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

2019-2024

Conservation status assessment for the species:

S1014 - Narrow-mouthed whorl snail

(*Vertigo angustior*)

Wales

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JNCC

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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: Narrow-mouthed whorl snail

Distribution Map

Range Map

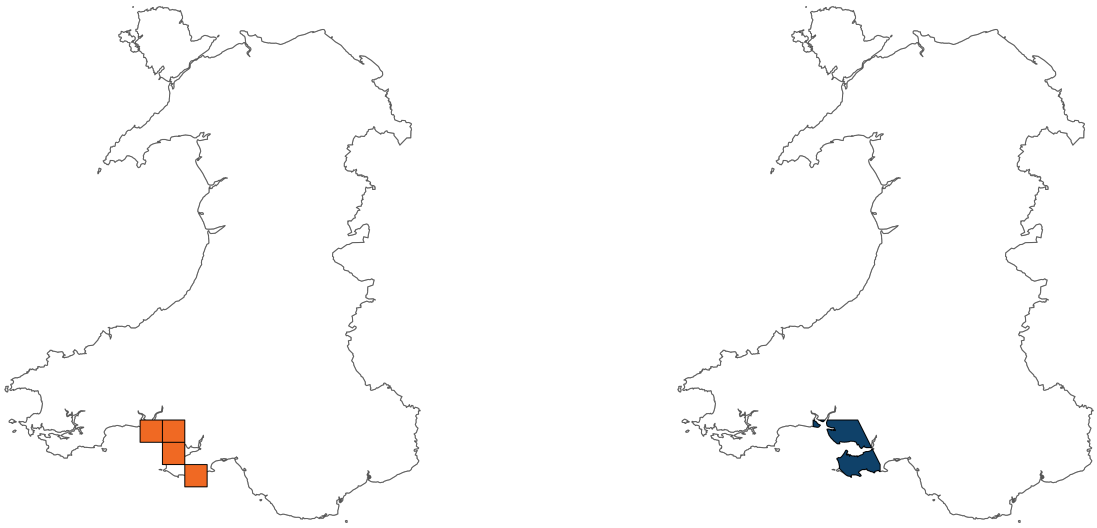

Figure 1: Wales distribution and range map for S1014 - Narrow-mouthed whorl snail (*Vertigo angustior*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas 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 S1014 - Narrow-mouthed whorl snail (*Vertigo angustior*). 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-inadequate (U1)

Breakdown of Overall Conservation Status

Range (see section 5)	**Favourable (FV)**
Population (see section 6)	**Unfavourable-inadequate (U1)**
Habitat for the species (see section 7)	**Unknown (XX)**
Future prospects (see section 10)	**Unfavourable-inadequate (U1)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Species code	S1014
1.3 Species scientific name	*Vertigo angustior*
1.4 Alternative species scientific name	
1.5 Common name	Narrow-mouthed 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

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

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

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

Other measures

Other measures description

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

a) Unit

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) Minimum	-	-	-	-	-	-
c) Maximum	-	-	-	-	-	-
d) Unknown	-	-	-	-	-	-

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 (km²)	320.08
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	Best 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	

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

5.10 Favourable Reference Range (FRR)

a) Area (km²)	
b) Pre-defined increment	Current range is less than 2% smaller than the FRR
c) Unknown	No
d) Method used	Expert opinion
e) Quality of information	

5.11 Change and reason for change in surface area of range

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

5.12 Additional information

No additional information

6. Population

6.1 Year or period	1998-2024

6.2 Population size (in reporting unit)

a) Unit	number of map 1x1 km grid cells
b) Minimum	
c) Maximum	

d) Best single value	15
6.3 Type of estimate	Best estimate
6.4 Quality of extrapolation to reporting unit	

6.5 Additional population size (using population unit other than reporting unit)

a) Unit	
b) Minimum	
c) Maximum	
d) Best single value	
e) 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	1998-2024
6.8 Short-term trend; Direction	Decreasing
6.9 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	Decreasing 0 - 12%
d) Unknown	No
e) Type of estimate	Pre-defined range
f) Rate of decrease	Decreasing <=1% (one percent or less) per year on average
6.10 Short-term trend; Method used	Based mainly on extrapolation from a limited amount of data
6.11 Long-term trend; Period	2001-2024
6.12 Long-term trend; Direction	Decreasing

6.13 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	Decreasing <=1% (one percent or less) per year on average
6.14 Long-term trend; Method used	Based mainly on extrapolation from a limited amount of data

6.15 Favourable Reference Population (FRP)

ai) Population size	
aii) Unit	
b) Pre-defined increment	Current population is between 5% and 25% smaller than the FRP
c) Unknown	No
d) Method used	Expert opinion
e) Quality of information	

6.16 Change and reason for change in population size

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

6.17 Additional information

No additional information

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	2013-2024
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
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)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Ongoing and likely to be in the future	Medium (M)
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)
PA22: Drainage for use as agricultural land	Ongoing and likely to be in the future	Medium (M)
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)
PL02: Drainage (mixed or unknown drivers)	Ongoing and likely to be in the future	Medium (M)
PM02: Flooding	Ongoing and likely to be in the future	Medium (M)
PJ04: Sea-level rise due to climate change	Only in future	Medium (M)
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

a) Are measures needed?	Yes
b) Indicate the status of measures	Measures identified, but none yet taken

9.2 Main purpose of the measures taken

9.3 Location of the measures taken

9.4 Response to measures

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
MA05: Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning)	Medium (M)
MB15: Other measures related to forestry practices	High (H)
MH04: Habitat restoration of areas related to military installations and activities and other specific human activities.	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	Medium (M)

9.6 Additional information

No additional information

10. Future prospects

10.1a Future trends of parameters

ai) Range	Overall stable
bi) Population	Negative - decreasing <=1% (one percent or less) per year on average
ci) Habitat for the species	Negative - slight/moderate deterioration

10.1b Future prospects of parameters

aii) Range	Good
bii) Population	Poor
cii) Habitat for the species	Poor

10.2 Additional information

No additional information

11. Conclusions

11.1 Range	Favourable (FV)
11.2 Population	Unfavourable-inadequate (U1)
11.3 Habitat for the species	Unknown (XX)
11.4 Future prospects	Unfavourable-inadequate (U1)
11.5 Overall assessment of Conservation Status	Unfavourable-inadequate (U1)
11.6 Overall trend in Conservation Status	Deteriorating

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

a) Unit	number of map 1x1 km grid cells
b) Minimum	
c) Maximum	
d) Best single value	5
12.2 Type of estimate	Best estimate
12.3 Population size inside the network; Method used	Based mainly on extrapolation from a limited amount of data
12.4 Short-term trend of population size within the network; Direction	Stable
12.5 Short-term trend of population size within the network; Method used	Based mainly on extrapolation from a limited amount of data

12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction	Stable
12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used	Based mainly on extrapolation from a limited amount of data

12.8 Additional information

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

Fowles, A. & Guest, D. 2006. Narrow-mouthed whorl snail Vertigo angustior at Whiteford Burrows. In: Monitoring nature conservation in cultural habitats: a practical guide and case studies. Eds. C. Hurford & M. Schneider, pp. 259-270. Dordrecht, Springer.

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: S1014 - Narrow-mouthed whorl snail (Vertigo angustior).

Harper, J. 2007. Survey of Pembrey Forest, Carmarthenshire, for the narrow-mouthed whorl snail Vertigo angustior. Unpublished report. Countryside Council for Wales.

Harper, J. 2014. Surveillance of the narrow-mouthed whorl snail Vertigo angustior at Pembrey, Carmarthen Bay Dunes SAC. NRW Evidence Report No. 10. Natural Resources Wales, Bangor.

Holyoak, D.T. & Willing, M.J. 1999. Survey for Vertigo angustior at selected localities in West Glamorgan. CCW Contract Science Report No. 222. Countryside Council for Wales, Bangor.

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: S1014 – Narrow-mouthed Whorl Snail (Vertigo angustior).

Howe, M.A. 2020. Vertigo angustior account August 2020. NRW unpublished report. Natural Resources Wales, Bangor.

Killeen, I.J. 1993. The distribution and ecology of the snail Vertigo angustior at Oxwich and Whiteford Burrows NNRs, Gower, South Wales. CCW Contract Science. Report No. 20. Countryside Council for Wales, Bangor

Preece, R.C. & Willing, M.J. 1984. Vertigo angustior living near its type locality in south Wales. Journal of Conchology. 31: 340.

Wilkinson, K. 2006. Vertigo angustior: Monitoring of Whiteford Burrows, part of Carmarthen Bay Dunes SAC. Unpublished report. Countryside Council for Wales.

Wilkinson, K. 2012. Vertigo angustior Carmarthen Bay Dunes SAC monitoring – Monitoring Round 2007 to 2013. Unpublished report. Countryside Council for Wales.

Wilkinson, K. in prep. Carmarthen Bay SAC monitoring report Vertigo angustior – Monitoring Round 2013 to 2018. Unpublished report. Natural Resources Wales.

Willing, M.J. & Boyce, D.C. 2021. An invertebrate survey of Llangennith Moors in October 2018. NRW Evidence Report No. 583. Natural Resources Wales, Bangor.

Willing, M.J. 1997. A preliminary survey of areas in the vicinity of Pembroke for populations of the Red Data molluscs Vertigo angustior and Pseudamnicola confusa. Unpublished report. Countryside Council for Wales.

Willing, M.J. 2020. An assessment of the condition of the narrow-mouthed whorl snail Vertigo angustior at Whiteford Burrows NNR, October 2018. NRW Evidence Report No. 395. Natural Resources Wales, Bangor.

Willing, M.J. 2023. The distribution of the Narrow-mouthed Whorl Snail Vertigo angustior on Whiteford Burrows & Cwm Ivy Marsh in September 2021. NRW Evidence Report No. 698 Natural Resources Wales, Bangor.

Willing, M.J. 2024a. Further studies to assess the distribution of the Narrow-mouthed Whorl Snail Vertigo angustior on Oxwich Burrows, Whiteford Burrows & Llangennith Burrows in October 2022 (including corrections to NRW Evidence Report No. 698). Natur am Byth! Evidence Report No. 10. Buglife Cymru & Natural Resources Wales, Bangor.

Willing, M.J. 2024b. Further studies to assess the distribution of the Narrow-mouthed Whorl Snail Vertigo angustior on Oxwich Burrows, Nicholaston Burrows, Whiteford Burrows, Three Cliffs Bay & Swansea Dunes in September 2023. Natur am Byth! Evidence Report No. 11. Buglife Cymru & Natural Resources Wales, Bangor.

Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
5.11: Change and reason for change in surface area of range	The whorl snail may have been lost from localities within Pembrey Forest but still occurred on Pembrey Aerial Firing Range in 2016 (NRW, pers. obs.). At Oxwich Burrows, it has been lost from the dune-saltmarsh transition but still occurs within the dune system, and was found on the adjacent Nicholaston Burrows in 2023 (Willing, 2024a&b). At Whiteford Burrows, recent surveys have shown that it is much more widespread than previously known, both within the dune-saltmarsh transition and the dune system itself (Willing, 2020, 2023, 2024a&b).
6.2: Population size	There are 15 occupied 1x1km grids since 2006, with 8 on Pembrey (Forest, Aerial Firing Range, Gwendraeth saltmarsh & Pembrey grazing marsh), 4 on Whiteford Burrows, 2 on Oxwich Burrows and 1 on Nicholaston Burrows. This is based Harper (2007, 2014) and Willing (2020, 2023, 2024a&b).
6.8: Short-term trend; Direction	Whilst small sub-populations have been found that increased the pseudo-spatial population count, the individual snail counts on sites have deteriorated including some very large population falls. This underpinning evidence has driven the conclusion of a decreasing population trend over the 2005-20017 period.
6.10: Short-term trend; Method used	In the previous reporting round, Vertigo angustior was thought to be declining, primarily due to a fall in numbers within the monitoring area on Whiteford Burrows. However, subsequent surveys have found the snail to be much more widespread on the dune system and occupying a range of habitats (Willing, 2020, 2023, 2024a&b). It has been lost from a key area on Oxwich Burrows but is still present, with a recent record on the adjacent Nicholaston Burrows which extends its range here. There has been no survey of Pembrey during the current reporting round but it is very likely to have been lost from localities within Pembrey Forest as a consequence of shading and vegetation

	succession as witnessed in 2016 (NRW, pers. obs.). As such, the overall population trend in one of slight decline.
7.2: Sufficiency of area and quality of occupied habitat; Methods used	The habitat in the core area at Whiteford was mapped (Killeen 1993, Fowles & Guest 2006) and here the snail extended over 1.8ha of saltmarsh transition. Since then, Vertigo angustior has been found more widely both along the transition zone and within the dune system although the occupied area has not been calculated (Willing, 2021, 2023, 2024a&b). Harper (2007, 2014) highlights that occupied localities on Pembrey are small and narrow (some only 50cm wide) strips between 50 and 200m long, although a larger area of dune slack on Pembrey Aerial Firing Range supports the snail. In total, these areas will only amount to a couple of hectares. No habitat mapping has taken place on Oxwich and Nicholaston Burrows where the snail is restricted to tiny pockets of dune habitat. It is probable that the area of suitable habitat for the snail is sufficient at Whiteford but too small at Pembrey and Oxwich/Nicholaston.
8.1: Characterisation of pressures	As Vertigo 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 (PA08) or over-grazing (PA07) could cause a deterioration in habitat quality. Flooding (PM02) could result in the loss of the transitional area on Whiteford Burrows and any remaining populations within Pembrey Forest. Short-term changes to weather patterns such as summer droughts may result in desiccated habitats (PJ01, PJ03). In the longer term, all populations

	are at risk from sea-level rise (PJ04) and flooding (PM02).
9.5: List of main conservation measures	Conservation effort to date has focussed on the maintenance of appropriate grazing levels (MA05) on Whiteford Burrows. Scrub clearance on Oxwich Burrows should be undertaken to restore the open dune-saltmarsh transition previously occupied by the snail, and localities within Pembrey Forest should be restored to more open, pioneer conditions by scrub removal and the mowing of vegetation.
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 not 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 poor; (ii) the Future prospects for Population are poor; 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-inadequate because two of the conclusions are Unfavourable-inadequate.

12.1: Population size inside the pSCIs, SCIs and SACs network	Of the 15 occupied 1x1km grids since 2006, 5 are within SACs (1 on Gwendraeth saltmarsh & 4 on Whiteford Burrows).
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. Following expert review, a Wales-level FRV was derived based on population trend and abundance data specific to Wales, rather than adopting the UK-level value. The revised FRV has been set as between 5% and 25% smaller than the FRP selected for Wales due to losses in Pembray forest and the movement in population in Oxbridge boroughs.
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. Following expert review, a Wales-level FRV was derived based on distribution and trend evidence specific to Wales, rather than adopting the UK-level value. The revised FRV has been set as losses were historic and “ less than 2% smaller than the FRR” reflects the Wales population.