# 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*)**

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 | **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 | 1989-2018 |
| 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

A recent review of moss harvesting in Wales showed no evidence of Leucobryum harvest, but there is a report of Leucobryum juniperoideum in a bottle garden (of presumed GB origin) in a Glamorgan garden centre on www.southwalesbryos.blogspot.com

## 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.
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
Air Pollution Information System (APIS) http://www.apis.ac.uk/node/866
http://www.southwalesbryos.blogspot.com/

## 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

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| | | |
|---|---|---|
| 5.10 Favourable reference range | a) Area (km²)<br>b) Operator<br>c) Unknown<br>d) Method | |
| 5.11 Change and reason for change in surface area of range | No change<br>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 | number of map 1x1 km grid cells (grids1x1) |
| | b) Minimum | |
| | c) Maximum | |
| | d) Best single value | 297 |
| 6.3 Type of estimate | Best estimate | |
| 6.4 Additional population size (using population unit other than reporting unit) | a) Unit | number of map 10x10 km grid cells (grids10x10) |
| | b) Minimum | |
| | c) Maximum | |
| | d) Best single value | 110 |
| 6.5 Type of estimate | Best 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<br>b) Maximum<br>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 | 1995-2018 | |
| 6.12 Long-term trend Direction | Decreasing (-) | |
| 6.13 Long-term trend Magnitude | a) Minimum<br>b) Maximum<br>c) Confidence interval | |
| 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<br>b) Operator<br>c) Unknown<br>d) Method | |

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| | | |
|---|---|---|
| 6.16 Change and reason for change in population size | Use of different method | |
| | The change is mainly due to: | Use of different method |
| 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)? | Unknown |
| | 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 | 2007-2018 | |
| 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 | | |

## 8. Main pressures and threats

8.1 Characterisation of pressures/threats

| Pressure | Ranking |
|---|---|
| Extensive grazing or undergrazing by livestock (A10) | H |
| Burning for agriculture (A11) | H |
| Agricultural activities generating air pollution (A27) | H |
| Conversion to forest from other land uses, or afforestation (excluding drainage) (B01) | M |
| Wind, wave and tidal power, including infrastructure (D01) | M |
| Mixed source air pollution, air-borne pollutants (J03) | H |
| Drainage (K02) | M |

| Threat | Ranking |
|---|---|
| Extensive grazing or undergrazing by livestock (A10) | H |
| Burning for agriculture (A11) | H |
| Agricultural activities generating air pollution (A27) | H |
| Conversion to forest from other land uses, or afforestation (excluding drainage) (B01) | H |
| Wind, wave and tidal power, including infrastructure (D01) | M |
| Mixed source air pollution, air-borne pollutants (J03) | H |

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Drainage (K02) 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

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

## 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

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

# 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<br>b) Minimum<br>c) Maximum<br>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

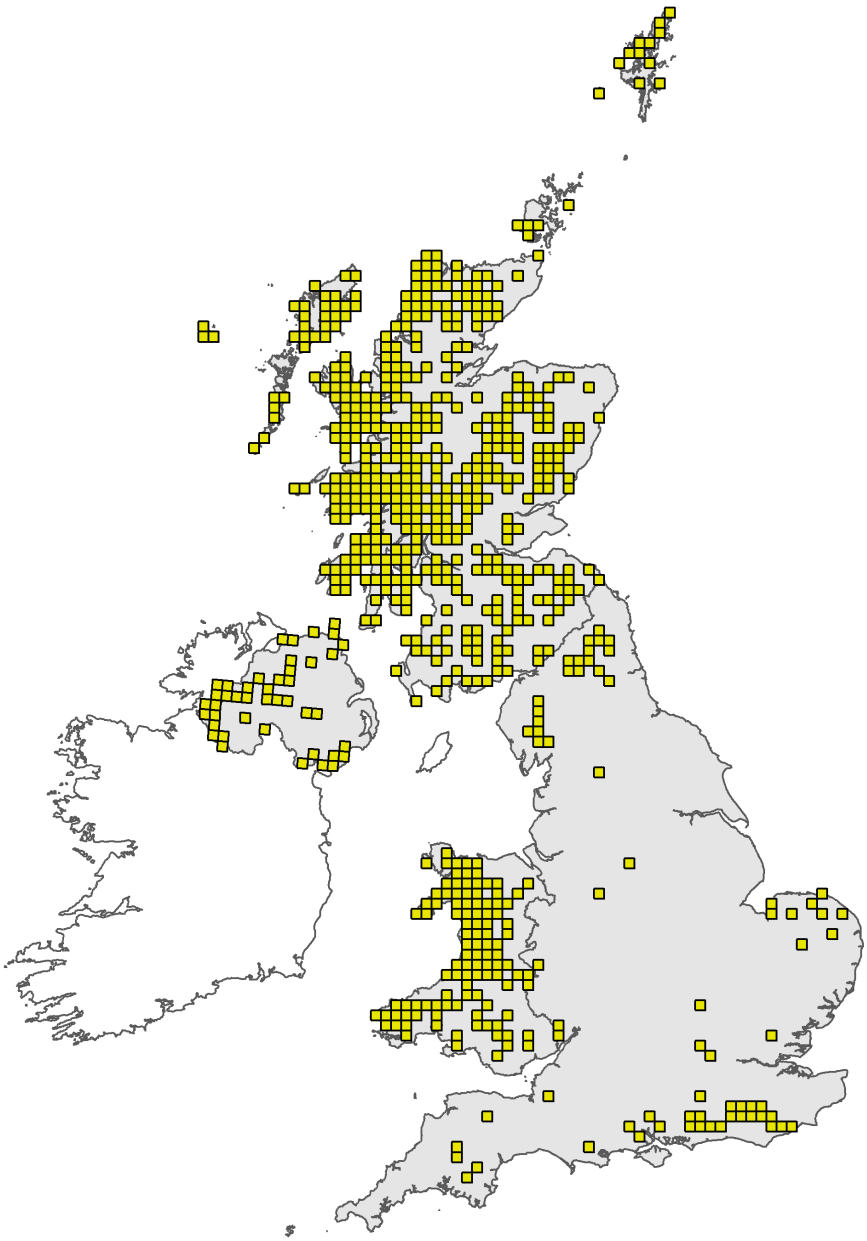

Figure 1: UK distribution map for S1400 - Large white-moss (*Leucobryum glaucum*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

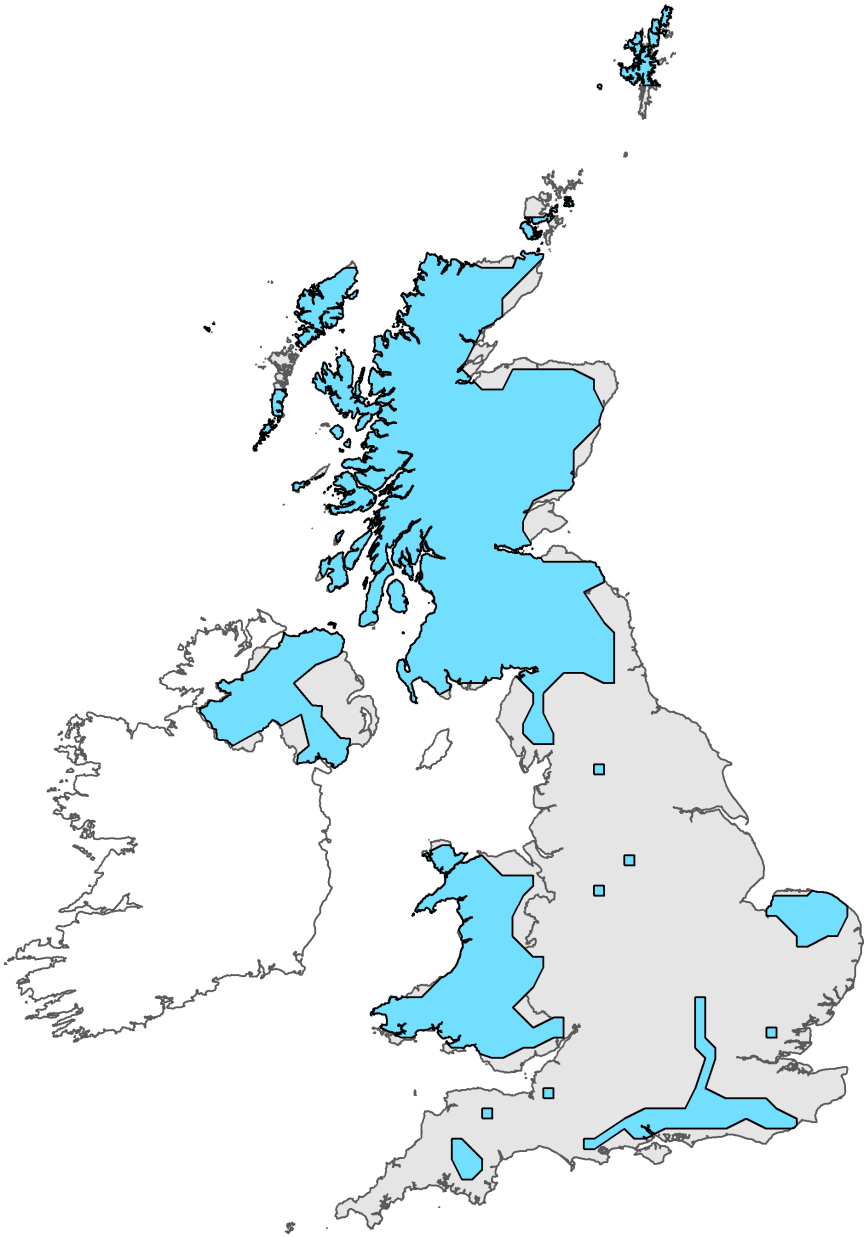

Figure 2: UK range map for S1400 - Large white-moss (*Leucobryum glaucum*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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 |
|---|---|
| 2.4 Distribution map; Method used | Coverage of Wales by bryophyte recorders has been as complete as possible, but many 10x10 km squares (let alone 1x1 km squares) will not have been surveyed since before 1989, so the map is no more than a best estimate. No attempt was made to produce a predictive map, either by reference to habitat data layers (because Leucobryum is not consistently present in any particular habitat) nor by converting 10km presence to 1km presence (more than half of all recorded 10km squares only include a record from a single 1km square, but there is massive variation in the number of recorded 1km squares per 10km). The distribution map is based on the British Bryological Society dataset, because identification difficulties with respect to Leucobryum juniperoideum were considered too complex to allow the use of non-specialist data providers. |

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

| Field label | Note |
|---|---|
| 5.3 Short term trend; Direction | See 5.11 |
| 5.11 Change and reason for change in surface area of range | There is no significant change in the distribution information used between this round and last round: the BBS dataset was used in both cases. Field recording has continued at roughly the same pace as in the last round, especially in the core parts of the range of Leucobryum. |
| 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 population size was derived by counting occupied 1x1 km squares over the period 1989-2012 using the British Bryological Society dataset |
| 6.14 Long term trend; Method used | There is no evidence to indicate a decline in the number of occupied 10x10km squares in Wales for Leucobryum, but the pressures listed in 8.1 make it reasonable to assume that there has been an overall slight decrease. However, it is considered unlikely (expert opinion based on field experience) that any decrease has led to loss of Leucobryum from a 10x10km square since 1994, merely from some sites within some 10x10km squares. British Bryological Society data suggest that some 10x10km squares that were occupied in the 1960s and 1970s in south-east Wales have lost Leucobryum. |
| 6.16 Change and reason for change in population size | The difference in recorded squares is believed (expert opinion based on extensive fieldwork in Wales over 18 years) to be the result of differences in recorder coverage rather than any genuine change. |
| 7.2 Sufficiency of area and quality of occupied habitat; Method used | There is probably enough heathland, bog and Atlantic woodland habitat in Wales to support a Favourable population of Leucobryum glaucum, but there are pressures on these habitats that mean their quality is probably not good enough. These expert opinions are based on field experience, as there are no surveys or reports explicitly considering Leucobryum in Wales (or GB). |

| | |
|---|---|
| 8.1 Characterisation of pressures/ threats | Pressures: (A10) Grazing and (A11) burning are the main current and future direct drivers of Leucobryum population, ammonia (A27) and N (J03) pollution are likely to be significant pressures (APIS), drainage (K02) is a local pressure, some Leucobryum may be collected during moss harvesting (G09) but this is believed to be rare Threats: (B01) increased afforestation of semi-natural land is a threat; the other listed pressures are likely to continue and are therefore listed as threats as well. |
| 9.1 Status of measures | No measures are considered needed because this is an annex V species and there is no known exploitation of Leucobryum in Wales (or GB) |
| 10.1 Future prospects of parameters | Current data are insufficient to be confident about the future of Leucobryum in Wales. |