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

2019-2024

Conservation status assessment for the habitat:

H6230 - Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)

Wales

Cyfoeth Naturiol Cymru
Natural Resources Wales

JNCC

For further information please contact:

Natural Resources Wales, Welsh Government Offices, Cathays Park, King Edward VII Avenue, Cardiff, CF10 3NQ. https://naturalresources.wales

JNCC, Quay House, 2 East Station Road, Fletton Quays, Peterborough, PE2 8YY. https://jncc.gov.uk

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 habitat: H6230 Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe).

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.

Assessment Summary: Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)

Distribution Map

Range Map

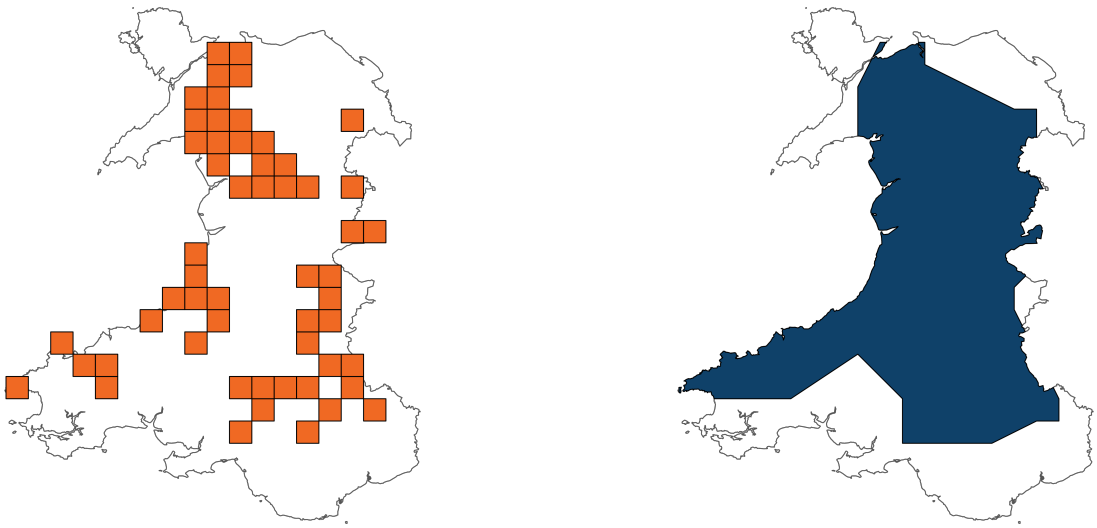

Figure 1: Wales distribution and range map for H6230 - Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). 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 H6230 - Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe). 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)	**Favourable (FV)**
Area covered by habitat (see section 5)	**Unfavourable-inadequate (U1)**
Structure and functions (see section 6)	**Unfavourable-bad (U2)**
Future prospects (see section 9)	**Unfavourable-bad (U2)**

List of Sections

National Level 5
1. General information 5
2. Maps 5

Biogeographical Level 5
3. Biogeographical and marine regions 5
4. Range 5
5. Area covered by habitat 7
6. Structure and functions 9
7. Main pressures 10
8. Conservation measures 11
9. Future prospects 12
10. Conclusions 13
11. UK National Site Network (pSCIs, SCIs, SACs) coverage for Annex I habitat types . . 13
12. Complementary information 14

13. References 15
Biogeographical and marine regions 15
Main pressures 17

14. Explanatory Notes 18

National Level

1. General information

1.1 Country	Wales
1.2 Habitat code	H6230 - Species-rich *Nardus* grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe)

2. Maps

2.1 Year or period	1979-2024
2.2 Distribution map	Yes
2.3 Distribution map; Method used	Complete survey or a statistically robust estimate

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)	13,095.25
4.2 Short-term trend; Period	2013-2024
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	Complete survey or a statistically robust estimate
4.6 Long-term trend; Period	
4.7 Long-term trend; Direction	Unknown
4.8 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Rate of decrease	
4.9 Long-term trend; Method used	Insufficient or no data available

4.10 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

4.11 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

4.12 Additional information

No additional information

5. Area covered by habitat

5.1 Year or period	1979-2024
5.2 Surface area (km²)	
a) Minimum	
b) Maximum	
c) Best single value	1.372
5.3 Type of estimate	Minimum
5.4 Surface area; Method used	Complete survey or a statistically robust estimate
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 between 2% and 10% 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	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

5.15 Additional information

No additional information

6. Structure and functions

6.1 Condition of habitat (km²)

Area in good condition	
ai) Minimum	0.034
aii) Maximum	0.0935
Area not in good condition	
bi) Minimum	0.437
bii) Maximum	0.437
Area where condition is unknown	
ci) Minimum	0.901
cii) Maximum	0.901
6.2 Condition of habitat; Method used	Based mainly on expert opinion with very limited data
6.3 Short-term trend of habitat area in good condition; Period	2011-2024
6.4 Short-term trend of habitat area in good condition; Direction	Uncertain
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
PA07: Intensive grazing or overgrazing by livestock	Ongoing and likely to be in the future	High (H)
PA08: Extensive grazing or undergrazing by livestock	Ongoing and likely to be in the future	High (H)
PK04: Atmospheric N-deposition	Ongoing and likely to be in the future	High (H)
PB01: Conversion to forest from other land uses, or afforestation (excluding drainage)	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)
PI03: Problematic native species	Ongoing and likely to be in the future	Medium (M)
PA01: Conversion into agricultural land (excluding drainage and burning)	Ongoing and likely to be in the future	Medium (M)
PA13: Application of natural or synthetic fertilisers on agricultural land	Ongoing and likely to be in the future	Medium (M)

PA20: Live stock farming generating pollution	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)

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	Both inside and outside 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
MA01: Prevent conversion of natural and semi-natural habitats, and habitats of species into agricultural land	High (H)

MA09: Manage the use of natural and synthetic fertilisers as well as chemicals in agricultural for plant and animal production	High (H)
MA03: Maintain existing extensive agricultural practices and agricultural landscape features	High (H)
MA05: Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning)	High (H)
MC09: Manage/reduce/eliminate air pollution from resource exploitation and energy production	Medium (M)
MA11: Reduce/eliminate air pollution from agricultural activities	Medium (M)
MB01: Prevent conversion of (semi-) natural habitats into forests and of (semi-) natural forests into intensive forest plantation	Medium (M)
MI05: Management of problematic native species	Medium (M)

8.6 Additional information

Only part of the measures identified have been taken.

9. Future prospects

9.1a Future trends of parameters

ai) Range	Negative - decreasing <=1% (one percent or less) per year on average
bi) Area	Negative - decreasing <=1% (one percent or less) per year on average
ci) Structure and functions	Negative - slight/moderate deterioration

9.1b Future prospects of parameters

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

9.2 Additional information

No additional information

10. Conclusions

10.1 Range	Favourable (FV)
10.2 Area	Unfavourable-inadequate (U1)
10.3 Specific structure and functions (incl. typical species)	Unfavourable-bad (U2)
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 (km^2)

a) Minimum	
b) Maximum	

c) Best single value	0.53
11.2 Type of estimate	Best estimate
11.3 Habitat area inside the network; Method used	Complete survey or a statistically robust estimate
11.4 Short-term trend of habitat area within the network; Direction	Stable
11.5 Short-term trend of habitat area within the network; Method used	Based mainly on extrapolation from a limited amount of data
11.6 Short-term trend of habitat area in good condition within the network; Direction	Uncertain
11.7 Short-term trend of habitat area in good condition within the network; Method used	Based mainly on extrapolation from a limited amount of data

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

Basto S., Thompson K, et al. 2018. Severe effects of long-term drought on calcareous grassland seed banks. Climate and Atmospheric Science. DOI: 10.1038/s41612-017-0007-3

Blackstock T. H., Howe E. A., Stevens J. P., Burrows C. R. & Jones P. S. 2010. Habitats of Wales. A comprehensive field survey 1979–1997. University of Wales Press, Cardiff.

BRIG. 2007. A preliminary Assessment of the implications of climate change for the implementation of UK BAP targets. Report to UK Biodiversity Partnership Standing Committee.

British Geological Survey. 2003. Digital geology data layer DiGMapGB250. BGS dataset.

Castillioni K., Newman G., et al. 2022. Effect of drought on grassland phenology depend on functional types. New Phytologist. DOI: 10.1111/nph.18462

Day, A. 1989. Upland vegetation survey 1979–1989. Background, methodology and summary of data collected. NCC report no. W91/2, Nature Conservancy Council, Bangor.

Guest, D. 2012. Assessing pressures and threats for article 17 reporting based on information in CCW's Actions Database. CCW HQ internal document.

Harrison, T. 2017. Eryri SAC Monitoring Summary note: Species-rich Nardus grassland. Monitoring Round 2013 to 2018. NRW SAC Condition Report.

JNCC. 2004. Common standards monitoring guidance for lowland grasslands. JNCC. http://jncc.defra.gov.uk/PDF/CSM_lowland_grassland.pdf

Lewis. H. 2006. Eryri SAC: 6230 Species Rich Nardus Grassland, on siliceous substrates in mountain areas. SAC Monitoring report.

Natural England and RSPB, 2014. Climate Change Adaptation Manual.

Natural Resources Wales. 2015. Natura 2000 Thematic Action Plan. Air pollution: Nitrogen deposition. LIFE Natura 2000 Programme for Wales.

Natural Resources Wales. 2017. Actions Database. NRW internal database.

Natural Resources Wales. 2023. Corndon Hill NVC survey. NRW internal documents.

Natural Resources Wales. 2024. Interpretation of Annex 1 grassland habitats in Wales for 2024 reporting. NRW internal document.

Ridding, L.E., Redhead, J.W. & Pywell, R.F. 2015. Fate of semi-natural grassland in England between 1960 and 2013: A test of national conservation policy. Global Ecology and Conservation 4: 516-525.

Rodwell, J.S. (ed.). 1992. British plant communities. Volume 3. Grasslands and montane communities. Cambridge University Press, Cambridge.

Smith, S.L.N., Sutton, M.D. & Turner, A.J. In prep. An assessment of a selection of non-statutory priority grasslands in Wales. NRW Evidence Report.

Stevens, C.J., Dise, N.B., Mountford, J.O. & Gowing, D.J. 2004. Impact of Nitrogen Deposition on the Species Richness of Grasslands. Science 303: 1876-1879.

Stevens D. P., Smith S. L. N., Blackstock T. H., Bosanquet S. D. S. & Stevens J. P. 2010. Grasslands of Wales. A survey of lowland species-rich grasslands, 1987–2004. University of Wales Press, Cardiff.

Stevens J. & Smith S. 2012. H6230 Species-rich Nardus grassland, on siliceous substrates in mountain areas (and submountain areas in continental Europe): Wales GIS inventory. NRW HQ dataset. Updated 2017.

Surry, K. 2012. Eryri SAC: 6230 Species Rich Nardus Grassland, on siliceous substrates in mountain areas. SAC Monitoring report.

Trinder S., Askew A, & Whitlock R. 2019. Climate-driven evolutionary change in reproductive and early-acting life-history traits in the perennial grass Festuca ovina. Journal of Ecology. DOI: 10.1111/1365-2745.13304

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

Van Den Berg, L.J.L, Vergeer, P, Rich, T.C.G., Smart, S.M., Guest, D & Ashmore, M.R. 2011. Direct and indirect effects of nitrogen deposition on species composition change in calcareous grasslands. Global Change Biology 17: 1871–1883.

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 distribution (and extent) of H6230 has been calculated using several data sources, which are summarised below and listed on the 10km Habitat Data spreadsheet. A part polygon-based and part point-based GIS inventory for the habitat has been produced through pooling these data sources together (Stevens and Smith, 2012, with 2017 and 2024 amendments). Data source 1 (MAIN DATA SOURCE): 'Phase 1' Habitat Survey of Wales (HSW; Blackstock et al., 2010). This was a comprehensive field-by-field survey of the region; distribution data for this habitat come entirely from the upland component of the survey, conducted between 1979 and 1989. All occurrences of the Upland Survey code C1e (Day, 1989) not occurring over limestone bedrock (BGS, 2003) were considered to correspond with this habitat and were included along with a single example of C1a/b. Further detail on the interpretation of H6230 in Wales can be found in NRW (2024). Data source 2 (MAIN DATA SOURCE): Lowland Grassland Survey of Wales (LGSW; Stevens et al., 2010). This was a targeted NVC (Rodwell (ed.), 1992) survey focussing on grasslands of high conservation interest in the Welsh lowlands. Survey work was conducted between 1987 and 2004. All LGSW occurrences of NVC CG10 not on limestone bedrock were included in the definition of H6230. In addition, examples of NVC U4 with abundant Thymus praecox (1 locality) and species-rich U4 containing basic/ flush species (8 localities) were included (see NRW, 2024). Three species-rich examples of a vegetation type named by the LGSW as 'Nardus stricta – Succisa pratensis grassland' (no NVC equivalent; see Stevens et al., 2010) were also included in the distribution. Two small stands of grassland mapped during the original LGSW survey were

	retrospectively reassigned to CG10a in 2017 (Smith et al., in prep), adding 0.8 ha to the habitat extent and a single additional 10km square to those listed in 2013. Data source 3: A number of records of the habitat derived from individual NVC site surveys (1996-2005) (see 10km square distribution spreadsheet). These are mainly examples of CG10, but in addition, some species-rich examples of NVC U5 containing basic/flush species (8 localities) (see NRW, 2024). Data source 4: Incidental CG10 records near Capel Curig recorded by SBS Bosanquet, 2012 (unsurveyed point records). Data source 5: SAC monitoring in 2016 (Harrison, 2017) confirmed the continued presence and extent of the habitat in some 10km grid squares in north-west Wales (Eryri SAC). The monitoring covers 31% of the habitat in Wales. Notwithstanding the age of much of the information, together these data give good coverage of the region. However, it is almost certain that some stands have been overlooked, especially in parts of the uplands not benefiting from NVC survey. Coverage in the lowlands is considered good, as examples of CG10 and species-rich U4 of at least 0.5 ha (on a single site) were specifically targeted for detailed survey by the LGSW, although smaller areas were not included in this survey. There are no recent data or information for the majority of localities. That said, most Welsh localities are on protected sites (SSSI/SAC), and the bulk of the H6230 resource is located in the uplands where grassland loss to agricultural improvement has been much more limited than in the lowlands (Blackstock et al., 2010).
4.3: Short-term trend; Direction	There is no evidence of actual change in the range of this habitat since the previous report.

4.11: Change and reason for change in surface area of range	There is no evidence of actual change in the range of this habitat since the previous report. However, one additional site with the habitat has been recorded, within a new 10km square (see 2.3 for more details).
5.1: Year or period	The data used to produce the total area figure are predominantly from prior to 2007. Post 2007 information includes: two point records from 2012; site visits to three lowland non-statutory sites in 2015 and to one site in 2017 (Smith et al., in prep.); SAC monitoring at 1 site which supports 31% of the habitat in Wales in 2016 (Harrison, 2017); a new site survey 2023 (see 2.3 for details). These data are considered to provide good coverage of the region (see 2.3) but much of the data is old (the two main datasets are from 1979-1981 and 1989-2004).
5.3: Type of estimate	The current total area is very likely to be an underestimate of the actual area for the following reasons: 1) some examples have almost certainly been overlooked due to paucity of survey information in some areas, especially outside SSSIs in the uplands; 2) some examples included in the inventory (Stevens & Smith, 2012: updated 2017 and 2024) are only point records with no extent data; 3) examples less than 0.5 ha (0.005 km2) in area were not specifically targeted by the LGSW.
5.8: Short-term trend; Method used	There is limited information on short term trends in extent for this habitat. SAC monitoring covers a single site in north Wales (Eryri) which supports 31% of the habitat in Wales – no changes in extent were noted during SAC monitoring in 2016 (Harrison, 2017) and 2011 (Surry, 2012), but extent was not formally assessed; the site was not monitored during the current reporting round. Visits to four lowland non-statutory sites with the habitat in 2015/2017 noted decline in extent of the habitat at two of them, with a loss of area of 1.4 ha (0.014 km2). This is too small a sample size to make firm conclusions on trend in the habitat in the lowlands outside statutory sites. However, Smith et al. (in prep.) noted loss of priority lowland grassland habitats at 48% of non-statutory sites (61 sites, across an average 9.7-year period), and increase in habitat at only 8% of sites,

	strongly suggesting a recent trend in decline of unprotected lowland grassland habitats generally.
5.12: Long-term trend; Method used	Aside from the information in 5.8, an earlier revisit survey of lowland grassland non-statutory sites in 2004 recorded significant decline at 25% of sites (96 sites, over an average 8-year period) (Stevens et al., 2010). This and the Smith (in prep.) assessment suggest a continuing decline in unprotected lowland grassland habitat generally over the long-term trend period, but with insufficient data on H6230 specifically to make firm conclusions on trend in the habitat. Three SAC monitoring assessments over the period (covering 31% of the habitat in Wales) detected no changes in extent of the habitat: 2005 (Lewis, 2006), 2011 (Surry, 2012) and 2016 (Harrison, 2017); however, they did not formerly assess extent.
5.14: Change and reason for change in surface area	The small increase on extent (0.4ha) between reporting rounds is due to location of previously unrecorded stands of the habitat at one site in east Wales (NRW, 2023). However, there has been no formal monitoring of the habitat during the current reporting round, so recent information is very limited (see 2.3 and 5.8).
6.2: Condition of habitat; Method used	A single SSSI/SAC has received Common Standards Monitoring (JNCC, 2004) visits to assess the H6230 feature. The site (Eryri) contains 31% (0.042 km2) of the H6230 total area mapped in Wales and was monitored in 2005 (Lewis, 2006), 2011 (Surry, 2012) and 2016 (Harrison, 2017). The H6230 feature was found to be in unfavourable condition on each occasion. There was no monitoring of the site in the current reporting round. A single SSSI surveyed in 2023 supports 0.4ha of H6230 (NRW, 2023). Although formal monitoring was not undertaken, the stands appeared to be in reasonable condition. There is no recent information about habitat condition on non-statutory sites. Visits to four sites in 2015/17 (Smith et al., in prep) noted decline in condition of the habitat at two

	of them (c.12 years since survey), but together these sites represent only 3.4% of the total of the habitat in Wales. Condition is essentially unknown for about two thirds of the habitat in Wales.
6.3: Short-term trend of habitat area in good condition; Period	These include the dates of the two most recent monitoring visits to the SAC in addition to the non-stat site survey and 2023 survey.
6.4: Short-term trend of habitat area in good condition; Direction	Three plots were monitored in the SAC in 2011 and 2016. One of these showed a significant decline in quality and the other two non-significant change between the visits. The SAC feature was therefore considered to be 'declining'. However, there is no more recent data and trend in condition is essentially unknown for at least two thirds of the habitat in Wales.
6.5: Short-term trend of habitat area in good condition; Method used	See 6.2 & 6.4
7.1: Characterisation of pressures	Data held in NRW's Special Sites Actions Database (NRW, 2017), which provided information on 'issues' affecting habitats and species within the protected sites series in Wales, were used to provide a basis for quantifying pressures relating to the habitat in the last reporting round, and these data provide the main source of information on pressures to the habitat here. The special sites (SSSI and SAC) include 68% of the H6230 resource Wales by area. Using the method outlined in Guest (2012a), overgrazing (PA07) affected 56% of units, undergrazing (PA08) 49%, leisure activities (PF05) 27% and problematic native species (PI03) 17%. Data from NRWs current sites database SAFLE (NRW, 2024) were extracted for three SSSI units within the current reporting round, two of which were suffering from overgrazing (PA07) and one from undergrazing (PA08). Information on a sample of non-statutory sites is provided by Smith (in prep), which showed that conversion into agricultural land (PA01) and fertiliser use remain as

pressures on grasslands in the lowlands (PA13).

Pressures on upland H6230 sites outside the statutory sites network are harder to evaluate, but are mostly likely to be mostly similar to upland protected sites. However, unmapped H6230 in the uplands intermixed with acid grassland is particularly vulnerable to unintentional loss through tree planting (PB01). Welsh Government has targets and commitments to significantly increase tree cover in coming years, and much of this planting is likely to focus on upland areas. Conversion to forest was also recorded at one grassland site by Smith et al. (in prep.). This is therefore given a high ranking.

Air pollution (N deposition) (PK04) is known to detrimentally affect the habitat (Stevens et al., 2004; Van Den Berg et al., 2011) and is assessed separately using the agreed approach and updated deposition data. Using a data overlay method in ARC GIS, 100% of the habitat by area (polygon data) was recorded at or above the relevant lower Critical Load limit.

PA20 is given a medium ranking to reflect the impact of ammonia emissions from agriculture (particularly intensive poultry units and dairy) on semi-natural grassland habitats.

Upland calcareous grassland (which includes most of H6230) was previously assessed as having relatively low sensitivity to climate change (BRIG, 2007; Natural England and RSPB, 2014). However, Since the last reporting round, further evidence suggests a higher than previously thought sensitivity of calcareous grassland to drought and reduced precipitation regimes due to climate change (Basto et al, 2018, Trinder et al 2019 and Castillioni et al 2022), and this is therefore given a medium rather than low ranking. Increased temperature and drought would also be likely to negatively affect boreal/montane plant species of the habitat. (PJ01, PJ03).

	Area figures calculated using GIS overlay analyses.
8.5: List of main conservation measures	In Wales, 68% of H6230 by area is on SSSI; SSSI notification has proven to protect against conversion to agricultural land (MA01) and overuse of fertilisers (MA09) (e.g. Stevens et al., 2010; Ridding et al. 2017). A total of 31% of the H6230 extent is listed as a SAC feature. In the 2013-2018 reporting round, 16% of the total extent was specifically covered by SSSI management agreement. In the NRW Actions Database (NRW, 2017) two management units had completed actions directed at the habitat: at managing grazing (MA05) and reducing disturbance from access/use (MF03); MF03 was given a low ranking as its effects are generally localised. A reassessment of measures listed in NRW's sites database (SAFLE) was not undertaken during the current reporting round due to time constraints, but is thought not to have changed significantly in the meantime. No further sites with the habitat have been notified as SSSI since the previous reporting round. Just over 50% of the habitat by area was covered by grassland Glastir Advanced agreements in the previous reporting round, but this had declined to just 3% in the 2020-23 period. MB01 (prevent conversion of (semi-) natural habitats into forests) is given a medium ranking. This recognises measures aimed at preventing planting on grassland priority habitat under the Woodland Creation Planning Scheme (formerly Glastir Woodland Creation), which currently encompasses most new tree planting in Wales. There are various air quality strategies and initiatives in place to protect and enhance biodiversity (MC09, 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. It should be noted that a large proportion of the habitat does not receive any targeted management and Glastir agreements are specific to the land parcels rather than the habitat. Area figures calculated using GIS overlay analyses.
9.1:Future trends and prospects of parameters	Range: NEGATIVE - With poor future prospects for area and poor future prospects for structure and function together with high rankings for threats from grazing and N pollution, we report 'NEGATIVE' for range over the next 12 years, as continued loss of area and condition is likely to start to

express itself through deterioration in distribution and subsequently range.

Area:

There is limited evidence of change in extent, although a decrease in area was recorded at two non-statutory sites during the last reporting round (see 5.8). A low level of decrease in extent in the future is likely however, in view of the pressures affecting the habitat, four of which are ranked high. These include atmospheric nitrogen deposition, which is more significant in higher rainfall areas such as the uplands, and which is known to cause acidification of grasslands (Stevens et al., 2004; Van Den Berg et al., 2011) and could well lead to conversion of the habitat to acid grassland over time. In addition, it is very likely that some areas of the habitat outside the statutory sites network have not been mapped, making them at increased risk of being planted with trees (see 9.1b).

Structure & function:

A relatively high proportion of the known habitat is on protected sites (68% by area); there is a lack of recent condition monitoring information, but conservation measures specifically targeted at the habitat are limited. Glastir coverage is poor (just 3% by area), and is targeted mainly at reducing stocking levels within management units rather than specifically targeting improving condition of the habitat. There is a lack of knowledge about condition of the non-statutory sites, which form nearly one third of the resource, although Smith et al (in prep) suggest decline in condition generally for non-statutory grasslands (see 6.2).

One of the main pressures on the habitat is atmospheric nitrogen deposition. A total of 100% of the habitat area in Wales currently (2024) exceeds the critical load (CL) for atmospheric nitrogen deposition. This ongoing exceedance of the CL is likely to lead to decline in floristic quality

	(Stevens et al., 2004; Van Den Berg et al., 2011) and thus likely drive some areas into unfavourable condition and inhibit the recovery of others. Localised increases in ammonia emissions, notably as a result of the expansion of poultry units, will further compound these problems directly impacting sensitive species within the habitat (see 8.5).
10.1: 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.
10.2: Area	Conclusion on Area reached because:(i) the short-term trend direction in Area is unknown; (ii) the current Area is not more than 10% below the Favourable Reference Area and iii) there has been no significant change in distribution pattern within range
10.3: Specific structure and functions	Conclusion on Future prospects reached because: (i) the Future prospects for Range are poor; (ii) the Future prospects for Area covered by habitat are poor; and (iii) the Future prospects for Structure and function are bad.
10.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are poor; (ii) the Future prospects for Area covered by habitat are poor; 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 two of the conclusions are Unfavourable-bad.
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.