

**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:

S1014 - Narrow-mouthed whorl snail (*Vertigo angustior*)

**IMPORTANT NOTE – PLEASE READ**

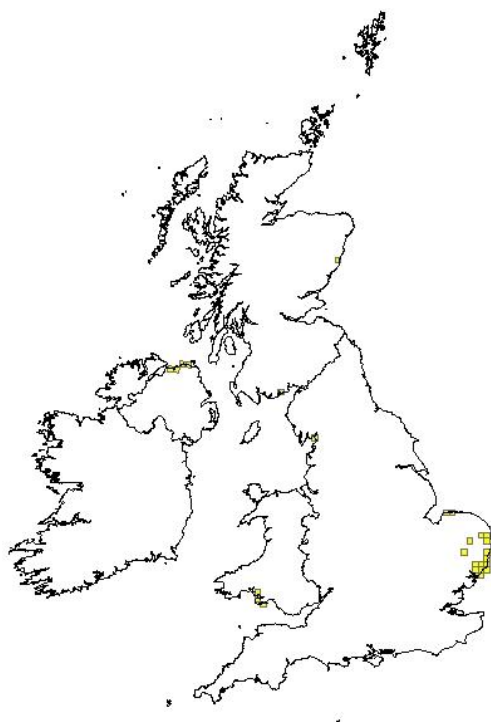
- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Natural Resources Wales** and refers only to the state of the habitat/species in **Wales** - it does not constitute an assessment 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.

As of 1 April 2013, the Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales became Natural Resources Wales/Cyfoeth Naturiol Cymru

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

<i>Field name</i>	<i>Brief explanations</i>	
<b>0.2 Species</b>	<b>0.2.1 Species code</b>	<b>S1014</b>
	<b>0.2.2 Species scientific name</b>	<b><i>Vertigo angustior</i></b>
	<b>0.2.3 Alternative species scientific name</b> Optional	
	<b>0.2.4 Common name</b> Optional	<b>Narrow-mouthed Whorl Snail</b>

<b>1.1 Maps</b>			
<b>1.1.1 Distribution map</b>		<b>Sensitive</b>	<b>False</b>



<b>1.1.2 Method used - map</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b>		
<b>1.1.3 Year or period</b>	<b>2001-2012</b>		
<b>1.1.4 Additional distribution map</b>	<b>False</b>		
<b>1.1.5 Range map</b>			

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<b>2.1 Biogeographical region &amp; marine regions</b>	<b>ATL</b>
<b>2.2 Published sources</b>	<p><b>"Fowles, A. &amp; Guest, D. 2006. Narrow-mouthed whorl snail <i>Vertigo angustior</i> at Whiteford Burrows. In: Monitoring nature conservation in cultural habitats: a practical guide and case studies. Eds. C. Hurford &amp; M. Schneider, pp. 259-270. Dordrecht, Springer.</b></p> <p><b>Harper, J. 2007. Survey of Pembrey Forest, Carmarthenshire, for the narrow-mouthed whorl snail <i>Vertigo angustior</i>. Unpublished report. Countryside Council for Wales.</b></p> <p><b>Holyoak, D.T. &amp; Willing, M.J. 1999. Survey for <i>Vertigo angustior</i> at selected localities in West Glamorgan. CCW Contract Science. 222. Countryside Council for Wales.</b></p> <p><b>Killeen, I.J. 1993. The distribution and ecology of the snail <i>Vertigo angustior</i> at Oxwich and Whiteford Burrows NNRs, Gower, South Wales. CCW Contract Science. 20. Countryside Council for Wales.</b></p> <p><b>Preece, R.C. &amp; Willing, M.J. 1984. <i>Vertigo angustior</i> living near its type locality in south Wales. <i>Journal of Conchology</i>, 31: 340.</b></p> <p><b>Wilkinson, K. 2006. <i>Vertigo angustior</i>: Monitoring of Whiteford Burrows, part of Carmarthen Bay Dunes SAC. Unpublished report. Countryside Council for Wales.</b></p> <p><b>Willing, M.S. 1997. A preliminary survey of areas in the vicinity of Pembroke for populations of the Red Data molluscs <i>Vertigo angustior</i> and <i>Pseudamnicola confusa</i>. Unpublished report. Countryside Council for Wales."</b></p>

<b>2.3 Range</b>	
<b>2.3.1 Surface area Range</b>	
<b>2.3.2 Method used Surface area of Range</b>	<p><b>Estimate based on partial data with some extrapolation and/or modelling</b></p> <p>JNCC have calculated Range from UK data using alpha-hull. This has not been separately calculated for Wales and hence the entry here does not indicate that Range analysis has taken place for Wales. It is merely a marker for JNCC to indicate the quality of the raw distribution data that was supplied to them in order to undertake the UK analysis.</p>
<b>2.3.3 Short-term trend Period</b>	
<b>2.3.4 Short term trend Trend direction</b>	<p>In Wales, <i>angustior</i> is apparently confined to a relatively small area of coastline in Carmarthenshire and West Glamorgan (Willing 1997, Holyoak &amp; Willing 1999, . New localities within this area have been found in recent years but essentially range is unchanged. Although only one of the populations has been surveyed during the reporting period</p>

	there is no reason to believe that range has contracted in Wales	
<b>2.3.5 Short-term trend Magnitude</b>	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
<b>2.3.6 Long-term trend Period</b>		
<b>2.3.7 Long-term trend Trend direction</b>		
<b>2.3.8 Long-term trend Magnitude</b>  Optional	<b>a) Minimum</b>	
	<b>b) Maximum</b>	
<b>2.3.9 Favourable reference range</b>	<b>a) Value in km<sup>2</sup></b>	
	<b>b) Operator for FRR</b>	
	<b>c) FRR is unknown (indicated by "true")</b>	False
	<b>d) Method used to set FRR</b>	
<b>2.3.10 Reason for change</b>  Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...	<b>a) Genuine change?</b>	False
	<b>b) Improved knowledge/more accurate data?</b>	False

	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.4 Population</b>		
<b>2.4.1 Population size estimation</b> (using individuals or agreed exceptions where possible)	<b>a) Unit</b>	
	<b>b) Minimum</b>	
	<b>c) Maximum</b>	
<b>2.4.2 Population size estimation</b> (using population unit other than individuals) Optional ( <i>if 2.4.1 filled in</i> )	<b>a) Unit</b>	<b>number of map 1x1 km grid cells</b>
	<b>b) Minimum</b>	<b>7</b>
	<b>c) Maximum</b>	<b>7</b>
<b>2.4.3 Additional information on population estimates / conversion</b> Optional	<b>a) Definition of "locality"</b>	
	<b>b) Method to convert data</b>	
	<b>c) Problems encountered to provide population size estimation</b>	
<b>2.4.4 Year or period</b>	<b>2006-2012</b>	Two of the Welsh populations (Oxwich and Tywyn/Pembrey) were last surveyed in 2006 (Harper 2007). SAC monitoring of the Whiteford population took place in 2012
<b>2.4.5 Method used Population size</b>	<b>Estimate based on expert opinion with no or minimal sampling</b>	
<b>2.4.6 Short-term trend Period</b>	<b>2001-2012</b>	
<b>2.4.7 Short-term trend Trend direction</b>	<b>stable</b>	
	As the population unit is 1km squares and there is no reason to suppose that populations are extinct in any of these squares a stable trend is justified	
<b>2.4.8 Short-term trend Magnitude</b>		<b>0</b>

	<b>a) Minimum</b>	
	<b>b) Maximum</b>	<b>0</b>
	<b>c) Confidence interval</b>	
<b>2.4.9 Short-term trend Method used</b>	<b>Estimate based on expert opinion with no or minimal sampling</b>	
<b>2.4.10 Long-term trend – Period</b>	<b>1989-2012</b>	
<b>2.4.11 Long-term trend Trend direction</b>	<b>stable</b>	
	Two of the populations (Oxwich and Whiteford) have been present in the same localities since their initial discovery in 1983 (Preece & Willing 1984). The population at Tywyn/Pembrey was only discovered in 2005 but is likely to have been present historically. Hence there has been no evident contraction in the number of population units (1km squares) in Wales over this period	
<b>2.4.12 Long-term trend Magnitude</b>	<b>a) Minimum</b>	<b>0</b>
Optional		
	<b>b) Maximum</b>	<b>0</b>
	<b>c) Confidence interval</b>	
<b>2.4.13 Long term trend Method used</b>	<b>1</b>	
<b>2.4.14 Favourable reference population</b>	<b>a) Number of individuals/agreed exceptions/other units</b>	
	<b>b) Operator</b>	

	<b>c) FRP is unknown indicated by "true"</b>	<b>False</b>
	<b>d) Method used to set FRP</b>	
<b>2.4.15 Reason for change</b> Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>False</b>
	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.5 Habitat for the species</b>	
<b>2.5.1 Area estimation</b>	<b>1</b> The habitat at Whiteford has been mapped (Killeen 1993, Fowles & Guest 2006) and here the snail extends over 1.8ha of saltmarsh transition. Harper (2007) indicates sample areas where <i>angustior</i> was recorded on Tywyn-Pembrey in 2006. Most of these sites are narrow (some only 50cm wide) strips between 50 and 200m long, although a larger area of Fen on Tywyn Burrows is also known to support the species. In total these areas will only amount to a couple of hectares. No habitat mapping has taken place at Oxwich and here the snail is known from small pockets of saltmarsh fen at the rear of the Burrows, probably amounting to less than 1ha.  There is thought to be a sufficient amount of habitat in the UK to support a viable population of the species.
<b>2.5.2 Year or period</b>	<b>2006-2012</b> see above for details of habitat mapping
<b>2.5.3 Method used Habitat for the species</b>	<b>Estimate based on partial data with some extrapolation and/or modelling</b> The habitat on Whiteford Burrows has been mapped in 1993 (Killeen 1993), 2001 (Fowles & Guest 2006), 2006 (Wilkinson 2006) and 2012 (K. Wilkinson 2012, pers. comm.). Habitat patches were identified in 2001 by defining the characteristics of 'optimal' habitat and plotting areas that matched this description. Subsequently transects across the saltmarsh transition zone have been assessed to record the amount of

	<p>optimal habitat within each sample section.</p> <p>On Tywyn/Pembrey areas corresponding to perceived suitable habitat were sketched onto base maps by a contractor (Harper 2007) but patches have not been plotted in detail. No mapping of the occurrence of suitable habitat has taken place on Oxwich</p>	
<b>2.5.4 Quality of the habitat</b>	<b>a) Habitat quality</b>	<b>Moderate</b>
	<p>Habitat quality has only been assessed on Whiteford SAC. In 2012 32% of sample points were assessed as in optimal condition, whereas the overall target set in the Conservation Objective is for 20% of samples to be classed as Optimal (K. Wilkinson 2012, pers. comm.). However, one of the six sections failed by 2% of its individual target due to a lack of leaf litter and the failure of this one section resulted in the condition of the Feature being reported as Unfavourable. Despite this, most of the habitat in the key stronghold on Whiteford is in good condition and hence overall a state of Moderate is appropriate</p>	
	<b>b) Assessment method</b>	<p><b>habitat quality on the SAC at Whiteford is assessed by transects across the saltmarsh transition zone and the presence of 'optimal' habitat (Fowles &amp; Guest 2006) is recorded. Pre-determined targets for the proportion of samples classed as Optimal have been set. In most sections here habitat quality is considered to be good (Wilkinson 2006). No assessment of habitat quality has taken place on Oxwich or Tywyn/Pembrey but subjective observations (Harper 2007) imply that neither site supports much habitat in good condition and most if it is in sub-optimal condition. Overall, moderate seems an appropriate classification for the condition of habitat in the Welsh populations</b></p>
	<p>Habitat quality is only assessed on the SAC at Whiteford. Here a series of transects run across the saltmarsh transition zone in six defined sections and sample points are recorded. Each is assessed against a definition of 'Optimal habitat' that uses the presence or absence of significant plant species and the occurrence of noticeable leaf litter to indicate soil moisture, brackishness, and grazing intensity. For each section targets are set as to the number of points classifying as Optimal (Fowles &amp; Guest 2006, Wilkinson 2006, K. Wilkinson 2012, pers. comm.)</p>	
<b>2.5.5 Short-term trend Period</b>	<b>2001-2012</b>	
<b>2.5.6 Short-term trend Trend direction</b>	<b>stable</b>	
	<p>The amount of suitable habitat on Whiteford is effectively unchanged since the distribution of <i>angustior</i> was first mapped here in 1993 (Killeen 1993). There have been minor fluctuations in habitat patches due to dynamic succession on the saltmarsh ecotone but overall this is insignificant. On the adjacent Cwm Ivy Marsh (managed by the National Trust) habitat quality has varied over the years but the overall extent of suitable habitat has not changed. At Oxwich, natural succession has presumably reduced the availability of suitable habitat over time but at</p>	



	<p>the time of the last survey (Harper 2007) the snail still occupied small pockets of habitat as it has done for the last thirty years or so. On Tywyn/Pembrey, where the snail was only discovered in 2005, the snail occupies dune slack fen, saltmarsh transitions and remnant dune grassland beneath conifer plantations. The establishment of the forest at Pembrey (over 50 years ago) would have caused the loss of some habitat but over the last 24 years changes will have been minimal. On Tywyn Burrows the amount of suitable habitat will fluctuate as dune slacks mature and the saltmarsh transition zone fluctuates naturally but in the long-term these changes are likely to even out and the overall amount of suitable habitat will remain relatively stable. On this basis it seems reasonable to accord 'Stable' to the short-term trend for habitat availability.</p>	
<b>2.5.7 Long-term trend Period</b>	<b>1989-2012</b>	
	<p>The amount of suitable habitat on Whiteford is effectively unchanged since the distribution of <i>angustior</i> was first mapped here in 1993 (Killeen 1993). There have been minor fluctuations in habitat patches due to dynamic succession on the saltmarsh ecotone but overall this is insignificant. On the adjacent Cwm Ivy Marsh (managed by the National Trust) habitat quality has varied over the years but the overall extent of suitable habitat has not changed. At Oxwich, natural succession has presumably reduced the availability of suitable habitat over time but at the time of the last survey (Harper 2007) the snail still occupied small pockets of habitat as it has done for the last thirty years or so. On Tywyn/Pembrey, where the snail was only discovered in 2005, the snail occupies dune slack fen, saltmarsh transitions and remnant dune grassland beneath conifer plantations. The establishment of the forest at Pembrey (over 50 years ago) would have caused the loss of some habitat but over the last 24 years changes will have been minimal. On Tywyn Burrows the amount of suitable habitat will fluctuate as dune slacks mature and the saltmarsh transition zone fluctuates naturally but in the long-term these changes are likely to even out and the overall amount of suitable habitat will remain relatively stable. On this basis it seems reasonable to accord 'Stable' to the long-term trend for habitat availability.</p>	
<b>2.5.8 Long-term trend Trend direction</b>	<b>stable</b>	
<b>2.5.9 Area of suitable habitat for the species</b>	<b>a) Value in km<sup>2</sup></b>	<b>1</b>
	<b>b) Absence of data indicated as '0'</b>	
<b>2.5.10 Reason for change</b> Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	<b>a) Genuine change?</b>	<b>False</b>
	<b>b) Improved knowledge/more accurate data?</b>	<b>False</b>

	<b>c) Use of different method (e.g. "Range tool")?</b>	<b>False</b>

<b>2.6 Main pressures</b>		
<b>a) Pressure</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance M = medium importance L = low importance	
A04: grazing	L	
K02: Biocenotic evolution, succession	L	

As angustior chiefly occupies ecotonal habitats in Wales the main pressure is from natural succession. This is held in check at Whiteford by grazing (ponies and sheep) and either under or over-grazing could cause a deterioration in habitat quality.

<b>2.6.1 Method used – Pressures</b>	<b>based only on expert judgements</b> The composition of habitat is monitored on Whiteford as part of the SAC features monitoring for angustior and this gives indications of changes to vegetation composition that reflect inappropriate gazing management and natural succession
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<b>2.7 Threats</b>		
<b>a) Threat</b>	<b>b) Ranking</b>	<b>c) Pollution qualifier</b>
	H = high importance M = medium importance L = low importance	
K02: Biocenotic evolution, succession	L	
M02: Changes in biotic conditions	L	

As indicated under Pressures, the main threat to angustior habitat in Wales is from successional changes to coastal ecotones. These could conceivably arise from natural succession if not held in check by grazing intervention or from sea-level rise if this causes significant changes in the nature of the ecotonal habitats

<b>2.7.1 Method used – Threats</b>	<b>expert opinion</b>

<b>2.8 Complementary information</b>	
<b>2.8.1 Justification of % thresholds for trends</b>	

<b>2.8.2 Other relevant information</b>	
<b>2.8.3 Trans-boundary assessment</b>	

### 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

<b>3.1.1 Population size</b>  Estimation of population size included in the SAC network	<b>a) Unit</b>	<b>number of map 1x1 km grid cells</b>
	<b>b) Minimum</b>	<b>2</b>
	<b>c) Maximum</b>	<b>2</b>
<b>3.1.2 Method used</b>	<b>Complete survey/Complete survey or a statistically robust estimate</b>	
<b>3.1.3 Trend of population size within the network</b> (short-term trend)	<b>stable</b>	
	There is one SAC population in Wales (at Whiteford), which extends over two 1km squares. This extent is historically unchanged and was confirmed in March 2012 during the most recent monitoring exercise (K. Wilkinson 2012, pers. comm.)	

#### 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  H = high importance  M = medium importance  L = low importance	3.2.4 Location  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		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		H	Y			Y					

Conservation effort to date has been confined to the maintenance of appropriate grazing levels on Whiteford Burrows