# 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:

**H2110 - Embryonic shifting 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 | **2110 - Embryonic shifting dunes** |

## 2. Maps

| | |
|---|---|
| 2.1 Year or period | 1991-2015 |
| 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 | 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).<br>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).<br>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).<br>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).<br>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).<br>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).<br>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).<br>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).<br>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).<br>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)<br>Ashall, J., Duckworth, J., Holder, C., Smart, S. (1994). Sand dune survey of Great Britain. Site report no. 105 Stackpole Warren, Barafundle Bay and Broad Haven South Pembrokeshire, Wales 1991. Joint Nature Conservation Committee (JNCC) |

Peterborough. (JNCC Report 69).
Ashall, J., Duckworth, J., Holder, C., Smart, S. (1995). Sand dune survey of Great Britain. Site report no. 104 Freshwater Bay East, South Pembrokeshire, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 66).
Ashall, J., Duckworth, J., Holder, C., Smart, S. (1995). Sand dune survey of Great Britain. Site report no. 131 Gronant to Talacre, Delyn, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 46).
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Ashall, J., Holder, C. (1992). Sand dune survey of Great Britain. Site report no. 130 dunes between Rhyl and Prestatyn, Rhuddlan, Wales 1991 (DRAFT VERSION). Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 99).
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Ashall, J., Holder, C., Duckworth, J. (1995). Sand dune survey of Great Britain. Site report no. 103 Manobier & Swanlake Bay, South Pembrokeshire, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 65)
Ashall, J., Holder, C., Smart, S. (1992). Sand dune survey of Great Britain. Site report no. 114 Fairbourne, Meirionydd, Wales 1991 (draft). Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 82).
Ashall, J., Holder, C., Smart, S. (1994). Sand dune survey of Great Britain. Site report no. 106 Broomhill & Kilpaison Burrows, South Pembrokeshire, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 70).
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Ashall, J., Holder, C., Smart, S. (1995). Sand dune survey of Great Britain. Site report no. 180 The Bennett, Preseli, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 72).
Ashall, J., Holder, C., Smart, S., Duckworth, J. (1994). Sand dune survey of Great Britain. Site report no. 115 Morfa Harlech, Meirionydd, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 91).
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Duckworth, J., Holder, C., Smart, S. (1995). Sand dune survey of Great Britain. Site report No. 124 Valley airfield and golf links, Ynys Mon, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 93).
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Halcrow Group. (2012). SMP 22 Great Ormes Head to Scotland (North West England and North Wales) Shoreline Management Plan SMP2. Available from: http://www.allerdale.gov.uk/downloads/nw_shoreline_management_plan_2.pdf
Holder, C., Duckworth, J., Ashall, J. (1994). Sand dune survey of Great Britain. Site report no. 102 Lydstep, South Pembrokeshire, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 64).
Holder, C., Smart, S., McConnell, A. (1994). Sand dune survey of Great Britain. Site report no. 101 Caldey Island, South Pembrokeshire, Wales 1991. Joint Nature Conservation Committee (JNCC) Peterborough. (JNCC Report 63).
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Wilkinson, K. (2018). Carmarthen Bay Dunes SAC Monitoring Summary Report Embryo Dunes 2013 to 2018. NRW Internal Document.

## 4. Range

| | | |
|---|---|---|
| 4.1 Surface area (in km²) | | |
| 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 (km²) | |
| | b) Operator | |
| | c) Unknown | No |
| | d) Method | |
| 4.11 Change and reason for change in surface area of range | Improved knowledge/more accurate data<br>Use of different method | |
| | 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 km²) | a) Minimum | b) Maximum | c) Best single value | 1.062 |

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

| | | | |
|---|---|---|---|
| 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 | 1991-2009 | | |
| 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 (km²)<br>b) Operator<br>c) Unknown No<br>d) Method | | |
| 5.14 Change and reason for change in surface area of range | Improved knowledge/more accurate data<br>Use of different method<br>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 (km²) | Minimum 0.2402 | Maximum 0.2402 |
| | b) Area in not-good condition (km²) | Minimum 0.2037 | Maximum 0.2037 |
| | c) Area where condition is not known (km²) | Minimum 0.6181 | Maximum 0.6181 |
| 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 | 2007-2018 | | |
| 6.4 Short-term trend of habitat area in good condition Direction | Stable (0) | | |
| 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 | | | |

## 7. Main pressures and threats

7.1 Characterisation of pressures/threats

| Pressure | Ranking |
|---|---|
| Sports, tourism and leisure activities (F07) | H |
| Mixed source air pollution, air-borne pollutants (J03) | 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) | M |
| Development and maintenance of beach areas for tourism and recreation incl. beach nourishment and beach cleaning (F06) | 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 |
| Mixed source air pollution, air-borne pollutants (J03) | 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) | M |
| Development and maintenance of beach areas for tourism and recreation incl. beach nourishment and beach cleaning (F06) | 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

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 the measures

8.5 List of main conservation measures

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

8.6 Additional information

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

## 9. Future prospects

| | |
|---|---|
| 9.1 Future prospects of parameters | a) Range<br>b) Area<br>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<br>No change<br>The change is mainly due to:<br>b) Overall trend in conservation status<br>No change<br>The change is mainly due to: |
| 10.8 Additional information | |

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

| | |
|---|---|
| 11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network (in km² in biogeographical/ marine region) | a) Minimum<br>b) Maximum<br>c) Best single value 0.7196 |
| 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 | Stable (0) |
| 11.5 Short-term trend of habitat area in good condition within network Method used | Based mainly on extrapolation from a limited amount of data |
| 11.6 Additional information | |

## 12. Complementary information

| | |
|---|---|
| 12.1 Justification of % thresholds for trends | |
| 12.2 Other relevant information | |

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

# Distribution Map

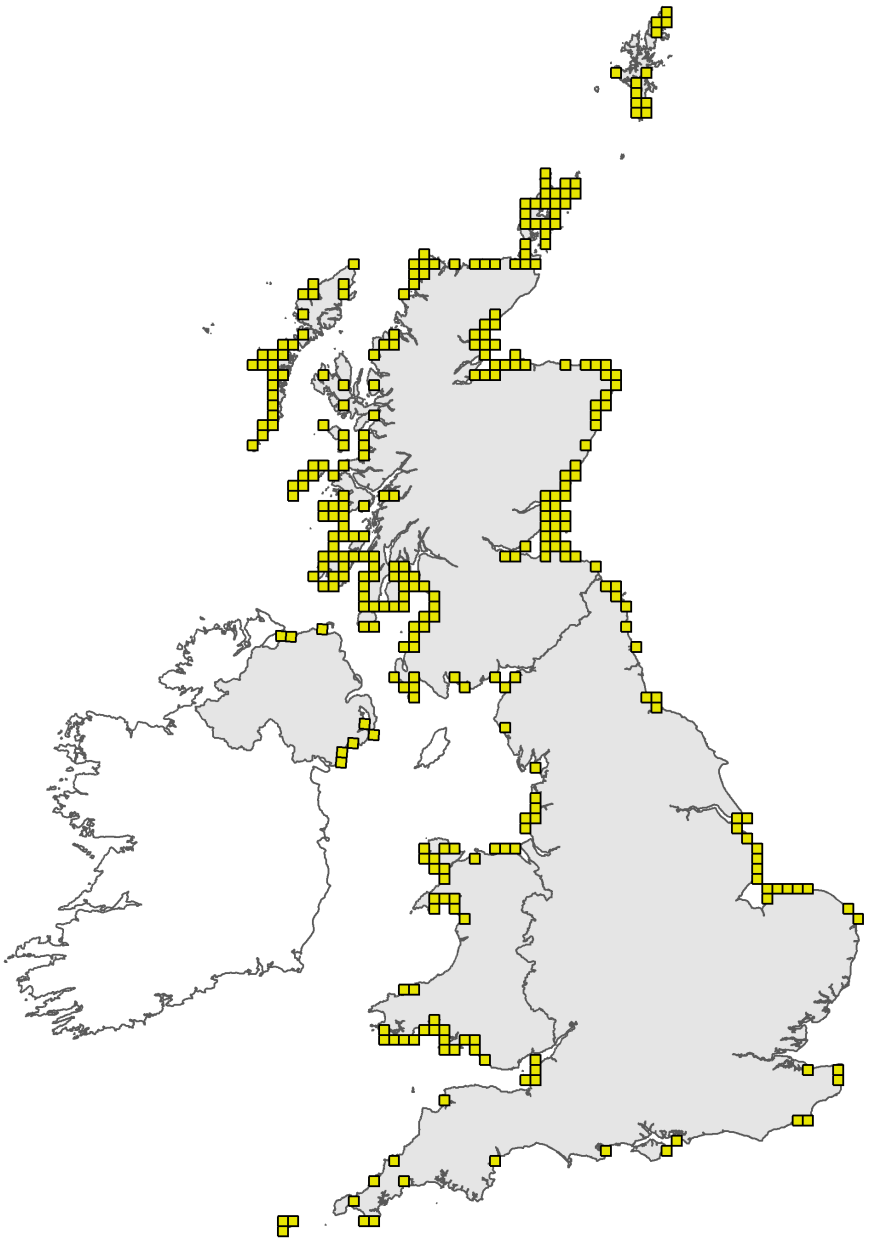

Figure 1: UK distribution map for H2110 - Embryonic shifting dunes. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

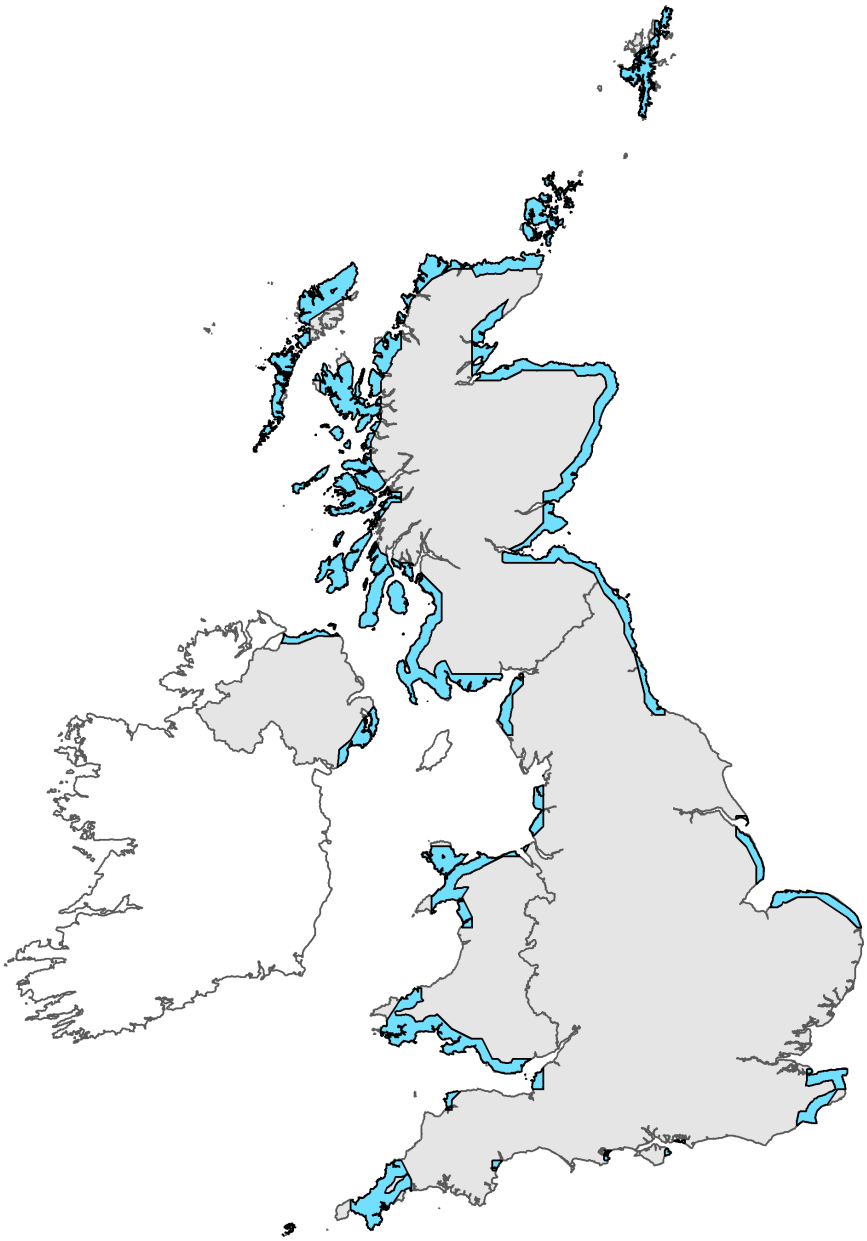

Figure 2: UK range map for H2110 - Embryonic shifting dunes. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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: 2110**

| 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 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 H2110 Embryonic Shifting Dune 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 UKs National Vegetation Classification (NVC) (Rodwell, 2000). Data source 3 (SECONDARY DATA SOURCE): SAC monitoring of H2110 at Carmarthen Bay Dunes SAC (Wilkinson, 2018) using defined performance indicators derived from Common Standards Monitoring guidance (JNCC, 2004). Data source 4 (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 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 (Sutton, 2012). 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. The H2110 vegetation equates to NVC communities; SD4 Elymus farctus ssp. boreali - atlanticus foredune community SD5 Leymus arenarius mobile dune community |

**Habitat code: 2110 Region code: ATL**

| Field label | Note |
|---|---|
| 4.3 Short term trend; Direction | Any recent losses and gains of this habitat do not appear to have affected range at least since the Phase II baseline data was created in the early 1990s. No instances have been identified where, since 2007, the habitat has either been totally lost from a 10km square or created or restored within a 10km square where it was not present at the start of the period. |
| 4.11 Change and reason for change in surface area of range | There is no evidence of actual change in the range of this habitat since the previous report 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. |
| 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) and 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 ephemeral 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 SD4 and SD5 (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 H2110 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 | 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. |
| 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 embryonic shifting dune identified through recent survey work at 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 | (Area in \good condition\ derived from 2007 monitoring result for Morfa Harlech which was not assessed during the current reporting round. Therefore, the good condition figure is a combination of figures for the last reporting round and the current reporting round). |
| 6.2 Condition of habitat; Method used | There is little information available about the condition of H2110 on SAC sites where the feature is not notified as A-C grade (26%) and SSSI sites which are not part of the N2K series (4%). Together these sites represent 30% of the total habitat in Wales. There is very little information about habitat condition on non-statutory sites. Together these sites represent 28.55 ha equating to 27% of the total habitat in Wales. The SAC monitoring (which is based on Common Standards Monitoring (JNCC, 2004)) results give a partial (and somewhat out of date - 2 out of 4 assessments from the last reporting round) picture of the condition of the habitat in Wales covering 42% of the total resource. |
| 6.4 Short term trend of habitat area in good condition; Direction | 23% of the feature is in good condition. The habitat has been monitored on at least two occasions between 2007 and 2018 at 3 out of the four SACs on which it is a recognised feature in Wales. This monitoring showed no change in the overall condition of the Embryonic shifting dunes feature, which remained in favourable condition at Carmarthen Bay Dunes SAC and Morfa Harlech a Morfa Dyffryn SAC and unfavourable condition at Y Twyni o Abermenai i Aberffraw SAC and Dee Estuary SAC. |

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| 7.1 Characterisation of pressures/ threats | Data held in NRWs 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 72% of the H2110 resource in Wales by area. Pressures: The following pressures are considered important: F07 - Sports, tourism and leisure activities. J03 - Mixed source air pollution, air-borne pollutants 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. 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). Two pressures are ranked as High: F07 - Embryonic 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. Vehicle access to beaches is damaging the Embryonic shifting dunes on at least one site in Wales. J03 - There have been concerns over the levels of atmospheric nitrogen pollution and its links to soil enrichment and eutrophication. 59% of the Embryonic 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: 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 Embryonic shifting dune habitat, where the activity removes the precursors to the embryo dune habitat development and thereby affecting any natural expansion of the habitat. N04 - Sea-level rise is likely to result in loss of the Embryonic shifting dune habitat and increased storminess may remove sigificant proportions of Embryonic shifting dune habitat. L02 - Embryonic shifting dunes are a highly dynamic and ephemeral habitat and depend on the continued influx of sediment and development of strandline vegetation. Any disruption in coastal processes and the trend towards increasing stabilisation is likely to have the most damaging impact on the habitat. Threats: Two 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. |

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| 8.5 List of main conservation measures | In Wales 72% of H2110 by area is on SSSI's and 42% of H2110 total area is listed as a SAC feature. 10% of the total on SSSI is covered by management agreement. 2% of the habitat by area is covered by Glastir Advanced agreements. 1.6% is covered by \management of sand dunes\: 1.72 management option and 0.2% is 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. 2.3% of the habitat by area is covered by Glastir Entry Commons. Efforts are in place to implement restoration of H2110 via externally funded projects (CJ03 and CF03). Other conservation measures which are needed but not implemented (CJ03, CF03) include special projects, e.g. towards BAP targets for maintenance, improvement of condition, restoration and expansion of the resource. 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. |
| 9.1 Future prospects of parameters | 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. 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 area covered by the habitat is likely to be \negative\ if conservation measures are not implemented. 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). |

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| 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 ephemeral nature. |