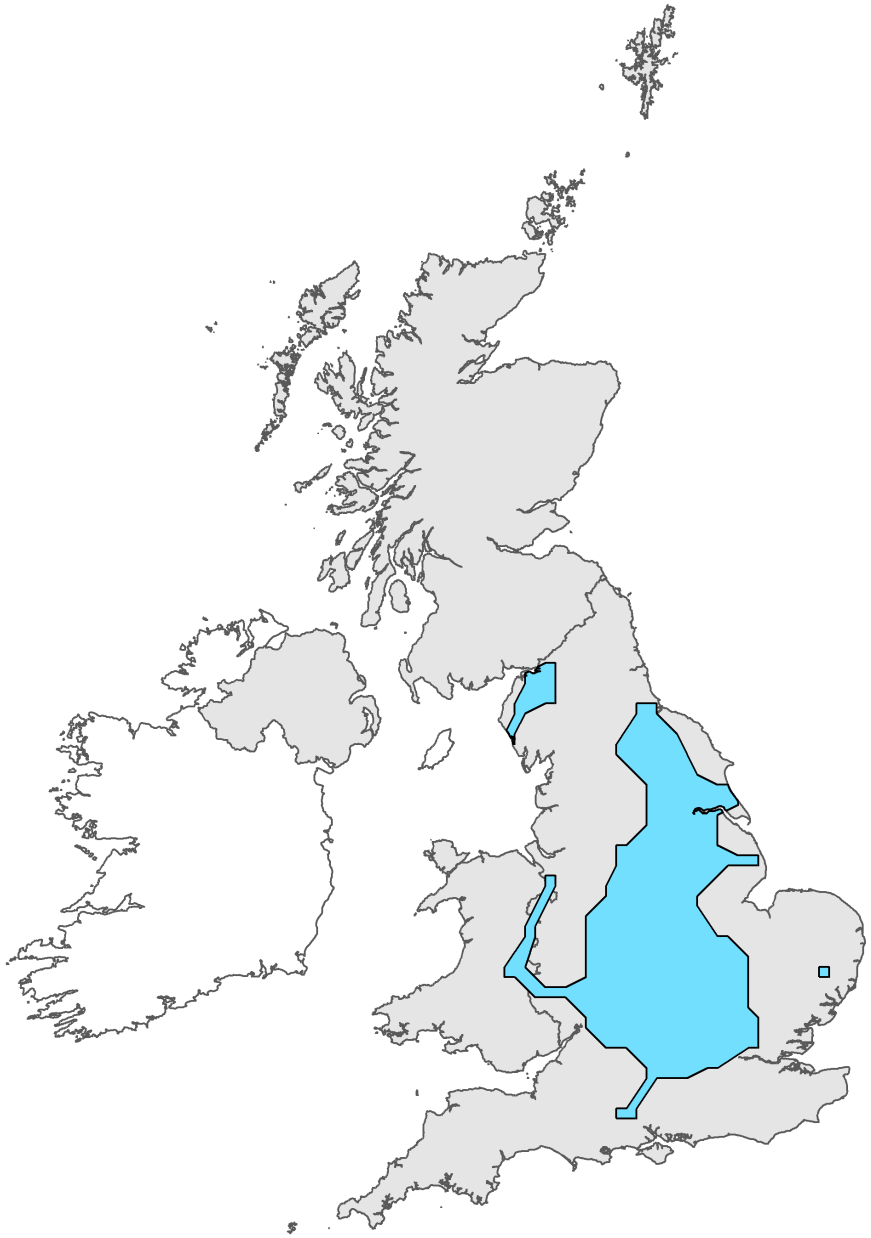

Figure 2: UK range map for H6510 - Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas 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.