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:

H3180 - Turloughs

WALES

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 (Wales information only)**
1.2 Habitat code	**3180 - Turloughs**

2. Maps

2.1 Year or period	2007-2017
2.3 Distribution map	Yes
2.3 Distribution map Method used	Complete survey or a statistically robust estimate
2.4 Additional maps	No

BIOGEOGRAPHICAL LEVEL

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	**Atlantic (ATL)**
3.2 Sources of information	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: www.jncc.gov.uk/article17 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.

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 d) Method	No	
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	2009-2017		
5.2 Surface area (in 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	2007-2017		
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	Complete survey or a statistically robust estimate		
5.9 Long-term trend Period	1994-2017		
5.10 Long-term trend Direction	Stable (0)		
5.11 Long-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.12 Long-term trend Method used	Complete survey or a statistically robust estimate		
5.13 Favourable reference area	a) Area (km²) 0.0066 b) Operator Approximately equal to (≈) c) Unknown No d) Method Area in 1994 when Directive was adopted. There are no other known examples in Wales.		
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 0.0066	Maximum 0.0066
	b) Area in not-good condition (km²)	Minimum 0	Maximum 0
	c) Area where condition is not known (km²)	Minimum 0	Maximum 0
6.2 Condition of habitat Method used	Complete survey or a statistically robust estimate		

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6.3 Short-term trend of habitat area in good condition Period	2007-2017
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	Complete survey or a statistically robust estimate
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
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H
Land, water and air transport activities generating pollution to surface or ground waters (E05)	H

Threat	Ranking
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H
Land, water and air transport activities generating pollution to surface or ground waters (E05)	H
Invasive alien species of Union concern (I01)	H
Other invasive alien species (other then species of Union concern) (I02)	H

7.2 Sources of information	
7.3 Additional information	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. 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 (L02), 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. 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. 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. 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 (L02), which is controlled by periodic clearance. Occasional spikes in nutrient levels are thought to be linked to low water levels in the turlough

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8. Conservation measures

8.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified, but none yet taken
8.2 Main purpose of the measures taken		Maintain the current range, population and/or 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		

Manage/reduce/eliminate pollution to surface or ground water from transport (CE02)

Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes (CL01)

Early detection and rapid eradication of invasive alien species of Union concern (CI01)

Management, control or eradication of other invasive alien species (CI03)

8.6 Additional information	Pant-y-Llyn is currently in favourable condition and therefore 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).

9. Future prospects

9.1 Future prospects of parameters	a) Range b) Area c) Structure and functions
9.2 Additional information	Protection of turloughs in Wales depends entirely on ensuring that Pant-y-Llyn is appropriately managed and protected for the future. The appropriate UK and European designations are in place to achieve this goal.

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 0.0066
11.2 Type of estimate	Best estimate
11.3 Surface area of the habitat type inside the network Method used	Complete survey or a statistically robust estimate
11.4 Short-term trend of habitat area in good condition within the network Direction	Stable (0)
11.5 Short-term trend of habitat area in good condition within network Method used	Complete survey or a statistically robust estimate
11.6 Additional information	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.

12. Complementary information

12.1 Justification of % thresholds for trends

12.2 Other relevant information

Distribution Map

Figure 1: UK distribution 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 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 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 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.