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

2019-2024

Conservation status assessment for the habitat:

H5130 - *Juniperus communis* formations on heaths or calcareous grasslands

Wales

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Important note - Please read

- The information in this document represents 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 habitat 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 habitat (section 11 National Site Network coverage for Annex I habitats).
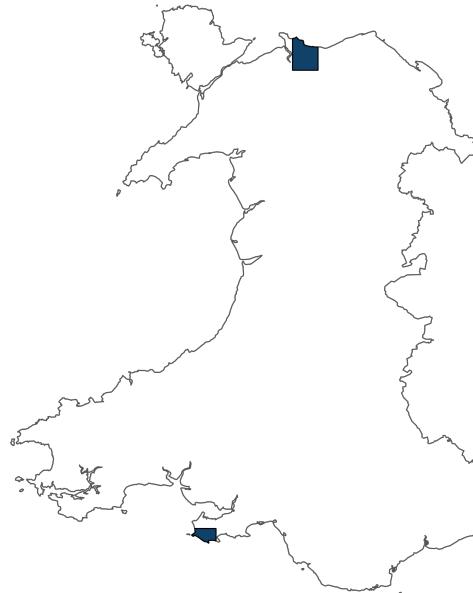
Further details on the approach to the Habitats Regulations Reporting 2019-2024 are available on the JNCC website.
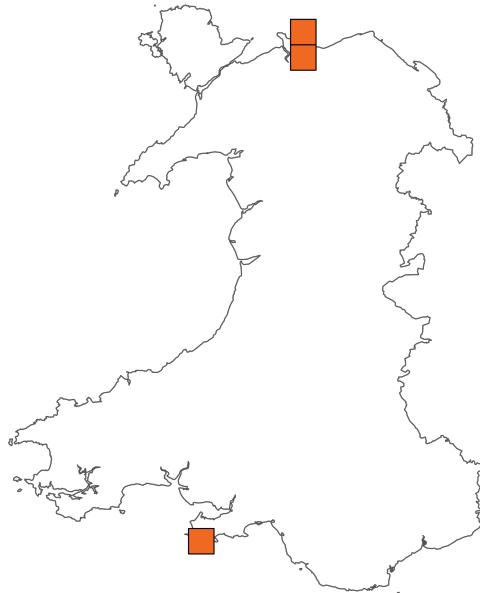
Distribution Map	Range Map

Figure 1: Wales distribution and range map for H5130 - *Juniperus communis* formations on heaths or calcareous grasslands. 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 habitat records within the current reporting period.

Table 1: Table summarising the conservation status for H5130 - *Juniperus communis* formations on heaths or calcareous grasslands. Overall conservation status for habitat is based on assessments of range, area covered by habitat, structure and functions, and future prospects.

Overall Conservation Status (see section 10)

Unfavourable-bad (U2)

Breakdown of Overall Conservation Status

Range (see section 4)	**Unknown (XX)**
Area covered by habitat (see section 5)	**Unknown (XX)**
Structure and functions (see section 6)	**Unknown (XX)**
Future prospects (see section 9)	**Unfavourable-bad (U2)**

List of Sections

National Level

1. General information

1.1 Country	Wales
1.2 Habitat code	H5130 - *Juniperus communis* formations on heaths or calcareous grasslands

2. Maps

2.1 Year or period	2009-2017
2.2 Distribution map	Yes
2.3 Distribution map; Method used	Based mainly on extrapolation from a limited amount of data

2.4 Additional information

No additional information

Biogeographical Level

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs   ATL

3.2 Sources of information

See section 13 References

4. Range

4.1 Surface area (km²)	144.16
4.2 Short-term trend; Period	2017-2024
4.3 Short-term trend; Direction	Stable
4.4 Short-term trend; Magnitude	

a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
4.5 Short-term trend; Method used	Based mainly on expert opinion with very limited data
4.6 Long-term trend; Period	
4.7 Long-term trend; Direction	
4.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	
4.9 Long-term trend; Method used	
4.10 Favourable Reference Range (FRR)	
a) Area (km²)	
b) Pre-defined increment	
c) Unknown	Yes
d) Method used	
e) Quality of information	
4.11 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

4.12 Additional information

No additional information

5. Area covered by habitat

5.1 Year or period	2009-2017
5.2 Surface area (km²)	
a) Minimum	
b) Maximum	
c) Best single value	0.01
5.3 Type of estimate	Best estimate
5.4 Surface area; Method used	Based mainly on expert opinion with very limited data
5.5 Short-term trend; Period	
5.6 Short-term trend; Direction	Unknown
5.7 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	
d) Unknown	
e) Type of estimate	
f) Rate of decrease	
5.8 Short-term trend; Method used	Insufficient or no data available
5.9 Long-term trend; Period	

5.10 Long-term trend; Direction	Unknown
5.11 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	
5.12 Long-term trend; Method used	Insufficient or no data available
5.13 Favourable Reference Area (FRA)	
a) Area (km²)	
b) Pre-defined increment	Current area is less than 2% smaller than the FRA
c) Unknown	No
d) Method used	Reference-based approach
e) Quality of information	moderate
5.14 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	

5.15 Additional information

No additional information

6. Structure and functions

6.1 Condition of habitat (km²)

Area in good condition

ai) Minimum	0
aii) Maximum	0

Area not in good condition

bi) Minimum	0
bii) Maximum	0

Area where condition is unknown

ci) Minimum	0.01
cii) Maximum	0.01
6.2 Condition of habitat; Method used	Insufficient or no data available
6.3 Short-term trend of habitat area in good condition; Period	
6.4 Short-term trend of habitat area in good condition; Direction	Unknown
6.5 Short-term trend of habitat area in good condition; Method used	Insufficient or no data available

6.6 Typical species

Has the list of typical species changed in comparison to the previous reporting period?	No

6.7 Typical species; Method used

6.8 Additional information

Typical species were not used directly in the assessment of conservation status for habitat structure and function as a comprehensive list of typical species for each habitat was not available. However, the status of typical species was considered when the

condition of individual sites was assessed using Common Standards Monitoring Guidance. Common Standards Monitoring (CSM) data was used to assess the area of habitat in 'good' and 'not good' condition (field 6.1). Species were a component of the attributes assessed under CSM. Therefore, an assessment of species is considered to have formed part of the reporting under field 6.1 which supported the Habitats Structure and Function assessment (field 10.3).

7. Main pressures

7.1 Characterisation of pressures

Table 2: Pressures affecting the habitat, 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
PA08: Extensive grazing or undergrazing by livestock	Ongoing and likely to be in the future	High (H)
PA09: Burning for agriculture	Ongoing and likely to be in the future	High (H)
PI03: Problematic native species	Ongoing and likely to be in the future	High (H)
PI02: Other invasive alien species (other than species of Union concern)	Ongoing and likely to be in the future	High (H)
PF05: Sports, tourism and leisure activities	Ongoing and likely to be in the future	Medium (M)
PK04: Atmospheric N-deposition	Ongoing and likely to be in the future	High (H)
PJ10: Change of habitat location, size, and / or quality due to climate change	Ongoing and likely to be in the future	Medium (M)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Only in future	High (H)
PA07: Intensive grazing or overgrazing by livestock	Ongoing and likely to be in the future	Medium (M)

7.2 Sources of information

See section 13 References

7.3 Additional information

No additional information

8. Conservation measures

8.1: Status of measures

a) Are measures needed?	Yes
b) Indicate the status of measures	Measures identified and taken
8.2 Main purpose of the measures taken	Maintain the current range, surface area or structure and functions of the habitat type
8.3 Location of the measures taken	Only inside National Site Network
8.4 Response to measures	Medium-term results (within the next two reporting periods, 2025–2036)

8.5 List of main conservation measures

Table 3: 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)	High (H)
MI05: Management of problematic native species	High (H)
MI04: Restoration of habitats affected by invasive alien species (incl. of Union concern and others)	High (H)
MF03: Reduce impact of outdoor sports, leisure and recreational activities (incl. restoration of habitats)	Medium (M)
MJ02: Implement climate change adaptation measures	Medium (M)
MA11: Reduce/eliminate air pollution from agricultural activities	Medium (M)

ME03: Manage/reduce/eliminate air pollution from transport	Medium (M)

8.6 Additional information

No additional information

9. Future prospects

9.1a Future trends of parameters

ai) Range	Unknown
bi) Area	Unknown
ci) Structure and functions	Very negative - important deterioration

9.1b Future prospects of parameters

aii) Range	Unknown
bii) Area	Unknown
cii) Structure and functions	Bad

9.2 Additional information

No additional information

10. Conclusions

10.1 Range	Unknown (XX)
10.2 Area	Unknown (XX)
10.3 Specific structure and functions (incl. typical species)	Unknown (XX)
10.4 Future prospects	Unfavourable-bad (U2)
10.5 Overall assessment of Conservation Status	Unfavourable-bad (U2)
10.6 Overall trend in Conservation Status	Unknown

10.7 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.

10.7 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.

10.8 Additional information

No additional information

11. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex I habitat types

11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (km²)

a) Minimum	
b) Maximum	
c) Best single value	0.01
11.2 Type of estimate	Best estimate
11.3 Habitat area inside the network; Method used	Based mainly on extrapolation from a limited amount of data
11.4 Short-term trend of habitat area within the network; Direction	Unknown
11.5 Short-term trend of habitat area within the network; Method used	Insufficient or no data available
11.6 Short-term trend of habitat area in good condition within the network; Direction	Unknown

11.7 Short-term trend of habitat area in good condition within the network; Method used   Insufficient or no data available

11.8 Additional information

No additional information

12. Complementary information

12.1 Justification of percentage thresholds for trends

No justification information

12.2 Other relevant information

No other relevant information

13. References

Biogeographical and marine regions

3.2 Sources of information

Bunch, N., Cheffings, C., & Robinson, A. 2016 Decision-making guidance for managing Phytophthora infections in Vaccinium myrtillus populations JNCC Report No: 578

Defra 2014 Tree Health Management Plan

Dines, T.D. & Daniels, A. (2006) Wales Juniper Inventory – An inventory of Juniper sites in Wales and an assessment of populations in Snowdonia Species Challenge Fund Report, Plantlife, UK

Forestry Commission. 2012. Phytophthora austrocedrae on juniper factsheet.

Forestry Commission. 2016. Distribution of confirmed infection of Phytophthora austrocedrae map.

Guest, D. 2012. H5130 Juniperus communis formations on heaths or calcareous grasslands: Definitions adopted for mapping on calcareous sites in lowland Wales. CCW Internal Document.

Mallik, A.U. & Gimingham, C.H., 1983. Regeneration of heathland plants following burning. Vegetatio, 53: 45-58.

North Wales Wildlife Trust. 2024. https://www.northwaleswildlifetrust.org.uk/limestone-grassland-restoration

Thomas, P.A., El-Barghathi, M. & Polwart, A., 2007. Biological Flora of the British Isles: Juniperus communis L. Journal of Ecology, 95(6): 1404-1440.

Turner, A. 2012. Assessment of the status of vegetation with Juniperus communis in the Cwm Bychan and Moel Meirch areas. CCW Internal Document.

UK Government. 2010. The Air Quality Standards Regulations 2010. Available from: https://www.legislation.gov.uk/uksi/2010/1001/contents

Underhill-Day, J. C. 2005 A literature review of urban effects on lowland heaths and their wildlife J C Underhill-Day. RSPB. English Nature Research Reports Number 623.

Ward, L.K., & Lakhani, K.H., 1977. The conservation of juniper: the fauna of food plant island sites in southern England. Journal of Applied Ecology, 14, 121-135.

Welsh Government. 2015. Improving opportunities to access the outdoors for responsible recreation. Consultation Document WG 25568.

Welsh Government. 2023. The Agriculture (Wales) Act 2023. Available from: https://www.gov.wales/agriculture-wales-act-2023

Welsh Government. 2024a. The Clean Air Plan for Wales 2024. Available from: https://www.gov.wales/clean-air-plan-wales-healthy-air-healthy-wales

Welsh Government. 2024b. The Environment (Air Quality and Soundscapes) (Wales) Act 2024. Available from: https://www.legislation.gov.uk/asc/2024/2/contents

Main pressures

7.2 Sources of information

No sources of information

14. Explanatory Notes

Field label	Note
2.3: Distribution map; Method used	The habitat is known from 3 10km squares SH88 and SH87 on the limestone of the Creuddyn Peninsula of North Wales and on SS48 on the cliffs of the Gower Peninsula east of Oxwich Bay. The 10km square distribution map for H5310 is derived from a series of site visits to known Juniper localities prior to the formation of NRW. Sites for survey were selected from a near comprehensive survey of Juniper in Wales by Dines and Daniels (2006 and subsequent updates), with all localities supporting in excess of 20 plants of Juniper communis ssp. communis considered as candidate sites for the community. Two lowland 10km squares with sites meeting these criteria were not visited in 2012, one was included as a point record on the strength of evidence from earlier survey work (although at that stage the habitat was not recognised) in combination with more recent records confirming the continued presence of a large population of Juniper in the area (Dines & Daniels, 2006) and the structural suitability of the vegetation (as assessed from 2009 aerial photographs). The second example was excluded on the basis that the population is reported as being composed of more scattered individuals including examples on limestone pavement (H8240), which are most likely to be assignable to that annex I habitat. On the limestone, only sites supporting frequent to abundant Juniper in association with other scrub and grazing intolerant species were considered assignable to the habitat (see Guest 2012 for further info). In the Welsh uplands, the majority of Juniper plants tend to be taxonomically closer to J. ssp. nana in character and most examples fall within other vegetation types (notably Alpine

	& Boreal heath & European dry heath). Larger populations supporting known plants of J. communis communis and morphologically intermediate individuals where revisited in 2012 (Turner, 2012), but no examples of H5310 in heathland settings in the uplands and sub-uplands of north Wales were identified.
4.3: Short-term trend; Direction	Whilst this habitat is poorly understood and data assessment was last undertaken in 2012 given the restriction to 3 x 10km squares, the short-term range is considered to be stable.
5.6: Short-term trend; Direction	There is no direct evidence against which to evaluate trends in the extent of H5130 in Wales. Revisits to larger Juniper populations on Gower in 2012 identified no significant changes in the number of plants over the previous seven to nine years when compared to records presented in Dines and Daniels (2006) suggesting a short-term stability over this period.
6.1: Condition of habitat	H5130 is not listed as a feature on any SACS and the habitat is also not recorded on any SSSIs. The habitat is likely to be included within dry heath, calcareous grassland and calcareous woodland features. There are, therefore, no monitoring assessments specifically for this habitat.
7.1: Characterisation of pressures	Pressures: 1. NRW SAFLE Database 2024. The habitat is not identified as a feature on any SAC However on the Limestone Coast of South West Wales SAC within which the habitat occurs on the Gower coast, insufficient grazing (PA08), overgrazing (PA07) and scrub invasion (PI03) are recorded. 2. Burning is an issue on the Gower coast although not noted in SAFLE. Juniper is known to be intolerant of burning particularly hot dry burns (Mallik and Gimingham 1983) (PA09). 3. Climate change may also be a factor impact on frequency of fires and may additionally be a pressure in

terms of germination rates as a consequence of milder winter temperatures insufficient to break seed dormancy (Forestry commission, 2009) (PJ10).

4. Phytophthora austrocedrae, one of a family of highly contagious fungus-like plant pathogens, has been identified as causing mortality and dieback in wild populations of juniper in northern England and Scotland. Two incidents have been mapped in Wales one in a nursery/distributor/retail and one in the wider environment. A third nursery incident is recorded on the English/Welsh border (Forestry Commission 2016). This pressure best aligns to the recently established I05 category (plant and animal diseases, pathogens and pests) however this category isn't currently available for internal UK reporting purposes. (PI02 & I04). Increased recreation also increases the chances of pathogens to move between sites across the UK. Pathogens can be moved to on clothes, footwear, vehicles and pets (Defra 2014) (PF05).

5. The nitrogen critical load (NCL) for H5130 has been set at 5kg/ha/yr by JNCC. 100% of the habitat extent lies within an area where the NCL has been exceeded (PK04).

6. Non-native cotoneaster is a problem on limestone heath and grassland on the Gower and Creuddyn peninsula in North Wales (PI02) where the habitat is recorded.

Threats:

1. Grazing issues (PA08) and threats from burning (PA09) are nitrogen deposition (PK03) are expected to continue as a threat.

2. The limestone habitats of the coast occupied by Juniper are particularly vulnerable to invasion by non-native species both as a consequence of their open character and the proximity of seed sources from domestic gardens and already naturalised populations. Holm oak and non-native

cotoneasters are likely to be a particular problem which could be further exacerbated by climate change (I04 & PI02).

3. The vast majority of heathland is open access and pressures are likely to grow in response to various initiatives to meet goals of improving the opportunities to access the outdoors for responsible recreation (Welsh Government 2015). Increasing public use on small lowland heathland sites has been shown to cause direct damage such as creation of new paths on desire lines, accidental and deliberate fire and the localised enrichment of vegetation by dog faeces and urine (Underhill 2005) (PF05).

4. Increased recreation also increases the chances of pathogens to move between sites across the UK. Pathogens can be moved to on clothes, footwear, vehicles and pets (Defra 2014). This pressure best aligns to the recently established I05 category (plant and animal diseases, pathogens and pests) however this category isn't currently available for internal UK reporting purposes. (PI02 & PM07).

5. Stands of H5310 in Wales are small and highly fragmented as are populations of Juniper. Such stands will be vulnerable to edge effects and will only support a limited specialist invertebrate fauna in comparison to larger populations of juniper (Ward & Lakhani, 1977) (PJ10).

6. Climate change has been highlighted as a threat to Juniper populations for a number of reasons including: reduction in germination rates as a consequence of milder winter temperatures insufficient to break seed dormancy (Forestry commission, 2009) (PJ10).

7. As the entire habitat resource lies within areas where the NCL is exceeded, nitrogen deposition will continue to be a threat to habitat structure and function.

8.5: List of main conservation measures	1. There are various air quality strategies and initiatives in place to protect and enhance biodiversity (ME03, MA11). Air quality limit values set out in the Air Quality Strategy (AQS) are transposed into national legislation by the Air Quality Standards Regulations 2010. Nitrogen deposition continues to impact semi-natural habitats in Wales. These regulations are not habitat-specific, however with introduction of The Environment (Air Quality and Soundscapes) (Wales) Act 2024 in Wales, brings in new national targets for air quality pollutants, with the potential of directly influencing habitat protection.

This key legislative advancement requires mandatory targets for fine particulate matter less than 2.5 micrometers in diameter ($PM_{2.5}$) to be established by February 2027, including new powers for Welsh Ministers to set pollutant-specific targets in future years (e.g., ammonia, nitrogen dioxide) linked to biodiversity outcomes, potentially enabling future habitat-sensitive thresholds.

Welsh Government have also introduced The Agriculture (Wales) Act in 2023. It aims to establish a framework of Sustainable Land Management (SLM) objectives to underpin agricultural support, including the Sustainable Farming Scheme (SFS). The Act provides Welsh Ministers with the power to provide support (financial or otherwise) for or in connection with 15 purposes, including 'Improving air quality'. Welsh Government published a consultation on the SFS which closed in March 2024. Welsh Ministers will not be making final scheme design decisions until further stakeholder work is undertaken.

2. A decision-making framework has been developed to guide management response to Phytophthora outbreaks on heathland (Bunch et al. 2016). Whilst this has not been aimed at Juniper it could be adapted to deal with future Phytophthora austrocedrae outbreaks (MI05).

3. North Wales Wildlife Trust are currently running an

	initiative to tackle non-native cotoneaster in North Wales - the Limestone Grassland Restoration project (Nature Network Heritage Fund grant). This covers sites which may include the H5130 habitat on the Creuddyn peninsula. (North Wales Wildlife Trust 2024)
9.1:Future trends and prospects of parameters	Range: There is insufficient evidence to determine the future of the habitat in Wales. Area: There is insufficient evidence to determine the future of the habitat in Wales. Structure and function: There is insufficient evidence to determine the future of the habitat in Wales. While some stands of H5310 are likely to be maintained as a consequence of the shallow soils and exposed nature of the sites they occupy others require regular intervention to maintain them in the long term. At present, all known or mapped stands of H5310 fall at least partially within 2 SACs (Limestone Coast of South West Wales and Creuddyn Peninsula Woods). Other lowland populations of Juniper communis also occur on SACs notably Glannau Ynys Gybi and St David's. However, a small number of potential sites for the habitat and colonies of Juniper fall outside the SSSI series and must be regarded as particularly vulnerable to loss or degradation. There is an urgent need to produce a comprehensive map of the habitat. The Future prospects for Structure and functions takes into account that at least 25% of the habitat area is expected to be in unfavourable (not good) condition in c.2035 due to

	nutrient N critical load exceedance, unless additional measures are taken to reduce N deposition impacts.
10.1: Range	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is stable; and (ii) the Favourable Reference Range is unknown.
10.2: Area	Conclusion on Area reached because: (i) the short-term trend direction in Area is unknown; (ii) the current Area is approximately equal to the Favourable Reference Area; and iii) the change in distribution pattern is unknown.
10.3: Specific structure and functions	Conclusion on Structure and function reached because the condition of the habitat is unknown as over 75% of the habitat has 'unknown' condition.
10.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are unknown; (ii) the Future prospects for Area covered by habitat are unknown; and (iii) the Future prospects for Structure and function are bad.
10.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unfavourable-bad because one or more of the conclusions are Unfavourable-bad.
11.3: Surface area of the habitat type inside the network; Method used	At present, all known or mapped stands of H5310 fall, at least partially, within SACs as do most other lowland populations of Juniper communis. However, the habitat is not a notified feature on any SAC.
5.13: Favourable Reference Area (FRA)	The UK-level FRV for surface area 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 habitat extent and trends.
4.10: 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.