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

2019-2024

Conservation status assessment for the habitat:

H6130 - *Calaminarian* grasslands of the *Violetalia calaminariae*

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

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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.

Assessment Summary: *Calaminarian* grasslands of the *Violetalia calaminariae*

Distribution Map

Range Map

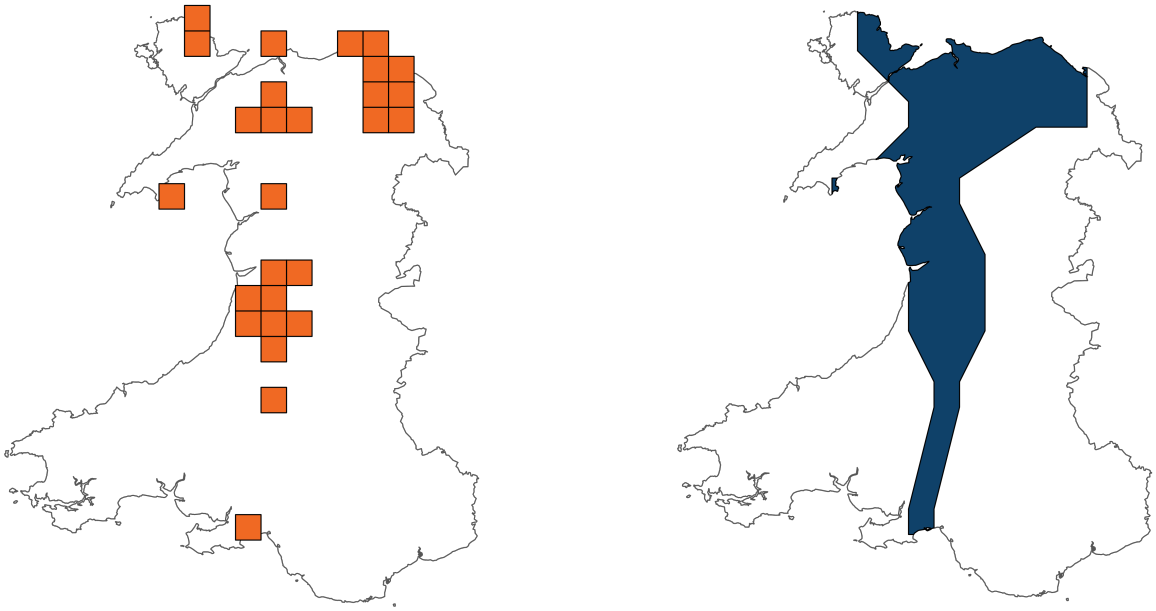

Figure 1: Wales distribution and range map for H6130 - *Calaminarian* grasslands of the *Violetalia calaminariae*. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil 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 H6130 - *Calaminarian* grasslands of the *Violetalia calaminariae*. 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)**

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National Level

1. General information

1.1 Country	Wales
1.2 Habitat code	H6130 - *Calaminarian* grasslands of the *Violetalia calaminariae*

2. Maps

2.1 Year or period	1992-2017
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)	5,841.92
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	
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	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	2008-2024
5.2 Surface area (km²)	
a) Minimum	
b) Maximum	
c) Best single value	0.7453
5.3 Type of estimate	Best estimate
5.4 Surface area; Method used	Complete survey or a statistically robust estimate
5.5 Short-term trend; Period	2007-2024
5.6 Short-term trend; Direction	Decreasing
5.7 Short-term trend; Magnitude	
a) Estimated minimum	
b) Estimated maximum	
c) Pre-defined range	Decreasing 0 - 12%
d) Unknown	No
e) Type of estimate	Best estimate
f) Rate of decrease	Decreasing <=1% (one percent or less) per year on average
5.8 Short-term trend; Method used	Based mainly on extrapolation from a limited amount of data

5.9 Long-term trend; Period	
5.10 Long-term trend; Direction	
5.11 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	
5.12 Long-term trend; Method used	
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	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	0.1627
aii) Maximum	0.1627
Area not in good condition	
bi) Minimum	0.228
bii) Maximum	0.228
Area where condition is unknown	
ci) Minimum	0.3546
cii) Maximum	0.3546
6.2 Condition of habitat; Method used	Based mainly on extrapolation from a limited amount of data
6.3 Short-term trend of habitat area in good condition; Period	2003-2024
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
PA08: Extensive grazing or undergrazing by livestock	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)
PI03: Problematic native species	Ongoing and likely to be in the future	High (H)
PK04: Atmospheric N-deposition	Ongoing and likely to be in the future	High (H)
PM07: Natural processes without direct or indirect influence from human activities or climate change	Ongoing and likely to be in the future	High (H)
PA20: Live stock farming generating pollution	Ongoing and likely to be in the future	High (H)
PA05: Abandonment of management/use of grasslands and other agricultural and agroforestry systems (e.g. cessation of grazing, mowing or traditional farming)	Ongoing and likely to be in the future	Medium (M)
PA07: Intensive grazing or overgrazing by livestock	Ongoing and likely to be in the future	Medium (M)
PC01: Extraction of minerals (e.g. rock, metal ores, gravel, sand, shell)	Ongoing and likely to be in the future	Medium (M)

PC13: Mining and extraction activities not referred to above	Ongoing and likely to be in the future	Medium (M)
PF05: Sports, tourism and leisure activities	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	Restore the structure and functions, including the status of typical species (related to 'Specific structure and functions')
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)

MI03: Management, control or eradication of other invasive alien species	High (H)
MI05: Management of problematic native species	High (H)
MA05: Adapt mowing, grazing and other equivalent agricultural activities (e.g. burning)	Medium (M)
MF03: Reduce impact of outdoor sports, leisure and recreational activities (incl. restoration of habitats)	Medium (M)
MA03: Maintain existing extensive agricultural practices and agricultural landscape features	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)
MK01: Reduce impact of mixed source pollution	Medium (M)
MM01: Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes that occur without direct or indirect influence from human activities or climate change	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	Overall stable
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	Good
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	Deteriorating

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	0.42
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	Decreasing
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	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

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Davies, C. 2017. Halkyn Mountain / Mynydd Helygain SAC – Calaminarian grassland monitoring 2017 – Herward Smithy Section. Internal NRW file note.

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

Ortuno-Sanchez, M. 2022. Grogwynion SAC Calaminarian grassland desk-based evaluation 2022-03-11. NRW internal document.

Owen, A. 2012. An overview of the Calaminarian grassland mapping exercise, Mwyngloddiau Fforest Gwydir / Gwydyr Forest Mines SAC. CCW internal report: North Region.

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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 H6130 has been calculated using several data sources, which are summarised below. A polygon-based GIS inventory for the habitat was produced through pooling these data sources together (Stevens & Smith 2012/2018). Due to time constraints, it was not possible to amend the GIS inventory to take into account post-2018 data (data sources 13 to 17), although range has been amended to account for one new 10km square record. Data source 1: Lowland Grassland Survey of Wales (LGSW) 1987-2004 (Stevens et al., 2010) with subsequent updates. This is a targeted NVC (Rodwell (ed.), 2000) survey focusing on grasslands of high conservation interest in the Welsh lowlands. H6130 was mapped at three sites: Halkyn Mountain 2002 (Stevens et al., 2002), Trelogan 2011 and Glaswelltiroedd Eryrys 2016. Examples of the habitat at these sites correspond with NVC OV37. Data source 2: Clwyd mine spoil survey 2002. Stands of calaminarian grassland (OV37) were recorded at six sites in Clwyd (results included in Stevens et al., 2002). Data source 3: Lowland Heathland Survey 1993-2001. CCW commissioned survey. Calaminarian grassland characterised by metallophyte lichen species on river shingle. Data source 4: Upland NVC Survey of Y Wyddfa. Alex Turner 1996-1998. Internal NRW GIS data. Data source 5: Stuart Smith 2008. Prestatyn Walkway - mapping of OV37. Internal NRW GIS data. Data source 6: Gwydyr Forest Mines SAC mapping

exercise 2011 (Owen, 2012). Mapped areas of the habitat characterised by metallophyte vascular plants, bryophytes and lichens.

Data source 7: Survey of Six Pits 2012 (Stewart, 2016). Stands of OV37.

Data source 8: A survey of 27 mid Wales calaminarian grassland sites was undertaken in 2014 (Simkin, 2015). All mapped areas of the habitat in this survey are characterised by metallophyte lichens or bryophytes.

Data source 9: Survey of Mwyngloddfa Cwmystwyth SSSI (Forster Brown & Chambers, 2017). Lichen and bryophyte forms of the habitat.

Data source 10: Records in SSSI files of calaminarian grassland lichens and bryophytes indicate the presence of the habitat at Cors Llyferin SSSI (unmapped).

Data source 11: Incidental records of the habitat from Richard May (pers. com., 2017).

Data source 12: SAC monitoring confirmed the continued presence and extent of the habitat at one site during the 2013-18 reporting period (Davies, 2017; Harrison, 2017), a further two sites in the 2007-12 period (Garrett, 2008; Harrison & Creer, 2009; Lovering, 2010), and one additional site in 2005 (Barton-Allan, 2005).

Data source 13: Vegetation survey of Mynydd Parys (Turner, 2021).

Data source 14: Vegetation survey of Rhandirmwyn (Bosanquet 2020).

Data source 15: Vegetation survey of Nant y Mwyn Mine (JBA, 2024)

	Data source 16: Ystumtuen vegetation survey. Internal NRW GIS data. Data source 17: Ceredigion Calaminarian Surveys by Forster Brown & Chambers (2021).
4.3: Short-term trend; Direction	See 4.11
4.11: Change and reason for change in surface area of range	Changes to the reported distribution of H6130 in Wales are the product of addition survey work (see 2.3, data sources 13 to 17) and are not considered to represent genuine changes in the habitats distribution.
5.3: Type of estimate	The data used to produce the total area figure are considered to provide good coverage of the region. In providing the estimate, there is considered to be good knowledge of the whereabouts of heavy metal-contaminated former mine sites in the region and survey information is available for the most extensive examples of the habitat. However, the figure is considered to be an underestimate as: 1) some records are point locations which do not therefore add to the extent figure, and 2) numerous small mine sites, notably in mid Wales, are not included, some of which are very likely to have stands of the habitat characterised by metallophyte lichens and/or bryophytes. The age of the data, with much of it more than 20 years old (see 2.3), limits confidence in it to a degree. It was not possible to include post-2018 data to update the surface area figure due to time constraints.
5.4: Surface area; Method used	See 2.3
5.6: Short-term trend; Direction	There is limited information on recent area change in area of the habitat, but what is available points to small-scale decrease in extent (see 5.8).
5.7: Short-term trend; Magnitude	See 5.6
5.8: Short-term trend; Method used	SAC monitoring covered three H6130 sites within the 2007-2018 period (Garrett, 2008; Harrison & Creer, 2009; Lovering, 2010; Davies, 2017; Harrison, 2017). A fourth

	SAC was last monitored in 2005 (Barton-Allan, 2005), but received a visual check in 2012 (Ken Perry, pers. com.). The H6130 received a 'desk-based assessment' at two SACs in 2022, but these did not evaluate extent. Together the SACs support 52% of the habitat in Wales. Decrease in the area of the habitat was recorded at two of the SACs (Garrett 2008; Davies, 2017), but extent change across the whole feature was generally not thoroughly assessed during monitoring. Additional small losses were noted during recent NRW operational visits to four SSSIs during the current reporting round (NRW, 2019; NRW, 2020; NRW, 2022; NRW, 2024a). There is little information about change on non-statutory sites, although small losses at five sites have been recorded since 2007 (Smith, 2012; Richard May, pers. com., 2017; Simkin, 2015; Andrew Lucas, pers. com., 2018). In addition, Smith et al. (in prep.) noted loss of a broader range of priority lowland grassland habitats at 48% of non-statutory sites (29 out of 61 sites, visited between 2008 and 2017, with an average 9.7 year between visits), and increase in habitat at only 8% of sites, strongly suggesting a recent trend in decline of unprotected lowland grassland habitats generally.
5.14: Change and reason for change in surface area	There was insufficient time to update the GIS layer for this habitat, although it is known that there has been some recent loss of the habitat, plus there are a number of new H6130 records. Whilst small areas of loss are known we remain uncertain over their implications.
6.2: Condition of habitat; Method used	Three of the four SACs containing the habitat as a qualifying feature were monitored across the period 2007-2017 (Garrett, 2008; Harrison & Creer, 2009; Lovering, 2010; Davies, 2017). Each assessment was found to be in unfavourable condition and, at two of the three sites, declining. A fourth SAC was last monitored in 2005 (Barton-Allan, 2005), and received a visual check in 2012 (Ken Perry, pers. com.) when it was considered to be

	probably in favourable condition. No structured, field-based monitoring of H6130 has taken place on any SAC or SSSI in the current reporting round, but four SSSI (three of which are also SAC) received 'desk based assessments', all of which provided unfavourable conclusions (Harrison, 2022; Ortuno-Sanchez, 2022; Harrison, 2023; Harrison, 2024). Condition assessment is lacking for non-statutory sites, which comprise 27% of the total resource of H6130.
6.3: Short-term trend of habitat area in good condition; Period	These are the years between the most recent and the previous monitoring assessments of the habitat on SACs/ SSSIs.
6.5: Short-term trend of habitat area in good condition; Method used	The three H6130 SAC features which have received structured monitoring twice during the given period were assessed as being in unfavourable condition, both in the most recent (Garrett, 2008; Harrison & Creer, 2009; Lovering, 2010; Davies, 2017; Harrison, 2017) and the previous (Creer, 2003; Lovering, 2006; CCW, 2008; Harrison & Creer, 2009) monitoring visits; these assessments provide an overall assessment of the feature as a whole, and some parts of each feature may be in favourable condition. Features on two sites were considered to be declining. One site received structured monitoring once in the period (unfavourable; Barton-Allan, 2005) and a visual check some years later (probably favourable; Ken Perry, pers. com.). There is a lack of trend data for the remaining H6130 resource (SSSIs and non-statutory sites). Given this and the age of the existing monitoring data, an 'insufficient data' method is given.
7.1: Characterisation of pressures	Data held in SAFLE, NRW's statutory sites database (NRW, 2024b), which provides information on 'issues' affecting habitats and species within the protected sites series in Wales, were used to provide a basis for quantifying pressures/threats relating to the habitat,

following procedures outlined in NRW, 2018. The protected sites (SSSI and SAC) hold 73% of the H6130 Wales resource by area. Using this method, the following are given a High ranking: PA08 (undergrazing) is an issue on 13% of units, PI02 (invasive alien species; mainly spreading conifer species) on 40% of units, and PI03 (problem native; notably gorse spread) on 44% of units. Although not specifically flagged as an issue in SAFLE, natural succession of calaminarian grassland to more closed, grass-dominated vegetation (PM07) has been noted during recent visits to a number of H6130 sites (e.g. NRW, 2019; NRW, 2022; NRW, 2024a).

A Critical Load (CL) level has not been formally allocated to this habitat. In previous reporting rounds a CL of 15-25 kg N/ha/year was adopted, but following discussion between specialists, and taking into account the key role that cryptogams play in the habitat's composition, a CL of 5 kg/ N/ha/year has now been adopted. Air pollution (N deposition) (PK04) is known to detrimentally affect various dry grasslands (Stevens et al., 2004; Van Den Berg et al., 2011) and is considered highly likely to significantly affect H6130. It is assessed separately using the agreed approach, using 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 lower Critical Load limit and the habitat is given a High ranking.

PA20 is also given a High ranking, reflecting the role bryophytes and lichens play in this habitat and their particular vulnerability to ammonia emissions.

A medium ranking is given to four pressures using data from SAFLE: PA05 (abandonment), PA07 (overgrazing) and PC01 (extraction of minerals), each affecting 4% of units, and PF05 (off-road vehicle damage), affecting 15% of units. PC13 (Other mining activity) is also given a medium ranking (from expert opinion) – it relates to issues around the reclamation of former mine sites, for example for health

	and safety reasons. Low ranking is given to PA13 (use of manure affecting 2% of management units), PA10 (supplementary feeding, localised on 4% of units) and PH08 (dumping of material) on 4% of units. PB01 (afforestation) is included as a pressure as there are national targets to greatly increase forest cover in the region, but is given a low ranking as H6130 is less likely to provide suitable tree planting habitat than most other grassland types. PF01 (conversion to housing/recreation areas) is included as some H6130 sites are situated in urban areas and such loss has already occurred at one urban site (Andrew Lucas, pers. com., 2018), and also because there are currently increasing calls to increase levels of house building. H6130 is likely to have relatively low sensitivity to climate change, but being a habitat of mostly very dry situations, it could be negatively affected by increasing precipitation (PJ03). Information on a sample of non-statutory grassland sites is provided by Smith et al. (in prep.). Although they did not include any examples of calaminarian grassland, the information is the best available to indicate recent or current pressures on non-statutory grassland habitats in general. They recorded some cases of conversion to intensive production (PA02) and artificial fertiliser application (PA13) which are considered relevant to the H6130 habitat but are given a low ranking due to lack known actual cases.
8.5: List of main conservation measures	Measures are neither identified nor taken for most of the habitat in Wales. Although 73% of H6130 by area is on SSSI (up from 71% in the previous reporting round), only 49% of SSSI management units have actions which are completed or underway. Just 9% by area of the habitat in Wales was, until the scheme ended, covered by a relevant

Glastir grassland option (2020-2023).

29% of H6210 total area is listed as a SAC feature. Thematic Action Plans have been produced for the SACs; these provide priorities for each theme.

NRWs SAFLE statutory sites database (NRW, 2024b) lists 33 management units with H6210 as a feature with actions expected to have a positive impact in the next 12 years (relevant actions listed as Completed, Underway, Planned or Agreed in principle). The most common measure are: MI03 control of invasive non-native (41% of all units) and MI05 management of problematic native species (mainly gorse scrub control) (36% of units), which are both given a high rating.

Two additional measures are given a high rating: MA01 (Prevent conversion of semi-natural habitats into agricultural land) and MA09 (Manage the use of natural and synthetic fertilisers). This recognises the key role of statutory site protection, which has been shown to act as an effective mechanism in preventing conversion into agricultural land and preventing or limiting fertiliser and farm chemical usage (e.g. Stevens et al., 2010; Ridding et al. 2017). However, no sites with the habitat have been notified as new SSSIs since the previous reporting round.

There are various air quality strategies and initiatives in place to protect and enhance biodiversity (MK01). 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.

Using the data from SAFLE, medium ranking is given to MA03 (maintain existing agricultural practice), which is an action for 10% of the management units, MA05 (adapt grazing management), which is an action for 3% of the units, and MF03 (reduce leisure activity), which is an action on 5% of the units. Deliberate interventions to reverse the effects of natural succession (such as scraping off vegetation) were recorded for 7% of units (MM01), and this is also given a medium ranking.

Also given medium ranking is MA11 (reduce/eliminate air pollution from agricultural activities). This reflects the importance of bryophytes and lichens to the habitat, and the vulnerability of many of them to local ammonia pollution. National regulations are in place but have been insufficient to prevent locally increasing ammonia pollution from expansion of poultry units.

One additional measure is given medium ranking: MB01

	(prevent conversion of (semi-) natural habitats into forests). 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. Measures to prevent abandonment (MA04) are highlighted for one H6130 management unit in SAFLE, and this is given a low ranking. Area figures calculated using GIS overlay analyses.
9.1:Future trends and prospects of parameters	Range: No changes in range of the habitat are expected in the short to medium term, although some 10 km square records are represented only by small individual sites, so have an inherent vulnerability. Actual expansion of range is unlikely given the habitat's confinement to particular environmental conditions. Area: Small decrease in extent has been noted at a number of sites, and given the wide range of pressures, notably including successional change and scrub/INNS expansion, and a lack of sufficient conservation measures, continuing loss is expected in the future (see 5.8 for more details). Structure and function: The condition on statutory sites is, where assessed, poor (see 6.2) and there is little or no structure and function information for much of the habitat (including all non-statutory sites). Many SSSI management units with H6130 have actions which have not been completed or no identified actions (see 8.5). 100% of the habitat area in Wales currently exceeds the

	critical load (CL) for atmospheric nitrogen deposition and only a modest projected decrease in total deposition in the Principality is projected over the next 12 years.
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 decreasing by 1% per year or less; (ii) the current Area is not more than 10% below 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 using the precautionary principle because: i) habitat condition data indicates that more than 25% of the habitat is in unfavourable (not good) condition; and ii) short-term trend in area of habitat in good condition is uncertain for this habitat.
10.4: Future prospects	Conclusion on Future prospects reached because: (i) the Future prospects for Range are good; (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.
10.6: Overall trend in Conservation Status	Overall trend is unknown because the short-term trend in range is stable, the short-term trend in area is decreasing, and the short-term trend in structure & function is uncertain.
11.4: Short-term trend of habitat area within the network; Direction	Small decrease in area was noted at two SACs (see 5.8).
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.