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

2019-2024

Conservation status assessment for the habitat:

H1220 - Perennial vegetation of stony banks

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: H1220 Perennial vegetation of stony banks.

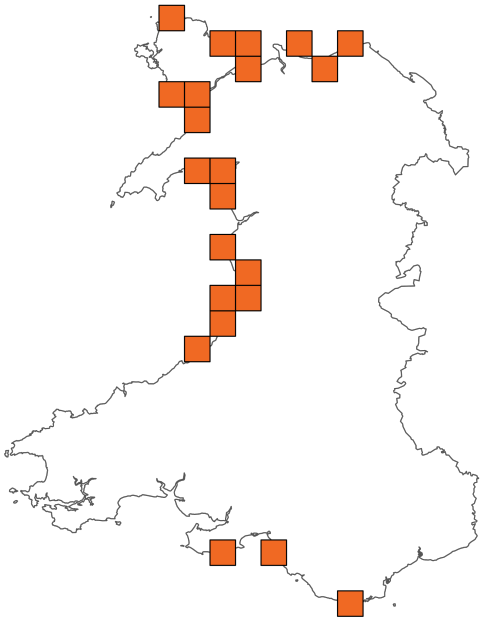
Important note - Please read

- 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: Perennial vegetation of stony banks

Distribution Map



Range Map

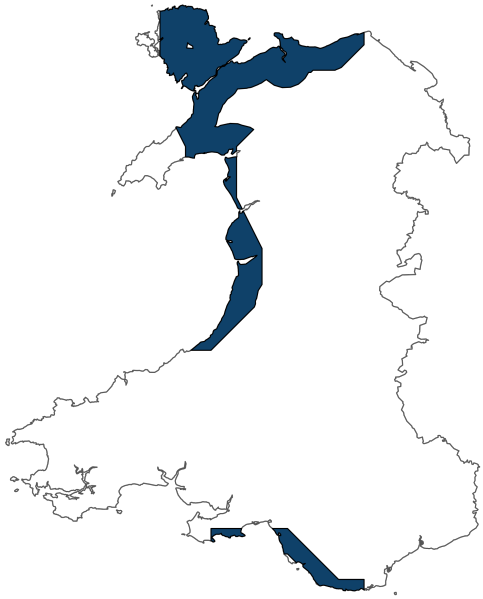


Figure 1: Wales distribution and range map for H1220 - Perennial vegetation of stony banks. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority. The 10km grid square distribution map is based on available habitat records within the current reporting period.

Table 1: Table summarising the conservation status for H1220 - Perennial vegetation of stony banks. 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-bad (U2)**
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	H1220 - Perennial vegetation of stony banks

2. Maps

2.1 Year or period	1989-2022
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)	2,860.57
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	Yes
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	1989-2022
5.2 Surface area (km²)	
a) Minimum	
b) Maximum	
c) Best single value	0.1361
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	
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	1989-2022

5.10 Long-term trend; Direction	Decreasing
5.11 Long-term trend; Magnitude	
a) Minimum	
b) Maximum	
c) Confidence interval	
d) Rate of decrease	Decreasing >1% (more than one percent) per year on average
5.12 Long-term trend; Method used	Complete survey or a statistically robust estimate
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	Yes
c) Improved knowledge or more accurate data	Yes
d) Different method	Yes
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	0.0124
aii) Maximum	0.0124
Area not in good condition	
bi) Minimum	0
bii) Maximum	0
Area where condition is unknown	
ci) Minimum	0.1237
cii) Maximum	0.1237
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	
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
PE01: Roads, paths, railroads and related infrastructure	Ongoing and likely to be in the future	Medium (M)
PF04: Development and maintenance of beach areas for tourism and recreation	Ongoing and likely to be in the future	High (H)
PF05: Sports, tourism and leisure activities	Ongoing and likely to be in the future	High (H)
PF14: Modification of flooding regimes, flood protection for built-up areas	Ongoing and likely to be in the future	Medium (M)
PF15: Modification of coastline, estuary and coastal conditions for built-up areas	Ongoing and likely to be in the future	High (H)
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)
PJ04: Sea-level rise due to climate change	Ongoing and likely to be in the future	Medium (M)
PJ06: Wave exposure changes due to climate change	Ongoing and likely to be in the future	High (H)
PJ07: Cyclones, storms, or tornados due to climate change	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	High (H)
PK04: Atmospheric N-deposition	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, but none yet taken

8.2 Main purpose of the measures taken

8.3 Location of the measures taken

8.4 Response to measures

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
MF03: Reduce impact of outdoor sports, leisure and recreational activities (incl. restoration of habitats)	High (H)
MF08: Manage changes in hydrological and coastal systems and regimes for construction and development (incl. restoration of habitats).	High (H)
MH03: Reduce impact of other specific human activities	High (H)
MJ02: Implement climate change adaptation measures	High (H)

MK01: Reduce impact of mixed source pollution	Medium (M)
MK02: Reduce impact of multi-purpose hydrological changes	Medium (M)
MK03: Restoration of habitats impacted by multi-purpose hydrological changes	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

No additional information

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	Bad
cii) Structure and functions	Poor

9.2 Additional information

No additional information

10. Conclusions

10.1 Range	Favourable (FV)
10.2 Area	Unfavourable-bad (U2)

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 (km^2)

a) Minimum	
b) Maximum	
c) Best single value	0.0427
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	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

Aggenbach, C. J. S., Kooijman, A. M., Fujita, Y., van der Hagen, H., van Til, M., Cooper, D., & Jones, L. (2017). Does atmospheric nitrogen deposition lead to greater nitrogen and carbon accumulation in coastal sand dunes? Biological Conservation, 212, 416–422. https://doi.org/10.1016/j.biocon.2016.12.007

Ashall, J., Duckworth, J., & Holder, C. (1992a). Sand dune survey of Great Britain. Site report no. 120 Tai Morfa, Dwyfor Wales 1991 (JNCC Report No. 86; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., & Holder, C. (1992b). Sand dune survey of Great Britain. Site report no. 129 Kinmel Bay, Colwyn, Wales 1991 (JNCC Report No. 98; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

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Ashall, J., Duckworth, J., & Holder, C. (1995). Sand dune survey of Great Britain. Site report no. 125 Tywyn Gwyn, Anglesey, Ynys Mon, Wales 1991. (JNCC Report No. 94; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

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Ashall, J., Duckworth, J., Holder, C., McConnell, A., & Smart, S. (1995b). Sand dune survey of Great Britain. Site report no. 110 Poppit Sands, Preseli, Wales 1991. (JNCC Report No. 73; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., Holder, C., & Smart, S. (1992a). Sand dune survey of Great Britain. Site report no. 111 Towyn Warren, Ceredigion, Wales 1991. (JNCC Report No. 79; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., Holder, C., & Smart, S. (1992b). Sand dune survey of Great Britain. Site report no. 112 Ynyslas, Ceredigion, Wales 1991. (JNCC Report No. 80; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., Holder, C., & Smart, S. (1992c). Sand dune survey of Great Britain. Site report no. 115 Morfa Dyffryn Meirionnydd. (JNCC Report No. 90; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., Holder, C., & Smart, S. (1994a). Sand dune survey of Great Britain. Site report no. 100 Pendine Burrows, Carmarthen, Wales 1991. (JNCC Report No. 78; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., Holder, C., & Smart, S. (1994b). Sand dune survey of Great Britain. Site report no. 105 Stackpole Warren, Barafundle Bay and Broad Haven South Pembrokeshire, Wales 1991. (JNCC Report No. 69; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., Holder, C., & Smart, S. (1995a). Sand dune survey of Great Britain. Site report no. 104 Freshwater Bay East, South Pembrokeshire, Wales 1991. (JNCC Report No. 66; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Duckworth, J., Holder, C., & Smart, S. (1995b). Sand dune survey of Great Britain. Site report no. 131 Gronant to Talacre, Delyn, Wales 1991. (JNCC Report No. 46; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., & Holder, C. (1992a). Sand dune survey of Great Britain. Site report no. 128 Conwy and Deganwy dunes, Aberconwy Wales 1991. (JNCC Report No. 97; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., & Holder, C. (1992b). Sand dune survey of Great Britain. Site report no. 130 Dunes between Rhyl and Prestatyn, Rhuddlan, Wales 1991. (JNCC Report No. 99; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., & Holder, C. (1992c). Sand dune survey of Great Britain. Site report no. 132 Penrhynoedd-Llangadwaladr, Ynys Mon Wales 1991. (JNCC Report No. 100; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Holder, C., & Duckworth, J. (1994). Sand dune survey of Great Britain. Site report no. 119 Traeth Crugan, Dwyfor, Wales 1991. (JNCC Report No. 85; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

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Ashall, J., Holder, C., & Smart, S. (1992). Sand dune survey of Great Britain. Site report no. 114 Fairbourne, Meirionnydd, Wales 1991 (JNCC Report No. 82; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Ashall, J., Holder, C., & Smart, S. (1994). Sand dune survey of Great Britain. Site report no. 106 Broomhill & Kilpaison Burrows, South Pembrokeshire, Wales 1991. (JNCC Report No. 70; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

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Duckworth, J., & Holder, C. (1995a). Sand dune survey of Great Britain. Site report No. 126 Traeth Lligwy & Traeth Dulas, Anglesey, Ynys Mon, Wales 1991. (JNCC Report No. 95; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Duckworth, J., & Holder, C. (1995b). Sand dune survey of Great Britain. Site report No. 127 Red Wharf Bay, Ynys Mon, Anglesey, Wales. 1991. (JNCC Report No. 96; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

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Duckworth, J., Holder, C., & Smart, S. (1995a). Sand dune survey of Great Britain. Site report No. 121 Morfa Dinlle, Arfon, Wales 1991. (JNCC Report No. 87; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Duckworth, J., Holder, C., & Smart, S. (1995b). Sand dune survey of Great Britain. Site report No. 123 Aberffraw, Ynys Mon, Wales, 1991. (JNCC Report No. 45; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Duckworth, J., Holder, C., & Smart, S. (1995c). Sand dune survey of Great Britain. Site report No. 124 Valley airfield and golf links, Ynys Mon, Wales 1991. (JNCC Report No. 93; Sand Dune Survey of Great Britain). Joint Nature Conservation Committee.

Green, H. (2014). Bae Cemlyn SAC. SAC monitoring data. [NRW Internal Data].

Heathcote, S., Finch, R., Carter, R., Ruffino, L., Pickard, M., Sutton, M., & Lamacraft, D. (2022). Dynamic Dunescapes National Vegetation Classification Survey, NRW Evidence Report Series. Report No. 659, 224pp,. Natural Resources Wales.

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Heathcote, S., Finch, R., Lamacraft, D., Orange, A., Ruffino, L., Sheehan, K., Stewart, B., Thomas, L., & Toop, C. (2022). Sands of LIFE National Vegetation Classification (NVC) Survey. Natural Resources Wales.

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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 10km square distribution and habitat area estimates are derived from a combination of different original sources, summarised below. A single updated aggregated GIS layer has been created for this habitat across Wales (data source 1 below) joining together the maps and records from the other listed sources. Data source 1 (MAIN DATA SOURCE): Digital GIS Map Layer: Reg 9A H2110 Embryonic Shifting Dune Extent Layer 2025 (NRW, 2025). This GIS layer (updated in 2025) supersedes the layer produced for the 2019 Article 17 submission. Data source 2 (MAIN DATA SOURCE): Sands of LIFE National Vegetation Classification (NVC) survey (Heathcote, Finch, Lamacraft, et al., 2022), is a vegetation survey of the Sands of LIFE sand dune sites using the UKs National Vegetation Classification (NVC) (Rodwell, 2000). Data source 3 (MAIN DATA SOURCE): Dynamic Dunescapes National Vegetation Classification (NVC) survey (Heathcote, Finch, Carter, et al., 2022), is a vegetation survey of the Dynamic Dunescapes Welsh sand dunes sites using the UKs National Vegetation Classification (NVC) (Rodwell, 2000). Data source 4 (MAIN DATA SOURCE): National Vegetation Classification Survey of coastal shingle sites in Wales 2022 (Heathcote, Finch, & Harrison, 2022), is a vegetation survey of the vegetated shingle structures around the coastline of Wales using the UKs National Vegetation Classification (NVC) (Rodwell, 2000) and Coastal Vegetated Shingle communities defined by Sneddon and Randall (Sneddon & Randall, 1993b).

	Data source 5 (MAIN DATA SOURCE): Sand Dune Vegetation Survey of Great Britain Part 3 – Wales (Dargie, 1995). This was a comprehensive survey of all sand dunes in Wales (Ashall, Duckworth, & Holder, 1992a, 1992b, 1994, 1995; Ashall, Duckworth, Holder, et al., 1992a, 1992b, 1992c, 1994a, 1994b; Ashall, Duckworth, Holder, McConnell, et al., 1995a, 1995b; Ashall, Duckworth, Holder, & Smart, 1995a, 1995b; Ashall et al., 1994, 1994, 1994, 1994, 1995, 1995; Ashall, Holder, et al., 1992; Ashall & Holder, 1992a, 1992b, 1992c; Duckworth et al., 1992, 1995a, 1995b, 1995c; Duckworth & Holder, 1995a, 1995b; Holder, Duckworth, et al., 1994; Holder, Smart, et al., 1994; Huckbody et al., 1993) based on the UKs National Vegetation Classification (NVC) (Rodwell, 2000). The H1220 vegetation equates to NVC community; SD1 Rumex crispus – Glaucium flavum shingle community The H1220 habitat is found in 22, 10km grid squares, the distribution differs to that reported in 2013 (14 grid squares), however, this is due to the use of recent surveys (Heathcote, Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022) rather than a genuine change in the distribution of the feature. The data presented in this report is considered to give good representation of the current distribution and extent of this habitat.
4.3: Short-term trend; Direction	There is no evidence of actual change in the range of this habitat since the last report in 2018.
4.4: Short-term trend; Magnitude	Not applicable (no decrease in range), i.e. 'stable' see 4.3
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 in Wales since the last report in 2018. However, more 10km2 grid squares have been recorded compared to 2018, this is due to the use of recent surveys (Heathcote,

	Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022) confirming presence or absence of the habitat. rather than a genuine change in the distribution of the feature.
5.2: Surface area	[2013-2018: 0.5296 km2 (52.96 ha)] Surface area figure has been generated from recent National Vegetation Classification (NVC) survey data from the Survey of coastal shingle sites in Wales, Sands of Life and Dynamic Dunescapes projects (Heathcote, Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022). These datasets have been combined with two older datasets covering the remainder of the sand dune (sand dune survey of Wales (SDSW)) and shingle sites in Wales (Dargie, 1995; Sneddon & Randall, 1993a). Analysis of the 2022 data (Heathcote, Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022) compared against the Sand Dune Vegetation Survey of Wales (Dargie, 1995) and the shingle sites in Wales survey (Sneddon & Randall, 1993a) shows that the habitat has changed in extent and area on some sites due to changes in coastal morphology, vegetation succession and changes in management. Overall decrease in recorded area of 39.35 ha.
5.3: Type of estimate	The Survey of coastal shingle sites in Wales, Sands of Life and Dynamic Dunescapes projects (Heathcote, Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022). These datasets have been combined with two older datasets covering the remainder of the sand dune (sand dune survey of Wales (SDSW)) and shingle sites in Wales (Dargie, 1995; Sneddon & Randall, 1993a).
5.6: Short-term trend; Direction	The habitat is very susceptible to damage from trampling and has been affected by vehicle access and parking which may have been responsible for the loss of Mertensia

	maritima from one site in North Wales. There is also concern that shoreline structures such as groins and seawalls are disrupting coastal processes and causing sediment starvation in places, which suggest that there may be localised losses at some sites.
5.8: Short-term trend; Method used	There is limited information on short term trends in extent for this habitat. SAC monitoring has previously covered a single site in north Wales (Bae Cemlyn SAC) which supports 9.1% of the habitat in Wales. Recent vegetation surveys (Heathcote, Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022) now cover the whole resource in Wales will allow future losses or gains to be mapped. It would be unwise to make any conclusions on trend in the area of the habitat based on such a small sample size.
5.14: Change and reason for change in surface area	The change in the estimated area of this habitat is the result of the re-analysis of existing survey data (see section 5.2) in addition to the more accurate data for the areas of Perennial vegetation of stony banks identified through recent survey work from the Survey of coastal shingle sites in Wales, Sands of Life and Dynamic Dunescapes projects (Heathcote, Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022). The recorded loss in area may be from the interpretation of the data rather than a genuine loss in habitat area, however, the recent vegetation surveys (Heathcote, Finch, Carter, et al., 2022; Heathcote, Finch, & Harrison, 2022; Heathcote, Finch, Lamacraft, et al., 2022) now cover the whole resource in Wales and will allow future losses or gains to be mapped.
6.2: Condition of habitat; Method used	No new data on the condition of the habitat has been collected during the current reporting period. Condition is based on the last report where in 2014 the feature on one site (Bae Cemlyn) was reported to be in favourable condition.

	There is very little information about habitat condition on other statutory and non-statutory sites. Condition is unknown for 91% of the habitat in Wales. The habitat is likely to be affected by shoreline structures and sea level rise.
6.4: Short-term trend of habitat area in good condition; Direction	The SD1 community along the shingle ridge at Bae Cemlyn was systematically sampled in 2003, 2007 and 2014. No significant decline in quality was seen between the 2003 and 2007 monitoring rounds, although on both occasions the feature was considered to be in an unfavourable condition, due to excessive disturbance / trampling. However, the interpretation of the data recorded in 2014 (Green, 2014), concluded the habitat to be in favourable condition based on less damage due to trampling recorded for the feature, despite some localised/short-term damage due to winter storms (Creer & Green, 2014). However, trend in condition is unknown for at least 91% of the habitat in Wales.
7.1: Characterisation of pressures	Pressures: Six pressures are ranked as having a High impact: PF04: Development and maintenance of beach areas for tourism and recreation – Beach cleaning is a significant pressure on the Perennial vegetation of stony banks habitat, where the activity removes the precursors to the vegetated shingle habitat development and thereby affecting any natural expansion of the habitat. PF05: Sports, tourism and leisure activities – Perennial vegetation of stony banks habitat is exposed to a high degree of pressure from sports, tourism and leisure activities, leading to damage of the habitat through trampling and general disturbance.

PF15: Modification of coastline, estuary and coastal conditions for built-up areas – Perennial vegetation of stony banks are dependent on natural processes of shingle movement and the habitat is being adversely affected by shoreline structures, especially where these are restricting sediment transport. Without an influx of new material, this habitat is likely to go into decline. There are four Shoreline Management plans in Wales which set policies for the long term sustainable management of the coast. The Habitats Regulations Assessments (HRAs) of these plans did not conclude that there would be adverse effects for SAC designated shingle vegetation because the policies applied to these sites were either managed realignment (to allow for active management) or no active intervention. In addition, the HRAs considered sediment supply from adjacent units, and where necessary, mitigation measures were included to ensure that coastal management updrift would not affect sediment supply to designated dune systems. Implementation of the SMPs and associated mitigation measures is required in order to help manage this pressure.

PJ06: Wave exposure changes due to climate change &

PJ07: Cyclones, storms, or tornados due to climate change – Large waves and storm surges are predicted to become more frequent with climate change with shingle, and driftline habitats at greater risk of being overtopped or breached during these events. Storm event wave exposure causes erosion of shingle and driftline habitats removing significant proportions of shingle vegetation, reducing sediment height and increasing the chance of future overtopping and breaching during storm events.

PJ10: Change of habitat location, size, and / or quality due to climate change – Shingle and driftline habitats can naturally fluctuate in size and location in response to geomorphological processes, however, these fluctuations are expected to be more pronounced and acute in

response to climate change and the natural balance is likely to be disrupted affecting both structure and function of these coastal habitats.

Six pressures are ranked as having a Medium impact:

PE01: Roads, paths, railroads and related infrastructure – Roads and paths intersect several locations which are important for Perennial vegetation of stony banks habitat, these structures disrupt connectivity, geomorphological processes and act as barriers to dynamic processes. Pressure on shingle systems also occurs when these habitats are unable to rollback with natural geomorphological processes due to the presence of a road, railway or related infrastructure.

PF14: Modification of flooding regimes, flood protection for built-up areas – There are several instances where vegetated shingle structures have been modified by the flood protection of urban and recreational zones interrupting the dynamic functioning of the habitat impacting the overall structure and function of the system.

PJ01: Temperature changes and extremes due to climate change – Shingle and driftline habitats and species are adapted to drought conditions, however, premature desiccation and prolonged periods of drought associated with high temperatures can lead to community species change and an overall shift in species composition altering the overall structure and function of the habitat. Increases in summer temperatures may favour the establishment of invasive species (e.g. Red valerian and garden escapes).

PJ03: Changes in precipitation regimes due to climate change – Increased rainfall during winter months can favour INNS by facilitating growth (Burden et al., 2020) and affect overall vegetation composition.

PJ04: Sea-level rise due to climate change – Sea-level rise

is likely to result in overall loss of the Perennial vegetation of stony banks habitat. Increased storminess may remove significant proportions sediment and shingle vegetation.

PK04: Atmospheric N-deposition – Atmospheric nitrogen deposition primarily in the form of nitrogen oxides (NOx) and ammonia (NH3) on shingle vegetation is not widely known. It is possible that excessive nitrogen inputs can accelerate ecological succession, leading to; nutrient imbalances, altered plant communities, and have negative impacts on sensitive shingle habitats, leading to a loss of diversity and hampering restoration goals (Aggenbach et al., 2017).

Five pressures are ranked as having a Low impact:

PD06: Transmission of electricity and communications (cables) – The potential impacts of cabling on shingle habitats are impacts relating to physical loss of extent and damage to the integrity of the shingle habitats due to excavations, or the effects of cabling installation on underlying hydrology and geomorphology affecting the structure and function of the habitats.

PF06: Deposition and treatment of waste/rubbish from built-up areas – Several landfill sites are situated in coastal locations. In areas where there is active erosion there is a growing risk that leaching waste could threaten shingle vegetation.

PG10: Harvesting or collecting of wild plants, fungi and animals on terrestrial land &

PG12: Illegal harvesting, collecting and taking of plants and fungi – There is a low threat from foraging activities on shingle habitats where certain long lived edible species are damaged or destroyed by trampling and harvesting.

PI02: Other invasive alien species (other than species of

	Union concern) – There is a low risk to the biodiversity of the Perennial vegetation of stony banks habitat by invasive non-native species. The pressures listed are considered to be current and applicable to future scenarios. Each of the pressures listed was regarded as being long term and there is no reason to suppose they will not continue to be applicable. The special sites (SSSI and SAC) include 53% of the H1220 resource in Wales by area.
8.5: List of main conservation measures	The special sites (SSSI and SAC) include 51% of the H1220 resource in Wales by area, with just 9% of H1220 within a SAC and covered by management agreement (which is unlikely to be covered by agri-environmental scheme). At Bae Cemlyn SAC the shingle ridge is maintained through a dynamic and generally cyclic process of deposition and erosion of the shingle. Structures or other interventions that interfere with this natural movement should be resisted. Although the ridge consists of a large volume of shingle, the overall resource may be limited. MF03: Reduce impact of outdoor sports, leisure and recreational activities (incl. restoration of habitats) – (Relates to pressure PF05). Shingle and driftline habitats are susceptible to trampling and damage from human activities, such as beach cleaning. Reducing these impacts through engagement will enable these coastal habitats to be more resilient in the future. MF08: Manage changes in hydrological and coastal systems and regimes for construction and development (incl. restoration of habitats) - (Relates to Pressure PF15). Pressures relating to construction and development

activities (coastal protection and sea defences) causing changes to hydrological conditions are continuing, restoration of shingle and driftline habitats impacted by these changes would be beneficial for the structure and function of these coastal habitats.

MH03: Reduce impact of other specific human activities – (PF04 and PF05).

Shingle and driftline habitats are susceptible to trampling and damage from human activities, such as beach BBQs. Reducing these impacts through public engagement will enable these coastal habitats to be more resilient in the future. Restricting vehicular beach access would be beneficial to these coastal habitats.

MJ02: Implement climate change adaptation measures – (Relates to Pressures PJ01, PJ03, PJ04, PJ06, PJ07, PJ10)

The creation of buffer zones with appropriate conservation management to allow for the dynamic movement of shingle and driftline habitats inland where there are no existing barriers would be beneficial. Where there are defences such as sea walls, targeted realignment to enable more connectivity of shingle and driftline habitats is desirable.

MK01: Reduce impact of mixed source pollution – (Relates to Pressure PK04).

Nitrogen deposition is still a major issue for coastal habitats in Wales. Reduce the impact of nitrogen deposition for coastal habitats through Site Nitrogen Action Plans (SNAPs).

MK02: Reduce impact of multi-purpose hydrological changes &

MK03: Restoration of habitats impacted by multi-purpose

	hydrological changes Reduce the impact of flooding regime modification, where possible restore hydrological functioning to allow shingle structures to function dynamically in response to climate change. Restoration of shingle vegetation impacted by hydrological modifications. 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. Targeted management where required, when shingle and driftline habitats require restoring to a more open early-successional stage due to encroachment by later successional species. Regulations may often be inadequate to fully protect the habitat, e.g. in tackling under-management or neglect.
9.1:Future trends and prospects of parameters	Range: Despite several ongoing threats to the habitat, several sites have statutory protection which should ensure protection against total loss. Changes to the 10km2 distribution are considered unlikely in the short to medium term. Area: This habitat is being adversely affected by shoreline structures especially where these are restricting sediment transport. Without an influx of new material, the area of the habitat is likely to reduce in the future. Large numbers of walkers and vehicle access, unless checked, will cause problems for the feature in the future. Predicted sea-level rise is likely to result in loss of the habitat and increased storminess may remove significant

proportions of the vegetation, which if sustained consecutively over several years is likely to have a negative effect on the area of the habitat in the future.

Beach cleaning is known to occur at several locations which are outside of the protected sites series and may have a detrimental effect on the integrity of the habitat and thus affecting future area of the habitat.

Taking the above into account it is likely that the future trend for the area covered by the habitat will be 'negative' as current and planned conservation measures are not considered likely to fully mitigate these on-going pressures and threats and as a result the future prospects of area will remain as 'unknown'.

Structure and function:

This habitat is being adversely affected by shoreline structures especially where these are restricting sediment transport. Without an influx of new material, the structure and function of the habitat is likely to be compromised in the future.

Large numbers of walkers and vehicle access, unless checked, will cause problems for the structure and function of the feature in the future.

Predicted sea-level rise is likely to result in loss of the habitat and increased storminess may remove significant proportions of the vegetation, which if sustained consecutively over several years is likely to have a negative effect on the structure and function of the habitat in the future.

Beach cleaning is known to occur at several locations which are outside of the protected sites series and may have a detrimental effect on the integrity of the habitat and thus affecting future structure and function of the habitat.

	Taking the above into account it is likely that the future trend for the structure and function covered by the habitat is likely to be 'negative' as current and planned conservation measures are not considered likely to fully mitigate these on-going pressures and threats and as a result the future prospects of structure and function will remain as 'unknown'.
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 have been major losses in distribution pattern within range
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 good; (ii) the Future prospects for Area covered by habitat are bad; and (iii) the Future prospects for Structure and function are poor.
10.5: Overall assessment of Conservation Status	Overall assessment of Conservation Status is Unfavourable-bad because two of the conclusions are Unfavourable-bad.
11.1: Surface area of the habitat type inside the pSCIs, SCIs and SACs network	This is the total surface area of the feature within SACs (irrespective of whether the feature has been notified).
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.