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:

H7210 - Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

NORTHERN IRELAND

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 (Northern Ireland information only)**
1.2 Habitat code	**7210 - Calcareous fens with Cladium mariscus and species of the Caricion dav**

2. Maps

2.1 Year or period	2013-2018
2.3 Distribution map	Yes
2.3 Distribution map Method used	Based mainly on expert opinion with very limited 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	Cooper, A. & McCann, T. (2001). The Northern Ireland Countryside Survey 2000. Environment and Heritage Service, Belfast

Cooper, A., McCann, T. and Rogers, D. (2009) Northern Ireland Countryside Survey 2007: Broad Habitat Change 1998-2007. Northern Ireland Environment Agency. Northern Ireland Environment Agency Research and Development Series No. 09/06. Belfast. 58 pp.

McCann, T., Rogers, D. and Cooper, A. (2009) Northern Ireland Countryside Survey 2007: Field methods and technical manual. Northern Ireland Environment Agency. Northern Ireland Environment Agency, Research and Development Series No 09/07. Belfast.

Murray, R., McCann, T. and Cooper, A. (1992). A Land Classification and Landscape Ecological Study of Northern Ireland. Department of the Environment NI and Department of Environmental Studies, University of Ulster, Coleraine.

Rodwell, J.S. (1991). British Plant Communities. Volume 2, Mires and heaths. Cambridge: Cambridge University Press

NIEA. Internal Condition Assessment Reports (various sites and years).

Rodwell, J.S., Dring, J.C., Averis, A.B.V., Proctor, M.C.F., Malloch, A.J.C., Schaminee, J.H.J & Dargie, T.C.D. 1998. Review of Coverage of the National Vegetation Classification. Lancaster: Unit of Vegetation Science report to the Joint Nature Conservation Committee.

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)		
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		

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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)		
	b) Operator		
	c) Unknown	No	
	d) Method		
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	2013-2018		
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value 0.01
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	Stable (0)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Based mainly on expert opinion with very limited data		
5.9 Long-term trend Period			
5.10 Long-term trend Direction	Unknown (x)		
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		
	c) Unknown	No	
	d) Method		
5.14 Change and reason for change in surface area of range	No change		
	The change is mainly due to:		
5.15 Additional information			

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum 0	Maximum 0
	b) Area in not-good condition (km²)	Minimum 0.008	Maximum 0.008
	c) Area where condition is not known (km²)	Minimum 0.002	Maximum 0.002
6.2 Condition of habitat Method used	Based mainly on expert opinion with very limited data		
6.3 Short-term trend of habitat area in good condition Period	2013-2018		

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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 expert opinion with very limited 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
Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Agricultural activities generating air pollution (A27)	H
Active abstractions from groundwater, surface water or mixed water for agriculture (A30)	M
Droughts and decreases in precipitation due to climate change (N02)	H
Agricultural activities generating point source pollution to surface or ground waters (A25)	H
Drainage for use as agricultural land (A31)	M

Threat	Ranking
Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Agricultural activities generating air pollution (A27)	H
Active abstractions from groundwater, surface water or mixed water for agriculture (A30)	M
Droughts and decreases in precipitation due to climate change (N02)	H
Agricultural activities generating point source pollution to surface or ground waters (A25)	H
Drainage for use as agricultural land (A31)	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	Restore the habitat of the species (related to 'Habitat for the species')	
8.3 Location of the measures taken	Only inside Natura 2000	

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8.4 Response to the measures	Medium-term results (within the next two reporting periods, 2019-2030)
8.5 List of main conservation measures	

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

Reduce/eliminate point pollution to surface or ground waters from agricultural activities (CA10)

Reduce diffuse pollution to surface or ground waters from agricultural activities (CA11)

Reduce/eliminate air pollution from agricultural activities (CA12)

Manage drainage and irrigation operations and infrastructures in agriculture (CA15)

Implement climate change adaptation measures (CN02)

8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters	a) Range
	b) Area
	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
	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	

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 0.008
11.2 Type of estimate	Best estimate

11.3 Surface area of the habitat type inside the network Method used	Based mainly on extrapolation from a limited amount of data
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	Based mainly on extrapolation from a limited amount of data
11.6 Additional information	

12. Complementary information

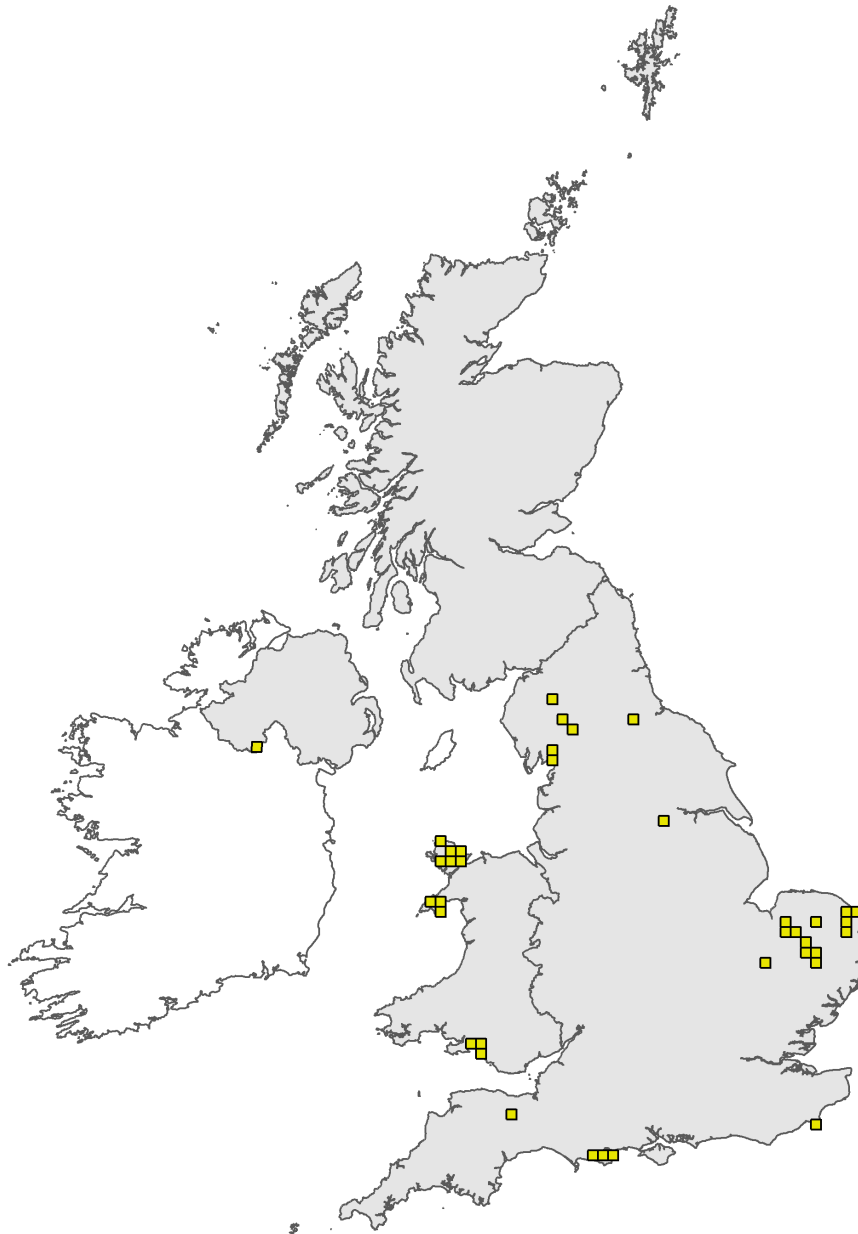|	
12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Figure 1: UK distribution map for H7210 - Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. 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 H7210 - Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. 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: 7210

Field label	Note
2.2 Distribution map	Calcareous fens are rare in the UK, having a restricted and discontinuous geographical range, with the main centres in East Anglia and Anglesey. It is very scattered and local elsewhere in the UK. This Annex I type comprises the more species-rich examples of great fen-sedge Cladium mariscus fen, particularly those stands enriched with elements of small sedge mire. Such stands occur in the following situations: i. Sites with a mixture of closed, species-poor Cladium beds, which at their margins have transitions to species-rich small-sedge mire vegetation; ii. Sites where Cladium beds retain their species-richness owing to management; and iii. Situations where Cladium fen is inherently species-rich, possibly owing to the fact that conditions do not allow the Cladium to grow vigorously and dominate the vegetation. Cladium is not a common plant in NI, being scarce in the north of the country, and scattered elsewhere. Often it occurs as a monodominant swamp. The association of scattered Cladium mariscus with small-sedge mire is therefore a very rare habitat in NI, and tends to occur here in situations similar to i) above. It is only known from a few locations in Fermanagh, where it occurs in very small stands associated with alkaline fen around the margins of marl lakes (Magheraveely Marl Lakes SAC).
2.3 Distribution map; Method used	There is limited information on the distribution and extent of the habitat in NI. It is only known from Magheraveely Marl Lakes SAC. Given the specific hydrological and phytosociological conditions required (alkaline fen and Cladium mariscus occurring together), it is believed to be very rare elsewhere in NI - if present at all.

Habitat code: 7210 Region code: ATL

Field label	Note
4.1 Surface area	As stated (2.3), there is limited information on the distribution and extent of the habitat in NI. It is only known from Magheraveely Marl Lakes SAC and given the specific hydrological and phytosociological conditions required (alkaline fen and Cladium mariscus occurring together), it is believed to be very rare elsewhere in NI - if present at all. No loss in range has been recorded in the habitat on the SAC since it was surveyed in the 1990s - hence it is believed that the range has been unchanged since 1994.
4.5 Short term trend; Method used	Based upon regular condition monitoring of Magheraveely Marl Lakes SAC. It is believed that the range has been unchanged since 1994 - hence recorded as stable.
5.2 Surface area	The surface area of this habitat has been estimated very approximately at 1 ha, based upon presence at Magheraveely Marl Lakes. There is a chance that there may be very small stands elsewhere in NI, but they are unlikely to contribute significantly to the overall extent.
5.4 Surface area; Method used	The SAC which contains the habitat is regularly monitored. However, recent visits have failed to conclusively identify the habitat - which is believed to be the result of management changes. There is no data from other sites. Hence reported as Based mainly on expert opinion with very limited data.
5.6 Short term trend; Direction	For reasons decribed in 5.1 and 5.4 (i.e. no observed loss in wetland extent at Magheraveely Marl Lakes SAC), the trend is reported as Stable, but Based mainly on expert opinion with very limited data.
5.10 Long term trend; Direction	Long-term trend described as stable, as there has been no known wetland loss at Magheraveely Marl Lakes where the habitat occurs. But this has been based largely upon expert opinion (see 5.4), as the habitat has not been recently identified at the site.

6.1 Condition of habitat	Data based upon condition assessment at Magheraveely Lakes SAC, for which the habitat has been listed. We have assumed that the failure to re-locate the habitat at this site is indicative of unfavourable condition as a result of lack of positive management, since the small-sedge component of the community is very susceptible to overtopping by Cladium in the absence of grazing or mowing. The result being that the habitat now appears simply as Cladium swamp. Estimated extent Unfavourable therefore 0.8 ha. In addition, a nominal 0.2 ha assigned to unknown status to take any unknown stands of the habitat into account.
6.2 Condition of habitat; Method used	Data based upon condition assessment at Magheraveely Lakes SAC. Given the inability to relocate the habitat here, we have recorded the assessment as Based mainly on expert opinion with very limited data.
7.1 Characterisation of pressures/ threats	Similat treats and pressures to Alkaline Fen as the two habitats are closely linked. Like H7230, this habitat is dependent upon a relatively constant source of calcareous or base-rich water and low levels of nutrient enrichment. In addition, the vegetation (in NI at least) depends upon low-intensity management (such as grazing) to prevent encroachment by rank growth and scrub - in particular, Cladium can very rapidly form a monodominant swamp if not grazed or cut. The habitat may be dependent in part upon groundwater, so water abstraction may have an impact. Water quality is also a pressure, as the habitat is susceptible to agricultural run-off within the catchment area. Eutrophication of surface or groundwaters can result in substantial adverse changes to key plant communities. With a critical load of 15-30 kg/N/ha/yr, the habitat is sensitive to aerial Nitrogen deposition. The lower threshold is exceeded at Magheraveely (average predicted deposition 15.3 kg/N/ha/yr. Hence, air pollution is considered to be a potentially significant threat to the condition this habitat. Climate change is still difficult to predict, but any tendency for precipitation to become more unpredictable - with extremes of drought and heavy rainfall - is likely to affect the water balance that the habitat is dependent upon.
7.2 Sources of information	Threats and pressures assessed from the most recent Common Standards Monitoring of the closely-related alkaline fens, in addition to similar wetland habitats at protected sites (SACs and ASSIs), in addition to data from the NI Countryside Survey and expert judgement to assess pressures in the wider countryside - particularly from the APIS website. Threats based upon current pressures and expert judgement on future trends.
8.1 Status of measures	Recent monitoring of the closely-related alkaline fens on SACs, and fen communities including H7230 on ASSIs, has shown that the majority of that habitat is in unfavourable condition. Measures to improve the condition of alkaline fen - e.g. grazing and/or mowing of vegetation with scrub control, improvement in water quality, etc - which will be put in place under the Interreg Va programme, and the Environmental Farming Scheme (EFS), are likely to help with the improvement in condition of H7210. In addition, the Department is developing a road map to reduce atmospheric Nitrogen from agricultural sources.
8.2 Main purpose of the measures taken	Measures aimed at restoring the habitat where it appears to have been lost as a result of unfavourable condition. Hence this is reported as Restore the structure and functions, including the status of typical species (related to 'Specific structure and functions').
8.3 Location of the measures taken	The Interreg Va project will be developing conservation management plans and implementing management measures at Magheraveely Marl Lake SACs which should help to restore the condition of the habitat. Likely to require some time to assess whether restoration is feasible or not.
10.1 Range	We are assessing the absence of the habitat at its only known site as a loss of condition, rather than range. The necessary ecological and phytosociological elements (i.e. short sedge mire growing in association with Cladium mariscus) are still in place for the habitat to exist. Hence Range assessment for H7210 is Favourable.

10.2 Area	As 10.1 - We are assessing the absence of the habitat and apparent loss of extent at its only known site as a loss of condition, rather than range. The necessary ecological and phytosociological elements (i.e. short sedge mire growing in association with Cladium mariscus) are still in place for the habitat to exist. There has been no overall wetland loss at Magheraveely Marl Lakes. Hence Extent assessment for H7210 is Favourable.
10.3 Specific structure and functions	The apparent loss of the habitat at Magheraveely Marl Lakes has not been due to a net loss in wetland habitat, and we currently believe that it is the result of lack of management - and therefore is the result of the habitat being in very bad condition. This suggests a judgement of Unfavourable - Bad for the structure and function parameter for H7210.
10.4 Future prospects	The current condition of the habitat is bad and it is uncertain whether restoration is possible, even though all the necessary elements for the habitat appear to be still in place. Given the uncertain future impacts of air pollution and climate change, future prospects are predicted as Unfavourable Bad.
10.5 Overall assessment of Conservation Status	Range and Extent have both been assessed as Favourable, despite the apparent loss of the habitat at Magheraveely Marl lakes. The loss of habitat has been assigned to lack of management and is therefore an indocation of unfavourable condition - hence Structure and function is Unfavourable Bad. Future prospects are Unfavourable Bad, with climate change impacts currently unpredictable and atmospheric Nitrogen deposition still a major threat. Hence an overall Unfavourable Bad assessment.
11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network	The habitat has only been recorded at Magheraveely Marl Lakes in Fermanagh. Extent estimated very approximately at 0.008 ha.
11.3 Surface area of the habitat type inside the network; Method used	The habitat was very approximately mapped at the time of survey.
11.4 Short term trend of habitat area in good condition within the network; Direction	Assessment of stable based upon recent condition assessments - which suggest long-term bad condition for the habitat.
11.5 Short term trend of habitat area in good condition within the network; Method used	As discussed above, the habitat can no longer be identified on the site - which is believed to be the result of poor condition. However, this has been the case now for several visits over time, suggesting long-term bad condition of the habitat.