# European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Supporting documentation for the Third Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2007 to December 2012
Conservation status assessment for

Species:

S1013 - Geyer's whorl snail (*Vertigo geyeri*)

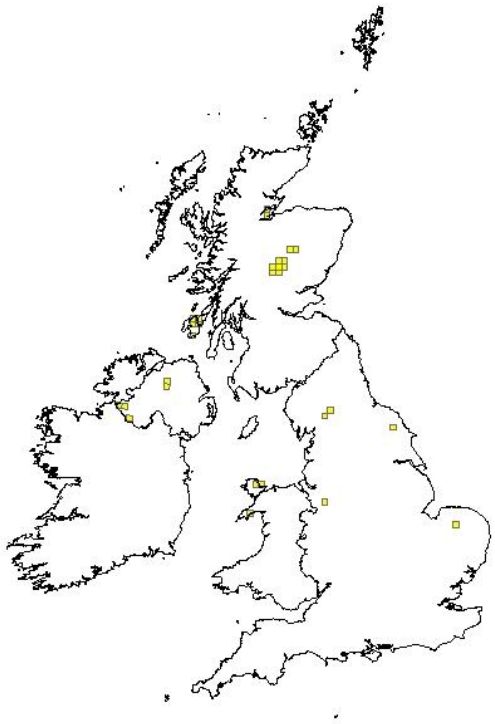
**IMPORTANT NOTE – PLEASE READ**

- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Northern Ireland Environment Agency** and refers only to the state of the habitat/species in **Northern Ireland** - it does not constitute an assessment for the whole of the UK.
- The Article 17 UK Approach document provides details on how this information has been used and, combined with information supplied by other Statutory Nature Conservation Bodies
- The format of the document is closely aligned to that set out by the European Commission for Member State reporting – as a result, some of the fields are not applicable at a country-level and have deliberately been left blank – in addition, the content of most fields is constrained by the EC reporting categories.

## Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

| *Field name* | *Brief explanations* | |
|---|---|---|
| **0.2 Species** | **0.2.1 Species code** | **S1013** |
| | **0.2.2 Species scientific name** | ***Vertigo geyeri*** |
| | **0.2.3 Alternative species scientific name** Optional | |
| | **0.2.4 Common name** Optional | **Geyer's Whorl Snail** |

| **1.1 Maps** | | | |
|---|---|---|---|
| **1.1.1 Distribution map** | | **Sensitive** | **False** |
| | | | |



| | |
|---|---|
| **1.1.2 Method used - map** | **Estimate based on partial data with some extrapolation and/or modelling** |
| | |
| **1.1.3 Year or period** | **2007-2012** |
| | |
| **1.1.4 Additional distribution map** | **False** |
| | |
| **1.1.5 Range map** | |

| | |
|---|---|
| | |

| | |
|---|---|
| **2.1 Biogeographical region & marine regions** | **ATL** |
| | |
| **2.2 Published sources** | **"Moorkens, E.A. & Killeen, I.J. (2011) Monitoring and Condition Assessment of Populations of Vertigo geyeri, Vertigo angustior and Vertigo moulinsiana in Ireland. Irish Wildlife Manuals, No. 55. National Parks and Wildlife Service, Department of Arts, Heritage and Gaeltacht, Dublin, Ireland."** |
| | |

| | | |
|---|---|---|
| **2.3 Range** | | |
| **2.3.1 Surface area Range** | **21** | |
| | A total of 21 occupied 1km x 1km squares predominantly located in the Western area of Northern Ireland. | |
| **2.3.2 Method used Surface area of Range** | **Estimate based on partial data with some extrapolation and/or modelling** | |
| | Estimate of range based on current limited distrubution of occupied 1 km squares predominantly located in the West of the province. There is potential for this species to be more widespread, due to under recording, and there is scope for a nationwide species survey and suitable habitat condition assessment to better understand the distribution of this species. | |
| **2.3.3 Short-term trend Period** | **2001-2012** | |
| | | |
| **2.3.4 Short term trend Trend direction** | **unknown** | |
| | Unknown - species was common across British Isles after last glaciation, however, living populations were only discovered in the Lake District in 1978. Increased survey effort and recording of this species gives the impression of an increase in trend, however, this is purely due to the increase in recording and survey effort. It is possible that some undiscovered populations in NI have become extinct, but it is also possible that further populations will be discovered. | |
| **2.3.5 Short-term trend Magnitude** | **a) Minimum** | |
| | | |
| | **b) Maximum** | |
| | | |
| **2.3.6 Long-term trend Period** | **1989-2012** | |
| | | |
| **2.3.7 Long-term trend** | **unknown** | |

| | | |
|---|---|---|
| **Trend direction** | Unknown - species was common across British Isles after last glaciation, however, living populations were only discovered in the Lake District in 1978. Increased survey effort and recording of this species gives the impression of an increase in trend, however, this is purely due to the increase in recording and survey effort. It is possible that some undiscovered populations in NI have become extinct, but it is also possible that further populations will be discovered. | |
| **2.3.8 Long-term trend Magnitude** Optional | **a) Minimum** | |
| | | |
| | **b) Maximum** | |
| | | |
| **2.3.9 Favourable reference range** | **a) Value in km²** | |
| | | |
| | **b) Operator for FRR** | |
| | | |
| | **c) FRR is unknown (indicated by "true")** | **False** |
| | | |
| | **d) Method used to set FRR** | |
| | | |
| **2.3.10 Reason for change** Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to… | **a) Genuine change?** | **False** |
| | | |
| | **b) Improved knowledge/more accurate data?** | **False** |
| | | |
| | **c) Use of different method (e.g. "Range tool")?** | **False** |
| | | |

| | | |
|---|---|---|
| **2.4 Population** | | |
| **2.4.1 Population size** | **a) Unit** | |

| | | |
|---|---|---|
| **estimation** (using individuals or agreed exceptions where possible) | | |
| | **b) Minimum** | |
| | | |
| | **c) Maximum** | |
| | | |
| **2.4.2 Population size estimation** (using population unit other than individuals) Optional *(if 2.4.1 filled in)* | **a) Unit** | **number of map 1x1 km grid cells** |
| | Occupied 1km squares. | |
| | **b) Minimum** | **21** |
| | Minimum number of occupied 1km squares, for this reporting round it is the current number of occupied squares. | |
| | **c) Maximum** | **21** |
| | Maximum number of occupied 1km squares, for this reporting round it is the current number of occupied squares. | |
| **2.4.3 Additional information on population estimates / conversion** Optional | **a) Definition of "locality"** | |
| | | |
| | **b) Method to convert data** | |
| | | |
| | **c) Problems encountered to provide population size estimation** | |
| | | |
| **2.4.4 Year or period** | **1999-2008** | |
| | 14 records fall into the period after 2001, 7 records were captured pre 2001 but post 1999. No stochastic events have had a negative impact on the population, the species is expected to survive and prosper. | |
| **2.4.5 Method used Population size** | **Estimate based on partial data with some extrapolation and/or modelling** | |
| | Estimate of population made on known current 1km distribution of species. Limited distribution primarily in the west of the province, however, there is potential for this species to be more widespread, due to under recording, and there is scope for a nationwide species survey and suitable habitat condition assessment to better understand the distribution of this species. | |
| **2.4.6 Short-term trend Period** | **1999-2012** | |
| | 14 records fall into the period after 2001, 7 records are pre-2001. All available records were used for this assessment as there are so few known records for this species and sifting for the period post 2001 would reduce quality of the short-term trend assessment. | |
| **2.4.7 Short-term trend Trend direction** | **stable** | |
| | Trend is stable for known locations, however, the species is likely to occur elsewhere in Northern Ireland outside of the current known distribution however this remains an unknown and there is scope for a nationwide species survey and suitable habitat condition assessment to better understand the distribution of this species. | |

| | | |
|---|---|---|
| **2.4.8 Short-term trend Magnitude** | **a) Minimum** | |
| | | |
| | **b) Maximum** | |
| | | |
| | **c) Confidence interval** | |
| | | |
| **2.4.9 Short-term trend Method used** | **Estimate based on partial data with some extrapolation and/or modelling** | |
| | 14 records fall into the period after 2001, 7 records were captured pre 2001 but post 1999. All available records were used for this assessment as there are so few known records for this species and sifting for the period post 2001 would reduce quality of the short-term trend assessment. | |
| **2.4.10 Long-term trend – Period** | **1989-2012** | |
| | No pre-1989 data used in assessment. | |
| **2.4.11 Long-term trend Trend direction** | **stable** | |
| | No pre-1989 data used in assessment. | |
| **2.4.12 Long-term trend Magnitude** Optional | **a) Minimum** | |
| | | |
| | **b) Maximum** | |
| | | |
| | **c) Confidence interval** | |
| | | |
| **2.4.13 Long term trend Method used** | **2** | |
| | All available records were used for this assessment as there are so few known records for this species. Western distribution however there is potential for undiscovered populations existing elsewhere in Northern Ireland; scope for a national survey. | |
| **2.4.14 Favourable reference population** | **a) Number of individuals/agreed exceptions/other** | **21** |

| | | |
|---|---|---|
| | **units** | |
| | The Favourable Reference Population (FRP) is 'the population in a given biogeographical region considered the minimum necessary to ensure the long-term viability of the species' (European Commission 2006). Expert opinion considers that in order to conserve the long term viability of Vertigo geyeri in the Republic of Ireland, the population Conservation Status should be based upon maintaining the current number of sites in favourable condition and not on number of individuals which is an unreliable measure. Thus sites that were classified as being in unfavourable condition for population (based on assessment of snail presence) were assessed using best expert opinion as to how much more area of occupancy they would have if they were in favourable condition. As the Favourable Reference Population of the species is greater than the Current Population, the population status is currently considered to be unfavourable. This is likely to be the case in Northern Ireland but no studies have been carried out. | |
| | **b) Operator** | |
| | | |
| | **c) FRP is unknown indicated by "true"** | **False** |
| | | |
| | **d) Method used to set FRP** | **Minimum number of occupied 1km squares in Northern Ireland** |
| | | |
| **2.4.15 Reason for change**<br>Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to: | **a) Genuine change?** | **False** |
| | | |
| | **b) Improved knowledge/more accurate data?** | **False** |
| | | |
| | **c) Use of different method (e.g. "Range tool")?** | **False** |
| | | |

| **2.5 Habitat for the species** | |
|---|---|
| **2.5.1 Area estimation** | **21** |
| | Limited known distribution to 21 x 1 km squares predominantly in the west of the province; potential for undiscovered populations to exist where suitable habitat occurs.<br><br>It is unknown whether the amount of habitat in the UK is sufficient to |

| | | |
|---|---|---|
| | support a viable population of the species. | |
| **2.5.2 Year or period** | **2007-2012** | |
| **2.5.3 Method used Habitat for the species** | **Estimate based on partial data with some extrapolation and/or modelling** | |
| | Using known distribution of species to ascertain suitable habitat for species. | |
| **2.5.4 Quality of the habitat** | **a) Habitat quality** | **Unknown** |
| | Unknown quality of habitat, habitat where species occurs is not subject to condition assessment. | |
| | **b) Assessment method** | |
| **2.5.5 Short-term trend Period** | **2001-2012** | |
| **2.5.6 Short-term trend Trend direction** | **unknown** | |
| | Unknown habitat quality across short term period of 12 years, however, no stochastic events have occured which have resulted in mass habitat loss and decrease in population. | |
| **2.5.7 Long-term trend Period** | **1989-2012** | |
| **2.5.8 Long-term trend Trend direction** | **unknown** | |
| | Unknown habitat quality across long term period of 24 years, however, no stochastic events have occured which have resulted in mass habitat loss and decrease in population. | |
| **2.5.9 Area of suitable habitat for the species** | **a) Value in km²** | **21** |
| | **b) Absence of data indicated as '0'** | |
| **2.5.10 Reason for change** Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to | **a) Genuine change?** | **False** |
| | **b) Improved knowledge/more accurate data?** | **False** |
| | **c) Use of different method (e.g. "Range tool")?** | **False** |

| 2.6 Main pressures | | |
|---|---|---|
| **a) Pressure** | **b) Ranking** | **c) Pollution qualifier** |
| | H = high importance<br>M = medium importance<br>L = low importance | |
| A04: grazing | H | |
| B01: forest planting on open ground | H | |
| K02: Biocenotic evolution, succession | H | |
| A05: livestock farming and animal breeding (without grazing) | M | |
| J03: Other ecosystem modifications | M | |
| | | |

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| A05 - grazing - under grazing in fen and fen meadow will negatively impact the population.<br>J03 - other ecosystem modifications - changes to the hydrology will negatively impact the available habitat and population.<br>B01 - Forest planting on open ground - non-native tree planting will negatively impact hydrology, shade fen areas and dry the site out.<br>K02 - Biocenotic evolution and succession - ecological sucession of the habitat ultimately leading to detrimental changes in the hydrology of the system and habitat loss and population decrease.<br>A04 - grazing - over grazing will have a negative impact on the quality of the available habitat and reduce the population. | |
| **2.6.1 Method used – Pressures** | **mainly based on expert judgement and other data** |
| | |

| 2.7 Threats | | |
|---|---|---|
| **a) Threat** | **b) Ranking** | **c) Pollution qualifier** |
| | H = high importance<br>M = medium importance<br>L = low importance | |
| A04: grazing | H | |
| B01: forest planting on open ground | H | |
| K02: Biocenotic evolution, succession | H | |
| A05: livestock farming and animal breeding (without grazing) | M | |
| J03: Other ecosystem modifications | M | |
| L08: inundation (natural processes) | L | |
| | | |

| |
|---|
| A04 - grazing - over grazing will have a negative impact on the quality of the available habitat and reduce the population.<br>K02 - Biocenotic evolution and succession - ecological sucession of the habitat ultimately leading to detrimental changes in the hydrology of the system and habitat loss and population decrease.<br>J03 - other ecosystem modifications - changes to the hydrology will negatively impact the available habitat and population.<br>A05 - grazing - under grazing in fen and fen meadow will negatively impact the population.<br>B01 - Forest planting on open ground - non-native tree planting will negatively impact hydrology, shade fen areas and dry the site out.<br>L08 - Inundation (natural processes) - an increase in the water table or similar modification to the hydrology resulting in the inundation of the fen and/or fen meadow will result in suitable habitat loss and drowning of the population. |

| | |
|---|---|
| **2.7.1 Method used – Threats** | **expert opinion** |
| | |

| **2.8 Complementary information** | |
|---|---|
| **2.8.1 Justification of % thresholds for trends** | |
| | |
| **2.8.2 Other relevant information** | |
| | Geyers Whorl Snail, Vertigo geyeri, is a species of minute land snail, a terrestrial pulmonate gastropod mollusk or micromollusk in the family Vertiginidae. Vertigo geyeri is stringent in its requirement of saturated water conditions in calcareous, ground water fed flushes that are often limited in size to a few metres square. Their habitats often occur in mosaics of suitable patches within wider fen macrohabitats, that in Ireland can themselves fall within habitats that be as diverse as raised bog laggs, transition mires, lake shores, hill or mountain slopes, and wetlands associated with coastal dunes and machair (Moorkens 2003). Within these macrohabitats, however, the snail is consistent in where it lives, within the saturated and decaying roots of small calcareous sedges (particularly Carex viridula ssp. Brachyrrhyncha), associated fen mosses (particularly Drepanocladus revolvens and Campyllium stellatum). It lives in sedges (e.g. Carex viridula, Schoenus nigricans) and mosses (e.g. Drapanocladus, Palustriella) at the interface between the water table and the base of the herb layer where the surface substrates are at or near field capacity but not subject to seasonal flooding (Cameron et al. 2003). The greatest indicator of optimum V. Geyeri habitat is the presence of a tufa-forming spring.These habitats are all restricted in size and vulnerable to disturbance and drainage activities. Vertigo geyeri is a groundwater-dependant species.<br><br>Vertigo geyeri is a boreo-alpine species, probably endemic to Europe (Kerney 1999). It is present in the Boreal, Alpine, Continental and Atlantic zones of the continent from Ireland to Russia (Cameron et al. 2003; Bank et al. 2006). It has a scattered and often localised distribution in many countries and there are documented local extinctions especially where the species occurs in isolated populations, and/or is at the edge of its range. |
| **2.8.3 Trans-boundary** | |

| **assessment** | |
|---|---|

| **2.9 Conclusions *(assessment of conservation status at end of reporting period)*** |
|---|
| Please refer to the United Kingdom assessment for this species. |

| **3 Natura 2000 coverage & conservation measures - Annex II species** ***(only applies to species listed under Annex II of the Directive)*** |
|---|

| **3.1 Population** | | |
|---|---|---|
| **3.1.1 Population size**<br><br>Estimation of population size included in the SAC network | **a) Unit** | **number of map 1x1 km grid cells** |
| | | |
| | **b) Minimum** | **0** |
| | | |
| | **c) Maximum** | **0** |
| | | |
| **3.1.2 Method used** | **Estimate based on partial data with some extrapolation and/or modelling** | |
| | | |
| **3.1.3 Trend of population size within the network** (short-term trend) | **unknown** | |
| | Species not listed as a feature in SAC network in NI. | |

| **3.2 Conservation measures** | | | | |
|---|---|---|---|---|
| Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation. | | | | |
| **3.2.1 Measure** | **3.2.2 Type** | **3.2.3 Ranking**<br><br>H = high importance | **3.2.4 Location**<br><br>where the measure is PRIMARILY applied | **3.2.5 Broad evaluation of the measure** |

| | a) Legal/statutory | b) Administrative | c) Contractual | d) Recurrent | e) One-off | M = medium importance<br>L = low importance | a) Inside | b) Outside | c) Both inside & outside | a) Maintain | b) Enhance | c) Long term | d) No effect | e) Unknown | f) Not evaluated |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.1: Maintaining grasslands and other open habitats | | | | Y | | M | | | Y | Y | Y | Y | | | |
| 4.1: Restoring/improving water quality | | | | Y | | M | | | Y | Y | Y | Y | | | |
| 4.2: Restoring/improving the hydrological regime | | | | Y | | M | | | Y | Y | Y | Y | | | |
| 6.1: Establish protected areas/sites | | | | Y | | H | | | Y | Y | Y | Y | | | |

Species not listed as a feature in SAC network in NI. However the species is listed as a feature for Lough Naman Bog and Lake ASSI. Establishing protected areas/sites for the species will contribute to its conservation value and help to ensure the population survives and prospers.