

**European Community Directive  
on the Conservation of Natural Habitats  
and of Wild Fauna and Flora  
(92/43/EEC)**

**Third Report by the United Kingdom under  
Article 17**

on the implementation of the Directive  
from January 2007 to December 2012  
Conservation status assessment for

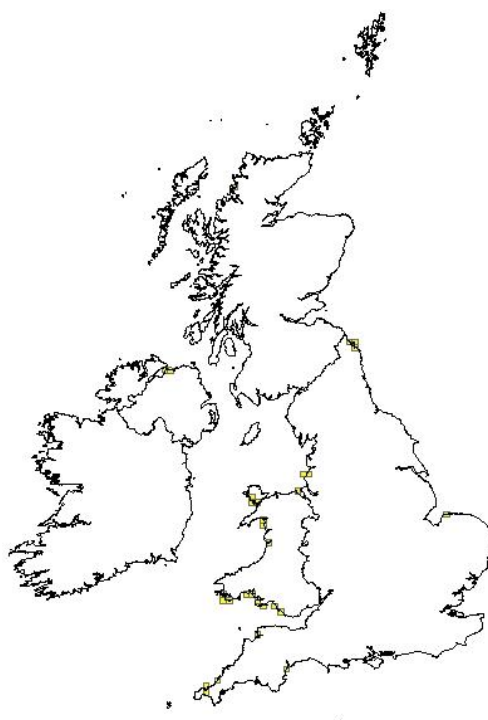
Species:

S1395 - Petalwort (*Petalophyllum ralfsii*)

## Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

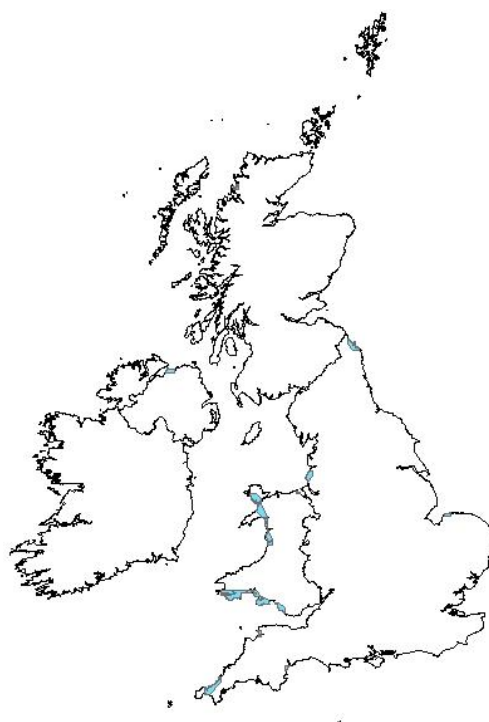
<i>Field name</i>	<i>Brief explanations</i>	
<b>0.2 Species</b>	<b>0.2.1 Species code</b>	<b>S1395</b>
	<b>0.2.2 Species scientific name</b>	<b><i>Petalophyllum ralfsii</i></b>
	<b>0.2.3 Alternative species scientific name</b> Optional	
	<b>0.2.4 Common name</b> Optional	

<b>1.1 Maps</b>			
<b>1.1.1 Distribution map</b>	<b>True</b>	<b>Sensitive</b>	<b>False</b>
	The distribution map is based on species records which are considered to be representative of the range within the current reporting period. For further details see the 2013 Article 17 UK Approach document.		



<b>1.1.2 Method used - map</b>	<b>Complete survey/Complete survey or a statistically robust estimate</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.
<b>1.1.3 Year or period</b>	<b>1995-2012</b>
	The distribution map is based on species records which are considered to be representative of the range within the current reporting period. For further details see the 2013 Article 17 UK Approach document.

<b>1.1.4 Additional distribution map</b> Optional	<b>False</b>
<b>1.1.5 Range map</b>	<b>True</b> The range map was produced by applying the UK range mapping tool to the distribution map presented in 1.1.4. The alpha value for this species was 20km. For further details see the 2013 Article 17 UK Approach document.



<b>2.1 Biogeographical region &amp; marine regions</b>	<b>ATL</b>
<b>2.2 Published sources</b>	<p><b>Atherton, I., Bosanquet, S., and Lawley, M. 2010. Mosses and Liverworts of Britain and Ireland- a field guide. British Bryological Society, Plymouth.</b></p> <p><b>BOSANQUET, S.D.S. 2012. Supporting information for Countryside Council for Wales submission on <i>Petalophyllum ralfsii</i> (Petalwort).</b></p> <p><b>British Bryological Society records accessed from the NBN Gateway.</b></p> <p><b>Callaghan, D. 2012. Rare and scarce bryophytes in SW England. Natural England commissioned survey report. 108 pages. No web address.</b></p> <p><b>CALLAGHAN, D.A. In press. Grid-mapping species at sites: a useful approach to survey, monitoring and assessment. British Wildlife.</b></p> <p><b>CHURCH, J.M., HODGETTS, N.G., PRESTON, C.D. &amp; STEWART, N.F. 2001. British Red Data Books: mosses and liverworts. Joint Nature Conservation Committee.</b></p> <p><b>ECCB (European Committee for conservation of Bryophytes), 1995. Red data book of European bryophytes. University of Trondheim.</b></p>

**ECOSTUDY 2012. Bryophyte monitoring at Ynyslas and Cors Fochno (Dyfi SSSI/NNR), Ceredigion. Report to Countryside Council for Wales.**

**Hodgetts NG, 2011. A revised Red List of bryophytes in Britain. Field Bryology 103 40-49.**

**Holyoak, D T, 1998. Petalwort *Petalophyllum ralfsii*: Report to Plantlife on work carried out during 1999 and summary of results of work during 1997 and 1998. Plantlife Report 143, unpublished.**

**Holyoak, D T, 2000. Petalwort *Petalophyllum ralfsii*: Report to Plantlife on work carried out during 1997. Plantlife Report, unpublished.**

**HOLYOAK, D.T. 2002. Petalwort *Petalophyllum ralfsii*: Report to Plantlife on work carried out in England and Wales during 2001 and 2002. Countryside Council for Wales/English Nature Contract Report.**

**Holyoak, D.T. 2003. The distribution of bryophytes in Ireland. An annotated review of the occurrence of liverworts and mosses in the Irish vice-counties based mainly on the records of the British Bryological Society. Dinas Powys, Vale of Glamorgan: Broadleaf Books.**

**Holyoak, D.T. 2006. Progress towards a species inventory for conservation of bryophytes in Ireland. Biology and Environment, Proceedings of the Royal Irish Academy 106B (3): 225-236.**

**Hughes, K, 1997. The factors which affect the distribution of *Petalophyllum ralfsii* on the Birkdale coast. Dissertation for BSc Geographical Studies, Liverpool Hope University College. Unpublished**

**LEWIS, H. & GARRETT, H. 2012. Morfa Harlech a Morfa Dyffryn SAC Annex 2 species: 1395 Petalwort *Petalophyllum ralfsii* SAC Monitoring Report.**

**Lockhart, B., Hodgetts, N. & Holyoak, D. (2012). Rare and threatened bryophytes of Ireland. National Museums Northern Ireland Publication No 028.**

**PATON, J.A. 1999. The Liverwort Flora of the British Isles. Harley Books, Colchester.**

**Preston CD, 2010. A revised list of nationally rare bryophytes. Field Bryology 100 32-40.**

**Rothero GP, 1994. Species dossier: *Petalophyllum ralfsii*. Unpublished report for SNH.**

**Rothero GP, 1998. Baseline survey of the population of *Petalophyllum ralfsii* and a preliminary survey of Red Data Book Bryum species at Achnahaird Bay, Wester Ross. Unpublished report for SNH.**

**Rothero GP, 2004. Site dossier for bryological interest: Achnahaird Bay. Report for Scottish Natural Heritage.**

**Rothero GP, 2008. Site dossier for bryological interest - 2nd cycle: Achnahaird Bay. Report for Scottish Natural Heritage.**

**Rothero, G.P. (2012) Surveillance of priority bryophytes in Scotland 2010-2013: *Petalophyllum ralfsii*. SNH report (unpublished at time of reporting but will appear at <http://www.snh.gov.uk/publications-data-and-research/trends/scotlands-trends/> in 2013.**

**UK distribution map data sources**

	<p><b>CCW (almost entirely derived from in-house surveys). Emailed to JNCC (LH) by Sam Bosquanet 08/08/2012</b>  <b>NBN Gateway data: British Bryological Society GA000144</b>  <b>Extracted by LH 13/09/2012 Bryophyte data for Great Britain from the British Bryological Society held by BRC</b>  <b>NBN Gateway data: extracted by LH 11/09/2012 British Bryological Society GA000144 Bryophyte data for Great Britain from the British Bryological Society held by BRC</b>  <b>NBN Gateway data: extracted by LH 11/09/2012 Centre for Environmental Data and Recording GA000926 Northern Ireland Priority Species Data Set</b>  <b>Rothero (2012) Surveillance of priority bryophytes in Scotland 2010-2013 - Petalophyllum ralfsii. Sent to JNCC (LH) by Colin McLeod of SNH by email 21/08/2014</b></p> <p>UK Distribution Map data sources</p> <p>CCW (almost entirely derived from in-house surveys). Emailed to JNCC (LH) by Sam Bosquanet 08/08/2012  NBN Gateway data: British Bryological Society GA000144 Extracted by LH 13/09/2012 Bryophyte data for Great Britain from the British Bryological Society held by BRC  NBN Gateway data: extracted by LH 11/09/2012 British Bryological Society GA000144 Bryophyte data for Great Britain from the British Bryological Society held by BRC  NBN Gateway data: extracted by LH 11/09/2012 Centre for Environmental Data and Recording GA000926 Northern Ireland Priority Species Data Set  Rothero (2012) Surveillance of priority bryophytes in Scotland 2010-2013 - Petalophyllum ralfsii. Sent to JNCC (LH) by Colin McLeod of SNH by email 21/08/2014</p>
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<b>2.3 Range</b>	
<b>2.3.1 Surface area Range</b>	<p><b>2568</b></p> <p>The surface area of the range was calculated from the map presented in 1.1.5. For further details see the 2013 Article 17 UK Approach document.</p>
<b>2.3.2 Method used Surface area of Range</b>	<p><b>Complete survey/Complete survey or a statistically robust estimate</b></p> <p>For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.</p>
<b>2.3.3 Short-term trend Period</b>	<p><b>2001-2012</b></p> <p>For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.</p>
<b>2.3.4 Short term trend Trend direction</b>	<p><b>stable</b></p> <p>The short term trend direction was derived by comparing the range map in 1.1.5 with the range map produced in the 2007 report, by</p>

	considering the range trend in the 2007 report, and by considering any further information provided by the UK country conservation agencies. For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.3.5 Short-term trend Magnitude</b> Optional	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
<b>2.3.6 Long-term trend Period</b> Optional	<b>1988-2012</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.3.7 Long-term trend Trend direction</b> Optional	<b>decrease</b>	
	The long term trend direction was derived by comparing the range map in 1.1.5 with the range map produced in the 2007 report, by considering the range trend in the 2007 report, and by considering any further information provided by the UK country conservation agencies. For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.3.8 Long-term trend Magnitude</b> Optional	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
<b>2.3.9 Favourable reference range</b>	<b>a) Value in km<sup>2</sup></b>	
	<b>b) Operator for FRR</b>	<b>approximately equal to</b>
	<b>c) FRR is unknown (indicated by "true")</b>	<b>False</b>
	For further details see the 2013 Article 17 UK Approach document.	
	<b>d) Method used to set FRR</b>	
<b>2.3.10 Reason for change</b> Is the difference between the reported value in 2.3.1 and the previous reporting round	<b>a) Genuine change?</b>	<b>False</b>
	There is negligible difference between the current range and the range reported in 2007. The slight increase is mostly due to use of a revised UK range mapping tool.	

mainly due to...	<b>b) Improved knowledge/more accurate data?</b>	<b>False</b>
	There is negligible difference between the current range and the range reported in 2007. The slight increase is mostly due to use of a revised UK range mapping tool.	
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>True</b>
	There is negligible difference between the current range and the range reported in 2007. The slight increase is mostly due to use of a revised UK range mapping tool.	

<b>2.4 Population</b>		
<b>2.4.1 Population size estimation</b> (using individuals or agreed exceptions where possible)	<b>a) Unit</b>	
	<b>b) Minimum</b>	
	<b>c) Maximum</b>	
<b>2.4.2 Population size estimation</b> (using population unit other than individuals) Optional ( <i>if 2.4.1 filled in</i> )	<b>a) Unit</b>	<b>number of localities</b>
	The population unit is the same as reported in 2007.	
	<b>b) Minimum</b>	<b>26</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	<b>c) Maximum</b>	<b>26</b>
For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.		
<b>2.4.3 Additional information on population estimates / conversion</b> Optional	<b>a) Definition of "locality"</b>	<b>SSSI / SAC site or discrete geographical location.</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	<b>b) Method to convert data</b>	
	<b>c) Problems encountered to provide population size estimation</b>	<b>1. The plant is small, numerous and scattered which precludes a direct count. 2. The plant disappears at the surface after dry spells 3. Suitable areas of habitat are not easy to define in photos or on maps and may change over time. 4. <i>Petalophyllum ralfsii</i> is a ruderal species and the population may vary markedly from year to year.</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	

<b>2.4.4 Year or period</b>	<b>2000-2012</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.5 Method used Population size</b>	<b>Complete survey/ Complete survey or a statistically robust estimate</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.6 Short-term trend Period</b>	<b>2001-2012</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.7 Short-term trend Trend direction</b>	<b>decrease 1% or less/year</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.8 Short-term trend Magnitude</b>  Optional	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
	<b>c) Confidence interval</b>	
<b>2.4.9 Short-term trend Method used</b>	<b>Complete survey/ Complete survey or a statistically robust estimate</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.10 Long-term trend – Period</b>  Optional	<b>1989-2012</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.11 Long-term trend Trend direction</b>  Optional	<b>decrease</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.12 Long-term trend Magnitude</b>  Optional	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
	<b>c) Confidence</b>	



	<b>interval</b>	
<b>2.4.13 Long term trend Method used</b> Optional	<b>Complete survey/ Complete survey or a statistically robust estimate</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.4.14 Favourable reference population</b>	<b>a) Number of individuals/agreed exceptions/other units</b>	
	<b>b) Operator</b>	<b>more than</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	<b>c) FRP is unknown (indicated by "true")</b>	<b>False</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	<b>d) Method used to set FRP</b>	
<b>2.4.15 Reason for change</b> Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	<b>a) Genuine change?</b>	<b>False</b>
	The population unit has changed from occupied thalli to localities so this question is not applicable.	
	<b>b) Improved knowledge/ more accurate data?</b>	<b>False</b>
	The population unit has changed from occupied thalli to localities so this question is not applicable.	
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>
	The population unit has changed from occupied thalli to localities so this question is not applicable.	

<b>2.5 Habitat for the species</b>	
<b>2.5.1 Area estimation</b>	
	The specific area of habitat occupied by this species in the UK is unknown.  For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

	There is thought to be a sufficient amount of habitat in the UK to support a viable population of the species.	
<b>2.5.2 Year or period</b>	<b>2001-2012</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.5.3 Method used Habitat for the species</b>	<b>Absent data</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.5.4 Quality of the habitat</b>	<b>a) Habitat quality</b>	<b>Moderate</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	<b>b) Assessment method</b>	<b>Based on expert opinion from site visits. Most locations are still OK and have extensive populations but some are becoming overgrown so an overall assessment of moderate has been selected.</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.5.5 Short-term trend Period</b>	<b>2001-2012</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.5.6 Short-term trend Trend direction</b>	<b>decrease</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.5.7 Long-term trend Period</b>	<b>1989-2012</b>	
Optional	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.5.8 Long-term trend Trend direction</b>	<b>decrease</b>	
Optional	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.5.9 Area of suitable habitat for the species</b>	<b>a) Value in km<sup>2</sup></b>	
	<b>b) Absence of data indicated as '0'</b>	
<b>2.5.10 Reason for change</b> Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	<b>a) Genuine change?</b>	<b>False</b>
	Surface area of habitat is unknown and was unknown in 2007 so no comparison is possible.	
	<b>b) Improved knowledge/more accurate data?</b>	<b>False</b>
	Surface area of habitat is unknown and was unknown in 2007 so no comparison is possible.	
	<b>c) Use of different method (e.g.</b>	<b>False</b>

	<b>"Range tool"?)</b>	
	Surface area of habitat is unknown and was unknown in 2007 so no comparison is possible.	

<b>2.6 Main pressures</b>		
<b>a) Pressure</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance (max 5 entries) M = medium importance L = low importance	
K02: Biocenotic evolution, succession	H	
A04: grazing	M	
G02: Sport and leisure structures	M	
I01: invasive non-native species	M	
J03: Other ecosystem modifications	M	
K01: abiotic (slow) natural processes	M	
B01: forest planting on open ground	L	
E01: Urbanised areas, human habitation	L	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	L	
H02: Pollution to groundwater (point sources and diffuse sources)	L	
J02: human induced changes in hydraulic conditions	L	
M01: Changes in abiotic conditions	L	

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>2.6.1 Method used – Pressures</b>	<b>based exclusively or to a larger extent on real data from sites/occurrences or other data sources</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

<b>2.7 Threats</b>		
<b>a) Threat</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance (max 5 entries) M = medium importance L = low importance	

K02: Biocenotic evolution, succession	H	
M01: Changes in abiotic conditions	H	
A04: grazing	M	
G02: Sport and leisure structures	M	
I01: invasive non-native species	M	
J03: Other ecosystem modifications	M	
K01: abiotic (slow) natural processes	M	
B01: forest planting on open ground	L	
C01: Mining and quarrying	L	
E01: Urbanised areas, human habitation	L	
G01: Outdoor sports and leisure activities, recreational activities	L	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	L	
H02: Pollution to groundwater (point sources and diffuse sources)	L	
J02: human induced changes in hydraulic conditions	L	

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

**2.7.1 Method used – Threats**

**expert opinion**

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.

**2.8 Complementary information**

**2.8.1 Justification of % thresholds for trends**

<b>2.8.2 Other relevant information</b>	<b>Supporting information provided by CCW.</b>
<b>2.8.3 Trans-boundary assessment</b>	

<b>2.9 Conclusions (<i>assessment of conservation status at end of reporting period</i>)</b>	
<b>2.9.1 Range</b>	<b>a) Conclusion</b> <b>Favourable</b>
	Range has been assessed as Favourable because range is approximately equal to the FRV and the short term range trend is stable.
	<b>b) Qualifier</b>
<b>2.9.2 Population</b>	<b>a) Conclusion</b> <b>Inadequate</b>
	Population has been assessed as Inadequate., as there has been a slight decline and the population is below the FRV, but not by more than 25%.
	<b>b) Qualifier</b> <b>declining</b>
<b>2.9.3 Habitat for the species</b>	<b>a) Conclusion</b> <b>Inadequate</b>
	Habitat for species has been assessed as Inadequate. There is thought to be sufficient habitat for the species, and quality is moderate, but trend is declining.
	<b>b) Qualifier</b> <b>declining</b>
<b>2.9.4 Future prospects</b>	<b>a) Conclusion</b> <b>Inadequate</b>
	Future prospects is assessed as Inadequate on the basis of assessments of the future prospects of the three parameters, range, population and habitat for species:  Range future prospects: Good Population future prospects: Poor Habitat future prospects: Poor Overall future prospects: Inadequate.  Populations are declining, and while most of the existing populations are in SSSIs, habitat is suffering from successional impacts.
	<b>b) Qualifier</b> <b>stable</b>
<b>2.9.5 Overall assessment of Conservation Status</b>	<b>Inadequate</b>

	The overall assessment is Inadequate., as population, habitat and future prospects are Inadequate.
<b>2.9.6 Overall trend in Conservation Status</b>	<b>stable</b>
	On balance, the overall trend is stable.

**3 Natura 2000 coverage & conservation measures - Annex II species**  
(only applies to species listed under Annex II of the Directive)

<b>3.1 Population</b>		
<b>3.1.1 Population size</b>  Estimation of population size included in the SAC network	<b>a) Unit</b>	<b>number of localities</b>
	<b>b) Minimum</b>	<b>22</b>
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
	<b>c) Maximum</b>	<b>23</b>
For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.		
<b>3.1.2 Method used</b>	<b>Complete survey/Complete survey or a statistically robust estimate</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	
<b>3.1.3 Trend of population size within the network</b> (short-term trend)  Optional	<b>decrease</b>	
	For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.	

<b>3.2 Conservation measures</b>				
Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.				
<b>3.2.1 Measure</b>	<b>3.2.2 Type</b>	<b>3.2.3 Ranking</b>	<b>3.2.4 Location</b>	<b>3.2.5 Broad evaluation of the measure</b>
		H = high importance	where the measure is PRIMARILY applied	

	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off	M = medium importance L = low importance	a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated
2.1: Maintaining grasslands and other open habitats	Y		Y	Y	Y	M	Y				Y	Y			
4.1: Restoring/improving water quality	Y			Y		L	Y				Y	Y			
4.2: Restoring/improving the hydrological regime	Y		Y	Y	Y	L	Y				Y	Y			
4.4: Restoring coastal areas			Y	Y	Y	H			Y		Y	Y			
6.1: Establish protected areas/sites	Y				Y	M			Y		Y	Y			
6.3: Legal protection of habitats and species	Y			Y		M			Y		Y	Y			
6.5: Adaptation/abolition of military land use				Y		L	Y				Y	Y			

For further details see the 2013 Article 17 UK Approach document and relevant country-level reporting information.