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:

S1390 - Western rustwort (*Marsupella profunda*)

ENGLAND

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 (England information only)**
1.2 Species code	**1390**
1.3 Species scientific name	**Marsupella profunda**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Western rustwort

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2014-2015
2.3 Distribution map	Yes
2.4 Distribution map Method used	Based mainly on extrapolation from a limited amount of data
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

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

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

British Bryological Society, 2018. Database to the end of 2017.
Blockeel, T.L., Bosanquet, S.D.S., Hill, M.O. & Preston, C.D. 2014. Atlas of British & Irish Bryophytes. Pisces Publications, Newbury.
Porley, R.D. 2013. Marsupella profunda account in England's Rare Mosses and Liverworts, Princeton University Press, Oxfordshire.

5. Range

5.1 Surface area (km²)

187.61

5.2 Short-term trend Period

2007-2014

5.3 Short-term trend Direction

Decreasing (-)

5.4 Short-term trend Magnitude

a) Minimum

b) Maximum

5.5 Short-term trend Method used

Based mainly on extrapolation from a limited amount of data

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) 1310

b) Operator

c) Unknown

d) Method The FRR is the same as in 2013. The value is considered to be large enough to support a viable population and no

lower than the range estimate when the Habitats Directive came into force in the UK. For further information see the 2019 Article 17 UK Approach document.

5.11 Change and reason for change in surface area of range	Genuine change Use of different method The change is mainly due to:	 Use of different method
5.12 Additional information	Short term trend in the range surface area is based on incomplete survey information. This is because not all localities where Marsupella profunda was recorded during the 2007-12 reporting period, or areas of suitable habitat, have been surveyed during the 2013-18 reporting round (in particular those areas within the working china clay quarries). Expert opinion considers that there has been some reduction in range since 2013, but the greatest difference between the current range and the range in 2013 is due to change in method and lack of survey information. The current range is more than 10% below the FRR. For further information see the 2019 Article 17 UK Approach document.	

6. Population

6.1 Year or period	2007-2014	
6.2 Population size (in reporting unit)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	7
6.3 Type of estimate	Minimum	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.5 Type of estimate		
6.6 Population size Method used	Based mainly on extrapolation from a limited amount of data	
6.7 Short-term trend Period	2007-2014	
6.8 Short-term trend Direction	Decreasing (-)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.10 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size b) Operator c) Unknown	21 with unit number of map 1x1 km grid cells (grids1x1)
	d) Method	The FRP has changed since 2013. The value is considered to be large enough for the population to be viable and no lower than the population estimate when the Habitats Directive came into force in the UK. The UK FRP in 2013 was an operator 'more than' but it is considered that 21 1km squares (8 localities - the population in 2007) is a viable population. For further details please see the 2019 Article 17 UK Approach document and relevant country-level reporting information.
6.16 Change and reason for change in population size	Genuine change Use of different method	
	The change is mainly due to:	Use of different method
6.17 Additional information	As not all the localities where the species was recorded in 2007-12 were surveyed in 2013-18 it is possible that the decrease in population may be less than that recorded. However, expert opinion is that some decrease has occurred. The current population is more than 25% below the FRP. For further information see the 2019 Article 17 UK Approach document.	

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)?	No
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	Unknown
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on expert opinion with very limited data	
7.3 Short-term trend Period	2007-2014	
7.4 Short-term trend Direction	Unknown (x)	
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	Not all localities where the species was recorded in 2007-2012 were surveyed during this reporting round, which may have affected the observed decrease in occupied 1x1 km grids. However, suitable habitat for the species has been declining and expert opinion is that declining china clay production at active clay pit sites may have also reduced the area of suitable habitat.	

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

8. Main pressures and threats

8.1 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
Mining and extraction activities not referred to above (C15)	M
Sports, tourism and leisure activities (F07)	M

Threat	Ranking
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H
Mining and extraction activities not referred to above (C15)	M
Sports, tourism and leisure activities (F07)	M

8.2 Sources of information

8.3 Additional information

Marsupella profunda occurs in disused and active china clay quarries, and is reliant on the quarrying to produce fresh areas of substrate for colonisation. A cessation of this quarrying activity would pose a threat to the species, in particular due to the vulnerability of Marsupella to being out-competed by more vigorous taller vegetation.
Marsupella profunda occurs in disused and active china clay quarries, and is reliant on the quarrying to produce fresh areas of substrate for colonisation. In some cases this quarrying activity may also adversely affect colonies of Marsupella, however this threat is distinctly less than that posed by the loss of suitable habitat caused by a cessation of quarrying activity.
Off-road motorbiking activities may cause damage to Marsupella profunda colonies in disused china clay quarries.

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

Medium-term results (within the next two reporting periods, 2019-2030)

9.5 List of main conservation measures

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

9.6 Additional information

10. Future prospects

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

10.1 Future prospects of parameters	a) Range	Unknown
	b) Population	Unknown
	c) Habitat of the species	Unknown
10.2 Additional information	Future trend of Range is Unknown; Future trend of Population is Unknown; and Future trend of Habitat for the species is Unknown. For further information on how future trends inform the Future Prospects conclusion see the 2019 Article 17 UK Approach document.	

11. Conclusions

11.1. Range	Unfavourable - Bad (U2)
11.2. Population	Unfavourable - Bad (U2)
11.3. Habitat for the species	Unfavourable - Inadequate (U1)
11.4. Future prospects	Unknown (XX)
11.5 Overall assessment of Conservation Status	Unfavourable - Bad (U2)
11.6 Overall trend in Conservation Status	Deteriorating (-)
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	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 more than 10% below the Favourable Reference Range. Conclusion on Population reached because: (i) the short-term trend direction in Population size is decreasing by 1% per year or less; and (ii) the current Population size is more than 25% below the Favourable Reference Population. Conclusion on Habitat for the species reached because: (i) the area of occupied habitat is not sufficiently large and (ii) the habitat quality is not adequate for the long-term survival of the species; and (iii) the short-term trend in area and quality of habitat is unknown. Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Population are unknown; and (iii) the Future prospects for Habitat for the species are unknown. Overall assessment of Conservation Status is Unfavourable-Bad because one or more of the conclusions are Unfavourable- Bad. Overall trend in Conservation Status is based on the combination of the short-term trends for Range - decreasing , Population - decreasing, and Habitat for the species - unknown. Overall assessment of Conservation Status for this species has not changed since 2013. Overall Trend in Conservation Status has not changed since 2013.

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

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	0
12.2 Type of estimate		Minimum
12.3 Population size inside the network Method used		Based mainly on extrapolation from a limited amount of data
12.4 Short-term trend of population size within the network Direction		Decreasing (-)
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		Due to a survey for Marsupella profunda not having occurred in the SACs in the 2013-2018 reporting round it is considered likely that the figure of '0' does not fully represent the population of the species within the SACs.

13. Complementary information

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 S1390 - Western rustwort (*Marsupella profunda*). 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 S1390 - Western rustwort (*Marsupella profunda*). 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 50km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Marsupella profunda (1390)

Field label	Note
2.1 Sensitive species	A small and inconspicuous species that is not considered to be at risk from collecting, hence not sensitive.
2.2 Year or Period	Species records from 2014 only have been used for this reporting round (no records of the species were available from 2013 or 2015-2018).
2.3 Distribution map	1 x 1 km grid map, produced by Natural England.
2.4 Distribution map; Method used	Records of Marsupella profunda on the British Bryological Society database.

Species name: Marsupella profunda (1390) Region code: ATL

Field label	Note
5.2 Short term trend; Period	2007 to 2014 (no records of the species were available from 2013 or 2015-2018).
5.3 Short term trend; Direction	This trend covers the years 2007 to 2014. There were fewer records in this 2013-18 reporting round, with 7 occupied 1 x 1 km squares (3 localities) recorded in 2014, compared to 21 1 x 1 km squares (8 localities) in 2007-12. However not all the localities where Marsupella was recorded in 2007-12 were surveyed in 2013-18, and it thus possible that the decrease may be less than that recorded.
5.11 Change and reason for change in surface area of range	Some observed reduction in range is likely to have been caused by not all known sites for Marsupella profunda being surveyed in 2013-2018. However expert opinion is that there has been some reduction, due to both vegetation succession on sites where there is no active quarrying for china clay, and a reduction in suitable habitat being created in active quarries.
5.12 Additional information	It is considered that change in range is best assessed as Unknown as not all localities where Marsupella profunda was recorded in 2007-12 or areas of suitable habitat were surveyed during this reporting round, in particular those areas within the working china clay quarries.
6.1 Year or Period	2007 to 2014 (no records of the species were available from 2013 or 2015-2018).
6.2 Population size	A total of 7 1x1 km grid squares were recorded as supporting Marsupella profunda in England in the 2013-18 reporting round, with records from 2014 only.
6.7 Short term trend; Period	2007 to 2014 (no records of the species were available from 2013 or 2015-2018).
6.8 Short term trend; Direction	There were fewer records in this 2013-18 reporting round, with 7 occupied 1 x 1 km squares (3 localities) recorded in 2014, compared to 21 1 x 1 km squares (8 localities) in 2007-12. Not all the localities where Marsupella was recorded in 2007-12 were surveyed in 2013-18, and it thus possible that the decrease may be less than that recorded, however expert opinion is that some decrease has occurred.
7.1 Sufficiency of area and quality of occupied habitat	Suitable habitat for the species has been declining at Lower Bostraze due to vegetation succession, and expert opinion is that declining china clay production at active clay pits sites is also likely to have reduced the area of suitable habitat.
8.1 Characterisation of pressures/ threats	Marsupella profunda occurs in disused and active china clay quarries, and is reliant on quarrying to produce fresh areas of substrate for colonisation. A cessation of this quarrying activity would pose a threat to the species, in particular due to the vulnerability of Marsupella to being out-competed by more vigorous taller vegetation.

9.1 Status of measures	Some conservation measures for Marsupella profunda have taken place, including the designation of SACs, however further measures are needed to conserve the species, in particular the maintenance and creation of bare china clay substrates suitable for colonisation, both within and outside the SAC areas.
9.5 List of main conservation measures	Marsupella profunda occurs in disused and active china clay quarries, and is reliant on quarrying to produce fresh areas of substrate for colonisation. Continuation of this quarrying activity is thus important to provide suitable habitat for the species.
10.2 Additional information	Future prospects have been assessed as Unknown as not all localities where Marsupella profunda was recorded in 2007-12 or areas of suitable habitat were surveyed during this reporting round, in particular those areas within the working china clay quarries.
11.8 Additional information	Not all localities where Marsupella was recorded in 2007-2012 were surveyed during this reporting round, which may have affected the observed decrease in occupied 1x1 km grids. However suitable habitat for the species has been declining at Lower Bostraze due to vegetation succession, and expert opinion is that declining china clay production at active clay pits sites may have also reduced the area of suitable habitat.
12.1 Population size inside the pSCIs, SCIs and SACs network	The figure of '0' is likely to be much due to a survey of SACs not having occurred within the 2013-2018 reporting round.