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:

H2170 - Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*)

NORTHERN IRELAND

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 (Northern Ireland information only)**
1.2 Habitat code	**2170 - Dunes with Salix repens ssp. argentea (Salicion arenariae)**

2. Maps

2.1 Year or period	2013-2018
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	Cooper, E.A., Crawford, I., Malloch, A.J.C. & Rodwell, J.S. (1992). Coastal vegetation survey of Northern Ireland. Lancaster, Lancaster University Environment and Heritage Service, Belfast. Northern Ireland Habitat Action Plan - Coastal Sand Dunes - March 2005 JNCC (1997). Coasts and seas of the United Kingdom, Region 17 Northern Ireland. Coastal Directories Series NIEA. Internal Condition Assessment Reports (various sites and years). Rodwell, J.S. (2000). British Plant Communities. Volume 5, Maritime Communities and Vegetation of Open habitats. Cambridge: Cambridge University Press Rodwell, J.S., Dring, J.C., Averis, A.B.V., Proctor, M.C.F., Malloch, A.J.C., Schaminee, J.H.J & Dargie, T.C.D. 1998. Review of Coverage of the National Vegetation Classification. Lancaster: Unit of Vegetation Science report to the Joint Nature Conservation Committee. Carter and Wilson, 1990 Pye, K. 1990. Physical and human influences on coastal dune development between the Ribble and Mersey estuaries, north-west England. IN/ Nordstrom K.F., Psuty N. P. & Carter R.W.G. (eds.) Coastal dunes: form and process. Wiles, Chichester. Pp337-359

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	

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	c) Unknown	No
	d) Method	
4.11 Change and reason for change in surface area of range	No change	
	The change is mainly due to:	
4.12 Additional information		

5. Area covered by habitat

5.1 Year or period	2013-2018		
5.2 Surface area (in km²)	a) Minimum	b) Maximum	c) Best single value 0.12
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	Stable (0)		
5.7 Short-term trend Magnitude	a) Minimum	b) Maximum	c) Confidence interval
5.8 Short-term trend Method used	Complete survey or a statistically robust estimate		
5.9 Long-term trend Period	1994-2018		
5.10 Long-term trend Direction	Stable (0)		
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)		
	b) Operator		
	c) Unknown	No	
	d) Method		
5.14 Change and reason for change in surface area of range	No change		
	The change is mainly due to:		
5.15 Additional information			

6. Structure and functions

6.1 Condition of habitat	a) Area in good condition (km²)	Minimum 0.106	Maximum 0.106
	b) Area in not-good condition (km²)	Minimum 0.002	Maximum 0.002
	c) Area where condition is not known (km²)	Minimum 0.012	Maximum 0.012
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	2013-2018		
6.4 Short-term trend of habitat area in good condition Direction	Stable (0)		

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6.5 Short-term trend of habitat area in good condition Method used	Complete survey or a statistically robust estimate
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
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	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
Military, paramilitary or police exercises and operations on land (H01)	M
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Active abstractions from groundwater, surface water or mixed water for agriculture (A30)	M

Threat	Ranking
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	M
Sea-level and wave exposure changes due to climate change (N04)	H
Agricultural activities generating air pollution (A27)	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
Military, paramilitary or police exercises and operations on land (H01)	M
Agricultural activities generating diffuse pollution to surface or ground waters (A26)	M
Active abstractions from groundwater, surface water or mixed water for agriculture (A30)	M

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Droughts and decreases in precipitation due to climate change (N02)	H

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 and taken
8.2 Main purpose of the measures taken		Maintain the current range, population and/or habitat for the species
8.3 Location of the measures taken		Only inside Natura 2000
8.4 Response to the measures		Short-term results (within the current reporting period, 2013-2018)
8.5 List of main conservation measures		

Reduce impact of outdoor sports, leisure and recreational activities (CF03)
Implement climate change adaptation measures (CN02)
Manage changes in hydrological and coastal systems and regimes for construction and development (CF10)
Reduce/eliminate air pollution from agricultural activities (CA12)
Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures (CA04)
Reduce/eliminate point pollution to surface or ground waters from agricultural activities (CA10)
Manage drainage and irrigation operations and infrastructures in agriculture (CA15)
Prevent conversion of (semi-) natural habitats into forests and of (semi-)natural forests into intensive forest plantation (CB01)

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

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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

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 0.12
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	Complete survey or a statistically robust estimate
11.6 Additional information	

12. Complementary information

12.1 Justification of % thresholds for trends	
12.2 Other relevant information	

Distribution Map

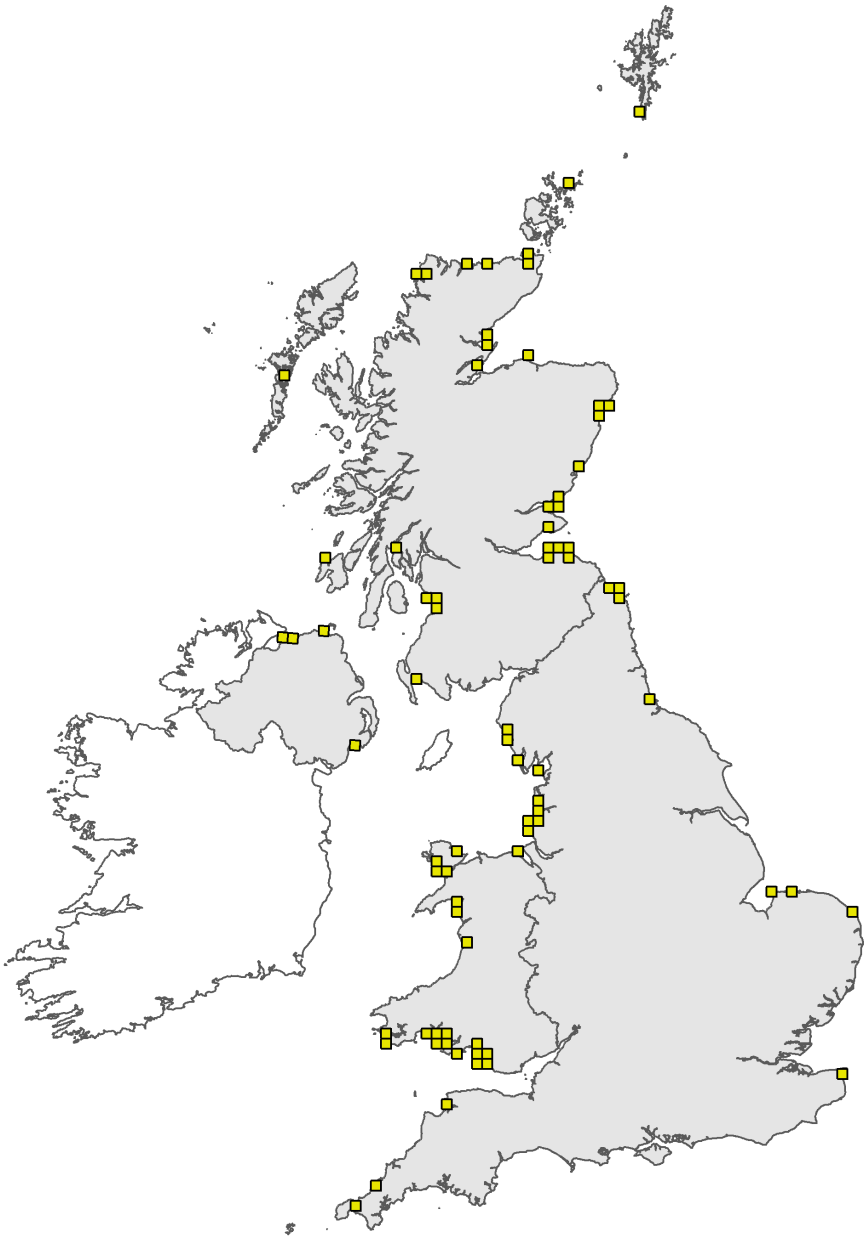

Figure 1: UK distribution map for H2170 - Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas 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 H2170 - Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*). 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: 2170

Field label	Note
2.2 Distribution map	This habitat type comprises dunes or parts of dunes where creeping willow is abundant or dominant. Salix arenaria (known in the UK as Salix repens subsp. arenaria) is found in dunes throughout the UK. It grows predominantly in and around dune slacks. This type of vegetation marks the mature phase in the life cycle of calcareous dune slacks. Creeping willow is often found in dune slack vegetation and the boundaries between Dunes with Salix arenaria and Humid dune slacks are often diffuse and difficult to define on the ground. The examples chosen to represent the former are all ones where creeping willow is dominant, forming prominent, low, scrubby growth, sometimes referred to as 'hedgehog dunes'. This type of vegetation tends to occur in and around mature slacks where there has been little or no sand movement for some time and where grazing is light. Creeping willow tends to grow most vigorously at the drier end of the spectrum of slack vegetation types and it is also mainly associated with calcareous dune sites. In the UK the vegetation corresponds to the NVC community SD16 Salix repens-Holcus lanatus dune slack community. In NI, SD16 has been recorded mainly from Magilligan. There are also a small number of quadrats from non-dune area at Giant's Causeway, where it is associated with damp hollows over brownearths along the cliff tops. These are not part of the habitat. However, it is also known to be present (but rare) at Murlough (Ballykinler - HST survey), where it is associated with a colony of the Marsh Fritillary, and also at White Park Bay (very small stand) within the North Antrim Coast SAC.
2.3 Distribution map; Method used	Map based upon NI Coastal Survey (Cooper et al, 1992) with additional fieldwork by NIEA staff at other sites - in particular at Ballykinler, which was not covered by NI Coastal Survey due to access difficulties. All stands of the habitat were visited by NIEA staff during the reporting period, so coverage of the habitat has been good.

Habitat code: 2170 Region code: ATL

Field label	Note
4.1 Surface area	No loss in range recorded over the short term (since condition assessment process introduced in 2002). No loss in range recorded over the longer term (since NI Coastal Survey 1992)
4.5 Short term trend; Method used	Based upon regular condition monitoring of protected coastal sites. These cover the only known locations for the habitat in NI.
5.2 Surface area	The extent figure for NI was derived primarily from the NI Coastal Survey (Cooper et al, 1992), where the habitat was mapped to NVC standard. This was supplemented by additional fieldwork by NIEA staff at Ballykinler
6.1 Condition of habitat	Condition data for SACs are indicative of the condition of the habitat across NI, as all known stands of the habitat occur on SACs. The majority of the resource has been assessed as favourable, with only a small area (at Murlough) recorded as unfavourable. Virtually all of the habitat has favourable management in place.
6.2 Condition of habitat; Method used	Data taken from the most recent Common Standards Monitoring of Magilligan, Murlough and North Antrim Coast (White Park Bay) SACs.

7.1 Characterisation of pressures/ threats	Salix dune slacks represent the final stage in dune slack succession; as plant remains tend to accumulate, the soil layers gradually rise higher above the water table and more terrestrial forms of vegetation develop. This process is exacerbated by lack of grazing, changes in hydrology and aerial deposition of N. Condition assessment suggests that although Magilligan is favourable for the habitat, and that Murlough is unfavourable. In part this is due to historical grazing regimes, with too little grazing in the past leading to rank growth of grasses and scrub. Management is currently underway to reverse this process. Low intensity grazing is necessary to maintain the Salix slacks. Hydrology is critical to the maintenance of Salix dune slacks, and water abstraction and drainage works may impact on the habitat. There is no evidence of recent pressures on the habitat in NI. Some afforestation of dunes has taken place in NI near to dune slacks in the past. These plantations can have the effect of suppressing the dune vegetation communities and lowering the water table. However, removal of conifers has shown that vegetation close to the original can be restored in a relatively short time. Nutrient enrichment is possibly one of the greatest threats to the long-term conservation of this habitat. Eutrophication of groundwaters can be one source, although we have no evidence of this impacting the NI sites for the habitat. Aerial Nitrogen deposition also needs to be considered. Nutrient deposition on many sand dunes is already above the critical threshold for impacts on vegetation. The consequence of this for H2170 Salix dune slacks is the tendency to a speeded up succession away from dune slack vegetation. The critical load range for Salix dune slack is 10-20 kg N /ha/yr. With an average predicted deposition of 8.2 kg N/ha/yr, Magilligan (the main location for this habitat) is just below the lower threshold for this habitat, so it is important to monitor this very closely. Climate change and its impacts on dune hydrology may be critical to the future of H2170 Dunes with Salix repens, with climate predicted to get drier, with rainfall more concentrated in the winter and with longer droughts in the summer. These trends are potentially severe but difficult to predict. In addition, although the habitat is not likely to be subjected to the most immediate impacts of sea-level rise and increased storminess, there will inevitably be some effects on the habitat, through mobilising and re-distributing sand supplies within the overall dune complex. It is difficult to predict what the long-term effects of this will be.
7.2 Sources of information	Threats and pressures assessed from the most recent Common Standards Monitoring of Magilligan, Murlough and North Antrim Coast (White Park Bay) SACs, plus judgement on future trends.
8.1 Status of measures	Recent condition assessments suggest that the Salix dune slacks at Magilligan are in favourable condition, with the small stand at Murlough in unfavourable condition. This is largely due to previous grazing history - reduced livestock grazing and decline in rabbit populations have combined to allow scrub to invade. Measures currently in place to maintain livestock grazing and to control scrub. In addition, conifer removal has taken place at Magilligan to enhance this habitat and the closely-related Humid dune slack H2190.
8.2 Main purpose of the measures taken	Measures aimed at reducing rank growth and controlling scrub encroachment. Also removal of conifer plantation at Magilligan (Umbra section).
8.3 Location of the measures taken	Only known occurrences of the habitat in NI are on SACs.
8.4 Response to the measures	Indications from monitoring suggest that these measures are proving successful, but need to be maintained.
10.1 Range	There is no evidence to suggest that the habitat occurred formerly elsewhere in NI, other than at Magilligan, Murlough and tiny stand at North Antrim Coast. Therefore current range occupied by the habitat in NI judged favourable.
10.2 Area	There is no evidence of any recent loss in extent from the 3 sites for the habitat. Therefore current area occupied by the habitat in NI judged favourable.

10.3 Specific structure and functions	The resource is reported as good for structure and function. Only a very small proportion of the resource is unfavourable (Murlough), and all of the sites are currently in favourable management in place. Measures should be maintained and appropriately targetted.
10.4 Future prospects	Although many of the issues currently affecting the structure and function of the habitat are being addressed through sympathetic management, future prospects are judged to be uncertain in the light of potential impacts of sea level rise and climate change, and particularly the impact of atmospheric deposition of Nitrogen. Hence Unfavourable Inadequate.
10.5 Overall assessment of Conservation Status	Range and extent are stable; structure and function are generally good as a result of management measures. Future prospects are rather uncertain, with Nitrogen deposition and climate change unpredictable. Hence an overall unfavourable inadequate assessment.
11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network	The habitat is present at 3 SACs and not known from elsewhere in NI - Magilligan, Murlough and North Antrim Coast.
11.3 Surface area of the habitat type inside the network; Method used	Most of the SAC has been mapped to NVC standard and CSM is undertaken on a regular basis.
11.5 Short term trend of habitat area in good condition within the network; Method used	Conclusion based upon recent condition assessment data. The habitat has been reported as being largely in favourable condition, with favourable management in place.