

**European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)**

**Fourth Report by the United Kingdom
under Article 17**

on the implementation of the Directive
from January 2013 to December 2018

Supporting documentation for the
conservation status assessment for the habitat:

**H2120 - Shifting dunes along the shoreline with
Ammophila arenaria (`white dunes`)**

WALES

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to the UK Report on the conservation status of this habitat, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this habitat is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- 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 only relevant at UK-level (sections 10 Future prospects and 11 Conclusions).
- For technical reasons, the country-level future trends for Range, Area covered by habitat and Structure and functions are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, <https://jncc.gov.uk/article17>, for further information on UK Article 17 reporting.

Report on the main results of the surveillance under Article 17 for Annex I habitat types (Annex D)

NATIONAL LEVEL

1. General information

1.1 Member State	UK (Wales information only)
1.2 Habitat code	2120 - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")

2. Maps

2.1 Year or period	1991-2017
2.3 Distribution map	Yes
2.3 Distribution map Method used	Complete survey or a statistically robust estimate
2.4 Additional maps	No

BIOGEOGRAPHICAL LEVEL

3. Biogeographical and marine regions

3.1 Biogeographical or marine region where the habitat occurs	Atlantic (ATL)
3.2 Sources of information	<p>Aggenbach, C. J. S., Fujita, Y., Stuyfzand, P. J. (2017). Exploring the spatio-temporal effects of secondary blowouts on dune soil and vegetation. paper presented at Littoral 2017 conference, 5-7 September 2017, Liverpool.</p> <p>Ashall, J., Duckworth, J., Holder, C. (1992). Sand dune survey of Great Britain. Site report no. 120 Tai Morfa, Dwyfor Wales 1991 (DRAFT VERSION). Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 86).</p> <p>Ashall, J., Duckworth, J., Holder, C. (1992). Sand dune survey of Great Britain. Site report no. 129 Kinmel Bay, Colwyn, Wales 1991 (DRAFT VERSION). Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 98).</p> <p>Ashall, J., Duckworth, J., Holder, C. (1994). Sand dune survey of Great Britain. Site report no. 113 Dunes between Tywyn & Aberdovey, Meirionydd, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 81).</p> <p>Ashall, J., Duckworth, J., Holder, C. (1995). Sand dune survey of Great Britain. Site report no. 125 Tywyn Gwyn, Anglesey, Ynys Mon, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 94).</p> <p>Ashall, J., Duckworth, J., Holder, C., McConnell, A., Smart, S. (1995). Sand dune survey of Great Britain. Site report no. 108 Whitesands Bay, Preseli, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 71).</p> <p>Ashall, J., Duckworth, J., Holder, C., McConnell, A., Smart, S. (1995). Sand dune survey of Great Britain. Site report no. 110 Poppit Sands, Preseli, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 73).</p> <p>Ashall, J., Duckworth, J., Holder, C., Smart, S. (1992). Sand dune survey of Great Britain. Site report no. 111 Towyn Warren, Ceredigion, Wales 1991 (DRAFT VERSION). Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 79).</p> <p>Ashall, J., Duckworth, J., Holder, C., Smart, S. (1992). Sand dune survey of Great Britain. Site report no. 112 Ynyslas, Ceredigion, Wales 1991 (DRAFT VERSION). Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 80).</p> <p>Ashall, J., Duckworth, J., Holder, C., Smart, S. (1992). Sand dune survey of Great Britain. Site report no. 115 Morfa Dyffryn Meirionydd (DRAFT VERSION). Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 90).</p> <p>Ashall, J., Duckworth, J., Holder, C., Smart, S. (1994). Sand dune survey of Great Britain. Site report no. 100 Pendine Burrows, Carmarthen, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 78).</p>

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4. Range

4.1 Surface area (in km ²)	
4.2 Short-term trend Period	
4.3 Short-term trend Direction	Stable (0)
4.4 Short-term trend Magnitude	a) Minimum b) Maximum
4.5 Short-term trend Method used	
4.6 Long-term trend Period	
4.7 Long-term trend Direction	
4.8 Long-term trend Magnitude	a) Minimum b) Maximum
4.9 Long-term trend Method used	
4.10 Favourable reference range	a) Area (km ²) b) Operator c) Unknown No d) Method
4.11 Change and reason for change in surface area of range	Improved knowledge/more accurate data Use of different method

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The change is mainly due to: Improved knowledge/more accurate data

4.12 Additional information

5. Area covered by habitat

5.1 Year or period	1991-2017		
5.2 Surface area (in km ²)	a) Minimum	b) Maximum	c) Best single value 3.6181
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	2007-2018		
5.6 Short-term trend Direction	Decreasing (-)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
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
5.12 Long-term trend Method used			
5.13 Favourable reference area	a) Area (km ²)	b) Operator	c) Unknown No
	d) Method		
5.14 Change and reason for change in surface area of range	Improved knowledge/more accurate data Use of different method		
	The change is mainly due to: Improved knowledge/more accurate data		

5.15 Additional information

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km ²)	Minimum 0.9498	Maximum 0.9498
	b) Area in not-good condition (km ²)	Minimum 1.1151	Maximum 1.1151
	c) Area where condition is not known (km ²)	Minimum 1.5532	Maximum 1.5532
6.2 Condition of habitat Method used	Complete survey or a statistically robust estimate		
6.3 Short-term trend of habitat area in good condition Period	2007-2018		
6.4 Short-term trend of habitat area in good condition Direction	Decreasing (-)		
6.5 Short-term trend of habitat area in good condition Method used	Based mainly on extrapolation from a limited amount of data		
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			

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7. Main pressures and threats

7.1 Characterisation of pressures/threats

Pressure	Ranking
Sports, tourism and leisure activities (F07)	H
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	H
Development and maintenance of beach areas for tourism and recreation incl. beach nourishment and beach cleaning (F06)	H
Other invasive alien species (other than species of Union concern) (I02)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Problematic native species (I04)	M
Sea-level and wave exposure changes due to climate change (N04)	M
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	M

Threat	Ranking
Sports, tourism and leisure activities (F07)	H
Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defences or coastal protection works and infrastructures) (F08)	H
Development and maintenance of beach areas for tourism and recreation incl. beach nourishment and beach cleaning (F06)	H
Other invasive alien species (other than species of Union concern) (I02)	H
Mixed source air pollution, air-borne pollutants (J03)	H
Problematic native species (I04)	M
Sea-level and wave exposure changes due to climate change (N04)	M
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	M

7.2 Sources of information

7.3 Additional information

8. Conservation measures

8.1 Status of measures

a) Are measures needed? Yes

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b) Indicate the status of measures Measures identified and taken

8.2 Main purpose of the measures taken Restore the habitat of the species (related to 'Habitat for the species')

8.3 Location of the measures taken Both inside and outside Natura 2000

8.4 Response to the measures Long-term results (after 2030)

8.5 List of main conservation measures

Management, control or eradication of other invasive alien species (CI03)

Management of problematic native species (CI05)

Restore habitats impacted by multi-purpose hydrological changes (CJ03)

Reduce impact of outdoor sports, leisure and recreational activities (CF03)

Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes (CL01)

8.6 Additional information

9. Future prospects

9.1 Future prospects of parameters a) Range
b) Area
c) Structure and functions

9.2 Additional information

10. Conclusions

10.1. Range

10.2. Area

10.3. Specific structure and functions (incl. typical species)

10.4. Future prospects

10.5 Overall assessment of Conservation Status

10.6 Overall trend in Conservation Status

10.7 Change and reasons for change in conservation status and conservation status trend a) Overall assessment of conservation status
No change

The change is mainly due to:

b) Overall trend in conservation status

No change

The change is mainly due to:

10.8 Additional information

11. Natura 2000 (pSCIs, SCIs, SACs) coverage for Annex I habitat types

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11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/marine region)

- a) Minimum
- b) Maximum
- c) Best single value 2.6181

11.2 Type of estimate

Best estimate

11.3 Surface area of the habitat type inside the network Method used

Complete survey or a statistically robust estimate

11.4 Short-term trend of habitat area in good condition within the network Direction

Decreasing (-)

11.5 Short-term trend of habitat area in good condition within network Method used

Based mainly on expert opinion with very limited data

11.6 Additional information

12. Complementary information

12.1 Justification of % thresholds for trends

12.2 Other relevant information

Distribution Map

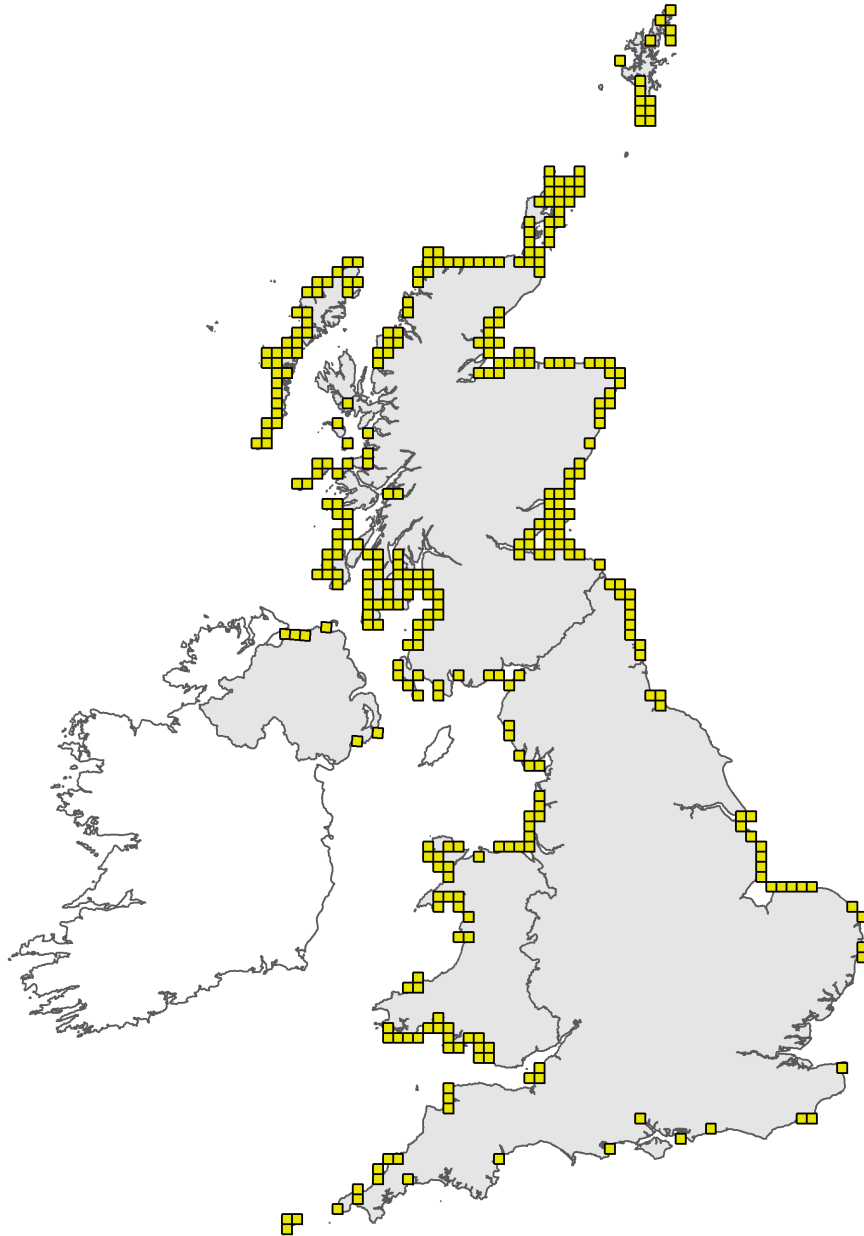


Figure 1: UK distribution map for H2120 - Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available habitat records which are considered to be representative of the distribution within the current reporting period. For further details see the 2019 Article17 UK Approach document.

Range Map

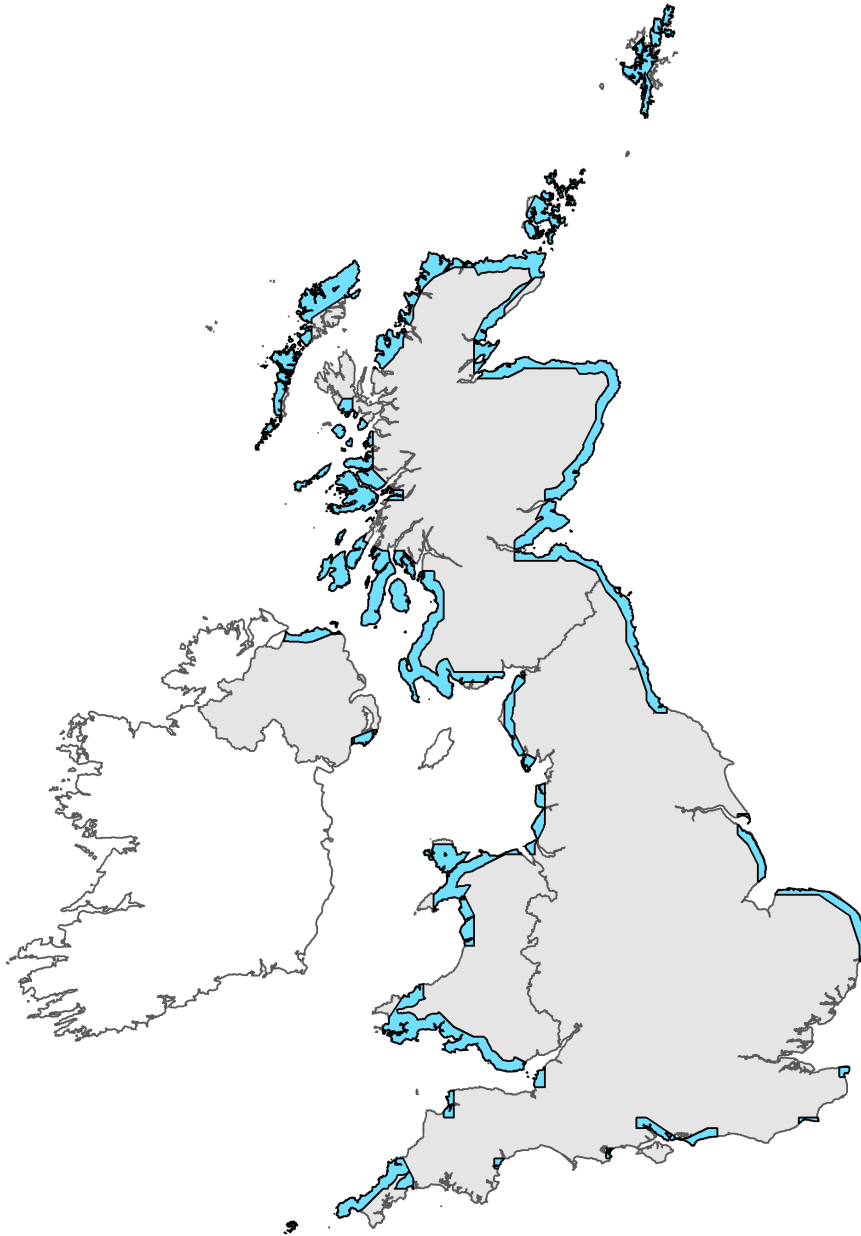


Figure 2: UK range map for H2120 - Shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by applying a bespoke range mapping tool for Article 17 reporting (produced by JNCC) to the 10km grid square distribution map presented in Figure 1. The alpha value for this habitat was 25km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Habitat code: 2120

Field label	Note
2.3 Distribution map; Method used	<p>The 10km square distribution and habitat area estimates are derived from a combination of different original sources, summarised below. A single aggregated GIS layer has been created for this habitat across Wales (data source 1 below) pulling together the maps and records from the other listed sources. Detailed processing notes for the 2018 Article 17 extent layer have been produced (Kay, 2018). Data source 1 (MAIN DATA SOURCE): Digital GIS Map Layer: Article 17 H2120 Shifting Dunes with <i>Ammophila arenaria</i> ('white dunes') Extent Layer 2018 (Kay, 2018). Data source 2 (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 (see published sources) based on the UK's National Vegetation Classification (NVC) (Rodwell, 2000). Data source 3 (SECONDARY DATA SOURCE): Coastal habitat mapping and monitoring utilising remote sensing PhD Thesis (Jones, 2017). The study focused on the use of Very High Resolution (VHR) optical imagery for retrieving parameters to identify associations that can separate habitat boundaries for extent mapping down to species level for indicators of condition, with a focus on operational use. The Earth Observation Data for Habitat Monitoring (EODHaM) system was implemented using Worldview-2 data from two periods (July and September 2016), in situ data and local ecological knowledge for two sites in Wales, Kenfig Burrows SAC and Castlemartin SSSI. Data source 4 (SECONDARY DATA SOURCE): Phase I Survey Information. The following mapping category was included for the Fixed dune grassland; H6.5 Dune grassland - All grassland occurring on consolidated and flattened dunes should be classified in this category. Generally, little <i>Ammophila arenaria</i> will be present. Data source 5 (SECONDARY DATA SOURCE): Phase II NVC survey of Stackpole NNR. This was an individual site survey targeting coastal habitat vegetation (grassland, dune, heath and maritime vegetation) within the NNR at Stackpole. Data source 6 (SECONDARY DATA SOURCE): SAC monitoring of H2120 at Carmarthen Bay Dunes SAC (Wilkinson, 2018) using defined performance indicators derived from Common Standards Monitoring guidance (JNCC, 2004). The Sand Dune surveys (Dargie, 1995) were carried out over 20 years ago and so several intra-site changes are likely to have occurred, but, no sites have been lost or irreversibly damaged. H2120 vegetation equates to NVC communities; SD5 and SD6 The reported 10 km square distribution has increased since the 2012 report, however, this is not a genuine increase, but results from the inclusion of data sources 2, 3 and 4 and the Phase 1 dataset, where \H6.8 Open Dune\ has been included in the mapping analysis. The 2018 data is considered to give good representation of the current distribution and extent of this habitat.</p>

Habitat code: 2120 Region code: ATL

Field label	Note
4.3 Short term trend; Direction	<p>Whilst losses and (more rarely) gains in the area of this habitat have undoubtedly occurred at individual sites over the last twelve years, changes to the 10km square distribution and linked range of H2120 are considered unlikely; there are no known examples of either the habitat being totally lost from a 10km square or being created or restored to a hectad where it was not present at the start of the period.</p>
4.11 Change and reason for change in surface area of range	<p>There is no evidence of actual change in the range of this habitat since the previous report in 2012, however, re-examination of the underpinning habitat maps has resulted in the addition of some 10km squares, where the habitat is known to occur.</p>

5.1 Year or period	The data used to produce the total area figure are predominantly from 1991 - 1995 (Dargie, 1995). Post 1995 information includes SAC Monitoring data from Carmarthen Bay Dunes SAC (Wilkinson, 2018) a more recent NVC survey at Stackpole NNR (Sutton, 2012) and remote sensing data for Kenfig from 2017 (Jones, 2017). These new data for Stackpole NNR, Carmarthen Bay Dunes and Kenfig are considered to provide good coverage, however, the data from the Sand Dune Vegetation Survey Wales (Dargie, 1995) is rather old and may not be an accurate representation of the current area of the feature, due to the feature's dynamic nature.
5.3 Type of estimate	Estimate is mostly based upon an old data set (Sand Dune Vegetation Survey of Great Britain - Wales (Dargie, 1995)), which has been filtered to only include records containing SD5 and SD6 (corresponding NVC communities for the Annex I habitat type). The only contemporary data is for Stackpole (Sutton, 2012), Carmarthen Bay Dunes SAC (Wilkinson, 2018) and Kenfig (Jones, 2017) where SAC monitoring an NVC survey and remote sensing data respectively has been used to derive the extent of the H2120 habitat. It is very likely that the habitat has changed in extent on some sites due to vegetation succession and changes in management.
5.6 Short term trend; Direction	Studies show there has been a clear trend towards increasing stabilisation that has likely resulted in the loss of part of this habitat due to successional changes with mobile dunes becoming much more stable as more mature vegetation develops (Rhind et al., 2008, Rhind & Jones, 2009).
5.8 Short term trend; Method used	The assessment is based on site-specific studies using data sources 1-4 and aerial photographs.
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 Shifting dune identified through recent survey work at Stackpole NNR, Carmarthen Bay Dunes SAC (Wilkinson, 2018) and Kenfig (Jones, 2017). The reasons for the change in surface area have been outlined above and without a complete up-to-date survey of the feature across Wales, it is impossible to determine an accurate surface area figure for this report.
6.1 Condition of habitat	(For this reporting round the condition result for Carmarthen Bay Dunes SAC has changed from \Favourable - maintained\ to \Unfavourable - unclassified\ for H2120. The reason for this change is due to not enough \young\ early successional H2120 being present). Therefore, the \area in not good condition\ has increased to take this change into account.
6.2 Condition of habitat; Method used	There is little information available about the condition of H2120 on SAC sites where the feature is not notified as A-C grade (15%) and SSSI sites which are not part of the N2K series (7%). Together these sites represent 22% of the total habitat in Wales. There is very little information about habitat condition on non-statutory sites. Together these sites represent 20% (73.85 ha) of the total habitat in Wales.
6.4 Short term trend of habitat area in good condition; Direction	Only one SAC out of the four notified for the feature has been condition monitored in this reporting round. This SAC (Carmarthen Bay Dunes) with 6% of the feature has gone from Favourable - maintained in the last reporting round, to Unfavourable - unclassified in this reporting round. The reason for this change is due to not enough \young\ early successional H2120 being present.

7.1 Characterisation of pressures/ threats

Data held in NRW's Special Sites Actions Database (NRW, 2018), 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 this habitat. The special sites (SSSI and SAC) include 79% (285.91 ha) of the H2120 resource in Wales by area. Pressures: Five pressures are ranked as High: F07 - Sports, tourism and leisure activities. F08 - Modification of coastline, estuary and coastal conditions for development, use and protection of residential, commercial, industrial and recreational infrastructure and areas (including sea defence or coast protection works and infrastructures). F06 - Development and maintenance of beach areas for tourism and recreation incl. beach nourishment and beach cleaning. I02 - Other invasive alien species (other than species of Union concern) J03 - Mixed source air pollution, airborne pollutants F07 - Shifting dunes are exposed to a high degree of pressure from sports, tourism and leisure activities, leading to damage of the habitat through trampling and general disturbance. Off road vehicle and motorcycle use is damaging the Shifting dunes on at least one site in Wales. Damage is often limited to access points to beaches. F08 - This habitat is dependent on natural processes of sand movement and it 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 sand dunes 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. F06 - Beach cleaning is a significant pressure on the Shifting dune habitat, where the activity removes the precursors to the embryo dune habitat development and thereby affecting any natural expansion of the embryo dunes and the subsequent development of the Shifting dunes habitat. I02 - The biodiversity and mobility of the Shifting dunes is being threatened by invasive non-native species such as Sea buckthorn (which is non-native in Wales). Sea buckthorn is a particular problem at a number of Welsh sand dunes sites, most notably at Pembrey and Tenby. J03 - There have been concerns over the levels of atmospheric nitrogen pollution and its links to soil enrichment and eutrophication. 52% of the Shifting dunes in Wales, is in areas which are currently subject to Nitrogen deposition rates which exceed the relevant Critical Load mapping value. The following pressures are considered to be important and are ranked as having a Medium impact: I04 - Problematic native species N04 - Sea-level and wave exposure changes due to climate change. L02 - Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices). I04 - Lack of appropriate grazing combined with increasing levels of stabilisation, has led to native scrub encroachment on several Welsh sand dune systems. The Shifting dunes have been particularly affected by species such as Rosebay willowherb and Clematis. N04 - Sea-level rise is likely to result in loss of the Shifting dune habitat and increased storminess may remove significant proportions of Shifting dune habitat. L02 - Shifting dunes are dynamic and mobile and depend on the continued influx of sediment and development of the Embryonic shifting dunes habitat. Any disruption in coastal processes and the trend towards increasing stabilisation is likely to have the most damaging impact on the habitat. Threats: Five threats (ranked High) were identified and assessed in a similar way to the pressures outlined above (Guest, 2012a). J03 could pose a significant threat to the habitat as provisional estimates of future Nitrogen deposition for 2030 suggest that despite some expected reductions in emissions the overall areal extent of critical load exceedance is unlikely to fall significantly. The threats listed are considered to be current and

applicable to future scenarios. Each of the threats listed was regarded as being long term and there is no reason to suppose they will not continue to be applicable.

8.5 List of main conservation measures

In Wales 79% (285.91 ha) of H2120 by area is on SSSI's and 57% (206.49 ha) of H2120 total area is listed as a SAC feature. 29% (105.92 ha) of the total on SSSI is covered by management agreement of which a significant proportion is managed as National Nature Reserve. 20% (73.59 ha) of H2120 by area is covered by Glastir Advanced agreements with 0.1% covered by *\grazed pasture - no inputs*, 6% covered by *\management of sand dunes* and 14% covered by *\management of sand dunes with mixed grazing*. These options cover land parcels containing the habitat but are not specifically targeted at the habitat. 2% (5.87 ha) of the habitat by area is covered within a relevant Glastir Entry prescription 8% (27.53 ha) of the habitat by area is within Glastir Entry Commons area. Efforts have been made on several sites to maintain the open nature of this habitat, which can become invaded by scrub and invasive species. These management measures have included native scrub removal and the removal of Sea buckthorn (CI05, CI03). Efforts are in place to implement restoration of H2120 via externally funded projects (CI03, CI05, CJ03, CL01 and CF03). Other conservation measures include special projects, e.g. towards BAP targets for maintenance, improvement of condition, restoration and expansion of the resource (CI03, CI05, CJ03, CL01 and CF03). Regulations may often be inadequate to fully protect the habitat, e.g. in tackling under-management or neglect. Implementation of Shoreline Management policies and associated mitigation measures is required in order to maintain sediment supply to sand dune systems. Measures which are already being implemented are shown in italics in 8.5.

9.1 Future prospects of parameters

9.1a Future prospects of range: Despite several ongoing threats to the habitat, statutory protection of the bulk of the sites provides protection against total loss and changes to the 10km² distribution are considered unlikely in the short to medium term.

9.1b Future prospects of -area Based on recent studies (Rhind 2001, 2008 and 2009), there has been a clear trend towards increasing stabilisation that has likely resulted in the loss of part of this habitat as dune systems become more stable. This has been exacerbated by the ongoing disruption of coastal processes caused by sea defence structures, leading to sediment starvation to some dune systems in some cases. High visitor pressure and vehicle access, unless checked, will cause problems for the feature in the future. Predicted sea-level rise will result in coastal squeeze of the habitat and increased storminess may remove significant proportions of the vegetation, which if sustained consecutively over a number of years is likely to have a negative effect on the area of the habitat in the future. Beach cleaning is known to occur at a number of 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 is likely to be \negative\ if conservation measures are not implemented.

9.1c Future prospects of -structure and function Based on recent studies (Rhind 2001, 2008 and 2009), there has been a clear trend towards increasing stabilisation that has likely resulted in the loss of part of this habitat as dune systems become more stable. This has been exacerbated by the ongoing disruption of coastal processes caused by sea defence structures, leading to sediment starvation to some dune systems in some cases. High visitor pressure 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 a number of years is likely to have a negative effect on the area of the habitat in the future. Beach cleaning is known to occur at a number of 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 structure and function of the habitat is likely to be \negative\ if conservation measures are not implemented.

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).

11.3 Surface area of the habitat type inside the network; Method used

The surface area figure for the habitat type inside the SAC network has been derived from a number of sources including the Dargie (1995) dataset, a more recent NVC survey at Stackpole NNR, SAC monitoring data from Carmarthen Bay Dunes SAC (Wilkinson, 2018) and remote sensing mapping for Kenfig (Jones, 2017). The post 1995 data are considered to provide good coverage, however, the data from the Sand Dune Vegetation Survey Wales (Dargie, 1995) is rather old and may not be an accurate representation of the current area of the feature, due to the feature's dynamic and mobile nature.

11.4 Short term trend of habitat area in good condition within the network; Direction

One of the four SACs supporting this feature has been concluded to be in 'Unfavourable - unclassified' condition for this reporting cycle, this SAC was concluded to be in 'Favourable - maintained' condition in the 2007 - 2012 reporting round. The other three SACs supporting this feature have not been assessed during this reporting cycle and are concluded to be in 'Unfavourable condition' (for Dee Estuary SAC and Y Twyni o Abermenai i Aberffraw SAC) and 'Favourable - maintained' condition for Morfa Harlech a Morfa Dyffryn SAC based on the 2007-2012 reporting round information. It should however be noted that these assessments of overall condition are relatively coarse-grained and will incorporate areas of higher and lower quality and functionality. On this basis the short-term trend of the habitat in good condition is reported as \decreasing\.