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

Conservation status assessment for the species:

S1378 - *Cladonia* subgenus *Cladina*

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents 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.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the species are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level 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 species (section 12 Natura 2000 coverage for Annex II species).
- The UK-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**
1.2 Species code	**1378**
1.3 Species scientific name	**Cladonia subgenus Cladina**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Cladonia subgenus Cladina subgenus of lichens

2. Maps

2.1 Sensitive species	No
2.2 Year or period	
2.3 Distribution map	No
2.4 Distribution map Method used	Insufficient or no data available
2.5 Additional maps	No

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

3.1 Is the species taken in the wild/exploited?	Yes	
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

Although the species group has been assessed with an Overall assessment of Unfavourable-inadequate, the threat from harvesting is considered to be negligible and therefore it is not necessary to report on Article 14 measures. The only known commercial harvesting of Cladina (sensu lato) in the UK relates to providing forage for a reindeer herd in Cairngorm, Scotland (Gilbert 1974). However, the amounts involved are considered insignificant and likely supplemented by imported Cladonia.

There was a negligible collection threat to Cladina lichens in the UK over the reporting period and into the foreseeable future. No evidence exists to suggest that taxa within the group have been specifically targeted, or are more vulnerable to collection, and therefore no individual species assessments have been made

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

Ahti, T. & Stenros, S. 2013. Cladonia. In: Nordic Lichen Flora, Volume 5 Cladoniaceae (ed. T. Ahti, S. Stenros & R. Moberg) 8-86. Uppsala: University of Uppsala.
Ahti, T. 2000. Cladoniaceae. Flora Neotropica Monograph 78: 1-363.
Ahti, T., Pino-Bodas, R., Flakus, A. and Stenroos, S. 2016. Additions to the global diversity of Cladonia. The Lichenologist, 48(5), pp.517-526.
Athukorala, S.N.P., Pino-Bodas, R., Stenroos, S., Ahti, T. and Piercey-Normore, M.D. 2016. Phylogenetic relationships among reindeer lichens of North America. The Lichenologist 48(3): 209-227.
Boorman, L.A. and Fuller, R.M. 1982. Effects of added nutrients on dune swards grazed by rabbits. The Journal of Ecology, pp.345-355.
British Lichen Society species distribution maps (accessed 4.7.18) http://www.britishlichensociety.org.uk/resources/species-accounts

British Lichen Society Cladina species records dataset (supplied 4.7.18 by J. Simkin)
Bullock, J.M., 2009. A long?term study of the roles of competition and facilitation in the establishment of an invasive pine following heathland fires. Journal of Ecology, 97(4), pp.646-656.
Burgaz, A. B. & Martinez, E. 2008. El genero Cladonia en la peninsula Iberica, Supergrupo Crustaceae. Bot. Complut. 32: 21-36
Cox, J., Bealey C. & Sanderson, N. A. 2015. South Downs National Park Heathland Survey. A report to the South Downs National Park by Jonathan Cox Associates.
Cross, J.R., 1975. Rhododendron Ponticum L. Journal of Ecology, 63(1), pp.345-364.
Crittenden, P.D. 2000. Aspects of the ecology of mat-forming lichens. Rangifer, 20(2-3), pp.127-139.
Davies, G.M. and Legg, C.J., 2008. The effect of traditional management burning on lichen diversity. Applied Vegetation Science, 11(4), pp.529-538.
Dolman, P.M. and Sutherland, W.J., 1992. The ecological changes of Breckland grass heaths and the consequences of management. Journal of Applied Ecology, pp.402-413.
Dolman, P.M., Panter, C.J., Mossman, H.L. 2010. Securing Biodiversity in Breckland: Guidance for Conservation and Research. First Report of the Breckland Biodiversity Audit. University of East Anglia, Norwich.
Fletcher, A., Coppins, B.J., Gilbert, O.L., James, P.W. and Lambley, P.W. 1984. Lichen Habitats, Lowland Heath, Dune and Machair, A Survey and Assessment by the British Lichen Society. A report prepared by the Heathland Working Party of the British Lichen Society, for the Nature Conservancy Council.
Forrest, G.I., 1994. Pinus sylvestris account. In: Scarce plants in Britain. Eds: Stewart, A., Pearman, D.A. and Preston, C.D., JNCC, Peterborough, UK.
Freitag, S., Hogan, E.J., Crittenden, P.D., Allison, G.G. and Thain, S.C. 2011. Alterations in the metabolic fingerprint of Cladonia portentosa in response to atmospheric nitrogen deposition. Physiologia plantarum, 143(2), pp.107-114.
Freitag, S., Feldmann, J., Raab, A., Crittenden, P.D., Hogan, E.J., Squier, A.H., Boyd, K.G. and Thain, S., 2012. Metabolite profile shifts in the heathland lichen Cladonia portentosa in response to N deposition reveal novel biomarkers. Physiologia plantarum, 146(2), pp.160-172.
Gilbert, O.L. 1974. Reindeer grazing in Britain. The Lichenologist, 6(2), pp.165-167.
Gilbert, O.L. 2000. The New Naturalist Lichens. Harper Collins, London.
Hassel, K. & Soderstrom, L. (2005) The expansion of the alien mosses Orthodontium lineare and Campylopus introflexus in Britain and continental Europe. Journal of the Hattori Botanical Laboratory, 97, 183-193.
Hyvarinen, M. & Crittenden, P.D. 1998a. Relationships between atmospheric nitrogen inputs and the vertical nitrogen and phosphorus concentration gradients in the lichen Cladonia portentosa. The New Phytologist, 140(3), pp.519-530.
Hyvarinen, M. & Crittenden, P.D. 1998b. Growth of the cushion-forming lichen, Cladonia portentosa, at nitrogen-polluted and unpolluted heathland sites. Environmental and Experimental Botany 40: 67-76
Ice2sea, 2014. Final Report Summary (Ice2sea - estimating the future contribution of continental ice to sea-level rise), Natural Environment Research Council, UK. https://www.ice2sea.eu/
Jones, M.L.M., Wallace, H.L., Norris, D., Brittain, S.A., Haria, S., Jones, R.E., Rhind, P.M., Reynolds, B.R. and Emmett, B.A. 2004. Changes in vegetation and soil characteristics in coastal sand dunes along a gradient of atmospheric nitrogen

deposition. Plant Biology, 6(5), pp.598-605.
Ketner-Oostra, R. and Sykora, K.V., 2004. Decline of lichen-diversity in calcium-poor coastal dune vegetation since the 1970s, related to grass and moss encroachment. Phytocoenologia, 34(4), pp.521-549.
Ketner-Oostra, R. and Sykora, K.V., 2008. Vegetation change in a lichen-rich inland drift sand area in the Netherlands. Phytocoenologia, 38(4), pp.267-286.
Klinck, J., 2009. The alien invasive moss Campylopus introflexus in the Danish coastal dune system (Doctoral dissertation, Master Thesis, Copenhagen University).
Maclean, J.E., Mitchell, R.J., Burslem, D.F., Genney, D., Hall, J. and Pakeman, R.J., 2018. Understorey plant community composition reflects invasion history decades after invasive Rhododendron has been removed. Journal of Applied Ecology, 55(2), pp.874-884.
Manning, A.D., Kesteven, J., Stein, J., Lunn, A., Xu, T. and Rayner, B., 2010. Could native Scots pines (Pinus sylvestris) still persist in northern England and southern Scotland? Plant Ecology & Diversity, 3(2), pp. 187-201.
McGeever, A.H. and Mitchell, F.J., 2016. Re?defining the natural range of Scots Pine (Pinus sylvestris L.): a newly discovered microrefugium in western Ireland. Journal of biogeography, 43(11), pp. 2199-2208.
Matias, L. and Jump, A.S., 2012. Interactions between growth, demography and biotic interactions in determining species range limits in a warming world: the case of Pinus sylvestris. Forest Ecology and Management, 282, pp.10-22.
Mikulaskova, E., Fajmonova, Z. and Hajek, M., 2012. Invasion of central-European habitats by the moss Campylopus introflexus. Preslia, 84(4), pp.863-886.
National Museums Northern Ireland/ Northern Ireland Environment Agency (DAERA). Cladonia dataset for Northern Ireland (Cladonia records for the period 1994-2018), supplied 28.03.18 by D. Tosh, NMNI.
Nielsen, K.E., Andersen, H.V., Strandberg, M., Lofstrom, P., Degn, H.J. and Damgaard, C. 2014. Relationship between atmospheric ammonia concentration and nitrogen content in terricolous lichen (Cladonia portentosa). Water, Air, & Soil Pollution, 225(11), p.2178.
NBN (National Biodiversity Network) Atlas website at http://www.nbnatlas.org - accessed 6.7.18
Orange, A. 1993. Cladonia azorica in the British Isles. The Lichenologist, 25(2), pp.105-114.
Pakeman, R.J., Small, J.L., Le Duc, M.G., Marrs, R.H. 2004. Success of vegetation restoration after aerial spraying of bracken (Pteridium aquilinum (L.) Kuhn) with asulam. DEFRA Research Project: Integrated bracken control & vegetation restoration: Long- term vegetation changes (extension to BD1209) - BD1226 - 1897. Defra, UK.
Pino-Bodas, R., Perez-Vargas, I., Stenroos, S., Ahti, T. & Burgaz, A.R. 2016. Sharpening the species boundaries in the Cladonia mediterranea complex (Cladoniaceae, Ascomycota). Persoonia 37: 1-12.
Purvis, O.W. and Halls, C., 1996. A review of lichens in metal-enriched environments. The Lichenologist, 28(6), pp.571-601.
Roche, J.R., Mitchell, F.J., Waldren, S. and Stefanini, B.S., 2018. Palaeoecological Evidence for Survival of Scots Pine through the Late Holocene in Western Ireland: Implications for Ecological Management. Forests (19994907), 9(6).
Rose, R.J., Webb, N.R., Clarke, R.T. and Traynor, C.H., 2000. Changes on the heathlands in Dorset, England, between 1987 and 1996. Biological Conservation, 93(1), pp.117-125.
Sanderson, N. A. 2017. The New Forest Heathland Lichen Survey 2011 - 2015.

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Natural England Joint Publication JP020. Natural England, Peterborough.
Scotland's Moorland Forum 2017. The Muirburn Code - Management of Moorland by Burning and Cutting. Scottish Natural Heritage, Inverness.
Simkin, J.M. 2011. Calaminarian grassland. Report for North Pennines AONB.
Smith, C.W., Aptroot, A., Coppins, B.J., Fletcher, A., Gilbert, O.L., James, P.W., & Wolseley, P.A. (eds.) 2009. The lichens of Great Britain and Ireland, British Lichen Society, London.
Smith, R. J., Alphandary, E., Arvidson, R., Bono, G., Chipman, B., Corkery, A., DiMegli, J., Hansen, K., Isch, K., McAlpine, J., Marks-Fife, C., Mead, B., Miller, D., Nolte, N., Ottombrino, A., Prior, T., Streich, J. , Theis, S., Vandruff, S., Wesseler, C., Wesseler, K., Wiseman, M. & McCune B. 2012. Rare inland reindeer lichens at Mima Mounds in southwest Washington State. North American Fungi 7:1-25.
Sparrius, L.B. and Kooijman, A.M., 2011. Invasiveness of Campylopus introflexus in drift sands depends on nitrogen deposition and soil organic matter. Applied vegetation science, 14(2), pp.221-229.
Stefa?ska-Krzaczek, E., 2012. Species diversity across the successional gradient of managed Scots pine stands in oligotrophic sites (SW Poland). Journal of forest science, 58(8), pp.345-356.
Stenroos. S, Hyvonen J, Myllys L, Thell, A. & Ahti, A. 2002. Phylogeny of the genus Cladonia s.lat. (Cladoniaceae, Ascomycetes) inferred from molecular, morphological, and chemical data. Cladistics 18: 237-278.
Stevens, C.J., Smart, S.M., Henrys, P.A., Maskell, L.C., Crowe, A., Simkin, J., Cheffings, C.M., Whitfield, C., Gowing, D.J., Rowe, E.C. and Dore, A.J. 2012. Terricolous lichens as indicators of nitrogen deposition: evidence from national records. Ecological Indicators, 20, pp.196-203.
Vagts, I. and Kinder, M. 1999. The response of different Cladonia species after treatment with fertilizer or lime in heathland. The Lichenologist, 31(1), pp.75-83.
Vandvik, V., Heegaard, E., Maren, I.E. and Aarrestad, P.A., 2005. Managing heterogeneity: the importance of grazing and environmental variation on post?fire succession in heathlands. Journal of Applied Ecology, 42(1), pp.139-149.
Watt, A.S., 1960. The effect of excluding rabbits from acidiphilous grassland in Breckland. The Journal of Ecology, pp.601-604.
Wong, J.L.G., Dickinson, B.G. & Thorogood, A. 2016. Assessing the scale of Sphagnum moss collection from Wales. NRW Evidence Reports. Report No 185, 38pp, Natural Resources Wales, Bangor.
Woods, R.G. 2010. A Lichen Red Data List for Wales. Plantlife, Salisbury.
Woods, R.G. 2012. Heavy-metal lichens in Wales - A management guide. Plantlife, Salisbury.
Woods, R.G. and Coppins, B.J. 2012. Species Status No. 13 A Conservation Evaluation of British Lichens and Lichenicolous Fungi. Joint Nature Conservancy Council, Peterborough.

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period	2013-2018	
5.3 Short-term trend Direction	Uncertain (u)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used	Based mainly on expert opinion with very limited data	
5.6 Long-term trend Period		
5.7 Long-term trend Direction		

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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)	227326
	b) Operator	
	c) Unknown	
	d) Method	The Favourable Reference Range (FRR) is the same as in 2013 i.e. 227,326 km2. The value was 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	No change	
	The change is mainly due to:	
5.12 Additional information	No distribution map has been created for the 2019 reporting and therefore no Range surface area has been calculated/reported in 2019. The Range surface area in the 2013 reporting was 227,326 km2. It was determined by applying an alpha hull range tool to a distribution map which used species records for the period 1960-2012. This was considered representative of the Range within the last reporting period. The 2013 assessment can be found here: http://jncc.defra.gov.uk/page-6387. Although the Favourable Reference Range (FRR) defined in 2013 has been retained, the data collected in the current reporting period was insufficient to make effective comparison to it.	

6. Population

6.1 Year or period		
6.2 Population size (in reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.3 Type of estimate		
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		
6.7 Short-term trend Period	2013-2018	
6.8 Short-term trend Direction	Uncertain (u)	
6.9 Short-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	

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6.10 Short-term trend Method used	Based mainly on expert opinion with very limited 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	
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 d) Method	Approximately equal to (≈) The Favourable Reference Population (FRP) in 2019 is the same as in 2013. The FRP in 2013 was an operator, namely 'approximately equal to' current. The population size estimate in 2013 was 1,976 (minimum) to 2,036 (maximum) number of map 10x10 km grid cells. An FRP operator has been used because it has not been possible to calculate the exact FRP. The FRP in 2013 was considered to be large enough to maintain a viable population and is no less that when the Habitats Directive came into force in the UK. For further details see the 2019 Article 17 UK Approach document. The 2013 assessment can be found here: http://jncc.defra.gov.uk/page-6387.
6.16 Change and reason for change in population size	No change The change is mainly due to:	
6.17 Additional information	Data collected within the current reporting period are insufficient to determine whether the actual (collective) population size in 2013-18 is any different to the population size estimate in the 2013 reporting, although given the range/magnitude of pressures and threats, plus studies showing direct and indirect impacts, it seems likely some declines will be apparent in the future unless the anticipated threats can be mitigated.	

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (for long-term survival)?	No
	b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)?	No
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	2013-2018	
7.4 Short-term trend Direction	Uncertain (u)	
7.5 Short-term trend Method used	Based mainly on expert opinion with very limited data	

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7.6 Long-term trend Period

7.7 Long-term trend Direction

7.8 Long-term trend Method used

7.9 Additional information

The range/magnitude of pressures and threats, plus studies showing changes in habitat quality pertinent to this species group, suggest the status of the Habitat for the species has not changed since 2013 (Unfavourable-inadequate) and the outlook is poor.

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (A07)	M
Intensive grazing or overgrazing by livestock (A09)	M
Extensive grazing or undergrazing by livestock (A10)	M
Agricultural activities generating air pollution (A27)	M
Land, water and air transport activities generating air pollution (E06)	H
Other invasive alien species (other then species of Union concern) (I02)	M
Mixed source air pollution, air-borne pollutants (J03)	M
Peat extraction (C05)	M

Threat	Ranking
Abandonment of management/use of other agricultural and agroforestry systems (all except grassland) (A07)	M
Intensive grazing or overgrazing by livestock (A09)	M
Extensive grazing or undergrazing by livestock (A10)	M
Agricultural activities generating air pollution (A27)	H
Land, water and air transport activities generating air pollution (E06)	H
Other invasive alien species (other then species of Union concern) (I02)	M
Mixed source air pollution, air-borne pollutants (J03)	H
Change of habitat location, size, and / or quality due to climate change (N05)	M

8.2 Sources of information

8.3 Additional information

9. Conservation measures

9.1 Status of measures

a) Are measures needed? No

b) Indicate the status of measures

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9.2 Main purpose of the measures taken	
9.3 Location of the measures taken	
9.4 Response to the measures	
9.5 List of main conservation measures	
9.6 Additional information	Conservation measures are only required to be reported for Annex II species. This group of species is not on Annex II.

10. Future prospects

10.1 Future prospects of parameters	a) Range	Good
	b) Population	Poor
	c) Habitat of the species	Poor
10.2 Additional information	The expected Future trend in Range is Overall stable; Future trend in Population is Negative - decreasing <=1% (one percent or less) per year on average; and Future trend in Habitat for the species is Negative - slight/moderate deterioration, based on the anticipated trajectory of threats using expert opinion. 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	Favourable (FV)
11.2. Population	Unknown (XX)
11.3. Habitat for the species	Unfavourable - Inadequate (U1)
11.4. Future prospects	Unfavourable - Inadequate (U1)
11.5 Overall assessment of Conservation Status	Unfavourable - Inadequate (U1)
11.6 Overall trend in Conservation Status	Unknown (x)
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 information on nature of change The change is mainly due to:
11.8 Additional information	Conclusion on Range reached because any evidence of a real range change of the species group since the last reporting round is lacking. In the 2013 reporting the Favourable Reference Range was set as the then 'current' calculated Range area. Conclusion on Population reached because: (i) the short-term trend direction in Population size is uncertain; and (ii) the current Population size is unknown (NB. Population has been assessed as Unknown in 2019 due to inadequacies in the data for the reporting period and the use of different analytical methods).

Conclusion on Habitat for the species reached because: (i) the area of occupied and unoccupied habitat is sufficiently large but (ii) the habitat quality is not adequate for the long-term survival of the species; and (iii) the short-term trend in area of habitat is uncertain.
Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (ii) the Future prospects for Population are poor; and (iii) the Future prospects for Habitat for the species are poor.
Overall assessment of Conservation Status is Unfavourable-inadequate because two of the conclusions are Unfavourable-inadequate.
Overall trend in Conservation Status is based on the combination of the short-term trends for Range - uncertain, Population - uncertain, and Habitat for the species - uncertain.
The Overall assessment of Conservation Status has not changed since 2013.
The Overall trend in Conservation Status has changed between 2013 and 2019 because the Range trend had changed from stable to uncertain, the Population trend has changed from stable to uncertain, the Habitat for the species trend has changed from decreasing to uncertain [note that the reason for change is due to less information/accuracy or certainty in the information available].

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 b) Minimum c) Maximum d) Best single value
12.2 Type of estimate	
12.3 Population size inside the network Method used	
12.4 Short-term trend of population size within the network Direction	
12.5 Short-term trend of population size within the network Method used	
12.6 Additional information	This group of species is not on Annex II.

13. Complementary information

13.1 Justification of % thresholds for trends	
13.2 Trans-boundary assessment	
13.3 Other relevant Information	The following eight species are known to occur in the UK: C. arbuscula (two subsp.), C. azorica, C. ciliata (two subsp.), C. mediterranea, C. mitis, C. portentosa, C. rangiferina and C. stygia. Note that although Cladonia stellaris (=Cladonia alpestris) has been purportedly reported from the UK (records all from Scotland in the years 1862 - 1884), it is today considered doubtfully British and has been excluded from this assessment. Although Cladonia uncialis is morphologically similar to the 'reindeer lichens', it

has a hard waxy cortex which produces a smooth surface. Consequently, it was excluded from former genus Cladina and it is not evaluated here.
Applying the reporting criteria and decision frameworks to species groups, such as Cladina, is intrinsically complex and has been exacerbated by species' data sets of varying quality and quantity. Therefore, there is a degree of uncertainty over the conclusions.