

Report under The Conservation of Habitats and  
Species Regulations 2017 (as amended),  
Regulation 9A

**2019-2024**

Conservation status assessment for the species:

**S1016 - Desmoulin's whorl snail**

***(Vertigo moulinsiana)***

**Wales**



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This report was produced by JNCC in collaboration with Natural Resources Wales.

**This document should be cited as:**

Natural Resources Wales and JNCC. (2026). Conservation status assessment for the species: S1016 Desmoulin's whorl snail (*Vertigo moulinsiana*).

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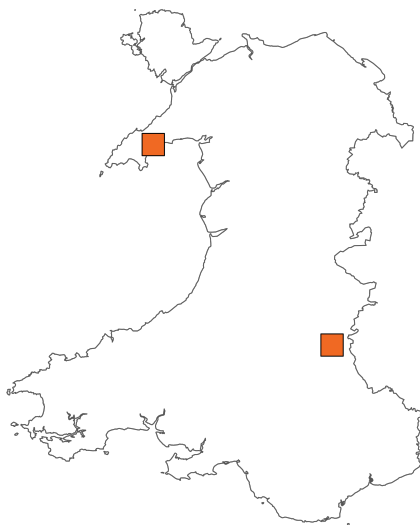
**Important note - Please read**

- The information in this document represents the Wales Report under The Conservation of Habitats and Species Regulations 2017 (as amended), Regulation 9A, for the period 2019-2024.
- It is based on supporting information provided by Natural Resources Wales, which is documented separately.
- The Habitats Regulations reporting 2019-2024 Approach Document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- Maps showing the distribution and range of the species are included.
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the assessments. Further underpinning explanatory notes are available in the related country 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 National Site Network coverage for Annex II species).

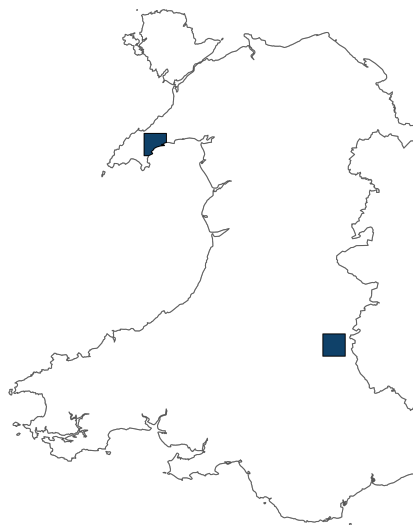
Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the [JNCC website](#).

## Assessment Summary: Desmoulin's whorl snail

### Distribution Map



### Range Map



**Figure 1:** Wales distribution and range map for S1016 - Desmoulin's whorl snail (*Vertigo moulinsiana*). 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.

**Table 1:** Table summarising the conservation status for S1016 - Desmoulin's whorl snail (*Vertigo moulinsiana*). Overall conservation status for species is based on assessments of range, population, habitat for the species, and future prospects.

### Overall Conservation Status (see section 11)

**Unfavourable-bad (U2)**

### Breakdown of Overall Conservation Status

**Range** (see section 5)

**Favourable (FV)**

**Population** (see section 6)

**Unfavourable-bad (U2)**

**Habitat for the species** (see section 7)

**Unknown (XX)**

**Future prospects** (see section 10)

**Unfavourable-bad (U2)**

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## National Level

### 1. General information

1.1 Country	Wales
1.2 Species code	S1016
1.3 Species scientific name	<i>Vertigo moulinsiana</i>
1.4 Alternative species scientific name	
1.5 Common name	Desmoulin's whorl snail
Annex(es)	II

### 2. Maps

2.1 Sensitive species	No
2.2 Year or period	1998-2024
2.3 Distribution map	Yes
2.4 Distribution map; Method used	Based mainly on extrapolation from a limited amount of data

#### 2.5 Additional information

No additional information

### 3. Information related to Annex V Species

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

#### 3.2 What measures have been taken?

##### a) Regulations regarding access to property

##### b) Temporary or local prohibition on the taking of specimens in the wild and exploitation

##### c) Regulation of the periods and/or methods of taking specimens

##### d) Application of hunting and fishing rules which take account of the conservation of such populations

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**e) Establishment of a system of licences for taking specimens or of quotas**

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**f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens**

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**g) Breeding in captivity of animal species as well as artificial propagation of plant species**

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**Other measures**

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**Other measures description**

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### **3.3: Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)**

#### **a) Unit**

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**Table 2:** Quantity taken from the wild during the reporting period (see 3.3a for units). For species with defined hunting seasons, Season 1 refers to 2018/2019 (autumn 2018 to spring 2019), and Season 6 to 2023/2024. For species without hunting seasons, data are reported by calendar year: Year 1 is 2019, and Year 6 is 2024.

	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
<b>b) Minimum</b>	-	-	-	-	-	-
<b>c) Maximum</b>	-	-	-	-	-	-
<b>d) Unknown</b>	-	-	-	-	-	-

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### **3.4: Hunting bag or quantity taken in the wild; Method used**

### **3.5: Additional information**

No additional information

## Biogeographical Level

### 4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs ATL

#### 4.2 Sources of information

See section 14 References

### 5. Range

5.1 Surface area (km<sup>2</sup>) 172.24

5.2 Short-term trend; Period 2013-2024

5.3 Short-term trend; Direction Stable

5.4 Short-term trend;  
Magnitude

a) Estimated minimum

b) Estimated maximum

c) Pre-defined range

d) Unknown

e) Type of estimate

f) Rate of decrease

5.5 Short-term trend; Method used Based mainly on extrapolation from a limited amount of data

5.6 Long-term trend; Period 2001-2024

5.7 Long-term trend; Direction Stable

5.8 Long-term trend;  
Magnitude

a) Minimum

b) Maximum

c) Rate of decrease



<b>5.9 Long-term trend; Method used</b>	Based mainly on extrapolation from a limited amount of data
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## 5.10 Favourable Reference Range (FRR)

### a) Area (km<sup>2</sup>)

<b>b) Pre-defined increment</b>	Current range is less than 2% smaller than the FRR
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<b>c) Unknown</b>	No
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<b>d) Method used</b>	Reference-based approach
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<b>e) Quality of information</b>	moderate
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## 5.11 Change and reason for change in surface area of range

<b>a) Change</b>	No
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<b>b) Genuine change</b>	
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<b>c) Improved knowledge or more accurate data</b>	
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<b>d) Different method</b>	
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<b>e) No information</b>	
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<b>f) Other reason</b>	
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<b>g) Main reason</b>	
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## 5.12 Additional information

No additional information

# 6. Population

<b>6.1 Year or period</b>	1998-2024
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## 6.2 Population size (in reporting unit)

<b>a) Unit</b>	number of map 1x1 km grid cells
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<b>b) Minimum</b>	
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<b>c) Maximum</b>	
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<b>d) Best single value</b>	4
<b>6.3 Type of estimate</b>	Best estimate
<b>6.4 Quality of extrapolation to reporting unit</b>	
<b>6.5 Additional population size (using population unit other than reporting unit)</b>	
<b>a) Unit</b>	
<b>b) Minimum</b>	
<b>c) Maximum</b>	
<b>d) Best single value</b>	
<b>e) Type of estimate</b>	
<b>6.6 Population size; Method used</b>	Based mainly on extrapolation from a limited amount of data
<b>6.7 Short-term trend; Period</b>	1998-2024
<b>6.8 Short-term trend; Direction</b>	Decreasing
<b>6.9 Short-term trend; Magnitude</b>	
<b>a) Estimated minimum</b>	
<b>b) Estimated maximum</b>	
<b>c) Pre-defined range</b>	Decreasing 0 - 12%
<b>d) Unknown</b>	No
<b>e) Type of estimate</b>	Pre-defined range
<b>f) Rate of decrease</b>	Decreasing $\leq 1\%$ (one percent or less) per year on average
<b>6.10 Short-term trend; Method used</b>	Based mainly on extrapolation from a limited amount of data
<b>6.11 Long-term trend; Period</b>	
<b>6.12 Long-term trend; Direction</b>	

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**6.13 Long-term trend;  
Magnitude****a) Minimum****b) Maximum****c) Confidence interval****d) Rate of decrease**

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**6.14 Long-term trend; Method  
used****6.15 Favourable Reference Population (FRP)****ai) Population size****aii) Unit**

<b>b) Pre-defined increment</b>	Current population is between 51% and 100% smaller than the FRP
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<b>c) Unknown</b>	No
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<b>d) Method used</b>	Expert opinion
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**e) Quality of information****6.16 Change and reason for change in population size**

<b>a) Change</b>	No
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**b) Genuine change****c) Improved knowledge or  
more accurate data****d) Different method****e) No information****f) Other reason****g) Main reason****6.17 Additional information**

No surveys of Afon Penrhos and Rhos Goch have been undertaken during the current reporting round. A survey at Cors Geirch in 2019 highlighted that the snail population

remained small and very localised after suffering a significant decline between 2008 and 2016.

**6.18 Age structure, mortality and reproduction deviation**      Unknown

## 7. Habitat for the species

### 7.1 Sufficiency of area and quality of occupied habitat (for long-term survival)

a) Is area of occupied habitat sufficient?      Unknown

b) Is quality of occupied habitat sufficient?      Unknown

c) If No or Unknown, is there a sufficiently large area of unoccupied habitat of suitable quality?      Unknown

### 7.2 Sufficiency of area and quality of occupied habitat; Method used

a) Sufficiency of area of occupied habitat; Method used      Insufficient or no data available

b) Sufficiency of quality of occupied habitat; Method used      Insufficient or no data available

**7.3 Short-term trend; Period**      1998-2024

**7.4 Short-term trend; Direction**      Decreasing

**7.5 Short-term trend; Method used**      Based mainly on extrapolation from a limited amount of data

**7.6 Long-term trend; Period**

**7.7 Long-term trend; Direction**

**7.8 Long-term trend; Method used**

**7.9 Additional information**

No additional information

## 8. Main pressures

### 8.1 Characterisation of pressures

**Table 3:** Pressures affecting the species, including timing and importance/impact ranking. Pressures are defined as factors acting currently and/or during the reporting period (2019–2024). Rankings are: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Pressure	Timing	Ranking
PA05: Abandonment of management/use of grasslands and other agricultural and agroforestry systems (e.g. cessation of grazing, mowing or traditional farming)	Ongoing and likely to be in the future	Medium (M)
PA06: Mowing or cutting of grasslands	Ongoing and likely to be in the future	High (H)
PA07: Intensive grazing or overgrazing by livestock	Ongoing and likely to be in the future	Medium (M)
PA08: Extensive grazing or undergrazing by livestock	Ongoing and likely to be in the future	Medium (M)
PA17: Agricultural activities generating pollution to surface or ground waters (including marine)	Only in future	Medium (M)
PA21: Active abstraction of water for agriculture	Only in future	Medium (M)
PA22: Drainage for use as agricultural land	Ongoing and likely to be in the future	High (H)
PJ01: Temperature changes and extremes due to climate change	Ongoing and likely to be in the future	Medium (M)
PJ03: Changes in precipitation regimes due to climate change	Ongoing and likely to be in the future	Medium (M)
PL01: Abstraction from groundwater, surface water or mixed water (mixed or unknown drivers)	Only in future	Medium (M)
PL02: Drainage (mixed or unknown drivers)	Ongoing and likely to be in the future	High (H)

PL05: Modification of hydrological flow (mixed or unknown drivers)	Only in future	Medium (M)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Ongoing and likely to be in the future	High (H)
PJ10: Change of habitat location, size, and / or quality due to climate change	Only in future	Medium (M)

## 8.2 Sources of information

See section 14 References

## 8.3 Additional information

No additional information

# 9. Conservation measures

## 9.1: Status of measures

<b>a) Are measures needed?</b>	Yes
<b>b) Indicate the status of measures</b>	Measures identified and taken
<b>9.2 Main purpose of the measures taken</b>	Restore the habitat of the species (related to 'Habitat for the species')
<b>9.3 Location of the measures taken</b>	Both inside and outside National Site Network
<b>9.4 Response to measures</b>	Medium-term results (within the next two reporting periods, 2025–2036)

## 9.5 List of main conservation measures

**Table 4:** Key conservation measures addressing current pressures and/or anticipated threats during the next two reporting periods (2025–2036). Measures are ranked by importance/impact: High (direct/immediate influence and/or large spatial extent) and Medium (moderate direct/immediate influence, mainly indirect and/or regional extent).

Conservation measure	Ranking
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MA04: Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures	Medium (M)
MA05: Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning)	Medium (M)
MA06: Stop mowing, grazing and other equivalent agricultural activities e.g. burning (incl. restore or improve habitats)	Medium (M)
MA13: Manage agricultural drainage and water abstraction (incl. the restoration of drained or hydrologically altered habitats)	Medium (M)
MJ01: Implement climate change mitigation measures	Medium (M)
MJ02: Implement climate change adaptation measures	Medium (M)
MM01: Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes that occur without direct or indirect influence from human activities or climate change	High (H)
MS03: Restoration of habitat of species from the directives	High (H)

## 9.6 Additional information

No additional information

## 10. Future prospects

### 10.1a Future trends of parameters

<b>ai) Range</b>	Very Negative - decreasing >1% (more than one percent) per year on average
<b>bi) Population</b>	Negative - decreasing ≤1% (one percent or less) per year on average
<b>ci) Habitat for the species</b>	Negative - slight/moderate deterioration

### 10.1b Future prospects of parameters

<b>a ii) Range</b>	Bad
<b>b ii) Population</b>	Bad

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<b>cii) Habitat for the species</b>	Poor
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## 10.2 Additional information

No additional information

## 11. Conclusions

<b>11.1 Range</b>	Favourable (FV)
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<b>11.2 Population</b>	Unfavourable-bad (U2)
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<b>11.3 Habitat for the species</b>	Unknown (XX)
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<b>11.4 Future prospects</b>	Unfavourable-bad (U2)
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<b>11.5 Overall assessment of Conservation Status</b>	Unfavourable-bad (U2)
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<b>11.6 Overall trend in Conservation Status</b>	Deteriorating
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### 11.7 Change and reason for change in conservation status

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

### 11.7 Change and reason for change in conservation status trend

This field is not reported as the period 2019-2024 marks the first instance in which conservation status has been assessed at the national level, meaning no comparisons to previous reports can be drawn.

### 11.8 Additional information

No additional information

## 12. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex II species

### 12.1 Population size inside the pSCIs, SCIs and SACs network



<b>a) Unit</b>	number of map 1x1 km grid cells
<b>b) Minimum</b>	
<b>c) Maximum</b>	
<b>d) Best single value</b>	2
<b>12.2 Type of estimate</b>	Best estimate
<b>12.3 Population size inside the network; Method used</b>	Based mainly on extrapolation from a limited amount of data
<b>12.4 Short-term trend of population size within the network; Direction</b>	Decreasing
<b>12.5 Short-term trend of population size within the network; Method used</b>	Based mainly on extrapolation from a limited amount of data
<b>12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction</b>	Decreasing
<b>12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used</b>	Based mainly on extrapolation from a limited amount of data
<b>12.8 Additional information</b>	
No additional information	

## 13. Complementary information

### 13.1 Justification of percentage thresholds for trends

No justification information

### 13.2 Trans-boundary assessment

No trans-boundary assessment information

### 13.2 Other relevant information

No other relevant information

## 14. References

### Biogeographical and marine regions

#### 4.2 Sources of information

- Boyce, D.C. 2008. Monitoring invertebrate features on Sites of Special Scientific Interest: the wetland invertebrate assemblage on Rhos Goch National Nature Reserve, Radnorshire. CCW Regional Report No. CCW/SEW/07/2. Countryside Council for Wales.
- Fowles, A.P. 2013. 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: S1016 – Desmoulin's Whorl Snail (*Vertigo moulinsiana*).
- Howe, M.A. 2019. European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC) Supporting documentation for the 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 Species: S1016 – Desmoulin's Whorl Snail (*Vertigo moulinsiana*).
- Howe, M.A. 2020. *Vertigo moulinsiana* account August 2020. NRW unpublished report. Natural Resources Wales, Bangor.
- Killeen, I.J. 2000. Status and distribution of Des Moulin's whorl snail *Vertigo moulinsiana* on Cors Geirch SSSI. CCW Contract Science No. 373. Countryside Council for Wales, Bangor.
- Lloyd, D. 2008. The condition of *Vertigo moulinsiana* on Corsydd Llyn / Lleyn Fens SAC. CCW File note, 10 October 2008. Countryside Council for Wales, Bangor.
- Willing, M.J. 2016. The status of Desmoulin's Whorl Snail *Vertigo moulinsiana* at Rhos Goch NNR in 2015. NRW Evidence Report No. 157. Natural Resources Wales, Bangor.
- Willing, M.J. 2017. A survey for Desmoulin's Whorl Snail *Vertigo moulinsiana* on Cors Geirch NNR/SSSI and the Afon Penrhos floodplain in 2016. NRW Evidence Report No. 210. Natural Resources Wales, Bangor.
- Willing, M.J. 2018. Surveys for Desmoulin's Whorl Snail *Vertigo moulinsiana* on Cors Geirch NNR/SSSI and the Afon Penrhos floodplain & for Geyer's Whorl Snail *Vertigo geyeri* on Cors Geirch NNR in 2017. NRW Evidence Report No. 258. Natural Resources Wales, Bangor.

Willing, M.J. 2020. Surveys for Geyer's Whorl Snail *Vertigo geyeri* on Cors Erddreiniog SSSI & Cors Geirch SSSI and for Desmoulin's Whorl Snail *Vertigo moulinsiana* on Cors Geirch SSSI in 2019. NRW Evidence Report No. 404. Natural Resources Wales, Bangor.

## **Main pressures**

### **8.2 Sources of information**

No sources of information

## 15. Explanatory Notes

Field label	Note
5.3: Short-term trend; Direction	If the recent precipitous population decline witnessed on Cors Geirch results in extirpation, this will have an immediate impact upon range.
5.11: Change and reason for change in surface area of range	No surveys of Afon Penrhos and Rhos Goch have been undertaken during the current reporting round. A survey at Cors Geirch in 2019 highlighted that the snail population remained small and very localised after suffering a significant decline between 2008 and 2016.
6.2: Population size	There have been four occupied 1x1km grids on three sites in two hectads since 1998, with 2 on Cors Geirch, 1 on Rhos Goch and 1 on Afon Penrhos floodplain. Recent records on Cors Geirch are restricted to a single 1x1km square.
7.2: Sufficiency of area and quality of occupied habitat; Methods used	<p>The area of habitat occupied by this species has not been accurately mapped on any of the three sites. On Cors Geirch, following a significant population decline from 2008 to 2016, it occupies relatively small patches of habitat. Prior to this, Lloyd (2008) repeated monitoring on Cors Geirch in 2008 and found that 93% of samples had suitable vegetation structure and composition and 100% of samples had suitable soil moisture conditions. No specific assessment of habitat quality has been attempted, although Common Standards Monitoring (Killeen 2004, Lloyd 2008) includes limited habitat attributes for the sole SAC population.</p> <p>On Rhos Goch, the snail was recorded in seven discrete pockets of fen over an area of 1.5 to 2ha but the occupied area is far smaller than this and there is a threat of scrub encroachment (Willing, 2016). On the Afon Penrhos floodplain, the snail was found to be widely distributed over an area of 8ha of fen meadow in 2016 &amp; 2017 (Willing, 2017, 2018).</p> <p>“Vertigo moulinsiana occupies a wide range of fen</p>

	<p>conditions so potentially suitable habitat could occur anywhere on wetlands throughout Wales. Many such sites have had casual surveys of one form or another without <i>moulinsiana</i> being recorded so it is likely to be highly localised in its distribution, but estimating 'suitable habitat' is a meaningless exercise. All that can be said is that it occupies most of the available habitat on the three sites on which it has been recorded." (Fowles, 2013).</p>
7.5: Short-term trend; Method used	<p>Based on observed population declines on Cors Geirch from 2008 to 2016 and the likelihood that habitat quality is deteriorating as a result of increasing shading by willow scrub.</p>
8.1: Characterisation of pressures	<p>Populations on Cors Geirch and Rhos Goch are being impacted by scrub encroachment into fen habitat (PA05). Both undergrazing (PA07) and overgrazing (PA08) may be issues on Cors Geirch. The population on Afon Penrhos floodplain has no statutory protection and is therefore more vulnerable to land use changes. Recent works including mowing/cutting for agriculture (PA06), ditch clearance and drainage (PA02 &amp; PL02) may have had a deleterious impact although the snail remains widespread where these have been undertaken.</p> <p>Populations on Cors Geirch and Rhos Goch could be threatened by run-off from adjacent agricultural land (PA17) or water abstraction (PA21 &amp; PL01). Climate change may cause increased drying out of wetland habitats (PJ01, PJ03 &amp; PL05) and/or result in habitat changes (PJ10). Existing pressures are expected to continue to impact the species over subsequent reporting periods and affect the long-term viability of the species.</p>
9.5: List of main conservation measures	<p>Recent conservation efforts on Cors Geirch and Rhos Goch have focussed on clearing scrub (MM01 &amp; MS03) to provide more open fen conditions. Some control of grazing (MA05 &amp; MA06) may be necessary on Cors Geirch. With no statutory protection, the Afon Penrhos floodplain is vulnerable to changes in agricultural practices such as grazing (MA05 &amp; MA06) and hydrology (MA13). Given its</p>

	importance in a Welsh, UK and European context, the site should be designated as a SSSI.
10.1: Future trends and prospects of parameters	<p>The population within the only Welsh SAC for <i>Vertigo moulinsiana</i> crashed between 2008 and 2016 to current low levels and has yet to recover. Population size can fluctuate dramatically in <i>Vertigo</i> species from year to year in response to habitat changes, vegetation structure, humidity, hydrology and other factors. When coupled with episodic monitoring, it is difficult to determine if populations have been lost or markedly declined. However, low counts over three consecutive surveys (2016, 2017 &amp; 2019) suggest that the population has declined significantly on Cors Geirch.</p> <p>Provided water levels are maintained, the population on Rhos Goch should be secure provided that invasive scrub is kept in check periodically.</p> <p>Whilst Afon Penrhos floodplain remains a non-statutory site, the snail population is vulnerable to drainage and changes to agricultural practices. Given its importance in a Welsh, UK and European context, the site should be designated as a SSSI.</p>
11.1: Range	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the current Range surface area is approximately equal to the Favourable Reference Range.
11.2: Population	Conclusion on Population reached because: (i) the short-term trend direction in Population size is decreasing by 1% per year or less; (ii) the current Population size is more than 25% below the Favourable Reference Population and (iii) reproduction, mortality and age structure does not have data available
11.3: Habitat for the species	Conclusion on Habitat for the species reached because: (i) it is unknown whether the area of occupied habitat is sufficiently large for long-term survival (ii) it is unknown whether the quality of occupied habitat is suitable for the long-term survival of the species; and (iii) it is unknown

	whether there is a sufficiently large area of occupied and unoccupied habitat of suitable quality for long term survival (iv) the short-term trend in area of habitat is decreasing.
11.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are bad; (ii) the Future prospects for Population are bad; and (iii) the Future prospects for Habitat for the species are poor.
11.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unfavourable-bad because two of the conclusions are Unfavourable-bad.
12.1: Population size inside the pSCIs, SCIs and SACs network	Best single value = Two 1x1km squares since 1998 on Cors Geirch but recent records restricted to a single 1km square.
12.8: Additional information	The population on Cors Geirch declined dramatically between 2008 and 2016 from 100s or 100s to single figures. Of the three Welsh populations, Cors Geirch would have ranked 2nd in terms of numbers between Afon Penrhos (a non-statutory site) and Rhos Goch (a SAC but the snail is not a SAC feature).
6.15: Favourable Reference Population (FRP)	The UK-level FRV for population was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based on current population trends and abundance.
5.10: Favourable Reference Range (FRR)	The UK-level FRV for range was developed by JNCC using an audit trail based on the year the FRV was first established and any changes made in subsequent reporting rounds. The audit may draw from any combination of the 2007, 2013, or 2019 Habitats Directive reports and reflects the full rationale used for the 2019 Article 17 reporting. This FRV was reviewed by Welsh experts and considered appropriate for use in Wales based



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on current distribution and trends.

In Wales the species is only known from three sites in the last 30-40 years.