# 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

Supporting documentation for the
conservation status assessment for the habitat:

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

ENGLAND

## IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to 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.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this habitat is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was only relevant at UK-level (sections 10 Future prospects and 11 Conclusions).
- For technical reasons, the country-level future trends for Range, Area covered by habitat and Structure and functions are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-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 (England information only)** |
| 1.2 Habitat code | **6510 - Lowland hay meadows (Alopecurus pratensis, Sanguisorba officinalis)** |

### 2. Maps

| | |
|---|---|
| 2.1 Year or period | 2013-2018 |
| 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 | 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.<br>Natural England CMSi condition data<br>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<br>Jefferson, R.G. and Pinches, C.E.2009 The conservation of flood-plain meadows in Great Britain: an overview. Fritillary, 5, 4-17.<br>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<br>Rothero, E., Lake, S. & Gowing, D.J.G. 2016 Floodplain Meadows - beauty and utility: a technical handbook. Floodplain Meadows Partnership, Milton Keynes.<br>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.<br>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.<br>Janssen, J.A.M. and 48 others 2016 European Red List of habitats. Part 2. Terrestrial and freshwater habitats. European Union, Luxembourg.<br>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.<br>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.<br>JNCC reporting data for H6410 submiittted to EU for the 2013 Article 17 reporting round.<br>Wheeler, B. & Wilson, P. (2014) The effectiveness of Higher Level Stewardship |

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

for maintaining and restoring species-rich grasslands:a resurvey of a sample of grasslands under HLS options HK6 and HK7. LM0443. Report to Defra.
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.

## 4. Range

| | | | |
|---|---|---|---|
| 4.1 Surface area (in km²) | | | |
| 4.2 Short-term trend Period | | | |
| 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 | | | |
| 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)<br>b) Operator<br>c) Unknown No<br>d) Method | | |
| 4.11 Change and reason for change in surface area of range | No change<br>The change is mainly due to: | | |
| 4.12 Additional information | | | |

## 5. Area covered by habitat

| | | | |
|---|---|---|---|
| 5.1 Year or period | 2013-2018 | | |
| 5.2 Surface area (in km²) | a) Minimum 11 | b) Maximum 15.79 | c) Best single value 15.79 |
| 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)<br>b) Operator<br>c) Unknown No<br>d) Method | | |
| 5.14 Change and reason for change in surface area of range | No change<br>The change is mainly due to: | | |

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5.15 Additional information

## 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 2.41 | Maximum 2.91 |
| 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 | The SSSI condition data has been used to complete sections 6.1a and 6.1b for areas of the SSSI H6510 habitat in good or not good condition. The area of the SSSI resource where condition is unknown has been added to the estimated total of the habitat outside of SSSIs (50 ha) to produce the total in 6.1c. The extent and conditon of a total of 65 lowland meadows outside the protected site network were surveyed in 2017 as part of a national sample survey (Wheeler & Wilson, 2018). These sites were first surveyed in 2002. The study found that meadows within agri-environment scheme were in better condition than those outside in both 2002/3 and in 2017 and that there had been improvements in condition as reflected by increases in the frequency and number of positive indicator species. Furthermore a significant decline in condition was observed in stands that had been in an agri-environment scheme in 2002/3 but had subsequently left by 2017. | | |

## 7. Main pressures and threats

7.1 Characterisation of pressures/threats

| Pressure | Ranking |
|---|---|
| Conversion into agricultural land (excluding drainage and burning) (A01) | H |
| Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06) | H |
| Extensive grazing or undergrazing by livestock (A10) | M |
| Agricultural activities generating diffuse pollution to surface or ground waters (A26) | H |
| Drainage for use as agricultural land (A31) | M |
| Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01) | H |
| Mixed source air pollution, air-borne pollutants (J03) | M |

| | |
|---|---|
| Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell) (C01) | M |
| Droughts and decreases in precipitation due to climate change (N02) | M |
| Increases or changes in precipitation due to climate change (N03) | H |
| Application of synthetic (mineral) fertilisers on agricultural land (A20) | M |

| 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 |
| Agricultural activities generating diffuse pollution to surface or ground waters (A26) | H |
| Drainage for use as agricultural land (A31) | M |
| Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01) | H |
| Mixed source air pollution, air-borne pollutants (J03) | M |
| Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell) (C01) | M |
| Droughts and decreases in precipitation due to climate change (N02) | M |
| Increases or changes in precipitation due to climate change (N03) | H |
| Application of synthetic (mineral) fertilisers on agricultural land (A20) | M |

7.2 Sources of information

7.3 Additional information

## 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) |

| | |
|---|---|
| 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) | |
| Manage the use of natural fertilisers and chemicals in agricultural (plant and animal) production (CA09) | |
| 8.6 Additional information | |

## 9. Future prospects

| | |
|---|---|
| 9.1 Future prospects of parameters | a) Range<br>b) Area<br>c) Structure and functions |
| 9.2 Additional information | |

## 10. Conclusions

| | |
|---|---|
| 10.1. Range | |
| 10.2. Area | |
| 10.3. Specific structure and functions (incl. typical species) | |
| 10.4. Future prospects | |
| 10.5 Overall assessment of Conservation Status | |
| 10.6 Overall trend in Conservation Status | |
| 10.7 Change and reasons for change in conservation status and conservation status trend | a) Overall assessment of conservation status<br>No change<br>The change is mainly due to:<br>b) Overall trend in conservation status<br>No change<br>The change is mainly due to: |
| 10.8 Additional information | |

## 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<br>b) Maximum<br>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 |

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| | |
|---|---|
| 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

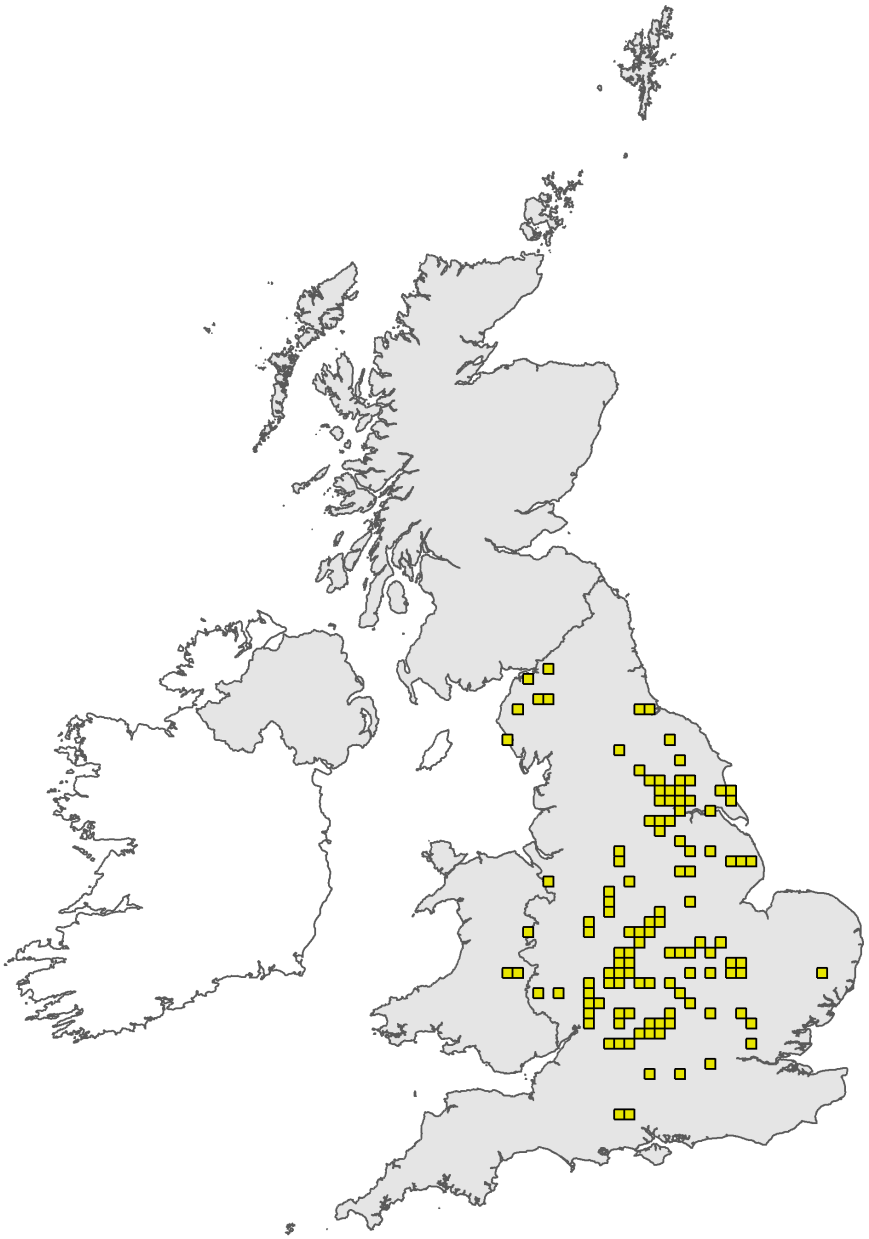

Figure 1: UK distribution map for H6510 - Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil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

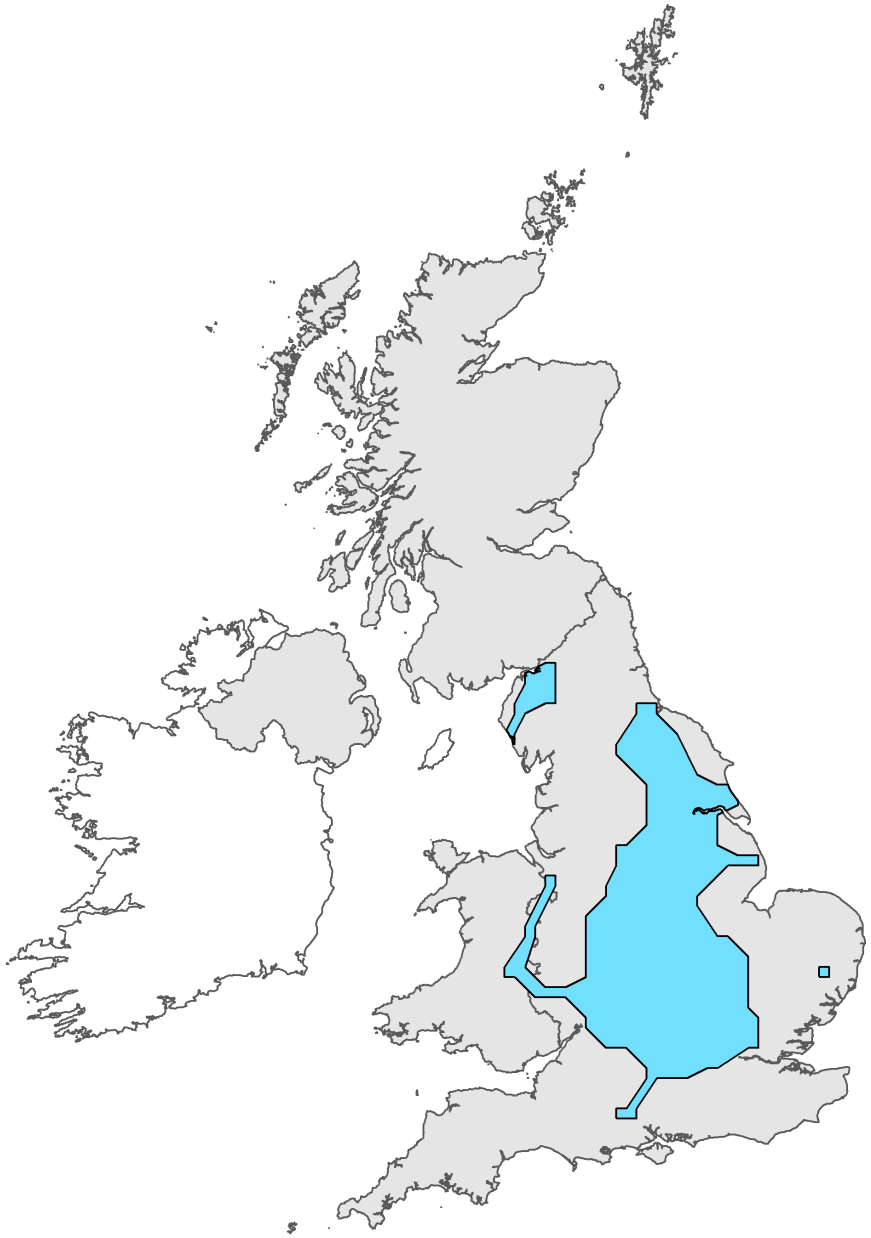

Figure 2: UK range map for H6510 - Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas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

# Explanatory Notes

**Habitat code: 6510 Region code: ATL**

| Field label | Note |
|---|---|
| 3.2 Sources of information | The data and information that underpin the assesments in sections 4-11 are drawn from a variety of sources including the sources listed in section 3.2 plus expert opinion and external intelligence. The data and assessments in section 6.1 -6.5 are drawn from data on statutory sites only (SSSIs including SACs) and are not deemed to be fully represenatative of the resource as a whole (i.e including resource outside of SSSIs). There is currently no recent data on the resource outside of statutory sites . An England-level sample survey of non-statutory sites including lowland meadows is currently in progress. The interim findings have been used to provide commentary on the likely state of the lowland meadow resource outside of protected areas (see section 6.8 on structure and function). The short-term trend in area is recorded as decreasing but at<1% a year (5.7d). This is based on expert judgement based on intelligence many gleaned from EIA cases and NE area team colleagues. Data on habitat area within N2K sites is taken from CMSi. In addition, the following sources have been used to populate the sections on range (4) and habitat area including trends (5), pressures and threats (7) and conservation measures (8): i) Published documents as listed in section 3.2 ii) Expert opinion and informal 'specialist intelligence' including that derived from casework iii) Data from the previous 2013 Article 17 reporting round iv) Wide scale and geographic and site-based survey and monitoring data as listed in section 3.2 |