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:

H2190 - Humid dune slacks

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	**2190 - Humid dune slacks**

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 0.22
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	Maximum 0
	b) Area in not-good condition (km²)	Minimum 0.22	Maximum 0.22
	c) Area where condition is not known (km²)	Minimum 0	Maximum 0
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		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		Medium-term results (within the next two reporting periods, 2019-2030)

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 0.2
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

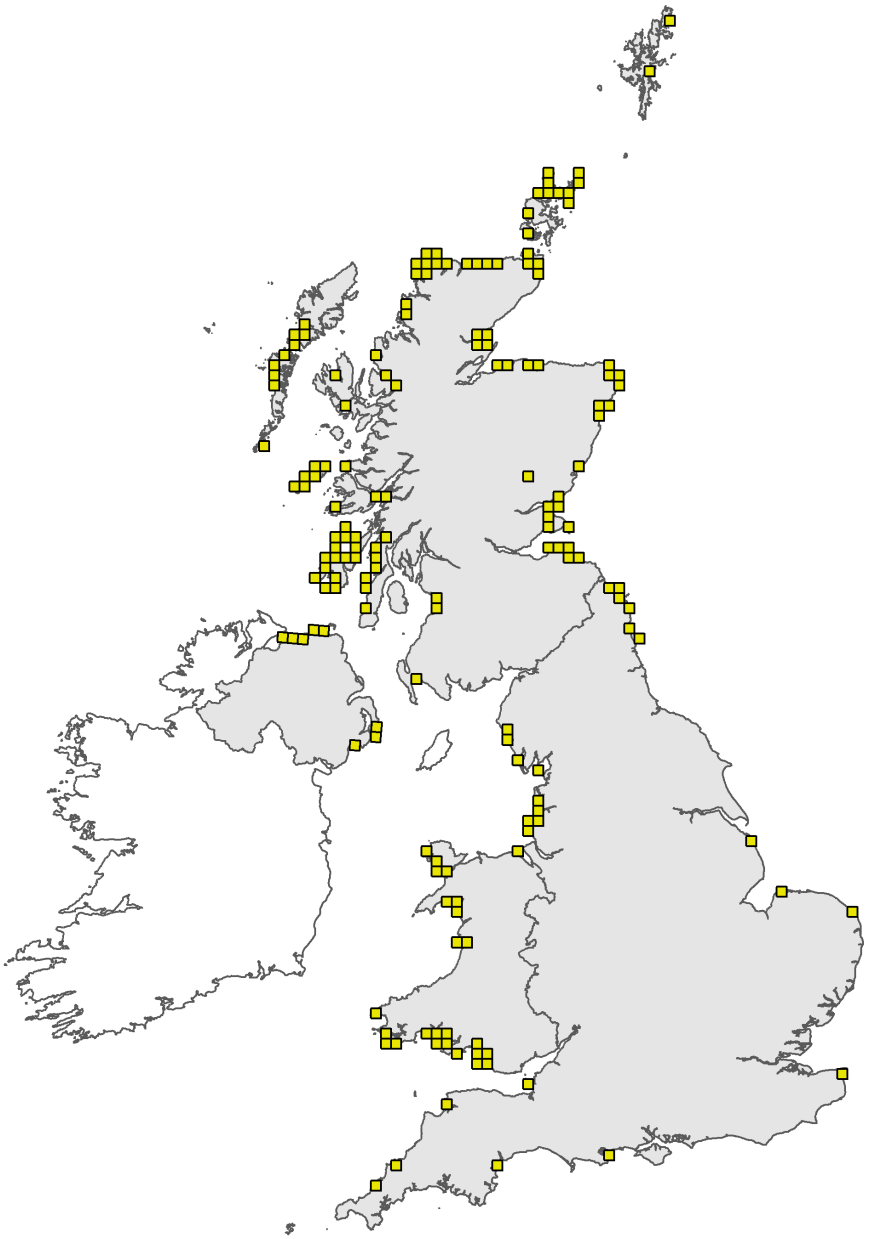

Figure 1: UK distribution map for H2190 - Humid dune slacks. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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

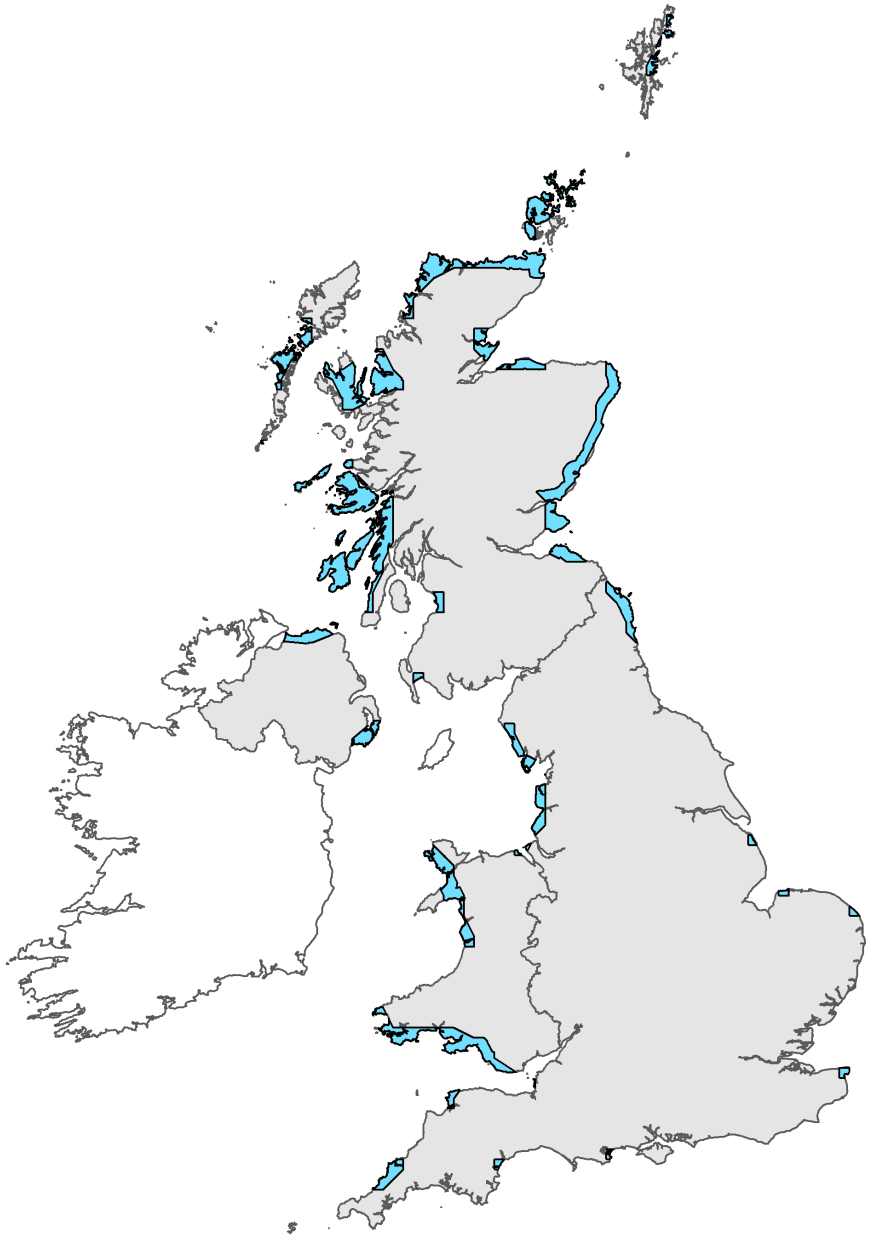

Figure 2: UK range map for H2190 - Humid dune slacks. Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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: 2190

Field label	Note
2.2 Distribution map	Dune slacks occur primarily on the larger dune systems in the UK, especially in the west and north, where the wetter climate favours their development. In the UK the predominant NVC communities of this habitat type include SD13 Salix repens-Bryum pseudotriquetrum dune slack community, SD14 Salix-repens- Campylium stellatum dune slack community, SD15 Salix repens-Calliergon cuspidatum dune slack community, SD16 Salix repens-Holcus lanatus dune slack community and SD17 Potentilla anserina-Carex nigra dune slack community. Neither SD13 nor SD15 have been recorded from NI, but the other NVC communities associated with this habitat (i.e. SD14, SD16 and SD17) are scattered around the NI coast: (i) SD14d (Festuca rubra sub-community) is the only recorded occurrence; only found at Magilligan; (ii) SD16 - most is referable to 2170 Dunes with Salix arenaria described elsewhere; (iii) SD17 - this is distributed around the whole NI coast but is not extensive. The NI Coastal Survey found it a difficult community to sub-divide or to correlate with examples from GB. Examples were found at Magilligan, North Antrim Coast SAC (White Park Bay), Killard (part of Strangford Lough SAC) and Grangemore (part of Bann Estuary SAC), with occasional quadrats at Giant's Causeway, Rathlin and the Mournes Coast. The latter are not associated with dunes, and should therefore not be considered examples of the habitat. Survey work by NIEA has subsequently found the habitat at Portavogie (Outer Ards ASSI/SPA) and at Tyrella and Minerstown ASSI, in addition to a very small stand at the Bann Estuary SAC. In summary, the habitat is present at a small number of sites around NI, with the vast majority of the resource at Magilligan.
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 Tyrella and Minerstown ASSI, which was not covered by NI Coastal Survey. All known stands of the habitat were visited by NIEA staff during the reporting period, so coverage of the habitat has been good.

Habitat code: 2190 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 atTyrella and Minerstown ASSI.
6.1 Condition of habitat	Condition data for protected sites are indicative of the condition of the habitat across NI, as virtually all known stands of the habitat occur on SACs and ASSIs. Although the whole resource is reported as not good, a high proportion of the habitat (at Magilligan SAC) has favourable management in place. The major issue for the habitat is the lack of early successional stages of dune slack development (i.e. the habitat - like Grey Dune - has become overstabilised). These early successional stages (with much bare, wet sand) are particularly important for specialist species, such as Petalwort.
6.2 Condition of habitat; Method used	Data taken from the most recent Common Standards Monitoring of Magilligan SAC and Outer Ards ASSI. Data for Tyrella and Minerstown ASSI recorded during field survey.

7.1 Characterisation of pressures/ threats	Humid dune slacks represent the early and middle stages 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 most sites are in unfavourable condition for this habitat. In part this is due to historical grazing regimes, with too little grazing in the past leading to rank growth of grasses and scrub. Low intensity grazing is necessary to maintain the humid slacks. Proactive management at Magilligan is currently underway to reverse this process. Hydrology is also critical to the maintenance of slack communities, 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, and a major exercise to remove conifers has taken place at Umbra (Magilligan SAC). 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 in NI. Aerial Nitrogen deposition also needs to be considered. Nutrient deposition on many sand dunes is already above their critical threshold for impacts on vegetation. The consequence of this for H2190 Humid dune slacks is the tendency to a speeded up succession away from dune slack vegetation. The critical load range for humid dune slack (calcareous type)is 15-20 kg N /ha/yr. With an average predicted deposition of 8.2 kg N/ha/yr, Magilligan (the main location for this habitat) is below the lower threshold for this habitat. Nevertheless, it is important to monitor this closely. Critical thresholds are exceeded at the other locations for the habitat in NI. Climate change and its impacts on dune hydrology may be critical to the future of H2190 Humid dune slacks, 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 the habitat at protected sites (SACs and ASSIs), plus judgement on future trends.
8.1 Status of measures	Recent condition assessments suggest that the humid dune slacks at Magilligan are in unfavourable condition. This is largely due to previous grazing history - reduced livestock grazing and decline in rabbit populations have combined to allow rank vegetation and scrub to invade. Measures are currently in place to maintain livestock grazing and to control scrub. In addition, conifer removal has taken place at Magilligan to enhance the habitat and the closely-related Salix dune slack H2170 (reported in Conservation Measures as CB01).
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). NIEA currently liaising with MOD to consider restoration strategies for early succession dune slack communities. Hence this is reported as Restore the structure and functions, including the status of typical species (related to 'Specific structure and functions') - rather than maintain.
8.4 Response to the measures	Some measures have already been implemented, and indications from monitoring suggest that they are proving successful, but need to be maintained. However, the restoration of early succession dune slack communities needs further research and consideration; therefore reported as medium -term results.

9.1 Future prospects of parameters	The trend for structures and functions has been assessed as Overall stable, because the critical load range for humid dune slack (calcareous type)is 15-20 kg N/ha/yr, and the average predicted deposition of 8.2 kg N/ha/yr at Magilligan (the main location for this habitat) is well below the lower threshold for this habitat.
10.1 Range	There is no evidence to suggest that the habitat occurred formerly elsewhere in NI, other than its current distribution. Therefore current range occupied by the habitat in NI judged favourable.
10.2 Area	Although there may have been historical losses, there is no evidence of any recent loss in extent (since 1992) from any of the known 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 not good for structure and function. The bulk of the resource is unfavourable (i.e. Magilligan SAC), although the site is largely in favourable management. Current measures aimed at maintaining grazing and removal of conifers should be maintained and appropriately targetted. Further research is required to develop a strategy for restoring early-succession dune slack communities. Hence an Unfavourable Bad assessment.
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, in addition to the uncertainty associated with early slack restoration. Hence Unfavourable Inadequate.
10.5 Overall assessment of Conservation Status	Range and extent are stable and favourable; structure and function are bad (although favourable management measures are largely in place). Future prospects are rather uncertain, with climate change impacts and success of slack restoration measures currently unpredictable. Hence an overall unfavourable bad assessment.
11.1 Surface area of the habitat type inside the pSCIs, SCIs and SACs network	The bulk of the habitat in NI is present at Magilligan SAC. There are very small stands present at Bann Estuary and and North Antrim Coast SACs.
11.3 Surface area of the habitat type inside the network; Method used	Within the SAC network, most of the habitat 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 in unfavourable condition, although favourable management is largely in place.