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:

H7220 - Petrifying springs with tufa formation (*Cratoneurion*)

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.

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NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Habitat code	**7220 - Petrifying springs with tufa formation (Cratoneurion)**

2. Maps

2.1 Year or period	1976-2018
2.3 Distribution map	Yes
2.3 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
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 Farr, G & GRAham, J. 2017. Survey, characterisation and condition assessment of Palustriella dominated springs 'H7220 Petrifying springs with tufa formation (Cratoneurion)' in Gloucestershire, England. British Geological Survey, OR/17/020. 145pp. Farr, G & Graham, J. 2017. Devevlopment of inventory for H7220 Petrifying Springs with Tufa formation. Unpublished report to Natural England. Pilkington, S. 2014. Springs and Seepages of Wessex: Mendips Bryophyte Survey. Report to Buglife & Wessex Water. Diack, I.A. (2015) Natural England SSSI Notification Strategy: SSSI Notification Review and Guidance for Fens. Unpublished Report. Natural England (2015) Hydrological functioning theme plan. Restoring the hydrology of Natura 2000 terrestrial wetlands. 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. Scotland References within - http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/H7220_SCOTLAND.pdf SNH SCM database, extract A2298772, 2017, processed and summarised in A2493763. Spring-head, rill and flush (upland) 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 Blackstock, T.H., Howe, E.A., Stevens, J.P., Burrows, C.R. & Jones, P.S. (2010). Habitats of Wales: a comprehensive field survey, 1979-1997. University of Wales Press, Cardiff. 229 pp. Cheffings C. M. & Farrell L. (2005). The vascular plant red data list for Great Britain. JNCC. European Commission. (2013). Interpretation Manual of European Union Habitats EUR28. European Commission DG Environment Nature ENV B.3. Farr, G., Graham, J. & Stratford, C. (2014). Survey characterisation and condition assessment of Palustriella dominated springs H7220 Petrifying springs with tufa

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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.

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Jones, P.S., Stevens, J., Bosanquet, S.D.S., Turner, A.J., Birch, K.S. & Reed, D.K. (2012). Distribution, extent and status of Annex I wetland habitats in Wales: supporting material for the 2013 Article 17 assessment. Countryside Council for Wales, Bangor.

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Stevens, D.P., Smith, S.L.N., Blackstock, T.H., Bosanquet, S.D.S. & Stevens, J.P. (2010). Grassland of Wales: A survey of lowland species-rich grasslands, 1987 - 2004. University of Wales Press, Cardiff.

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Series No 09/07. Belfast.
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Rodwell, J.S. (1991). British Plant Communities. Volume 2, Mires and heaths. Cambridge: Cambridge University Press
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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).
NIEA. Fen Survey Of Counties Down and Armagh

4. Range

4.1 Surface area (in km²)	44384.19		
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)	44384.19	
	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	1990-2018		
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value 1.9366
5.3 Type of estimate	Best estimate		
5.4 Surface area Method used	Based mainly on expert opinion with very limited data		
5.5 Short-term trend Period	2007-2018		
5.6 Short-term trend Direction	Decreasing (-)		

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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 has been chnaged to not more than 10% above the current area becuase the habitat area has declined. 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		
	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.		

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum 0.11009	Maximum 0.3598
	b) Area in not-good condition (km²)	Minimum 0.7198	Maximum 1.03942
	c) Area where condition is not known (km²)	Minimum 0.34669	Maximum 1.23736
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	2001-2018		
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	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)	H

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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
Other modification of hydrological conditions for residential or recreational development (F31)	M
Mixed source air pollution, air-borne pollutants (J03)	H
Abstraction from groundwater, surface water or mixed water (K01)	H
Drainage (K02)	H

Threat	Ranking
Intensive grazing or overgrazing by livestock (A09)	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
Other modification of hydrological conditions for residential or recreational development (F31)	M
Mixed source air pollution, air-borne pollutants (J03)	H
Abstraction from groundwater, surface water or mixed water (K01)	H
Drainage (K02)	H

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	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		

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

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)

Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)

Manage water abstraction for public supply and for industrial and commercial use (CF11)

Management of hunting, recreational fishing and recreational or commercial harvesting or collection of plants (CG02)

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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 Overall stable	

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 Improved knowledge/more accurate data 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 - decreasing. The Overall trend in Conservation Status has changed between 2013 and 2019 because the Area trend has changed from unknown to decreasing, and the Structure and functions trend has changed from increasing to decreasing.

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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 1.327
11.2 Type of estimate	Best estimate
11.3 Surface area of the habitat type inside the network Method used	Based mainly on expert opinion with very limited data
11.4 Short-term trend of habitat area in good condition within the network Direction	Increasing (+)
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

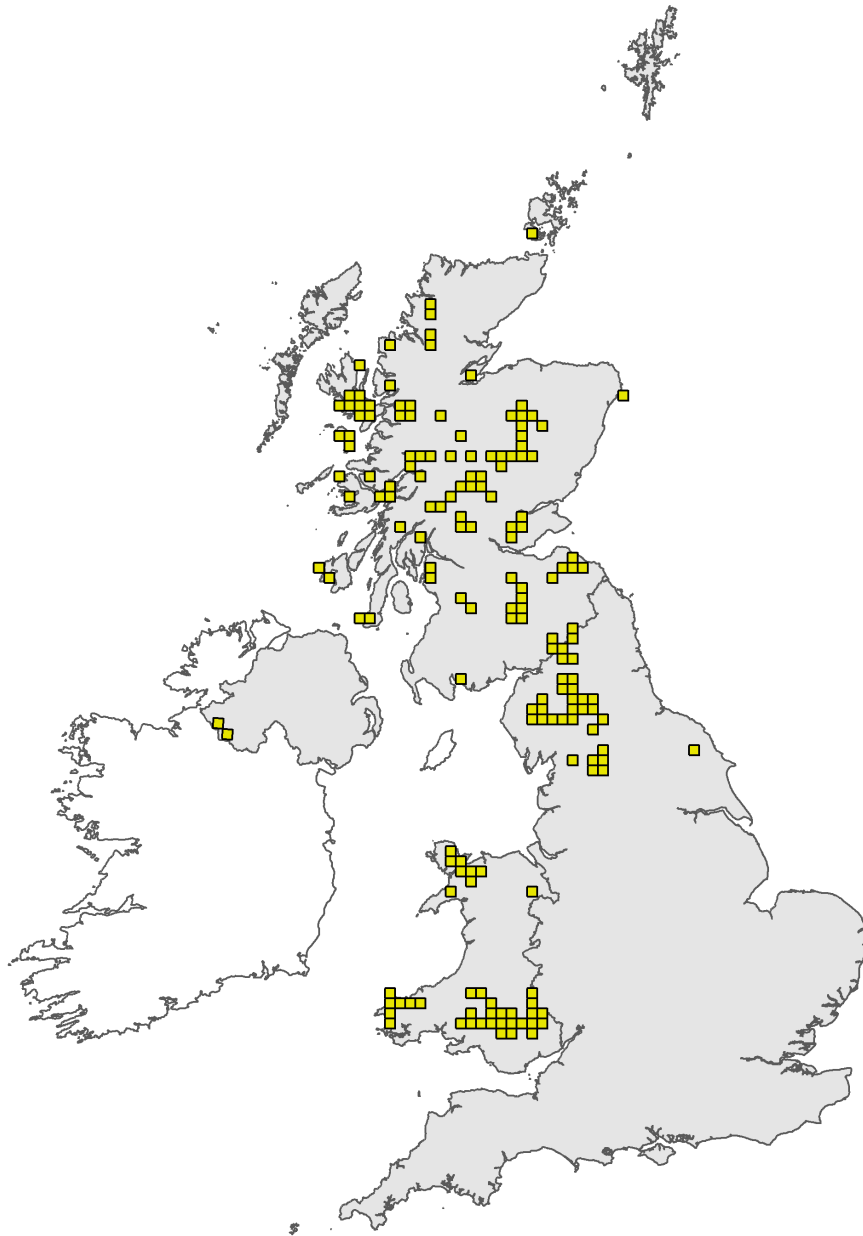|	
12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Distribution Map

Figure 1: UK distribution map for H7220 - Petrifying springs with tufa formation (*Cratoneurion*). 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.
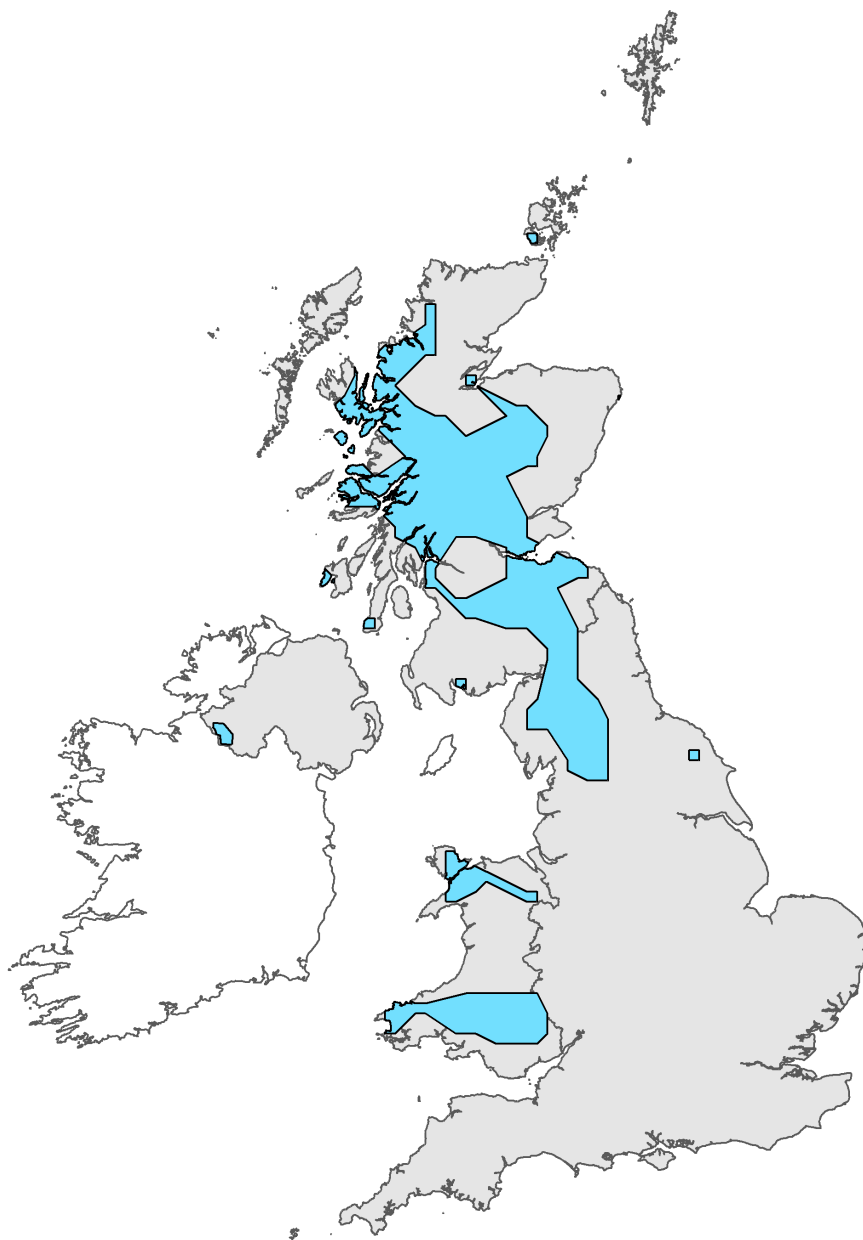
Range Map

Figure 2: UK range map for H7220 - Petrifying springs with tufa formation (*Cratoneurion*). 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.