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

2019-2024

Conservation status assessment for the species:

S1034 - Medicinal leech

(*Hirudo medicinalis*)

Wales

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JNCC

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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: S1034 Medicinal leech (*Hirudo medicinalis*).

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: Medicinal leech

Distribution Map

Range Map

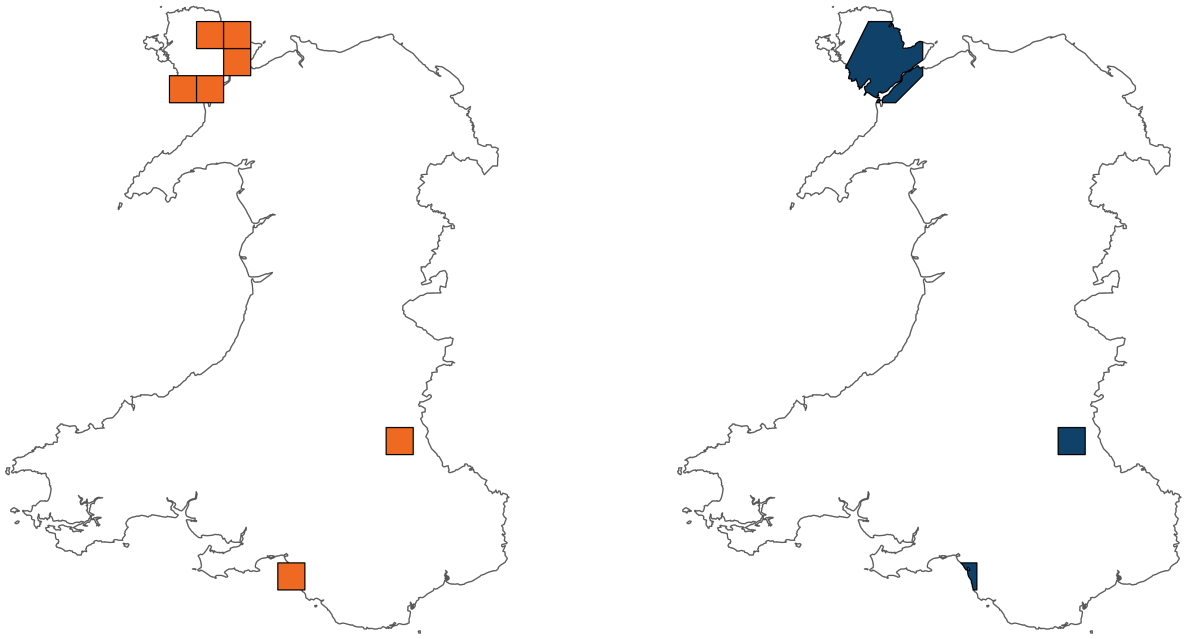

Figure 1: Wales distribution and range map for S1034 - Medicinal leech (*Hirudo medicinalis*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. 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 S1034 - Medicinal leech (*Hirudo medicinalis*). 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	S1034
1.3 Species scientific name	*Hirudo medicinalis*
1.4 Alternative species scientific name	
1.5 Common name	Medicinal leech
Annex(es)	V

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?	No

3.2 What measures have been taken?

a) Regulations regarding access to property	No
b) Temporary or local prohibition on the taking of specimens in the wild and exploitation	No
c) Regulation of the periods and/or methods of taking specimens	No
d) Application of hunting and fishing rules which take account of the conservation of such populations	No

e) Establishment of a system of licences for taking specimens or of quotas	No
f) Regulation of the purchase, sale, offering for sale, keeping for sale, or transport for sale of specimens	No
g) Breeding in captivity of animal species as well as artificial propagation of plant species	No
Other measures	No
Other measures description	

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

a) Unit No unit - not reported

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	No	No	No	No	No	No

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)	687.09
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	Reference-based approach
e) Quality of information	moderate

5.11 Change and reason for change in surface area of range

a) Change	Yes
b) Genuine change	No
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

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	11
6.3 Type of estimate	Best estimate
6.4 Quality of extrapolation to reporting unit	high

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	1980-2024
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% (more than one percent) 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	No
d) Different method	No
e) No information	No
f) Other reason	No
g) Main reason	Genuine change

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	Based mainly on extrapolation from a limited amount of data
b) Sufficiency of quality of occupied habitat; Method used	Based mainly on extrapolation from a limited amount of data
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
PA15: Use of other pest control methods in agriculture (excluding tillage)	Ongoing and likely to be in the future	Medium (M)
PA04: Removal of small landscape features for agricultural land parcel consolidation (hedges, stone walls, rushes, open ditches, springs, solitary trees, etc.)	Ongoing and likely to be in the future	Medium (M)
PA17: Agricultural activities generating pollution to surface or ground waters (including marine)	Ongoing and likely to be in the future	Medium (M)
PA21: Active abstraction of water for agriculture	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)
PA23: Physical alteration of water bodies (including dams, channels, etc.)	Ongoing and likely to be in the future	Medium (M)
PG07: Freshwater fish and shellfish harvesting (recreational)	Ongoing and likely to be in the future	Medium (M)
PG09: Management of fishing stocks and game	Ongoing and likely to be in the future	Medium (M)
PI01: Invasive alien species of Union concern	Only in future	Medium (M)
PI02: Other invasive alien species (other than species of Union concern)	Only in future	Medium (M)
PJ01: Temperature changes and extremes due to climate change	Ongoing and likely to be in the future	High (H)
PJ03: Changes in precipitation regimes due to climate change	Ongoing and likely to be in the future	High (H)

PJ14: Other climate related changes in abiotic conditions	Ongoing and likely to be in the future	High (H)
PK01: Mixed source pollution to surface and ground waters (limnic and terrestrial)	Ongoing and likely to be in the future	Medium (M)
PL01: Abstraction from groundwater, surface water or mixed water (mixed or unknown drivers)	Ongoing and likely to be in the future	Medium (M)
PL06: Physical alteration of water bodies (mixed or unknown drivers)	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)
PJ10: Change of habitat location, size, and / or quality due to climate change	Ongoing and likely to be in the future	High (H)

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 and taken
9.2 Main purpose of the measures taken	Maintain the current range, population and/or habitat for the species
9.3 Location of the measures taken	Both inside and outside National Site Network
9.4 Response to measures	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
MA10: Reduce/eliminate point or diffuse source pollution to surface or ground waters (including marine) from agricultural activities	Medium (M)
MJ01: Implement climate change mitigation measures	High (H)
MJ02: Implement climate change adaptation measures	High (H)
MM04: Other measures related to natural processes	Medium (M)
MS03: Restoration of habitat of species from the directives	High (H)
MK04: Other measures related to mixed source pollution.	Medium (M)
MA13: Manage agricultural drainage and water abstraction (incl. the restoration of drained or hydrologically altered habitats)	Medium (M)
MI01: Early detection and rapid eradication of invasive alien species of Union concern	Medium (M)
MI02: Management, control or eradication of established invasive alien species of Union concern	Medium (M)

9.6 Additional information

Only part of the measures identified have been taken.

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
b) Minimum
c) Maximum
d) Best single value
12.2 Type of estimate
12.3 Population size inside the network; Method used
12.4 Short-term trend of population size within the network; Direction
12.5 Short-term trend of population size within the network; Method used
12.6 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Direction
12.7 Short-term trend of habitat for the species inside the pSCIs, SCIs and SACs network; Method used

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

(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: S1034 – Medicinal Leech (Hirudo medicinalis).

(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: S1034 – Medicinal Leech (Hirudo medicinalis).

Ausden, M., Banks, B., Donnison, E., Howe, M., Nixon, A., Phillips, D., Wicks, D. & Wynne, C. 2002. The status, conservation and use of the medicinal leech. British Wildlife, 13: 229-238.

Boyce, D.C. 2007. Monitoring invertebrate features on SSSIs - medicinal leech Hirudo medicinalis on Cors Goch and Newborough Warren - Ynys Llanddwyn. CCW Contract Science No. 940. Countryside Council for Wales, Bangor.

Evans, D. 1993. Medicinal leech Hirudo medicinalis survey at four Anglesey sites, 1992. CCW Species and Monitoring Report No. 92/2/15. Countryside Council for Wales, Bangor.

Howe, M., Williams, G. & Parry, R. 2024. Medicinal Leech monitoring at Pwll Canada and Pwll Pant Mawr in Newborough Forest, and Cors Bodeilio and Cors Goch in 2023. NRW unpublished report. Natural Resources Wales, Bangor.

Howe, M.A. 2013. European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora

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Howe, M.A. 2020. Hirudo medicinalis account September 2020. NRW unpublished report. Natural Resources Wales, Bangor.

Howe, M.A., Howe, E.A., Jewer, A., Robinson, H. 2016. Medicinal Leech Hirudo medicinalis on Cors Bodeilio NNR/SSSI and Cors Goch NNR in 2016. NRW unpublished report. Natural Resources Wales, Bangor.

Jones, A.C.L. & Kettle, B.S. 1999. Medicinal leech Survey of Anglesey (Ynys Mon) 1999. Volumes 1 and 2. Unpublished report. North Wales Wildlife Trust.

Lloyd, D. 1997. The medicinal leech, Hirudo medicinalis, at Cors Goch nature reserve. North Wales Wildlife Trust unpublished report.

Lloyd, D. 1998. The medicinal leech Hirudo medicinalis in Wales. CCW Contract Science No. 311. North Wales Wildlife Trust/ Countryside Council for Wales, Bangor.

Taylor, R. 2012. Monitoring medicinal leech Hirudo medicinalis at Cynffig/Kenfig SSSI and Pysgodlyn Mawr SSSI. CCW Regional Report. CCW/WW/12/1. Countryside Council for Wales.

Main pressures

8.2 Sources of information

No sources of information

15. Explanatory Notes

Field label	Note
2.4: Distribution map; Method used	The last comprehensive Welsh survey was carried out in 1998, with a follow-up survey of Anglesey localities in 1999. A survey of known sites was undertaken in 2016, co-ordinated by the Freshwater Habitats Trust, providing contemporary records for six sites and resulting in the discovery of the population in Brechfa Pool. Irregular surveys of sites in Newborough Forest, Cors Bodeilio and Cors Goch are undertaken by NRW.
5.3: Short-term trend; Direction	Whilst a full survey of known sites has not taken place during the current reporting period, there have been no population losses at sites that have been surveyed, although populations may have declined. As such, the current range appears to be stable.
5.11: Change and reason for change in surface area of range	Whilst mapping has excluded two hectads the sites in question have not been visited during the current reporting round and therefore presence/absence has not been confirmed.
6.2: Population size	There have been 11 occupied monads in 9 hectads since 1998, with 7 monads in 6 hectads since 2018, although there has been no comprehensive Welsh survey during this time period.
6.10: Short-term trend; Method used	Without a recent survey of all occupied sites, an exact assessment of decline is not possible although medicinal leech is likely to have been lost in Pysgodlyn Mawr where it was last recorded in 1998 and not found in 2011 or 2017. It has also recently been found new to Brechfa Pool and a nearby pool at Maesgwyn. However, recent monitoring at key Anglesey sites has identified summer droughts as a major cause for concern, with fen habitats at both Cors Bodeilio and Cors Goch drying out and pools in Newborough Forest being close to not holding water. Indeed, pool deepening works have been undertaken at both Pwll Canada and Pwll Pant Mawr to mitigate against drying out. Whilst leech numbers at Pwll Canada and Cors

	Goch appear to be relatively stable, recent counts at Cors Bodeilio are much lower than in 2016.
6.14: Long-term trend; Method used	Most losses e.g. at Llangorse Lake (SO12), Marloes Mere (SM70), Pen y Parc reservoir (SH57) and Trecastell (SN82) are historic, although apparent loss at Marloes Mere (SM70) and Pysgodlyn Mawr are more recent. Contemporary population declines are the result of regular summer droughts which have resulted in the drying out of pools and fen habitats.
7.5: Short-term trend; Method used	Insufficient data although Howe (2013) provided a figure of 0.551 square km of occupied habitat, encompassing all currently-occupied sites. Whilst the measurement of isolated water bodies is straightforward, the calculation of area on the Anglesey fen sites is based on the inclusion of suitable ditches and flooded fen rather the fen in its entirety. The figure represents a minimum surface area range as it does not include a measure of the area of more historic sites (there are four - Pen y Parc Reservoir, Marloes Mere, Llangorse Lake and Trecastle). The measure was calculated using Ordnance Survey and aerial imagery on GIS. Most current populations occur within protected sites - SSSIs, SACs and National Nature Reserves. On a significant number of sites, recent summer droughts have had a deleterious impact upon leech habitats, with the drying out of flooded fen and very low water levels in ponds and pools. Recent pond excavation at Pwll Canada and Pwll Pant Mawr has mitigated against this, at least in the short term. The desiccation of Cors Bodeilio since 2020 has resulted in a dramatic decline in leech numbers.
8.1: Characterisation of pressures	Whilst most populations are on protected sites, pressures such as water pollution (PA17) use of pesticides such as avermectins (PA15), the management of recreational fish stocks (PG07 & PG09) and drainage (PA22) do affect some sites. The most immediate threat is summer drought causing the drying out of both flooded fen and pools (PJ01 & PJ03).

9.5: List of main conservation measures	Whilst most populations are on protected sites, conservation measures should address the pressures and threats on sites and leech populations both within the sites and on adjacent land including drainage (MA13), pollution (MA10 & MK04) and the control of invasive non-native aquatic species (MI01 & MI02). More significantly, measures should be taken to ensure suitable habitat is available during prolonged and regular periods of summer drought (MJ01, MJ02 & MS03).
10.1: Future trends and prospects of parameters	The threat of summer droughts and the resulting drying out of flooded fen and pools as a result of climate change is likely to become a more regular occurrence and have a deleterious impact upon leech populations. As most populations occur within protected sites - SSSIs, SACs and National Nature Reserves – mitigation measures such as pond deepening are required to ensure populations are not lost.
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 good; (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.
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 chosen for Wales because populations at key fen sites on Anglsea have shown marked declines as a consequence of summer droughts during the current reporting round.
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 on current distribution and trends.