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

2019-2024

Conservation status assessment for the habitat:

H3180 - Turloughs

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.

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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: Turloughs

Distribution Map

Range Map

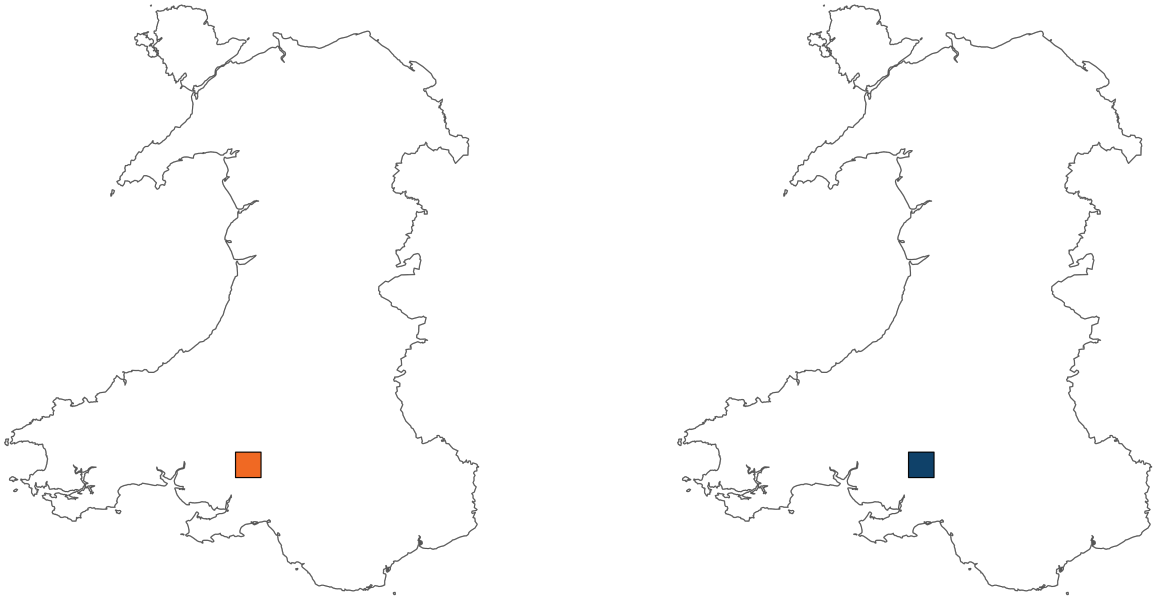

Figure 1: Wales distribution and range map for H3180 - Turloughs. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available habitat records within the current reporting period.

Table 1: Table summarising the conservation status for H3180 - Turloughs. 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)

Favourable (FV)

Breakdown of Overall Conservation Status

Range (see section 4)	**Favourable (FV)**
Area covered by habitat (see section 5)	**Favourable (FV)**
Structure and functions (see section 6)	**Unknown (XX)**
Future prospects (see section 9)	**Favourable (FV)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Habitat code	H3180 - Turloughs

2. Maps

2.1 Year or period	2007-2024
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)	100
4.2 Short-term trend; Period	2014-2024
4.3 Short-term trend; Direction	Stable
4.4 Short-term trend; Magnitude	

a) Estimated minimum

b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
4.5 Short-term trend; Method used	Complete survey or a statistically robust estimate
4.6 Long-term trend; Period	1988-2024
4.7 Long-term trend; Direction	Stable
4.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	
4.9 Long-term trend; Method used	Complete survey or a statistically robust estimate

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	No
b) Genuine change	
c) Improved knowledge or more accurate data	

d) Different method	
e) No information	
f) Other reason	
g) Main reason	

4.12 Additional information

No additional information

5. Area covered by habitat

5.1 Year or period	2014-2024
5.2 Surface area (km²)	
a) Minimum	
b) Maximum	
c) Best single value	0.0066
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	2007-2024
5.6 Short-term trend; Direction	Stable
5.7 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
5.8 Short-term trend; Method used	Complete survey or a statistically robust estimate
5.9 Long-term trend; Period	1994-2024

5.10 Long-term trend; Direction	Stable
5.11 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	
5.12 Long-term trend; Method used	Complete survey or a statistically robust estimate
5.13 Favourable Reference Area (FRA)	
a) Area (km²)	
b) Pre-defined increment	Current area is less than 2% smaller than the FRA
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate

5.14 Change and reason for change in surface area of range

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

5.15 Additional information

No additional information

6. Structure and functions

6.1 Condition of habitat (km²)	
Area in good condition	
ai) Minimum	0
aii) Maximum	0
Area not in good condition	
bi) Minimum	0
bii) Maximum	0
Area where condition is unknown	
ci) Minimum	0.0066
cii) Maximum	0.0066
6.2 Condition of habitat; Method used	Insufficient or no data available
6.3 Short-term trend of habitat area in good condition; Period	2007-2024
6.4 Short-term trend of habitat area in good condition; Direction	Stable
6.5 Short-term trend of habitat area in good condition; Method used	Insufficient or no data available
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
PE05: Land, water and air transport activities generating pollution to surface or ground waters	Ongoing and likely to be in the future	High (H)
PI01: Invasive alien species of Union concern	Only in future	High (H)
PI02: Other invasive alien species (other than species of Union concern)	Only in 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)

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	Maintain the current range, surface area or structure and functions of the habitat type
8.3 Location of the measures taken	Both inside and outside National Site Network
8.4 Response to measures	Short-term results (within the current reporting period, 2019–2024)

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
ME02: Manage/reduce/eliminate pollution to surface or ground water from transport	High (H)
MI01: Early detection and rapid eradication of invasive alien species of Union concern	High (H)
MI03: Management, control or eradication of other invasive alien species	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)

8.6 Additional information

No additional information

9. Future prospects

9.1a Future trends of parameters

ai) Range	Overall stable
bi) Area	Overall stable
ci) Structure and functions	Overall stable

9.1b Future prospects of parameters

aii) Range	Good

bii) Area	Good
cii) Structure and functions	Unknown

9.2 Additional information

No additional information

10. Conclusions

10.1 Range	Favourable (FV)
10.2 Area	Favourable (FV)
10.3 Specific structure and functions (incl. typical species)	Unknown (XX)
10.4 Future prospects	Favourable (FV)
10.5 Overall assessment of Conservation Status	Favourable (FV)
10.6 Overall trend in Conservation Status	Stable

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	0.0066
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	Stable
11.5 Short-term trend of habitat area within the network; Method used	Complete survey or a statistically robust estimate
11.6 Short-term trend of habitat area in good condition within the network; Direction	Unknown
11.7 Short-term trend of habitat area in good condition within the network; Method used	Insufficient or no data available

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

Blackstock TH, Duigan CA, Stevens DP, Yeo M. (1993) Vegetation zonation and invertebrate fauna in Pant-y-llyn, an unusual seasonal lake in South Wales, UK. Aquatic Conservation: Marine and Freshwater Ecosystems, 3, 253-268.

Duigan C.A. (2003) Freshwater Habitats. In: Jones, P. S., Stevens, D. P., Blackstock, T. H., Burrows, C. R., and Howe, E. A. Priority habitats of Wales: a technical guide. 140pp. Bangor, Countryside Council for Wales.

Farr G. (2012) Is Pwll-y-Felin a turlough? Environment Agency unpublished file note.

Farr G, Hatton-Ellis T, Jones DA, Lambourne C, Bevan J. (2012) Hydrology, Water Quality and Condition of Pant-y-Llyn, Wales' only Turlough. CCW Staff Science Report No. 12/8/1. CCW, Bangor.

Hardwick P, Gunn J. (1998) Hydrogeological studies at Pant-y-Llyn, Carmarthenshire. CCW Contract Science Report 219. Bangor, Countryside Council for Wales.

Joint Nature Conservation Committee. 2007. Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Peterborough: JNCC. Available from: https://webarchive.nationalarchives.gov.uk/ukgwa/20180804091020/http://jncc.defra.gov.uk/page-4060

Natural Resources Wales. 2020. Protected sites baseline assessment 2020. https://naturalresources.wales/evidence-and-data/research-and-reports/protected-sites-baseline-assessment-2020/?lang=en

Porst G, Irvine K. (2009) Distinctiveness of macroinvertebrate communities in turloughs (temporary ponds) and their response to environmental variables. Aquatic Conservation: Marine and Freshwater Ecosystems, 19, 456-465.

Skeffington MS, Moran J, Connor AO, Regan E, Coxon CE, Scott NE, Gormally M. (2006) Turloughs - Ireland's unique wetland habitat. Biological Conservation, 133, 265-290.

Slater FM. (1993) Turlough Toads of Pantyllyn. Llanelli Naturalists Newsletter, 56, 35-36.

Main pressures

7.2 Sources of information

No sources of information

14. Explanatory Notes

Field label	Note
2.3: Distribution map; Method used	The habitat occurs in only one 10km square in Wales, SN16.
4.4: Short-term trend; Magnitude	No change in range has occurred. Rate of decrease Not Applicable as range has not decreased.
4.8: Long-term trend; Magnitude	No change in range has occurred.
4.11: Change and reason for change in surface area of range	No change in range has occurred. Additionally, the favourable reference range in Wales remains unchanged.
5.2: Surface area	This value is based on digitising an aerial photo of the only known site, Pant-y-Llyn. There is some uncertainty related to marginal tree cover and fluctuating water levels. Pwll-y-Felin, a potential turlough in South Wales was investigated in 2012 but was considered not to be a turlough (Farr 2012). The current area is equal to the Favourable Reference Area.
5.6: Short-term trend; Direction	No change in area has occurred. There has been no change in the distribution pattern within range since the previous reporting round.
5.7: Short-term trend; Magnitude	No change in area has occurred. Rate of decrease not applicable as not decreasing.
5.11: Long-term trend; Magnitude	No change in area has occurred. Rate of decrease not applicable as not decreasing.
5.14: Change and reason for change in surface area	No change in area has occurred.
6.1: Condition of habitat	Pant-y-Llyn was last assessed in detail as Favourable in 2012 (Farr et al. 2012). No subsequent assessment has been carried out and this assessment is now considered

	out of date. Hydrological monitoring would be useful as there is some anecdotal evidence that the turlough may not be emptying as frequently as previously.
6.4: Short-term trend of habitat area in good condition; Direction	There is no evidence that the area of habitat in good condition is changing. However, the lack of recent monitoring significantly increases the uncertainty in this regard.
6.6: Typical species	There is no typical species list for this habitat type.
6.7: Typical species; Method used	There is no typical species list for this habitat type.
7.1: Characterisation of pressures	Due to the extremely restricted nature of the habitat, all pressures and threats are categorised as High Importance, because they will affect the entire Welsh resource. Pressures: See Farr et al. (2012) for a detailed assessment of pressures at Pant-y-Llyn. All pressures acting on the habitat have been categorised as of high importance as they affect the only Welsh example, however they are at present consider to be of low severity. The most significant issue is scrub invasion (PM07), which is controlled by periodic clearance. Occasional spikes in nutrient levels are thought to be linked to low water levels in the turlough rather than pollution. Threats: The most serious threats to Pant-y-Llyn are (i) re-opening or intensification of quarrying activity in the adjacent limestone quarries, resulting in a drop in the water table and (ii) a spill of a pollutant such as oil or slurry on the road that borders the lake.
8.5: List of main conservation measures	Conservation measures are aimed at (i) managing scrub encroachment (CL01 – already being managed) and (ii) risk management and contingency plans to prevent

	deterioration. The primary risks are considered to be (a) pollution from road runoff following a spill or accident on the minor road that runs alongside the turlough (CE02) and (b) accidental or deliberate introduction of invasive non-native species (CI01 and CI03). Australian swamp stonecrop Crassula helmsii is considered to be a particularly high risk species in this habitat type as it favours environments where water levels fluctuate. Recently, an Invasive Species Inspectorate has been set up to regulate the retail sector in relation to sale of invasive aquatic species, which should help to greatly reduce illegal sales of this species either through mis-selling, or as a contaminant on other water plants.
9.1:Future trends and prospects of parameters	a) Range: There are no specific reasons to suspect that this habitat is unduly threatened. However, due to the extremely specific and localised nature of the habitat, loss of the only site would result in the complete loss of its range in Wales and Britain. b) Area: The sole Welsh turlough is strictly protected within a site that is a SSSI, SAC and National Nature Reserve. Loss of habitat area therefore seems unlikely. c) Structure and function: Structure and function is currently unknown, but Pant-y-Llyn is strictly protected (see 9.1b). There are risks to structure and function, but updated information on condition is required.
10.1: Range	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. Although extremely restricted, range is stable and equal to the Favourable Reference Range.
10.2: Area	Conclusion on Area reached because:(i) the short-term trend direction in Area is stable; (ii) the current Area is approximately equal to the Favourable Reference Area; and iii) there has been no significant change in distribution pattern within range. Although extremely restricted, area is stable and equal to the Favourable Reference Area.
10.3: Specific structure and functions	Conclusion on Structure and function reached because the condition of the habitat is unknown as over 75% of the habitat has 'unknown' condition. There is a lack of up to date relevant data to assess structure and function.
10.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Area covered by habitat are good; and (iii) the Future prospects for Structure and function are unknown. This conclusion has been reached because range and area are favourable, there is no specific evidence of damage to structure and function, and no specific threats likely to cause deterioration in the near future have been identified.
10.5: Overall assessment of Conservation Status	This conclusion has been reached because Range, Area and Future Prospects are considered Favourable, and Structure and Function is considered Unknown.
10.6: Overall trend in Conservation Status	No change to Conservation Status has been identified.
11.3: Surface area of the habitat type inside the network; Method used	There is no evidence that any turloughs occur elsewhere in Wales. The occurrence of unknown examples cannot be entirely excluded as they can be difficult to identify using conventional methods due to their temporary nature, but it

	is nevertheless considered unlikely that any other turloughs exist.
11.5: Short-term trend of habitat area within the network; Method used	Monitoring work at Pant-y-Llyn has concentrated on the physico-chemical environment with the installation of hydrological monitoring equipment and the collection of regular water samples. This has enabled us to describe and model the hydrology of the site and link it to water chemistry (Farr et al. 2012). The hydrology of the site appears natural. Water quality is generally good apart from a few nutrient spikes that most likely coincide with low water levels. Although quite mineralised, solute concentrations at Pant-y-Llyn are lower than many groundwaters, indicating a significant surface water influence. Biological monitoring of the site in 2006 (CCW, unpublished) indicated that vegetation zones were very similar to the early 1990s (Blackstock et al. 1993). Further vegetation work and an invertebrate survey were carried out in 2013.
11.6: Short-term trend of habitat area in good condition within the network; Direction	An updated Condition Assessment is required to determine the status of Pant-y-Llyn.
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. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current habitat extent and trends.
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.