Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A

2019-2024

Conservation status assessment for the habitat:

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

Wales

Cyfoeth Naturiol Cymru
Natural Resources Wales

JNCC

For further information please contact:

Natural Resources Wales, Welsh Government Offices, Cathays Park, King Edward VII Avenue, Cardiff, CF10 3NQ. https://naturalresources.wales

JNCC, Quay House, 2 East Station Road, Fletton Quays, Peterborough, PE2 8YY. https://jncc.gov.uk

This report was produced by JNCC in collaboration with Natural Resources Wales.

This document should be cited as:

Natural Resources Wales and JNCC. (2026). Conservation status assessment for the habitat: H7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*.

Important note - Please read

- The information in this document represents Wales Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural Resources Wales, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the habitat are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country reports.
- 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 not relevant to this habitat (section 11 National Site Network coverage for Annex I habitats).

Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the JNCC website.

Assessment Summary: Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

Distribution Map

Range Map

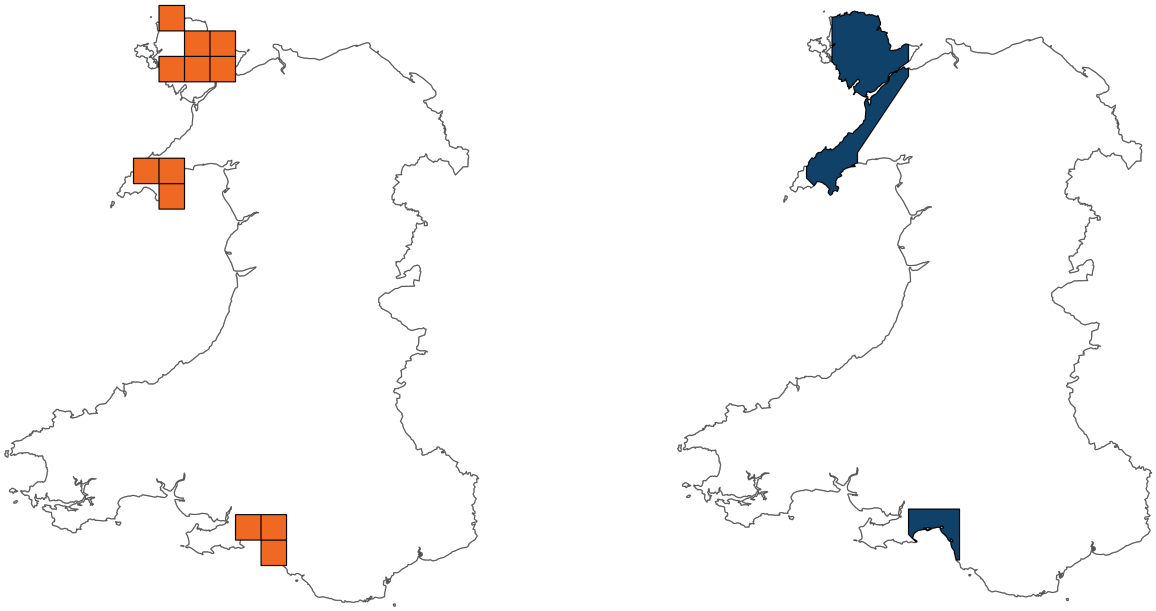

Figure 1: Wales distribution and range map for H7210 - Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available habitat records within the current reporting period.

Table 1: Table summarising the conservation status for H7210 - Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. Overall conservation status for habitat is based on assessments of range, area covered by habitat, structure and functions, and future prospects.

Overall Conservation Status (see section 10)

Unfavourable-bad (U2)

Breakdown of Overall Conservation Status

Range (see section 4)	**Unfavourable-inadequate (U1)**
Area covered by habitat (see section 5)	**Unfavourable-bad (U2)**
Structure and functions (see section 6)	**Unfavourable-bad (U2)**
Future prospects (see section 9)	**Unfavourable-bad (U2)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Habitat code	H7210 - Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*

2. Maps

2.1 Year or period	1985-2014
2.2 Distribution map	Yes
2.3 Distribution map; Method used	Complete survey or a statistically robust estimate

2.4 Additional information

No additional information

Biogeographical Level

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	ATL

3.2 Sources of information

See section 13 References

4. Range

4.1 Surface area (km²)	1,318.23
4.2 Short-term trend; Period	2013-2024
4.3 Short-term trend; Direction	Decreasing
4.4 Short-term trend; Magnitude	

a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	Yes
e) Type of estimate	Best estimate
f) Rate of decrease	Decreasing <=1% (one percent or less) per year on average
4.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
4.6 Long-term trend; Period	1979-2024
4.7 Long-term trend; Direction	Decreasing
4.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	
4.9 Long-term trend; Method used	Based mainly on expert opinion with very limited data

4.10 Favourable Reference Range (FRR)

a) Area (km²)	
b) Pre-defined increment	Current range is less than 2% smaller than the FRR
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

4.11 Change and reason for change in surface area of range

a) Change	Yes
b) Genuine change	Yes

c) Improved knowledge or more accurate data	No
d) Different method	No
e) No information	No
f) Other reason	No
g) Main reason	Genuine change

4.12 Additional information

No additional information

5. Area covered by habitat

5.1 Year or period	1985-2018
5.2 Surface area (km²)	
a) Minimum	
b) Maximum	
c) Best single value	0.628
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) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	Decreasing 0 - 12%
d) Unknown	No
e) Type of estimate	Best estimate
f) Rate of decrease	Decreasing <=1% (one percent or less) per year on average
5.8 Short-term trend; Method used	Based mainly on expert opinion with very limited data

5.9 Long-term trend; Period	2000-2024
5.10 Long-term trend; Direction	Decreasing
5.11 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	Decreasing <=1% (one percent or less) per year on average
5.12 Long-term trend; Method used	Based mainly on expert opinion with very limited data
5.13 Favourable Reference Area (FRA)	
a) Area (km²)	
b) Pre-defined increment	Current area is between 26% and 50% smaller than the FRA
c) Unknown	No
d) Method used	Expert opinion
e) Quality of information	

5.14 Change and reason for change in surface area of range

a) Change	Yes
b) Genuine change	Yes
c) Improved knowledge or more accurate data	No
d) Different method	No
e) No information	No
f) Other reason	No
g) Main reason	Genuine change

5.15 Additional information

No additional information

6. Structure and functions

6.1 Condition of habitat (km²)

Area in good condition	
ai) Minimum	0.043
aii) Maximum	0.043
Area not in good condition	
bi) Minimum	0.585
bii) Maximum	0.585
Area where condition is unknown	
ci) Minimum	0
cii) Maximum	0
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	2013-2024
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 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

Typical species were not used directly in the assessment of conservation status for habitat structure and function as a comprehensive list of typical species for each habitat was not available. However, the status of typical species was considered when the condition of individual sites was assessed using Common Standards Monitoring Guidance. Common Standards Monitoring (CSM) data was used to assess the area of habitat in 'good' and 'not good' condition (field 6.1). Species were a component of the attributes assessed under CSM. Therefore, an assessment of species is considered to have formed part of the reporting under field 6.1 which supported the Habitats Structure and Function assessment (field 10.3).

7. Main pressures

7.1 Characterisation of pressures

Table 2: Pressures affecting the habitat, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PA08: Extensive grazing or undergrazing by livestock	Ongoing and likely to be in the future	High (H)
PA05: Abandonment of management/use of grasslands and other agricultural and agroforestry systems (e.g. cessation of grazing, mowing or traditional farming)	Ongoing and likely to be in the future	High (H)
PA17: Agricultural activities generating pollution to surface or ground waters (including marine)	Ongoing and likely to be in the future	High (H)
PA22: Drainage for use as agricultural land	Ongoing and likely to be in the future	High (H)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Ongoing and likely to be in the future	High (H)
PK03: Mixed source air pollution, air-borne pollutants	Ongoing and likely to be in the future	Medium (M)
PC01: Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell)	Ongoing and likely to be in the future	Medium (M)
PK04: Atmospheric N-deposition	Ongoing and likely to be in the future	High (H)

PL05: Modification of hydrological flow (mixed or unknown drivers)	Ongoing and likely to be in the future	Medium (M)
PI02: Other invasive alien species (other than species of Union concern)	Ongoing	High (H)
PJ03: Changes in precipitation regimes due to climate change	Ongoing and likely to be in the future	High (H)
PD05: Development and operation of energy production plants (including infrastructure)	Only in future	Medium (M)

7.2 Sources of information

See section 13 References

7.3 Additional information

No 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 structure and functions, including the status of typical species (related to 'Specific structure and functions')
8.3 Location of the measures taken	Both inside and outside National Site Network
8.4 Response to measures	Long-term results (after 2036)

8.5 List of main conservation measures

Table 3: Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking

MA04: Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures	High (H)
MM01: Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes that occur without direct or indirect influence from human activities or climate change	High (H)
MA10: Reduce/eliminate point or diffuse source pollution to surface or ground waters (including marine) from agricultural activities	High (H)
MK03: Restoration of habitats impacted by multi-purpose hydrological changes	High (H)
MA13: Manage agricultural drainage and water abstraction (incl. the restoration of drained or hydrologically altered habitats)	High (H)
MJ02: Implement climate change adaptation measures	High (H)
MI01: Early detection and rapid eradication of invasive alien species of Union concern	High (H)
MA01: Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land	Medium (M)
MC01: Adapt/manage extraction of non-energy resources	Medium (M)
MK01: Reduce impact of mixed source pollution	Medium (M)
MC09: Manage/reduce/eliminate air pollution from resource exploitation and energy production	Medium (M)
MA11: Reduce/eliminate air pollution from agricultural activities	High (H)
MA12: Reduce/eliminate soil pollution from agricultural activities	High (H)

8.6 Additional information

No additional information

9. Future prospects

9.1a Future trends of parameters

ai) Range	Overall stable
bi) Area	

	Negative - decreasing <=1% (one percent or less) per year on average
ci) Structure and functions	Negative - slight/moderate deterioration

9.1b Future prospects of parameters

aii) Range	Poor
bii) Area	Bad
cii) Structure and functions	Bad

9.2 Additional information

No additional information

10. Conclusions

10.1 Range	Unfavourable-inadequate (U1)
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	Deteriorating

10.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

10.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

10.8 Additional information

No additional information

11. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (km²)

a) Minimum	
b) Maximum	
c) Best single value	0.613
11.2 Type of estimate	Best estimate
11.3 Habitat area inside the network; Method used	Complete survey or a statistically robust estimate
11.4 Short-term trend of habitat area within the network; Direction	Decreasing
11.5 Short-term trend of habitat area within the network; Method used	Based mainly on expert opinion with very limited data
11.6 Short-term trend of habitat area in good condition within the network; Direction	Decreasing
11.7 Short-term trend of habitat area in good condition within the network; Method used	Based mainly on expert opinion with very limited data

11.8 Additional information

No additional information

12. Complementary information

12.1 Justification of percentage thresholds for trends

No justification information

12.2 Other relevant information

No other relevant information

13. References

Biogeographical and marine regions

3.2 Sources of information

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.

Birch, K.S., Guest, J.E., Shepherd, S., Milner, P, Jones, P.S. & Hanson, J. (2015). Responses of rich-fen Annex 1 and related habitats to restoration and management undertaken as part of the Anglesey & Lleyn Fens LIFE Project. Final Report of the Anglesey & Lleyn Fens LIFE Project, Technical Report No. 7.

Bosanquet, S.D.S. (2009). Lowland Peatland Survey Site Report: Crymlyn Bog (SS69/21P). Natural Resources Wales, Bangor.

Farr, G. Whiteman, M., Jones, P.S. & Breen, R. (in prep.) , Wetlands and the Water Framework Directive: Key challenges for achieving good ecological status at the Anglesey and LLŷn Fens SACs. 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.

Farr, G., Hall, J.,Jones, L., Whiteman, M., Haslam, A. & Philips, N. (2018). Source apportionment of nutrient pressures at groundwater dependent wetlands: Case studies from England and Wales. Report to the Environment Agency; British Geological Survey Internal Report Reference OR/17/021.

Guest, D. (2012). Assessing N deposition as a pressure for Article 17 reporting on habitats. CCW HQ internal document.

Hanson, J. (2015). LIFE Project Number LIFE07NATUK000948

FINAL Report Covering the project activities from 01/02/2009 to 31/03/2014. Reporting Date 31/12/15. Natural Resources Wales, Bangor.

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.

JNCC (2018). Exceedance of Annex I habitats in SACs. Excel spreadsheet provided 29 May 2018.

Jones, P.S., Bosanquet, S.D.S., Reed, D.K., Birch, K.S., Stevens, J. & Turner, A.J. (2011). The habitat composition and conservation of Welsh lowland mires: preliminary results from the Lowland Peatland Survey of Wales. In: Proceedings of a Memorial Conference for Dr David Paul Stevens 1958-2007: Grassland Ecologist and Conservationist. Eds: Blackstock, T.H., Howe, E.A., Rothwell, J.P., Duigan, C.A & Jones, P.S. pp. 103-115. CCW Staff Science Report 10/03/05, Countryside Council for Wales, Bangor.

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

Jones, P.S., Hanson, J. & Farr, G. (in-prep.). The rich-fens of Anglesey and Llŷn. 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.

Lathwood, T., Evans, G. & Jones, R. (2015). Soil sampling and Nutrient Planning, Anglesey and Lleyn Fens. Final Report of the Anglesey & Llŷn Fens LIFE Project: Technical Report No. 9. Natural Resources Wales, Bangor.

Mountford, E. (2011). A compilation of proposed additions and revisions to vegetation types in the National Vegetation Classification. JNCC Report 448, Joint Nature Conservation Committee, Peterborough.

NRW (2018a). SAC and SPA Monitoring Programme Results 2013-2018. Internal NRW Dataset (Excel spreadsheet).

NRW (2018b). Actions Database. Internal NRW Database.

SWS (2010). River basin planning through targeted investigations on selected Welsh Groundwater Dependent Terrestrial Ecosystems - Cors Bodeilio and Merthyr Mawr. Schlumburger Water Services Report 1-274/R3 for Environment Agency.

Stevens, J. (2012). GIS layer – data processing notes – A17 reporting 2012 H7210. Internal file note, Countryside Council for Wales.

Welsh Government (2017). Welsh Statutory Instruments 2017 No. 565 (W. 134) Agriculture Wales: The Environmental Impact Assessment (Agriculture) (Wales) Regulations 2017. (https://www.legislation.gov.uk/wsi/2017/565 - accessed 19 June 2018).

Welsh Government (2024). Climate Adaptation Strategy for Wales. https://www.gov.wales/sites/default/files/publications/2024-10/climate-adaptation-strategy-for-wales-2024.pdf October 2024.

Wheeler, B.D. (1980). Plant communities of rich-fen systems in England and Wales. I. Introduction. Tall sedge and reed communities. Journal of Ecology, 68; 365-395.

Whiteman, M. (2011). Cors Bodeilio workshop – Wednesday 12th January 2010: A collaborative project to establish ecological and groundwater investigations to assess significant damage on Groundwater Dependent Terrestrial Ecosystems (GWDTEs). Environment Agency, Leeds.

Main pressures

7.2 Sources of information

No sources of information

14. Explanatory Notes

Field label	Note
2.3: Distribution map; Method used	The distribution map provided for this habitat is the same as that used for the 2013 Article 17 reporting round and has not been updated for 2025. It is based on good quality and mainly Phase 2 level survey, though further stands of H7210 may yet emerge. There are differences between the distribution map of H7210 and the latest mapping for Cladium mariscus (see Cladium mariscus (L.) Pohl in BSBI Online Plant Atlas 2020) and some stands heavily dominated by the eponymous species could represent former or potential H7210 given appropriate management. Given the priority status of this Annex 1 habitat further assessment of its distribution is required. Most of the records for this habitat in Wales are based on high quality Phase 2 (plant community [NVC] level) survey undertaken as part of the Lowland Peatland Survey of Wales [LPSW], (Jones et al., 2011) since 2004. Phase 2 mapping yields polygon records assigned to NVC communities/sub-communities and non-NVC units mapped to 1:2500 and transferred to a Mapinfo GIS platform (see Stevens, 2012). Polygons (whether relating to individual vegetation types or mosaics) for plant communities/sub-communities judged as conforming to this habitat were selected and used to create a Mapinfo inventory for this habitat based on polygon locations and areas and also hectad presence. The definition of this habitat follows Table 6.1 of Jones et al. (2012). The distribution map includes two hectad records for this habitat from data sources other than the LPSW – SH32 (Cors Llyferin) and SH37 (Y Werthyr). For all but one hectad record (SH32), presence of this habitat has been confirmed since 2000. Further survey work is needed to characterise additional known and some likely unknown stands of this habitat on land managed by third parties and is an evident priority.

	The record for this habitat for 10 km square SS78 stems from a record for S25c at Margam Moors Fen. This record lacks Cladium mariscus and other key Caricion davallianae markers and should be removed from the inventory.
3.2: Sources of information	This is mainly based on the 2019 Article 17 report
4.3: Short-term trend; Direction	Loss strongly suspected at Cors Llyferin during or quite possibly prior to beginning of short-term period, resulting in change to range due to loss from 10 km square SH32.
4.11: Change and reason for change in surface area of range	Changes in surface area of range do appear to have actually occurred since the last reporting period. The record for SS78 10 km square should be removed – see section 2.3 commentary. The habitat has probably been lost from 10 km square SH32
5.1: Year or period	A broad date range of 1985-2012 has been given as one site record dates from 1985 (Cors Llyferin, SH 32). However most records are based on survey post 2004.
5.4: Surface area; Method used	See section 2.3. The extent of this habitat within the SAC sites notified for this habitat in Wales is estimated as 76.1 ha based on recent Phase 2 survey by the Lowland Peatland Survey of Wales: this comprises 33.6 ha for Cors Crymlyn (Bosanquet, 2009) and 5.1 and 37.4 ha for the Corsydd Llyn and Corsydd Mon SACs respectively (Birch et al., in prep.). This area figure is actually greater than that given under 5.2 , largely because some of the survey data assessed by Birch et al. post-dates the analysis on which the section 5.2 figure is based (this being the area figure used for the previous Article 17 reporting round).
5.8: Short-term trend; Method used	Other than the SAC monitoring programme, there is no NRW system in place for monitoring and recording losses and gains. Some losses are likely to have occurred due to insufficient management within the Welsh heartland of this habitat on Anglesey & Llyn; losses may also have occurred on non-statutory sites.
5.14: Change and reason for change in surface area	The area data have not been updated for this reporting round; all reported trends are based on expert opinion.

6.1: Condition of habitat	This is based on the 2018 reporting but expert judgement suggests that 4.3 ha in good condition may be an over-estimate.
6.2: Condition of habitat; Method used	This assessment is based on the 2018 reporting. Assessment of structure and function within SACs is based on the results of common standards monitoring visits undertaken between 2007 and 2012 (NRW, 2018a) and expert opinion based on close familiarity with the Corsydd Mon and Llyn sites (PSJ). These sources indicate unfavourable condition for the calcareous fen feature on all three SACs. The assessments for Corsydd Mon and Llyn pre-date some of the recovery noted as resulting from the restoration work undertaken as part of the Anglesey & Llyn Fens LIFE project (Birch et al., 2015); expert judgement (P.S.Jones, 2018) suggests 4.3 ha of H7210 can now be regarded as favourable (2.3 ha at Bodeilio and a minimum of 1.0 ha at each of Cors Goch and Cors Erddreiniog). The rest of the resource includes the remainder of the SAC resource, all of which has to be regarded as in unfavourable condition based on the monitoring evidence. The extra-SAC sites are considered to be in unfavourable condition, chiefly due to over-dominance of Cladium. An up-to-date comprehensive assessment of the conservation status of this priority habitat is long overdue.
6.4: Short-term trend of habitat area in good condition; Direction	This assessment is based on expert observational evidence that the condition of H7210 is deteriorating across the Anglesey & Llyn Fens sites in the post LIFE project era.
7.1: Characterisation of pressures	MA04. Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures This concerns the need to address insufficient or inappropriate grazing and the lack of cutting and in some cases burning on sites supporting H7210. This overlaps with MM01 because commercial agricultural graziers are needed to effectively manage land supporting H7210 which is owned by NRW and eNGOs. The Anglesey & Llyn Fens

LIFE project (Hanson, 2015) has successfully demonstrated the measures which need to be taken to restore derelict H7210. However, lack of staffing resources has limited the extent to which this effective management has been continued since the end of the LIFE project in 2014, and critical locations for H7210 within the Corsydd Mon and Llyn SACs are now effectively un-managed, including the Cors y Farl and Cors Bodeilio Common sections of the Corsydd Mon SAC and parts of Cors Goch within the same SAC. Further resources are needed to address this.

MM01. Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes

This is interpreted as pursuing essentially the same measures described above under MA04 but on land under NRW and eNGO partners direct management as NNRs. In the absence of a formal after-LIFE programme since completion of the Anglesey & Llyn Fens LIFE project, this measure is under-resourced and under-utilised and needs to be extended through additional resources to cover the whole of the H7210 resource under direct conservation ownership/management.

MA10 Reduce diffuse pollution to surface or ground waters from agricultural activities & MK01 Reduce impact of mixed source pollution.

This is the major measure required to reduce nutrient income to the sites supporting H7210 from both runoff and groundwater discharge – it applies mainly to Corsydd Mon and Corsydd Llyn. Evidence to date suggests that agri-environment measures have been ineffective in this regard, with both limited uptake to schemes and then limited application of measures within the scheme which might be used to reduce nutrient ingress. The Anglesey & Llyn Fens LIFE project attempted to begin addressing this issue through farm nutrient testing and also the use of

constructed wetlands on the edges of sites to intercept and remove nutrients; however (i) this only deals with point-source inputs on a handful of sites and (ii) the lack of any comparative inflow/outflow chemical monitoring means the continuing effectiveness of this measure is unclear. A NHLF project (Corsydd Calon Mon) led by North Wales Wildlife Trust with support from NNR is currently in the development phase and if fully funded will enable a concerted focus on achieving nutrient reduction measures within the site catchments. However, an NRW led after LIFE phase of work will also be needed to realise changes in land management practices of the scale required to ensure these oligotrophic fens can be managed sustainably. The combined catchment area of the Corsydd Llyn and Corsydd Mon fen sites is only 736 ha (Jones & Hanson, in prep.), so appropriate focussing of effort should be achievable.

Modelling by Farr et al (2019) suggests that measures to address diffuse terrestrial pollution would not alone yield reductions in terrestrial nitrate significant enough to meet the proposed groundwater 'threshold' values for nitrate.

MK03: Restore habitats impacted by multi-purpose hydrological changes and

MA13: Manage agricultural drainage and water abstraction (incl. the restoration of drained or hydrologically altered habitats)

Significant progress was been made for these measures under the Anglesey & Llyn Fens LIFE project, but further intervention is required across both these SACs to address a wide range of hydrological impacts posed by agricultural drainage and the management of water courses and hydrological inputs.

MJ02: Implement climate change adaptation measures

This is a newly identified measures for 2025. An assessment is urgently required of measures which could be implemented now and in the near future to increase the hydrological resilience of sites to increased incidences of drought. An important component of this would be measures to both maximise natural groundwater discharge onto sites supporting H7210 and then measures to maximise the retention of this on peatland surfaces affected by artificial drainage.

MI01: Early detection and rapid eradication of invasive alien species of Union concern (new for 2025)

This is a newly identified measures for 2025. Since the last reporting round Himalyan Balsalm Impatiens glandulifera is showing potential to invade fen surfaces and could become a future issues for stands of H7210. Monitoring and early eradication are thus key measures.

MA01. Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land.

Damage and habitat loss of the closely related (and often co-occurring) H7230 was reported on three non-statutory sites on Anglesey during the last reporting period (NRW, 2018c) – in all cases this was due to agricultural intensification. Dialogue needs to be established with the owners/managers of all non-statutory sites for this habitat and incentives for securing positive management put in place.

MC01. Adapt/manage extraction of non-energy resources

Quarrying activity at one location poses a potential threat to this habitat within the Corsydd Mon SAC, though the tendency for this habitat to occur on deposits of peat towards the centre of sites rather than the margins probably means it is less vulnerable than H7230. The primary requirement for action is to ensure monitoring of the effects

	of quarrying on groundwater levels are suitable for detecting early changes which might be reversible through changes to quarrying practice. MC09 Manage/reduce/eliminate air pollution from resource exploitation and energy production, & MA11 Reduce/ eliminate air pollution from agricultural activities and MA12. National regulations are in place but have been insufficient to prevent continued high levels of N deposition nationally (MC09) and locally increasing ammonia pollution from expansion of poultry and cattle units (MA11). The area of this habitat subject to critical load exceedance is not expected to reduce between now and 2030. A focussed and resource site nitrogen action plan is urgently required for the two core SACs for this habitat (Corsydd Mon and Corsydd Llyn).
8.5: List of main conservation measures	Section narrative (NRW) MA04. Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures This concerns the need to address insufficient or inappropriate grazing and the lack of cutting and in some cases burning on sites supporting H7210. This overlaps with MM01 because commercial agricultural graziers are needed to effectively manage land supporting H7210 which is owned by NRW and eNGOs. The Anglesey & Llyn Fens LIFE project (Hanson, 2015) has successfully demonstrated the measures which need to be taken to restore derelict H7210. However, lack of staffing resources has limited the extent to which this effective management has been continued since the end of the LIFE project in 2014, and critical locations for H7210 within the Corsydd Mon and Llyn SACs are now effectively un-managed, including the Cors y Farl and Cors Bodeilio Common sections of the Corsydd Mon SAC and parts of Cors Goch within the same SAC. Further resources are needed to address this.

MM01. Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes

This is interpreted as pursuing essentially the same measures described above under MA04 but on land under NRW and eNGO partners direct management as NNRs. In the absence of a formal after-LIFE programme since completion of the Anglesey & Llyn Fens LIFE project, this measure is under-resourced and under-utilised and needs to be extended through additional resources to cover the whole of the H7210 resource under direct conservation ownership/management.

MA10 Reduce diffuse pollution to surface or ground waters from agricultural activities & MK01 Reduce impact of mixed source pollution.

This is the major measure required to reduce nutrient income to the sites supporting H7210 from both runoff and groundwater discharge – it applies mainly to Corsydd Mon and Corsydd Llyn. Evidence to date suggests that agri-environment measures have been ineffective in this regard, with both limited uptake to schemes and then limited application of measures within the scheme which might be used to reduce nutrient ingress. The Anglesey & Llyn Fens LIFE project attempted to begin addressing this issue through farm nutrient testing and also the use of constructed wetlands on the edges of sites to intercept and remove nutrients; however (i) this only deals with point-source inputs on a handful of sites and (ii) the lack of any comparative inflow/outflow chemical monitoring means the continuing effectiveness of this measure is unclear. A NHLF project (Corsydd Calon Mon) led by North Wales Wildlife Trust with support from NNR is currently in the development phase and if fully funded will enable a concerted focus on achieving nutrient reduction measures within the site catchments. However, an NRW led after LIFE phase of work will also be needed to realise changes in land management practices of the scale required to

ensure these oligotrophic fens can be managed sustainably. The combined catchment area of the Corsydd Llyn and Corsydd Mon fen sites is only 736 ha (Jones & Hanson, in prep.), so appropriate focussing of effort should be achievable.

Modelling by Farr et al (2019) suggests that measures to address diffuse terrestrial pollution would not alone yield reductions in terrestrial nitrate significant enough to meet the proposed groundwater 'threshold' values for nitrate.

MK03: Restore habitats impacted by multi-purpose hydrological changes and

MA13: Manage agricultural drainage and water abstraction (incl. the restoration of drained or hydrologically altered habitats)

Significant progress was been made for these measures under the Anglesey & Llyn Fens LIFE project, but further intervention is required across both these SACs to address a wide range of hydrological impacts posed by agricultural drainage and the management of water courses and hydrological inputs.

MJ02: Implement climate change adaptation measures

This is a newly identified measures for 2025. An assessment is urgently required of measures which could be implemented now and in the near future to increase the hydrological resilience of sites to increased incidences of drought. An important component of this would be measures to both maximise natural groundwater discharge onto sites supporting H7210 and then measures to maximise the retention of this on peatland surfaces affected by artificial drainage.

MI01: Early detection and rapid eradication of invasive alien species of Union concern (new for 2025)

This is a newly identified measures for 2025. Since the last reporting round Himalyan Balsalm Impatiens glandulifera is showing potential to invade fen surfaces and could become a future issues for stands of H7210. Monitoring and early eradication are thus key measures.

MA01. Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land.

Damage and habitat loss of the closely related (and often co-occurring) H7230 was reported on three non-statutory sites on Anglesey during the last reporting period (NRW, 2018c) – in all cases this was due to agricultural intensification. Dialogue needs to be established with the owners/managers of all non-statutory sites for this habitat and incentives for securing positive management put in place.

MC01. Adapt/manage extraction of non-energy resources

Quarrying activity at one location poses a potential threat to this habitat within the Corsydd Mon SAC, though the tendency for this habitat to occur on deposits of peat towards the centre of sites rather than the margins probably means it is less vulnerable than H7230. The primary requirement for action is to ensure monitoring of the effects of quarrying on groundwater levels are suitable for detecting early changes which might be reversible through changes to quarrying practice.

MC09 Manage/reduce/eliminate air pollution from resource exploitation and energy production, & MA11 Reduce/ eliminate air pollution from agricultural activities and MA12.

National regulations are in place but have been insufficient to prevent continued high levels of N deposition nationally (MC09) and locally increasing ammonia pollution from expansion of poultry and cattle units (MA11). The area of

	this habitat subject to critical load exceedance is not expected to reduce between now and 2030. A focussed and resource site nitrogen action plan is urgently required for the two core SACs for this habitat (Corsydd Mon and Corsydd Llyn).
9.1:Future trends and prospects of parameters	Range: Whilst this habitat may experience reductions in area these are unlikely to lead to significant impacts on range. Area: The assessment of negative is based on the pressures PA05 and PA08 which are likely to lead to losses of this habitat in the near future. Structure & function: The Future trends and prospects for Structure and functions takes into account that, although the official critical load of Nitrogen deposition is not exceeded for this habitat type, expert opinion determines that at least 25% of the habitat area is expected to be in unfavourable (not good) condition in c.2035 due to nutrient N deposition, unless additional measures are taken to reduce N deposition impacts.
10.1: Range	Conclusion on Range reached because:(i) the short-term trend direction in Range surface area is decreasing by 1% per year or less; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range.
10.2: Area	Conclusion on Area 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.
10.3: Specific structure and functions	Conclusion on Structure and function reached because: i) habitat condition data indicates that more than 25% of the habitat is in unfavourable (not good) condition; and ii) short-

	term trend in area of habitat in good condition is decreasing.
10.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Area covered by habitat are bad; and (iii) the Future prospects for Structure and function are bad.
10.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unfavourable-bad because three of the conclusions are Unfavourable-bad.
11.4: Short-term trend of habitat area within the network; Direction	Short-term trend is suspected to be decreasing, with loss of stands to complete over-dominance by Cladium mariscus or other species, notably Molinia caerulea or Juncus subnodulosus.
5.13: Favourable Reference Area (FRA)	The UK-level FRV for surface area was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. Following expert review, a Wales-level FRV was derived based on habitat extent and trend evidence specific to Wales, rather than adopting the UK-level value. The revised FRV has been set as between 26% and 50% smaller than the FRA as the decline judged likely to be equivalent to H7230 in Wales (between 26% and 50% smaller than the FRA).
4.10: Favourable Reference Range (FRR)	The UK-level FRV for range was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current distribution and trends.