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 species:

S6216 - Slender green feather- moss (*Hamatocaulis vernicosus*)

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 species, 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 species 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; (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species) and/or (iv) the field was only relevant at UK-level (sections 9 Future prospects and 10 Conclusions).
- For technical reasons, the country-level future trends for Range, Population and Habitat for the species 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 11 for Annex II, IV and V species (Annex B)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK (Wales information only)**
1.2 Species code	**6216**
1.3 Species scientific name	**Hamatocaulis vernicosus**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Slender green feather- moss

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1989-2018
2.3 Distribution map	Yes
2.4 Distribution map Method used	Complete survey or a statistically robust estimate
2.5 Additional maps	No

3. Information related to Annex V Species (Art. 14)

3.1 Is the species taken in the wild/exploited?	No	
3.2 Which of the measures in Art. 14 have been taken?	a) regulations regarding access to property	No
	b) temporary or local prohibition of the taking of specimens in the wild and exploitation	No
	c) regulation of the periods and/or methods of taking specimens	No
	d) application of hunting and fishing rules which take account of the conservation of such populations	No
	e) establishment of a system of licences for taking specimens or of quotas	No
	f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens	No
	g) breeding in captivity of animal species as well as artificial propagation of plant species	No
	h) other measures	No

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3.3 Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

b) Statistics/ quantity taken	Provide statistics/quantity per hunting season or per year (where season is not used) over the reporting period					
	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
Min. (raw, ie. not rounded)						
Max. (raw, ie. not rounded)						
Unknown	No	No	No	No	No	No

3.4. Hunting bag or quantity taken in the wild Method used

3.5. Additional information

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

BLOCKEEL, T.L., BOSANQUET, S.D.S., HILL, M.O. & PRESTON, C.D., 2014, Atlas of British and Irish bryophytes. Pisces Publications, Newbury.
BOSANQUET, S.D.S. 2012. Supporting information for Countryside Council for Wales submission on Drepanocladus vernicosus.
BOSANQUET, S.D.S., HALE, A.D., MOTLEY, G.S. & WOODS, R.G. 2006, Recent work on Hamatocaulis vernicosus in Mid and South Wales. Field Bryology.
British Bryological Society database, accessed 6th February 2018

5. Range

5.1 Surface area (km²)

5.2 Short-term trend Period

5.3 Short-term trend Direction

Stable (0)

5.4 Short-term trend Magnitude

a) Minimum

b) Maximum

5.5 Short-term trend Method used

5.6 Long-term trend Period

5.7 Long-term trend Direction

5.8 Long-term trend Magnitude

a) Minimum

b) Maximum

5.9 Long-term trend Method used

5.10 Favourable reference range

a) Area (km²)

b) Operator

	c) Unknown d) Method	
5.11 Change and reason for change in surface area of range	No change The change is mainly due to:	
5.12 Additional information		

6. Population

6.1 Year or period	1989-2018	
6.2 Population size (in reporting unit)	a) Unit b) Minimum c) Maximum d) Best single value	number of map 1x1 km grid cells (grids1x1) 137
6.3 Type of estimate	Best estimate	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit b) Minimum c) Maximum d) Best single value	number of map 10x10 km grid cells (grids10x10) 49
6.5 Type of estimate	Best estimate	
6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	2007-2018	
6.8 Short-term trend Direction	Stable (0)	
6.9 Short-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	
6.10 Short-term trend Method used	Based mainly on expert opinion with very limited data	
6.11 Long-term trend Period	1995-2018	
6.12 Long-term trend Direction	Decreasing (-)	
6.13 Long-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	0.05 0.72
6.14 Long-term trend Method used	Based mainly on expert opinion with very limited data	
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size b) Operator c) Unknown d) Method	
6.16 Change and reason for change in population size	No change The change is mainly due to:	

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6.17 Additional information	There has been no monitoring of Hamatocaulis in the 2013-18 round because it was considered a low priority given limited resources, and limited monitoring in the 2007-12 round. The mapping work that led to the discovery of most south Wales populations ceased in 2010 and most took place in the 2001-2006 round. The new colonies found in the 2013-18 period, all of which are outside the Natura 2000 series, were substantial and there is no reason to think that a significant decline has taken place anywhere in Wales.

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (to maintain the species at FCS)?	Yes
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	Yes
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on extrapolation from a limited amount of data	
7.3 Short-term trend Period	2007-2018	
7.4 Short-term trend Direction	Stable (0)	
7.5 Short-term trend Method used	Based mainly on expert opinion with very limited data	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information		

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating air pollution (A27)	M
Drainage for use as agricultural land (A31)	M
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	M
Military, paramilitary or police exercises and operations on land (H01)	M
Problematic native species (I04)	M
Mixed source air pollution, air-borne pollutants (J03)	M
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H

Threat	Ranking
Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating air pollution (A27)	H

Drainage for use as agricultural land (A31)	M
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	H
Military, paramilitary or police exercises and operations on land (H01)	M
Problematic native species (I04)	M
Mixed source air pollution, air-borne pollutants (J03)	M
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H

8.2 Sources of information

8.3 Additional information

9. Conservation measures

9.1 Status of measures

a) Are measures needed? Yes

b) Indicate the status of measures Measures identified and taken

9.2 Main purpose of the measures taken: Maintain the current range, population and/or habitat for the species

9.3 Location of the measures taken: Both inside and outside Natura 2000

9.4 Response to the measures: Short-term results (within the current reporting period, 2013-2018)

9.5 List of main conservation measures

Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land (CA01)
Maintain existing extensive agricultural practices and agricultural landscape features (CA03)
Reduce/eliminate air pollution from agricultural activities (CA12)
Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)
Reduce impact of military installations and activities (CH01)
Management of problematic native species (CI05)
Reduce impact of mixed source pollution (CJ01)
Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes (CL01)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters

a) Range

b) Population

c) Habitat of the species

10.2 Additional information: Hamatocaulis populations are considered stable, many are protected by SSSI and suitable grazing management is maintained on the majority. A larger-scale ecosystem approach to Natural Resource Management may mean that rarer

species are lower priorities, and if that is the case then the management that maintains Hamatocaulis may cease.

11. Conclusions

11.1. Range	
11.2. Population	
11.3. Habitat for the species	
11.4. Future prospects	
11.5 Overall assessment of Conservation Status	
11.6 Overall trend in Conservation Status	
11.7 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:
11.8 Additional information	

12. Natura 2000 (pSCIs, SCIs and SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	35
12.2 Type of estimate	Best estimate	
12.3 Population size inside the network Method used	Complete survey or a statistically robust estimate	
12.4 Short-term trend of population size within the network Direction	Stable (0)	
12.5 Short-term trend of population size within the network Method used	Based mainly on extrapolation from a limited amount of data	
12.6 Additional information	There was no monitoring of Hamatocaulis vernicosus on Welsh SAC in 2013-18 because it was considered a low priority given limited resources. Monitoring in the 2007-12 round suggested some apparent increases and some slight declines, and the conclusion in that round is repeated here because there is no evidence to suggest circumstances have changed.	

13. Complementary information

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13.1 Justification of % thresholds for trends

13.2 Trans-boundary assessment

13.3 Other relevant Information

Distribution Map

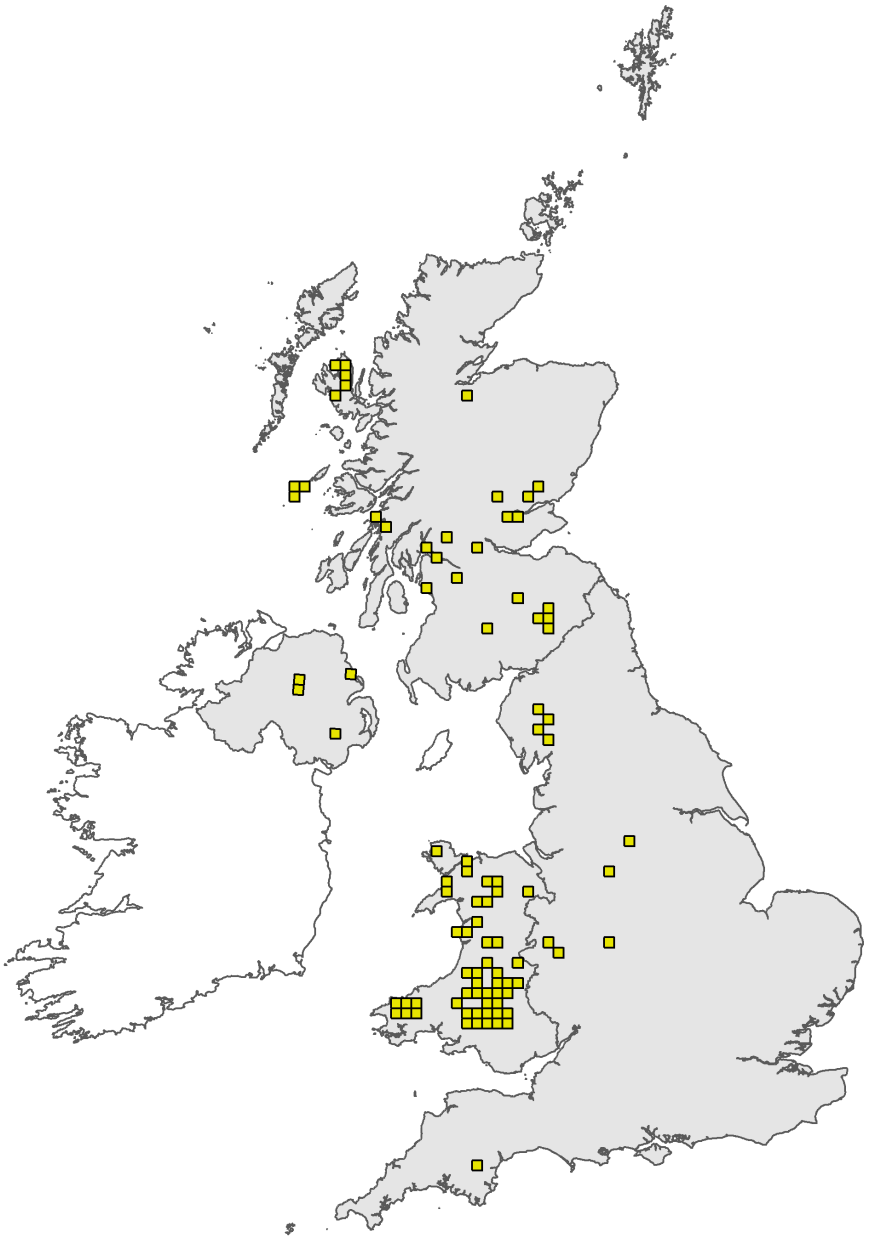

Figure 1: UK distribution map for S6216 - Slender green feather- moss (*Hamatocaulis vernicosus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available species records within the current reporting period. For further details see the 2019 Article 17 UK Approach document.

Range Map

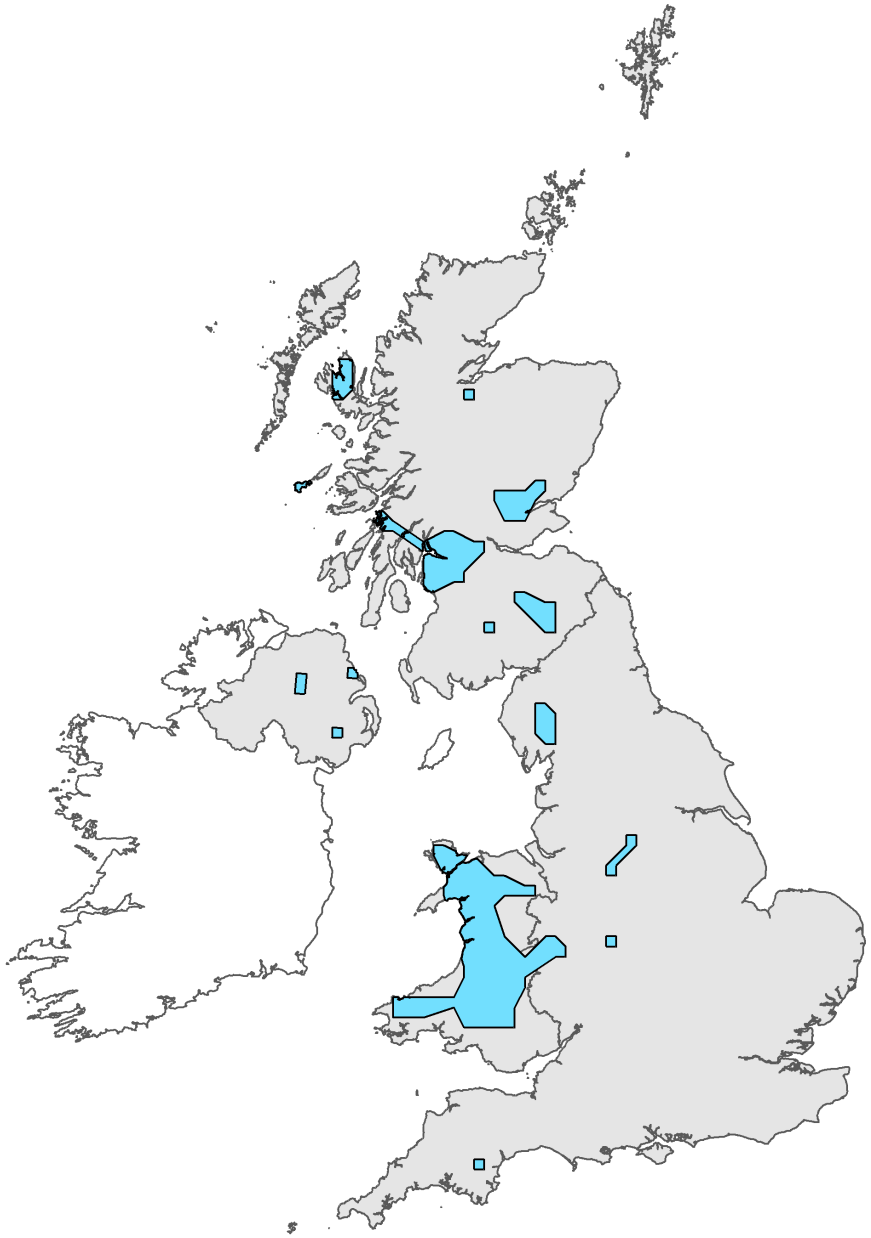

Figure 2: UK range map for S6216 - Slender green feather- moss (*Hamatocaulis vernicosus*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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 species was 20km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Hamatocaulis vernicosus (6216)

Field label	Note
2.4 Distribution map; Method used	The map covers the years 1989-2018, as was the case in the last reporting round (1989-2012). Most sites with records from 1989 to 2012 have not been revisited during the reporting period, but the majority are known to be in similar condition to when they were surveyed and are considered to be unlikely to have lost H. vernicosus.

Species name: Hamatocaulis vernicosus (6216) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	See 6.1
5.11 Change and reason for change in surface area of range	Data come from the British Bryological Society, as was the case in the last reporting period; other sources were considered likely to include identification errors.
6.1 Year or Period	The distribution map represents the population in the current reporting period (2013-2018) but includes records made between 1989 and 2013 because it is considered likely that most populations recorded in the 1990s and 2000s are still present and that a map based solely on records made between 2013 and 2018 would very significantly under-represent the population.
6.6 Population size; Method used	The map and population estimate cover the years 1989-2017, as was the case in the last reporting round. Most sites with records from 1989 to 2012 have not been revisited during the reporting period (only 7 sites were revisited in the current reporting period because H. vernicosus was considered a low priority for monitoring and surveillance), but the majority are known to be in similar condition to when they were surveyed and are considered to be unlikely to have lost H. vernicosus
6.9 Short term trend; Magnitude	Overall trend is considered stable though little recent monitoring or surveillance has been undertaken. The limited data suggests 6 recorded 1km grid units 2013-18 compared with 37 recorded 1km grid units 2007-2018, but this is considered an artifact of the differences in surveillance effort.
6.14 Long term trend; Method used	There has been no monitoring of Hamatocaulis in the 2013-18 round because it was considered a low priority given limited resources, and limited monitoring in the 2007-12 round. The mapping work that led to the discovery of most south Wales populations ceased in 2010 and most took place in the 2001-2006 round. The new colonies found in the 2013-18 period, all of which are outside the Natura 2000 series, were substantial and there is no reason to think that a significant decline has taken place anywhere in Wales.
6.17 Additional information	Regarding 6.18 - Sporophytes are very rare in Britain and their absence in Wales appears to be typical of this dioicous species.
7.1 Sufficiency of area and quality of occupied habitat	Regarding area = there are widespread colonies, although most are small. Regarding quality = surveillance suggests most occupied sites are good quality.

8.1 Characterisation of pressures/ threats	Pressures: grazing (A10) is key to maintenance of current vegetation structure suitable for Hamatocaulis, and reduced grazing on upland commons is an increasing problem, especially from bulky native species (I04). Natural succession is a pressure both on under-grazed agricultural land (A10) and on non-agricultural land where Hamatocaulis occurs (L02). Drainage (A31) is known to have destroyed populations in the past, but is now considered a medium pressure. Ammonia pollution from agriculture (A27) and long-range air pollution (J03) are medium problems. One large centre of Hamatocaulis populations is a military range, so activities there have some impacts (H01). Some recent wind (D01) and hydropower (D02) proposals have infrastructure that may disrupt Hamatocaulis colonies' hydrology. Threats: the same Pressures are likely to continue, so are also listed as Threats, but ammonia pollution (A27) and afforestation (B01) are believed to be increasing threats.
9.5 List of main conservation measures	Management on SSSIs (some of which are Natura 2000) is protecting much of the Hamatocaulis population (CI05 & CL01). Welsh Government agricultural policies prevent conversion of semi-natural habitats to agriculture (CA01, CA03) or forest (CB01). Agricultural (CA12) and non-agricultural (CJ01) pollution are being controlled by EU, GB and Welsh policies. There is ongoing work with the military to protect one large Hamatocaulis population from damage during military activities (CH01).