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:

H7230 - Alkaline fens

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	**7230 - Alkaline fens**

2. Maps

2.1 Year or period	1962-2018
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 Tratt, R. & Eades, P. & (2013) Fen Surveys of the North York Moors: Fen Bog, Jugger Howe, Sand Dale, Troutsdale & Rosekirkdale. Report to Natural England; Leeds. Tratt, R., Eades, P. & (2013) Habitats Directive Annex 1 Fen Survey: Devon, Somerset and Shropshire. Report to Natural England: Telford. Tratt, R., Eades, P., O' Reilly, J. & Shaw, S.C. (2015). Survey of Base-rich Wetlands in Cumbria (Group 3). Report to Natural England: Telford. Tratt, R., Parnell, M., Eades, P. and Shaw, S.C. (2013). Development of Inventories for Annex 1 habitats 'Alkaline Fens' and 'Transition Mires & Quaking Bogs' in England. Report to Natural England, Telford. Shaw, S.C. & Tratt, R. (2015). Norfolk Valley Fens SAC. Review of current status, identification of remedies and investigations required. Volume 1. IPENS Technical Report, LIFE11NAT/UK/000384IPENS. Wheeler, B.D. & Shaw, S.C. (1992). Biological indicators of the dehydration and changes to East Anglian fens past and present. ENGLISH NATURE RESEARCH REPORTS No. 20 Diack, I.A. (2015) Natural England SSSI Notification Strategy: SSSI Notification Review and Guidance for Fens. Unpublished Report. Hajek, M, Jirousek, M., Navratilova, J., Horodyska, E., Peterka, T., Pleskova, Z.,Navratil, J., Hajkova, P.,& Hajek, T. (2015) Changes in the moss layer in Czech fens indicate early succession triggered by nutrient enrichment. Preslia 87: 279-301. Mainstone, C., Hall, R. & Diack, I. (2016). A narrative for conserving freshwater and wetland habitats in England. Natural England Research Reports No 064. Natural England (2015) Hydrological functioning theme plan. Restoring the hydrology of Natura 2000 terrestrial wetlands. Diack, I.A. (2017) FAVOURABLE CONSERVATION STATUS: ENGLAND CONTRIBUTION - H7230 ALKALINE FENS. Draft unpublished report. Scotland References within - http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7230_UK.pdf SNH SCM database, extract A2298772, 2017, processed and summarised in A2494335.

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

Alkaline fen (upland, excluding alpine flushes) feature type (JNCC, (2009), Common Standards Monitoring Guidance for Upland Habitats, Version July 2009 and previous versions) http://jncc.defra.gov.uk/page-2237
Wales
Acreman, M.C., Blake, J.R., Mountford, O., Stratford, C., Prudhomme, C., Kay, A., Bell, V., Gowing, D., Rothero, E., Thompson, J., Hughes, A., Barkwith, A. and van de Noort, R. (2013). Guidance on using the Wetland Toolkit for Climate Change. A contribution to the Wetland Vision Partnership. Centre for Ecology and Hydrology, Wallingford.
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Birch, K.S., Jones, P.S., Bosanquet, S.D.S, Reed, D.K & Turner, A.J. (in prep). Application of vegetation survey data for detailed planning and implementation of rich-fen restoration on Anglesey and Llyn, north-west Wales. In: Hanson, J., Jones, P.S. & Farr, G. (in prep.). The Anglesey & Llyn Fens LIFE Project: Proceedings of the Technical Workshop held in October 2013. Natural Resources Wales, Bangor.
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Howe, M.A. (in prep.). A Dossier of Qualifying Terrestrial and Freshwater Invertebrate Species and Assemblages on Welsh SSSI. Natural Resources Wales, Bangor.
JNCC (2015). Guidelines for the selection of biological SSSI's Part 2: Detailed guidelines for habitats and species groups, Chapter 7 Fens. jncc.defra.gov.uk/pdf/SSSIs_Chapter07.pdf - accessed 20 June 2018.
JNCC (2018). Nitrogen exceedance of Annex I habitats in SACs. Excel spreadsheet provided 29 May 2018.

Jones, P.S. (2018b). H7230_S6 Structure and functions, Excel s/s. Natural Resources Wales.
Jones, P.S. (2018a). Art 17 2012 H7230 Alkaline fens, Excel s/s. Natural Resources Wales. (Note - one tab of this s/s contains the original GIS table of Stevens [2012b], subsequent tabs contained the data added to the 2012 data for the 2018 reporting round).
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Data on aerial Nitrogen deposition taken from Air Pollution Information System website - http://www.apis.ac.uk/
NIEA. Internal Condition Assessment Reports (various sites and years).

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

NIEA. Fen Survey Of Counties Down and Armagh

4. Range

4.1 Surface area (in km²)	130218.01	
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)	130218.01
	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	
	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	1979-2018			
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value	28.287
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	Much more than (>>)		
	c) Unknown	No		
	d) Method	The FRA has been changed to more than 10% above the current area, partly because the habitat area has declined, but also		

because an increase of more than 10% is required before the area could be assessed as favourable. An FRA operator has been used as it is not clear what the exact area of the FRA is.

5.14 Change and reason for change in surface area of range	Improved knowledge/more accurate data 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 1%/yr or less, based on the rate of decline identified in England and Wales.

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km^2)	Minimum	5.32376	Maximum 5.94376
	b) Area in not-good condition (km^2)	Minimum	16.25373	Maximum 21.15373
	c) Area where condition is not known (km^2)	Minimum	4.035	Maximum 4.035
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	2004-2018			
6.4 Short-term trend of habitat area in good condition Direction	Increasing (+)			
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
Intensive grazing or overgrazing by livestock (A09)	M
Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	M
Abstraction of surface and ground water for resource extraction (C14)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Abstraction from groundwater, surface water or mixed water (K01)	M
Drainage (K02)	H

Threat	Ranking
Intensive grazing or overgrazing by livestock (A09)	M

Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	M
Abstraction of surface and ground water for resource extraction (C14)	M
Mixed source pollution to surface and ground waters (limnic and terrestrial) (J01)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Abstraction from groundwater, surface water or mixed water (K01)	M
Drainage (K02)	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

Restore the habitat of the species (related to '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

Adapt mowing, grazing and other equivalent agricultural activities (CA05)
Reduce diffuse pollution to surface or ground waters from agricultural activities (CA11)
Reduce/eliminate air pollution from agricultural activities (CA12)
Adapt/change forest management and exploitation practices (CB05)
Habitat restoration/creation from resources, exploitation areas or areas damaged due to installation of renewable energy infrastructure (CC07)
Manage water abstraction for public supply and for industrial and commercial use (CF11)
Restore habitats impacted by multi-purpose hydrological changes (CJ03)

8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters

a) Range Poor

b) Area Bad

c) Structure and functions Bad

9.2 Additional information

Future trend of Range is Negative - decreasing <=1% (one percent or less) per

year on average; 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 - 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	Stable (=)
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 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 poor; (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 - increasing. If negative future trends for Range, Area and Structure and functions are also taken into account, the Overall trend would be deteriorating. The Overall trend in Conservation Status has changed between 2013 and 2019 the Area trend has changed from stable to decreasing, the Structure and functions trend has changed from stable to increasing, and because of the removal of the Future prospects trend from the 2019 method used to assess Overall trend.

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

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 25.0655
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

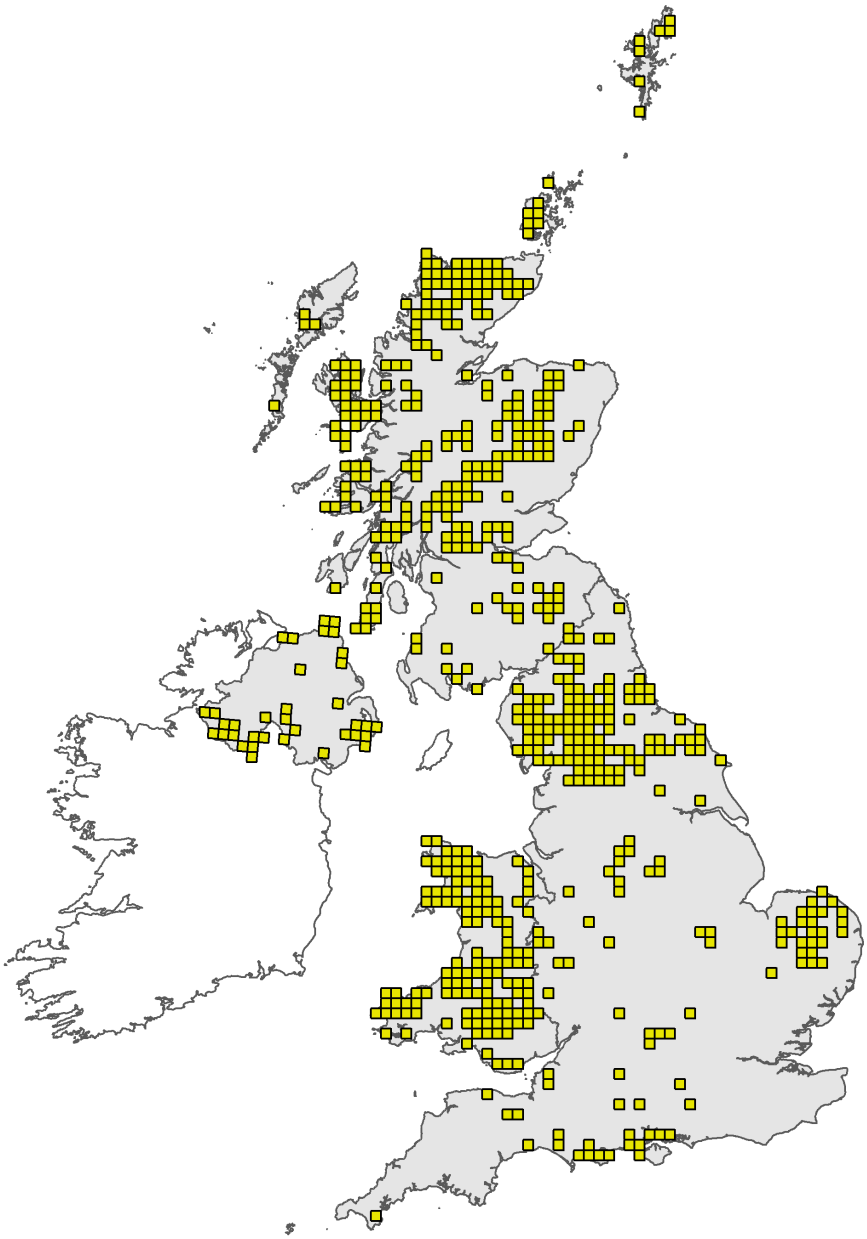

Figure 1: UK distribution map for H7230 - Alkaline fens. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

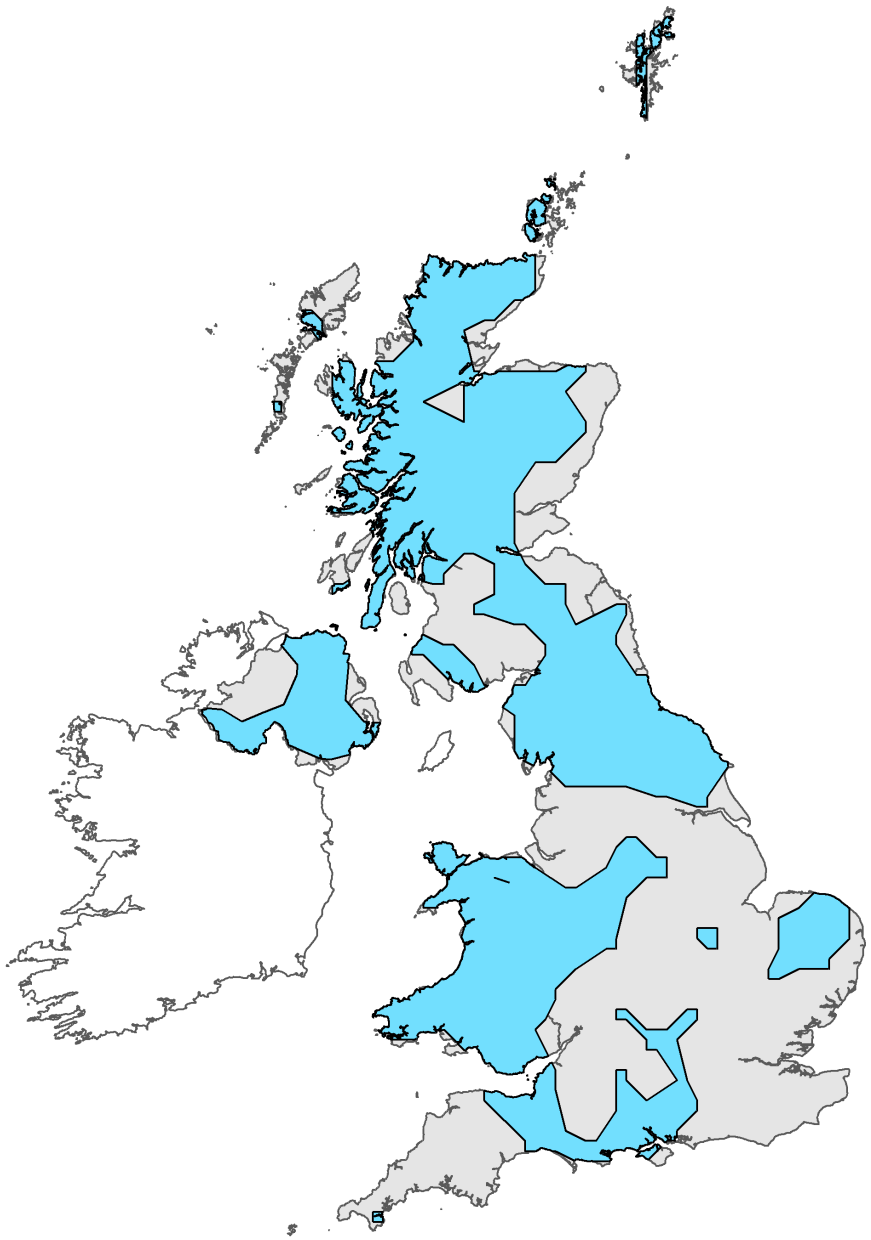

Figure 2: UK range map for H7230 - Alkaline fens. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.