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:

S1400 - Large white-moss (*Leucobryum glaucum*)

NORTHERN IRELAND

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 (Northern Ireland information only)**
1.2 Species code	**1400**
1.3 Species scientific name	**Leucobryum glaucum**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Large white-moss

2. Maps

2.1 Sensitive species	No
2.2 Year or period	1994-2018
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

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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

Atherton, I., Bosanquet, S., and Lawley, M. 2010. Mosses and Liverworts of Britain and Ireland- a field guide. British Bryological Society, Plymouth.
HILL, M. O., PRESTON, C. D. & SMITH A. J. E. 1992. Atlas of the Bryophytes of Britain and Ireland; Volume 2, Mosses (Except Diplolepideae). Harley Books
Holyoak, D.T. 2003. The Distribution of Bryophytes in Ireland. Broadleaf Books, Glamorgan.
NIEA. Unpublished surveys and reports. Various years

5. Range

5.1 Surface area (km²)

5.2 Short-term trend Period

5.3 Short-term trend Direction

Unknown (x)

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	1994-2018	
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) 45
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	2007-2018	
6.8 Short-term trend Direction	Unknown (x)	
6.9 Short-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	
6.10 Short-term trend Method used	Insufficient or no data available	
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	
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

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 expert opinion with very limited data	
7.3 Short-term trend Period	2007-2018	
7.4 Short-term trend Direction	Unknown (x)	
7.5 Short-term trend Method used	Insufficient or no data available	
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
Conversion into agricultural land (excluding drainage and burning) (A01)	M
Agricultural activities generating point source pollution to surface or ground waters (A25)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Drainage for use as agricultural land (A31)	M
Intensive grazing or overgrazing by livestock (A09)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	M
Burning for agriculture (A11)	H

Threat	Ranking
Conversion into agricultural land (excluding drainage and burning) (A01)	M
Agricultural activities generating point source pollution to surface or ground waters (A25)	H
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	H
Drainage for use as agricultural land (A31)	M

Droughts and decreases in precipitation due to climate change (N02)	M
Intensive grazing or overgrazing by livestock (A09)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Conversion to forest from other land uses, or afforestation (excluding drainage) (B01)	M
Burning for agriculture (A11)	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: Medium-term results (within the next two reporting periods, 2019-2030)

9.5 List of main conservation measures

Implement climate change adaptation measures (CN02)
Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land (CA01)
Reduce/eliminate point pollution to surface or ground waters from agricultural activities (CA10)
Reduce diffuse pollution to surface or ground waters from agricultural activities (CA11)
Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)
Reduce impact of mixed source pollution (CJ01)
Adapt mowing, grazing and other equivalent agricultural activities (CA05)

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

11. Conclusions

11.1. Range

11.2. Population

11.3. Habitat for the species

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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 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	

13. Complementary information

13.1 Justification of % thresholds for trends	
13.2 Trans-boundary assessment	
13.3 Other relevant Information	

Distribution Map

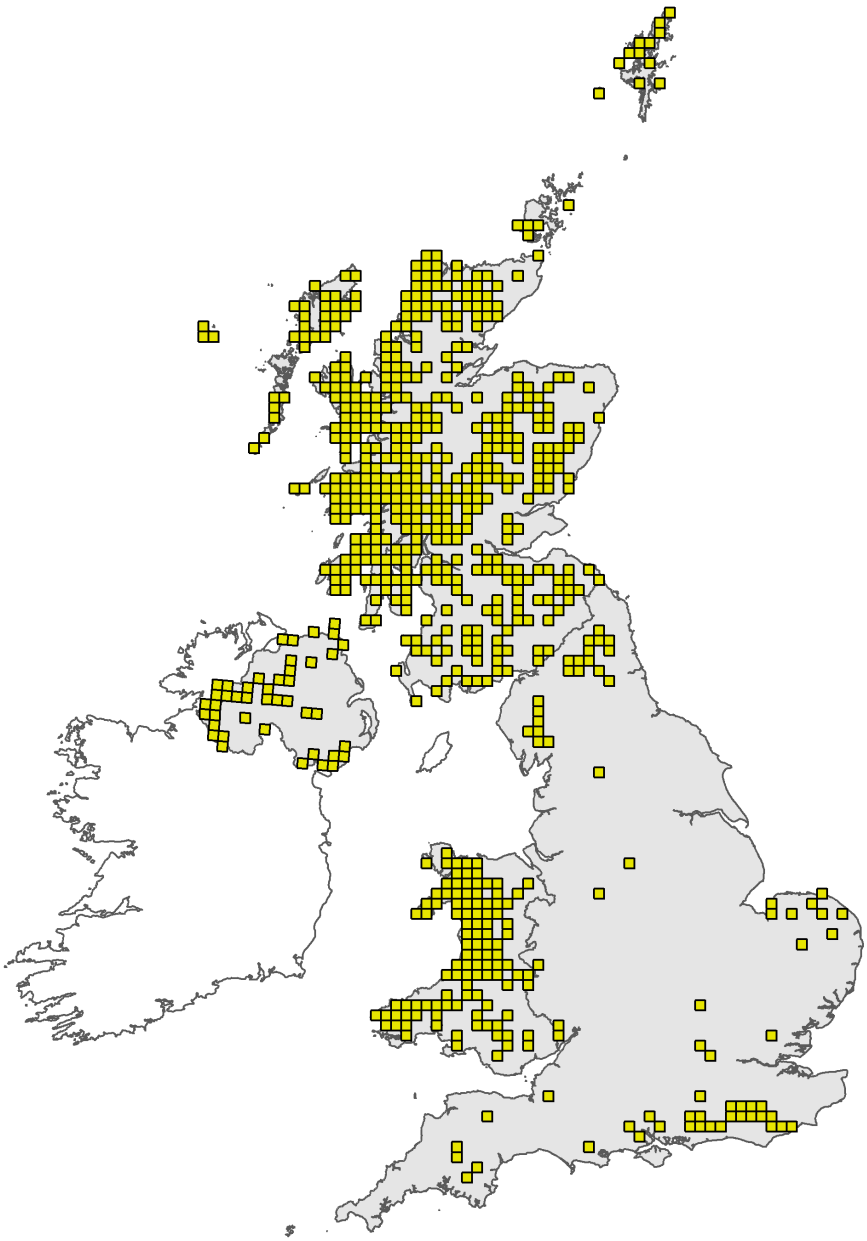

Figure 1: UK distribution map for S1400 - Large white-moss (*Leucobryum glaucum*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

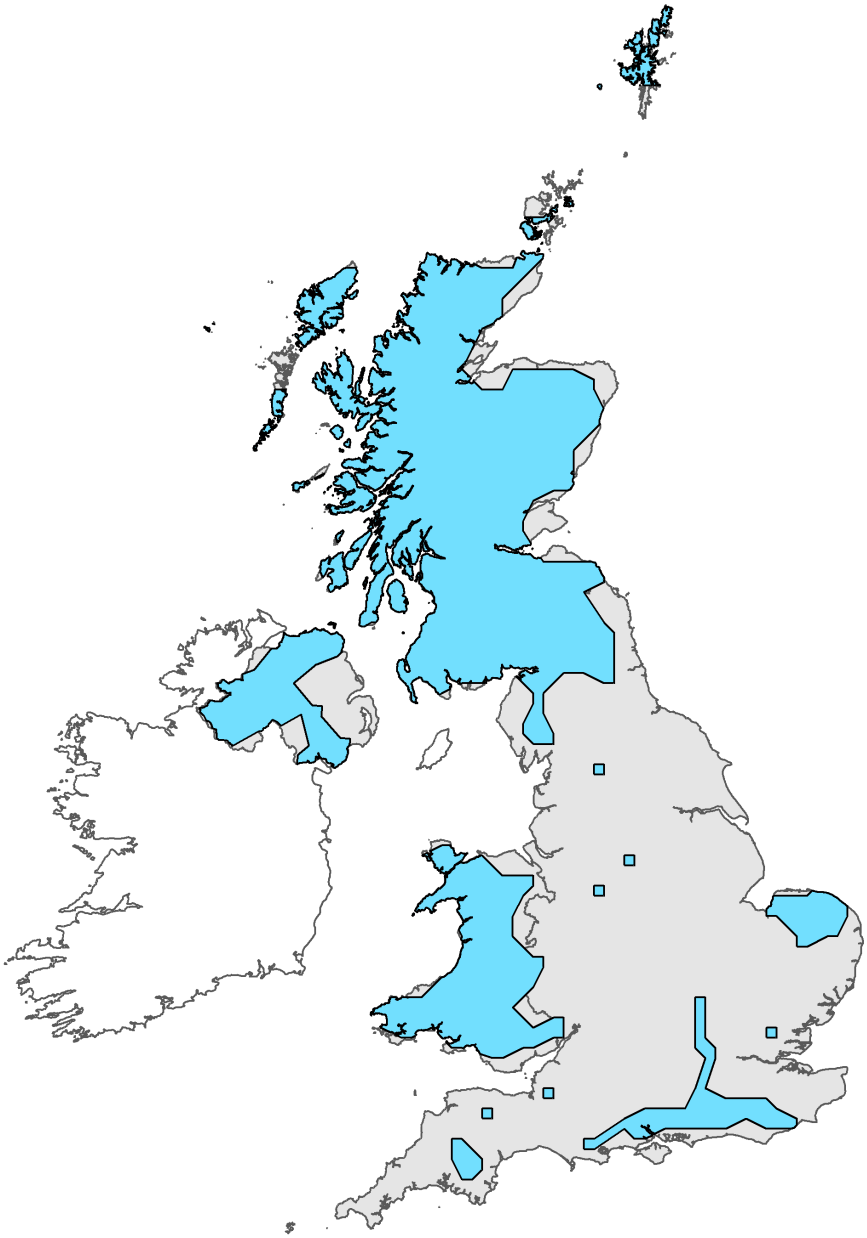

Figure 2: UK range map for S1400 - Large white-moss (*Leucobryum glaucum*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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: Leucobryum glaucum (1400)

Field label	Note
2.2 Year or Period	Due to poor recording of this species, range map is based upon all data records from 1994 (i.e. only one record from 2012-2018 period).
2.3 Distribution map	With over 40 10km square records for NI, the species is widespread, although it is likely that there are additional records for the species that are not currently on the database.

Species name: Leucobryum glaucum (1400) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	Hill et al. (1992) provides reasonable survey coverage for the whole of the UK. However, the date class is large and it is possible that there may have been significant changes within the last 50 years. Therefore, there is no way of assessing changes since 1950, and biases in recording effort mean that it is unsafe to assume that squares without recent records, but with a current record (post-1950) represent recent losses. Hence, no definitive assessment of either short-term or long-term trend can be made.
5.10 Favourable reference range	This is relatively widespread species in NI that occurs in a range of semi-natural habitats and there is no reason to believe that there has been any change in range.
6.1 Year or Period	Due to poor recording of this species, population estimate is based upon all data records from 1994 to present day (note - only 1 record post 2012).
6.2 Population size	Current distribution data suggests 45 occupied 1x1km squares. However, this should be treated with caution, as data cover an unknown period, so it is impossible to confirm current occupied squares. It is also possible that the species may occur in other squares. Hence believed to be a minimum figure for the species.
7.1 Sufficiency of area and quality of occupied habitat	Hill et al. (1992) states: 'The main habitats include acidic woodland, damp and wet heathland, moorland, and various types of mire from lowland valley bogs and fens to upland blanket bog. Although patchy in its occurrence, it may be locally plentiful and an important structural component of the ground vegetation, forming massive hummocks which become colonized by other bryophytes and vascular plants. It does not grow directly on base-rich outcrops, but is very occasionally found in grass-heath on acid soil overlying limestone.'
8.1 Characterisation of pressures/ threats	Pressures largely based upon condition assessments of associated habitats (i.e. blanket bog, wet heath, dry heath, lowland raised bog). Grazing, burning, drainage and water pollution.
11.5 Overall assessment of Conservation Status	Range and Habitat for species assessed as Favourable - given relatively widespread distribution of species across NI, in addition to amount of suitable habitat. However, given general lack of recording of the species and the uncertainty that this causes, trends in population and future prospects have to be reported as unknown. Therefore final assessment is Unknown.