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

Second Report by the United Kingdom under Article 17

on the implementation of the Directive from January 2001 to December 2006

Conservation status assessment for :

H1210: Annual vegetation of drift lines

Please note that this is a section of the report. For the complete report visit http://www.jncc.gov.uk/article17

Please cite as: Joint Nature Conservation Committee. 2007. *Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006*. Peterborough: JNCC. Available from: www.jncc.gov.uk/article17

H1210 Annual vegetation of drift lines

Audit trail compiled and edited by JNCC and the UK statutory nature conservation agencies Coastal Lead Coordination Network.

This paper and accompanying appendices contain background information and data used to complete the standard EC reporting form (Annex D), following the methodology outlined in the commission document "Assessment, monitoring and reporting under Article 17 of the Habitats Directive, Explanatory Notes and Guidelines, Final Draft 5; October 2006". The superscript numbers below cross-reference to the headings in the corresponding Annex D reporting form. This supporting information should be read in conjunction with the UK approach for habitats (see 'Assessing Conservation Status: UK Approach').

1. National-biogeographic level information

1.1 General description & correspondence with National Vegetation Classification (NVC) and other habitat types

Table 1.1.1 provides a summary description of H1210 and its relations with UK classifications.

This habitat type occurs on deposits of shingle lying at or above mean high-water spring tides. The types of deposits involved are generally at the lower end of the size range of shingle (2-200 mm diameter), with varying amounts of sand interspersed in the shingle matrix. These shingle deposits occur as fringing beaches that are subject to periodic displacement or overtopping by high tides and storms. The distinctive vegetation, which may form only sparse cover, is therefore ephemeral and composed of annual or short-lived perennial species.

The mobility of shingle foreshores is an overriding consideration, and colonising species are able to tolerate periodic disturbance by wave action. This may involve the erosion or deposition of the surface sediment that is consequently recolonised by characteristic annual vegetation. Species are also tolerant of saltwater inundation, as the beaches are often over-topped by the tide or subject to spray from waves breaking over the beach. Level or gently-sloping, high-level naturally mobile beaches, with limited human disturbance, support the best examples of this vegetation.

Annual vegetation of drift lines has a wide distribution in the EU, and has been recorded from Mediterranean coastlines in southern Europe north to the coasts of Sweden and Finland.

Approximately one-third of the UK coastline is fringed by a shingle or sand/shingle beach, but much of this is too dynamic to sustain drift-line vegetation. Many of the fringing beaches with drift-line vegetation are small, and annual vegetation may exist in one location in one year but not another. Therefore, although widespread around the UK, sites where this Annex I type is persistent are rare, and even the largest sites probably support less than 10 ha of this habitat. At most sites the habitat is naturally species-poor, and there is a limited range of ecological variation. The main ecological variation is between northern and southern forms of this Annex I habitat type in the UK. Variation is also related to the type of shingle structure. Some sites, such as Dungeness in south-east England, may have a disctincitve community not found elsewhere.

In the UK this Annex I type is not always easy to classify using the NVC because it is highly variable between sites and from year to year at the same site. It can include NVC types SD2 *Honkenya peploides – Cakile maritima* strandline community and SD3 *Matricaria maritima – Galium aparine* strandline community on stony substrates. MC6 *Atriplex prostrata – Beta vulgaris* ssp. *maritima* sea-bird cliff community and other vegetation with abundant orache *Atriplex* spp. may also occur on shingle shores. Drift-lines on essentially sandy beaches are assessed as sand dune communities (see H2110 Embryonic

shifting dunes), and are not included in this Annex I type. However, where drift line vegetation develops on other coarse clastic sediments, such as shell-banks (cheniers), it can be considered as part of H1210 Annual vegetation of drift lines.

Table 1.1.1 Summary description of habitat H1210 and its relations with UK vegetation/habitat classifications

Classification	Correspondence with Annex I type	Comments
NVC	NVC types typically associated with this habitat when present on shingle: • SD2 *Honkenya peploides – Cakile maritima* strandline community. • SD3 *Matricaria maritima – Galium aparine* strandline community on stony substrates. • MC6 *Atriplex prostrata – Beta vulgaris* ssp. *maritima* sea-bird cliff community (on shingle beaches only).	When these communities occur on sand, these are not part of H1210. The NVC does not adequately cover the whole range of drift line vegetation. SD3 is a mainly northern community. SD2 forms part of the H2110 Embryonic shifting dunes. Species that colonise shingle driftlines depend on nutrient status and sediment size range. Most communities on shingle are not close matches to the current NVC (Randall and Doody 1995). Driftline vegetation with abundant orache *Atriplex* spp. can also occur on some shingle shores. For example, at Dungeness, the driftline community may be composed entirely of *Atriplex glabriuscula* (Ferry 1990).The NVC describes mixtures of *Atriplex* spp. and *Beta vulgaris ssp. maritima* similar to MC6 being found on strandline debris on sandy and shingle foreshores.
Sneddon & Randall shingle classification	The SH communities are based on analysis of quadrat data collected from shingle habitat surveys, covering most of the range of variation that can be found in the Annex I type H1220 Perennial vegetation of stony banks.	Refer to Sneddon and Randall (1993a). The SH communities have also been related to closest NVC equivalents in this study. Driftline communities were not adequately covered by this survey, so there are no SH communities corresponding to H1210 Annual vegetation of drift lines, and therefore cannot be used reliably in this assessment.
EU Interpretation Manual	Formations of annuals or representatives of annuals and perennials, occupying accumulations of drift material and gravel rich in nitrogenous organic matter (*Cakiletea maritimae* p.).	This is a very variable habitat type. It is often found on the same shingle structures that support H1220 Perennial Vegetation of Stony Banks, and succession can take place from one to another as beach ridges build up.
BAP priority habitat type	Coastal vegetated shingle.	The seaward annual vegetation of drift lines is only part of this BAP priority habitat. Other shingle vegetation to landward falls within H1220 Perennial vegetation of stony banks
CSM reporting categories	Coastal vegetated shingle.	Different approaches to terminology between country agencies make direct comparisons difficult.

2. Range [2.3]

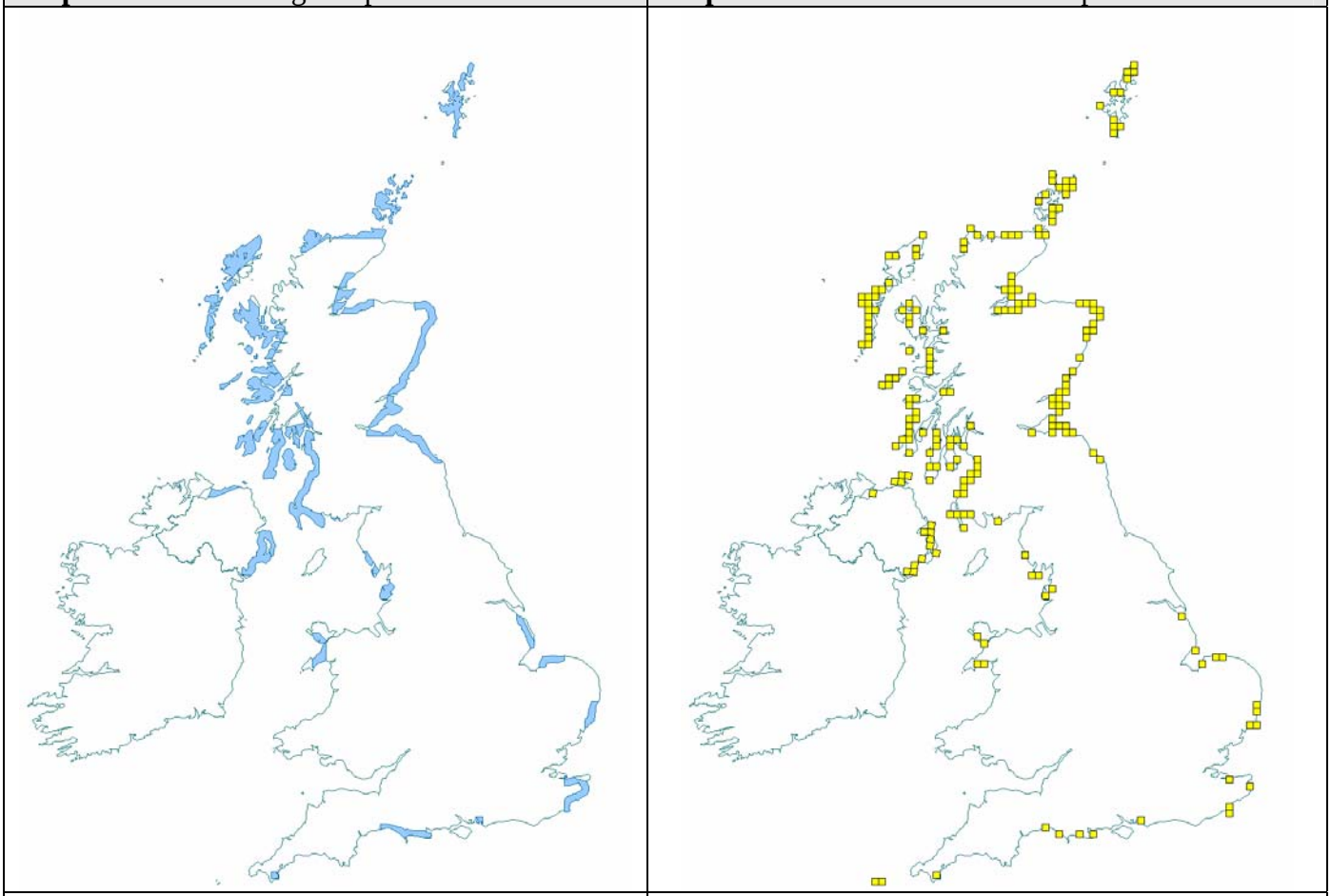
2.1 Current range

Range surface area [2.3.1]: **2,568 km²**
Date calculated [2.3.2]: **May 2007**
Quality of data [2.3.3]: **Moderate**

The surface area estimate was calculated within alpha hull software, using extent of occurrence as a proxy measure for range (see Map 2.1.1). The value of alpha was set at 25 km; the alpha hull software used to calculate the surface area of the range could only be clipped to a 10km strip width along the coast. The geomorphological and physical factors influencing the distribution of the habitats are likely to occur

only within a far smaller distance of the coastline (at most 1km) and hence the area value has been reduced by a factor of 10 to give a more realistic value for the surface area of the range for these habitats.

Maps 2.1.1 and 2.1.2 show the range and distribution of H1210 in the UK. The range map for H1210 Annual vegetation of drift lines is based on records for NVC communities SD2 and SD3, (but not MC6) together with Special Areas of Conservation (SACs) supporting this Annex I type. These communities can also occur on sandy beaches (but this occurrence is not included in the Annex I habitat type) as well as shingle; the map shows some of these examples and should therefore be taken as only indicative of the range of the Annex I type. The Scottish range is over-estimated, especially on the northern and western coasts. There has not been a complete national assessment of this ephemeral habitat, as it was not included in the Sneddon and Randall (1993a) study, therefore some locations may have been overlooked. Other 'untypical' locations were cheniers (banks of shell deposits) often developed as deposits on saltmarshes. These are considered as forming part of the habitat, although some vegetation types described from the Solent were not close matches to the NVC communities.

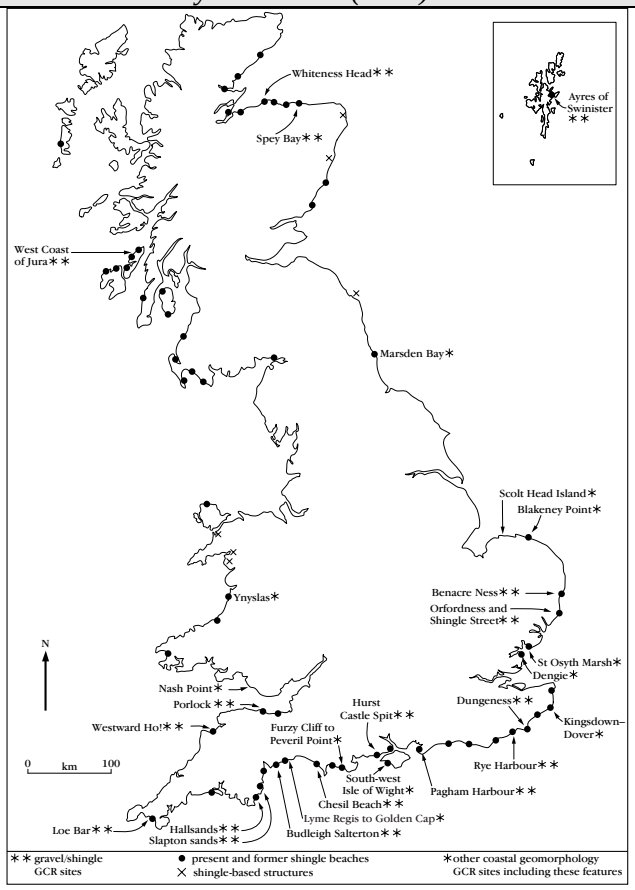
Map 2.1.1 Habitat range map [1.1] for H1210	**Map 2.1.2** Habitat distribution map [1.2] for H1210
	
Range envelope shown in blue/grey shade in above map is a minimum convex polygon constructed using JNCC Alpha Shapes tool (see Technical note I for details of methodology).	Each yellow square represents a 10x10km square of the National Grid and shows the known and/or predicted occurrence of this habitat. 10-km square count: 209

See Section 7.1 for map data sources

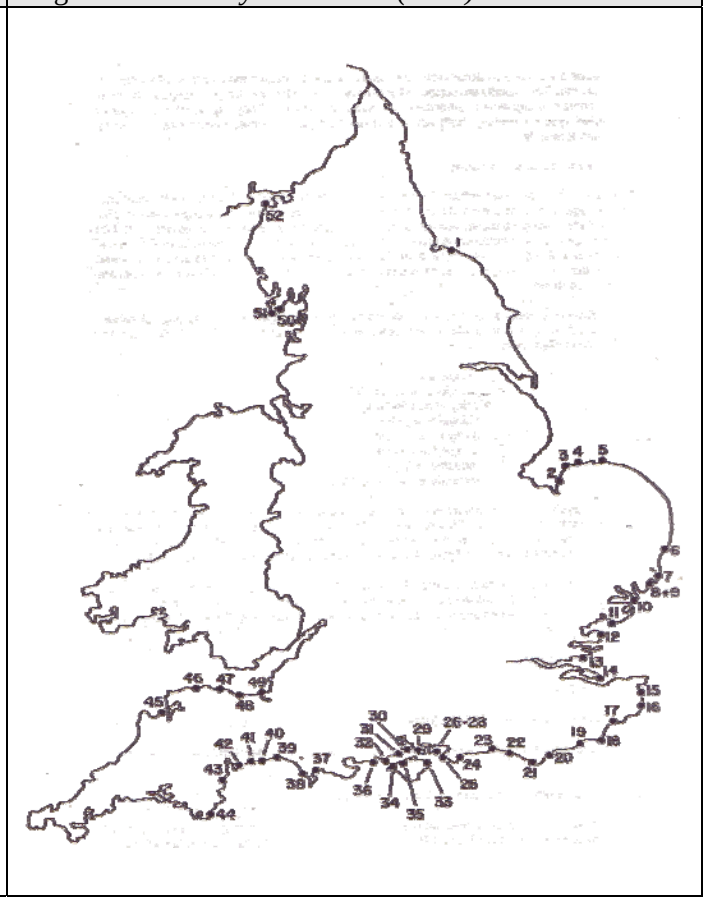
The map of shingle beaches shown in May and Hansom (2003) provides a basis for determining where the main shingle structures are likely to be present. Some of the locations shown for SD2 and SD3 that do not correspond with shingle formations are likely to be on more sandy foreshores and therefore not to be referable to H1210. The map from Pye and French (1993) shows the major shingle features in England,

which includes some important areas such as the Solent not shown on the map below. Numbers on that map refer to the names of sites given in the full report.

Map 2.1.3 Coastal shingle and gravel structures in Britain *From: May & Hansom (2003)*



Map 2.1.4 Location of major shingle features in England* *From: Pye & French (1993)*



*Numbers refer to the names of site given in the full report

2.2 Trend in range since c.1994

Trend in range[2.3.4]: **Unknown**
Trend magnitude[2.3.5]: **Not applicable**
Trend period[2.3.6]: **1994-2006**
Reasons for reported trend[2.3.7]: **Not applicable**

There are limited losses in range but the scale of this loss is not quantifiable at a national level. Any disruption of coastal processes within the relevant sediment cell may alter the distribution of this habitat at a regional level. There is still regional representation of shingle structures that can support this habitat, but some areas are more at risk than others.

2.3 Favourable reference range

Favourable reference range[2.5.1]: **Unknown**

Many shingle structures are derived from sources of sediment deposited at the end of the last glaciation. Sea level rise has isolated remaining marine deposits from the shore, leading to reduced inputs of sediments from natural sources. They are effectively 'fossilised' structures.

The potential range includes any shingle beach which is stable and relatively undisturbed during the spring/summer months and has a nearby source of seed that can be trapped in organic material deposited on the tide line. Driftline vegetation is an ephemeral habitat, composed of annual species that can germinate, grow, set and disperse seed in one season, or plants that can spread by vegetative fragments. Seeds are then deposited on the shingle or transported by the sea alongshore or higher up the beach: in the

latter situation the driftline habitat can extend onto the back slope of a shingle ridge, often merging with the perennial vegetation. The presence of the habitat is totally reliant on the natural processes that shape the beach. The maintenance of natural geomorphological structure and function and annual production of adequate seed are critical if the habitat is to be regularly renewed.

Re-working of sediment by natural processes is now often restricted by human impacts such as flood risk management structures and operations (e.g. groynes or recycling and reprofiling). This makes existing shingle structures particularly vulnerable to erosion and loss, and affects the ability of shingle foreshores to support this habitat type. New sediment (from the erosion of cliffs or inputs from rivers) is very restricted at most sites. The range in England and Wales is heavily fragmented, and the habitat appears to be spread thinly along the coasts. The habitat losses are judged to exceed any expansion, although there is still regional representation of the habitat type. It is clear that fragmentation within the natural range has occurred. The scale of loss is not quantifiable due to the ephemeral nature of the habitat. The current range is less than the favourable reference range, although it is unclear if this is more than 10% below it.

2.4 Conclusions on range

Conclusion[2.6.i]: Unknown

The habitat shows a fragmented range that has been reduced by recent declines. Although there is still regional representation of H1210, the current area is thought to be below the favourable reference range. Due to the ephemeral nature of this habitat, it was not possible to assess if the current range is below the favourable reference range.

3. Area [2.4]

3.1 Current area

Total UK extent [2.4.1]: Unknown
Date of estimation [2.4.2]: May 2007
Method [2.4.3]: Not applicable
Quality of data [2.4.4]: Poor

Table 3.1.1 provides information on the area of H1210 in the UK. There are no comprehensive data available for the extent of this habitat type in the UK. The figures provided are estimates based on expert opinion. As this vegetation is ephemeral in nature, the location and extent of this habitat at both site level and in the UK as a whole will vary considerably from year to year, and even the largest sites probably support less than 10 ha of this habitat.

Table 3.1.1. Area of H1210 in the UK

	Area (ha)	Method [2.4.3]	Quality of data [2.4.4]
England	Unknown	-	-
Scotland	Unknown	-	-
Wales	Unknown	-	-
Northern Ireland	20 +/-5ha	1	Poor
Total UK extent [2.4.1]	Unknown	Not applicable	Poor

Method used to estimate the habitat surface area: 1 = only or mostly based on expert opinion; 2 = based on remote sensing data; 3 = ground based survey. Only the most relevant class is given if more than one applies.
Quality of habitat surface area data: 'Good' e.g. based on extensive surveys; 'Moderate' e.g. based on partial data with some extrapolation; 'Poor' e.g. based on very incomplete data or on expert judgement

3.2 Trend in area since c.1994

Trend in area[2.4.5]: Unknown
Trend magnitude[2.4.6]: Not applicable

Trend period[2.4.7]: **1994-2006**

Reasons for reported trend[2.4.8]: **Not applicable**

The area covered by this habitat is probably declining, although the habitat has not been well-studied. There have been significant losses in parts of south-east England, such as at The Crumbles (Sussex), where extraction and development has led to almost complete loss of a significant shingle structure. Further research is needed on this specialist habitat. Areas where this habitat should thrive (e.g. Dungeness) are known to be repeatedly damaged by flood risk management operations, but there is not enough information to determine rates of change.

3.3 Favourable reference area

Favourable reference area[2.5.2]: **Unknown**

Potential area could extend to any coarse sediment beach out of the reach of waves and where suitable seed deposition could occur. There are 1040 km of the British coast formed by gravel structures (not including those overlain by sand). Some are too coarse to support driftline vegetation (May and Hansom, 2003). If a strip of vegetation covered 75% of that extent, a maximum area of 750 ha could be possible, but this is not an accurate measurement.

The main concern relates to the viability of the habitat which is dependant on various factors for its continuing survival. The constituent species are annual, and therefore have to grow every year from seed. There is not buried seed bank and the seeds need to be deposited by tidal processes on a suitable part of a beach – i.e. where there is an adequate supply of organic nutrients – where the habitat can develop. It is still unclear if persistent patches regrow from their own seeds or if their former area is colonised by seeds from another location. The duration of seed viability in seawater is not known. While the habitat is distributed in two areas containing multiple dots in Scotland, the representation of the habitat on the Welsh and English coasts consists in isolated areas. The UK area (less than 200 ha) appears very scarce, and very fragmented in England and Wales. This fragmentation, compounded by the ecology of the annual species constituent of the habitat, leads to the judgement that the current area may not be viable and that locations on the more southern coast of Great Britain are at risk from catastrophic events or human action.

3.4 Conclusions on area covered by habitat

Conclusion[2.6.ii]: **Unfavourable – Inadequate and deteriorating**

The fragmented distribution – especially in England and Wales – is of grave concern, especially as the habitat being renewed each year from seed sources produced the previous year, a reduced and fragmented area of habitat may not be viable in the long-term. Furthermore, strandlines that could support the habitat are still being lost or damaged. The current area is considered to be less than the favourable reference area, although it is not possible to determine if more than 10% below it.

4. Specific structures and functions **(including typical species)**

4.1 Main pressures [2.4.10]

Current and historic factors impacting on the driftline are primarily related to sediment availability, beach management and disturbance. Artificial reprofiling of shingle beaches as a flood risk management measure affects many locations for this habitat on key sites in southern England: in many cases this has reduced the cover of driftline habitat and prevents it from reaching its full potential. Other types of human disturbance such as trampling, beach cleaning and recreational use are limiting the extent of this type of habitat. The habitat is also vulnerable to reductions in input of sediment, often caused by interruptions of the sediment supply.

Factors affecting drift lines are identified in the *Habitat Action Plan for Coastal vegetated shingle*. These also apply to H1220 perennial vegetation of stony banks. Where activities are closer to the high water

mark, there will be a greater impact on H1210 because of its association with the strandline. In particular, impacts on sediment supply, natural mobility (a critical factor for beach development) and access from a range of activities are important for the driftline habitat. The main pressures affecting H1210 are listed below. The related EC codes are shown in brackets.

- Sediment supply (**851 modification of marine currents, 871 sea defence or coast protection works**)

The health and ongoing development of a shingle feature depend on a continuing supply of shingle. This may occur sporadically as a response to storm events rather than continuously. It is frequently lacking owing to interruption of coastal processes by coast defence structures, by offshore aggregate extraction or by artificial redistribution of material within the site (e.g. Dungeness). Attempts have been made to rectify the situation by mechanical reprofiling, which is likely to fail in the long run because it does not address the lack of new material, or by beach recharge.

- Natural mobility (**900 Erosion, 990 Other natural processes**)

Shingle features are rarely stable in the long term. Many structures exhibit continuous longshore drift and ridges lying parallel to the shoreline tend to be rolled over towards the land by wave action in storm events. This movement has a knock-on effect on low-lying habitats behind the shingle. Movement is likely to be accelerated by climate change resulting in sea level rise and increased storminess.

- Exploitation (**302 removal of beach material**)

Shingle structures have been regarded as a convenient source of aggregates, and have been subject to varying degrees of extraction resulting in severe alteration of morphology and vegetation (e.g. Dungeness and Spey Bay) or almost total destruction of major parts of the feature (e.g. Rye Harbour). Industrial plant, defence infrastructure and even housing have been built on shingle structures (e.g. Dungeness, Orfordness, and Spey Bay), destroying vegetation and ridge morphology. At Dungeness water is abstracted from the groundwater system; there is some evidence of drought stress on the vegetation, but it is difficult to distinguish the effects of water abstraction from those of gravel extraction.

- Access (**622 walking, horse riding and non-motorised vehicles, 623 motorised vehicles**)

Shingle vegetation is fragile; the wear and tear caused by access on foot, and particularly by vehicles, has damaged many sites. The causes include military use, vehicle access to beaches by fishermen, and recreational use. Such disturbance can also affect breeding birds.

- Grazing (**141 abandonment of pastoral systems**)

In a few cases areas of shingle were traditionally grazed, but this management has now largely ceased, leading to domination by willow carr on wetlands and changes to vegetation structure. The impacts of removal of grazing on breeding birds and other shingle species are not fully understood.

- Air pollution (**702 air pollution**)

Based on an assessment of relevant literature and exceedence of critical loads (see Technical note III), this habitat is not considered sensitive to air pollution or there is no relevant critical load available and the judgement is that it is unlikely to be at risk anyway.

A review of factors that influence colonisation (Davy and Figueroa 1993) indicates the following critical factors relevant to this habitat:

- seed dormancy (**990 Other natural processes**),
- seed size (**990 Other natural processes**),
- dispersal (including buoyancy) (**990 Other natural processes**),
- sediment size (**990 Other natural processes**),
- depth of burial (**990 Other natural processes**),
- nutrient supply,

- temperature (**990 Other natural processes**),
- Disturbance during growth period (**622 walking, horse riding and non-motorised vehicles, 623 motorised vehicles, 302 removal of beach material**).

4.2 Current condition

4.2.1 Common Standards Monitoring (CSM) condition assessments

Condition assessments based on CSM (see http://www.jncc.gov.uk/page-2199) provide a means to assess the structure and functioning of H1210 in the UK. The following attributes were examined for all CSM assessments relevant to the habitat:

- habitat extent.
- physical structure (functionality and sediment supply).
- vegetation structure-zonation of vegetation.
- vegetation composition-characteristic species for each zone.
- negative indicators (negative indicator species and signs of disturbance).

SAC condition assessments

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H1210. These data were collated in January 2007. The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 76% of the area and 40% of the number of assessments was unfavourable; and
- at least 74% of the total UK habitat area was in unfavourable condition.

Table 4.2.1 CSM condition assessment results for UK SACs supporting H1210. See notes below table for details. Information on the coverage of these results is given in Section 7.2

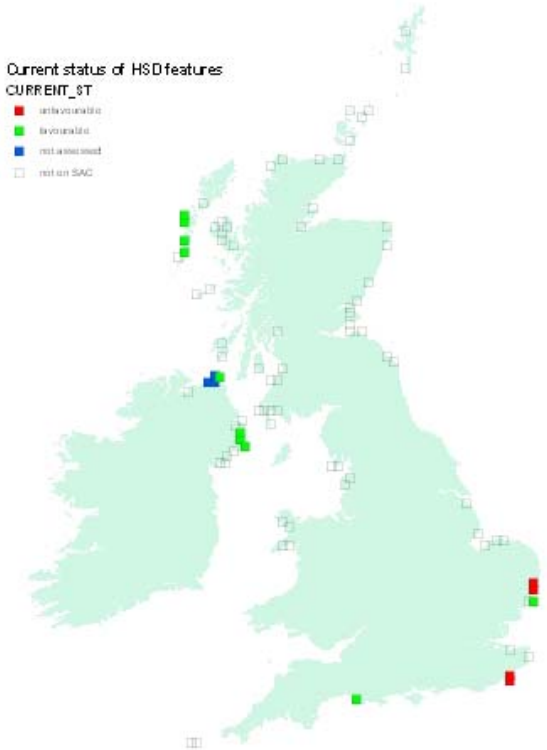
Condition	Condition sub-categories	Area (ha)	Number of site features
Unfavourable	Declining	118	2
	No change	10	1
	Unclassified		
	Recovering	01	1
	Total	129	4
	% of all assessments	***76%***	***40%***
	% of total UK resource	***74%***	***unknown***
Favourable	Maintained	03	2
	Recovered		
	Unclassified	38	4
	Total	41	6
	% of all assessments	***24%***	***60%***
	% of total UK resource	***23%***	***unknown***

Notes

1. Data on features that have been partly-destroyed have been excluded from this table because they are not relevant to the consideration of present condition.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC. (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC)
3. Only assessments made for qualifying interest features on SAC have been included in this analysis.
4. Area figures for CSM assessments have been calculated using the data presented on the standard Natura 2000 data forms submitted to the EU.

Site of Special Scientific Interest (SSSI)/Area of Special Scientific Interest (ASSI) condition assessments

SSSI/ASSIs CSM condition assessments are not relevant as most or all the resource is on SACs.

<table>
<tr><th colspan="3">Current Condition of H1210 based on CSM condition assessments (See Sections 4.2 and 7.2 for further information)</th></tr>
<tr><td>Map 4.2.1 SAC assessments</td><td>Map 4.2.2 Assessments strongly indicative of the condition on SSSI/ASSIs</td><td>Map 4.2.3 Assessments weakly indicative of the condition on SSSI/ASSIs</td></tr>
<tr><td> 
</td><td>Not applicable</td><td>Not applicable</td></tr>
<tr><td>Key
Red = unfavourable, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable
Green = favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been assessed as favourable but there are no unfavourable SAC features
Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported
Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type</td><td colspan="2">Key*
Green – 80 – 100% of assessed features on 10km square are favourable
Yellow - 50 – 80% of assessed features on 10km square are favourable
Orange - 20 – 50% of assessed features on 10km square are favourable
Red - 0 – 20% of assessed features on 10km square are favourable
*This is the same key as was used for JNCC CSM Report 2006</td></tr>
</table>

4.3 Typical species

Typical species[2.5.3]: ***Mertensia maritima, Atriplex glabriuscula, Lavatera arborea, Cakile maritima, Atriplex laciniata, Polygonum oxyspermum***

Typical species assessment[2.5.4]: Change in 10 km square occupancy across UK over last 25 years

These are listed in the Interpretation manual. In the UK these are primarily *Cakile maritima, Salsola kali, Atriplex* spp. (particularly *A. glabriuscula*), *Polygonum* spp., *Euphorbia peplis, Mertensia maritima* (rare), and on more sandy substrates, *Elymus repens, Potentilla anserina*. There is considerable variation across the UK.

Several species show a medium to very high degree of faithfulness to this habitat or at least to the related community types (SD2, SD3 and MC6) within the NVC. Trends in the occurrence of these species across the UK during the last 25 years are set out in the table below. Half showed significant increases, one of less than 25%, and the other of more than 25%. The remainder showed significant decreases of less than 25%. Available trend data at the UK-level is not particularly conclusive for this assessment.

Table 4.3.1 Trends and faithfulness of selected typical species for H1210

Typical species [2.5.3]	**Faithfulness to habitat H1210 (based on analysis of NVC synoptic tables)**	**Trend over last 25 years from BSBI atlas – based on change in 10 km square occupancy across UK (see http://www.jncc.gov.uk/page-3254)**
Mertensia maritima	Very high	Significant decline, but <25% in 25 years
Atriplex glabriuscula	Medium	Significant decline, but <25% in 25 years
Lavatera arborea	Medium	Significant increase of >=25% in 25 years
Cakile maritima	Medium	Significant increase, but <25% in 25 years
Atriplex laciniata	Low	Significant increase, but <25% in 25 years
Polygonum oxyspermum	Low	Significant increase, but <25% in 25 years

4.4 Conclusions on specific structures and functions (including typical species)

Conclusion[2.6.iii]: Unfavourable – Bad and deteriorating

The EC Guidance states that where "more than 25% of the area of the habitat is unfavourable as regards its specific structures and functions", the conclusion should be Unfavourable – Bad. In the UK this was generally taken to mean that more than 25% of the habitat area in unfavourable condition.

CSM site condition assessments, where available, show that a large part of this habitat is classed as in unfavourable condition, of which a substantial area (118 ha, 67% of the total UK resource) is considered to be 'declining'. The existing data shows that more than 25% of the habitat is in unfavourable condition, that the necessary structures and functions for the habitat are not in place and that significant deteriorations and pressures exist.

5. Future prospects

5.1 Main factors affecting the habitat

5.1.1 Conservation measures

- Protection within designated sites

Around 97% of the resource of H1210 lies within SACs with management measures specifically aimed at maintaining and enhancing the features for which they are designated, and to address some of the pressures listed within section 4.1 and the future threats listed in section 5.1.2.

- UK BAP

The habitat is covered by the *Coastal vegetated shingle* action plan under the UK Biodiversity Action Plan (see http://www.ukbap.org.uk), as well as under country and local biodiversity action plans and strategies, with targets to maintain, improve, restore and expand the resource.

5.1.2. Main future threats

The most obvious major future threats to H1210 are listed below, several of which are referred to in Section 4.1. The related EC codes are shown in brackets.

- Sediment supply (**990 Other natural processes**)
- Natural mobility (**900 Erosion. 990 Other natural processes**)
- Disturbance during growth period (**622 walking, horse riding and non-motorised vehicles, 623 motorised vehicles, 302 removal of beach material**)

These will continue to be threats to the long-term future of the habitat. Pressures may increase as natural sediment supplies become more limited. Large-scale coastal management strategies need to fully address this factor at a coastal cell scale - there is potential for Shoreline Management Plans in England and Wales to address this. Threats from disturbance need to be carefully managed to ensure core areas of habitat remain within each part of its range and to reduce fragmentation. Where there is potential for the habitat to recolonise, appropriate management needs to be implemented. This is particularly important within SACs, but also elsewhere to improve connectivity and resilience.

- Climate change (**900 erosion, 950 Biocenotic evolution**)

Based on the literature review (Technical note IV) climate change is considered a major threat to the future condition of this habitat especially in the long term. Impacts from climate change may be related to increased storminess, especially where coupled with impacts from flood risk management and loss of sediment. Where there are limitations to potential landward migration of shingle ridges (e.g. developments or higher ground), coupled with limited sediment inputs, the feature may be lost if changes in climatic conditions and sea level rise exceed the rate at which beach ridges can migrate or evolve in response to those changes (Pye and French 1993).

However, there is a high degree of uncertainty in defining future climate threats on habitats and species due to uncertainty in: future greenhouse gas emissions; the consequential changes in climatic features (for instance temperature, precipitation CO_2 concentrations); the responses of habitats and species to these changes (for instance location, phenology, community structure) and the role of other socio-economic drivers of environmental change. The scale of change in habitats and species as a result of climate change will vary across ecosystems. Small changes in the climate are more likely to have a substantial impact on habitats and species which exist within a narrow range of environmental conditions. The future impacts of climate change on UK biodiversity will be exacerbated when coupled with other drivers of environmental change.

- Air pollution (**702 air pollution**)

Based on an assessment of relevant literature and exceedence of critical loads (see Technical note III), this habitat is not considered sensitive to air pollution or there is no relevant critical load available and the judgement is that it is unlikely to be at risk anyway.

5.2 Future condition **(as regards range, area covered and specific structures and functions)**

5.2.1 CSM condition assessments

The CSM condition assessments reported in Sections 4.2.1-2 provide a basis to predict the potential future condition of H1210 in the UK. This involved treating all assessments currently identified as either

favourable or unfavourable recovering as future-favourable: remaining categories were treated as future-unfavourable – see Table 5.2.1. There are a number of caveats to this approach, which are set out beneath this table.

SAC condition assessments

Table 5.2.1 and Map 5.2.1 summarise the predicted potential future condition of H1210 on UK SACs. This is based on the approach described above. The maps give an impression of the overall spread of where future-unfavourable and future-favourable sites are predicted to occur (summary statistics for the map are given in Section 7.2). The combined assessments show that of the SACs assessed:

- 25% of the area and 70% of the number of assessments fall within the future-favourable category; and
- at least 24% of the total UK habitat area falls within the future-favourable category.

Table 5.2.1 Predicted future condition of UK SACs supporting H1210 based on current CSM condition assessments. See notes below table for details. Information on the coverage of these results is given in Section 7.2

Future condition	Present condition	Area (ha)	Number of site features
Future-unfavourable	Unfavourable declining	118	2
	Unfavourable no change	10	1
	Unfavourable unclassified		
	Total	128	3
	% of assessments	***75%***	***30%***
	% of total UK extent	***73%***	***Unknown***
Future-favourable	Favourable maintained	03	2
	Favourable recovered		
	Unfavourable recovering	01	1
	Favourable unclassified	38	4
	Total	42	7
	% of assessments	***25%***	***70%***
	% of total extent	***24%***	***Unknown***

Note that the scenario presented above is based on the same information as used to construct the Table in section 4.1. It is based on the following premises:

(i) the unfavourable-recovering condition assessments will at some point in the future become favourable;

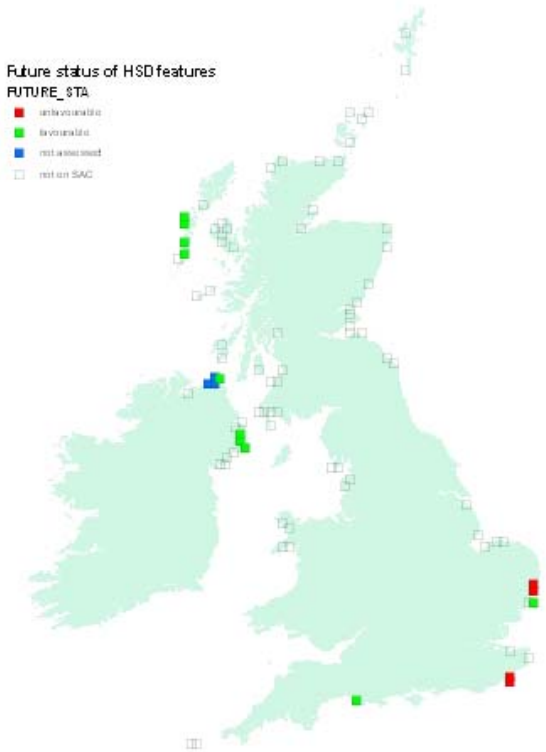
(ii) all unfavourable-unclassified sites will remain unfavourable, which is probably overly pessimistic;

(iii) sympathetic management will be sustained on sites already classified as favourable and these will not be seriously damaged by any unforeseen events.

IMPORTANT NOTE: We do not have information on the timescale of the predicted recovery, which may be influenced by many past, natural and human related factors. A sustained, sympathetic management regime is more likely to result in 'favourable' condition being attained.

SSSI/ASSI condition assessments

SSSI/ASSIs CSM condition assessments are not relevant as most or all the resource is on SACs.

<table>
<tr><th colspan="3">Predicted Future Condition of H1210 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)</th></tr>
<tr><td>Map 5.2.1 SAC assessments</td><td>Map 5.2.2 Assessments strongly indicative of the condition on SSSI/ASSIs</td><td>Map 5.2.3 Assessments weakly indicative of the condition on SSSI/ASSIs</td></tr>
<tr><td> 
</td><td>Not applicable</td><td>Not applicable</td></tr>
<tr><td>Key
Red = future-unfavourable, i.e. the square contains one or more SACs where this habitat feature is present and has been predicted to be future-unfavourable
Green = future-favourable, i.e. the square contains at least one SAC where this habitat feature is present and has been predicted to be future-favourable
Blue = SAC not assessed, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported
Transparent = SAC feature not present, i.e. the square does not contain any SAC features of this habitat type</td><td colspan="2">Key*
Green – 80 – 100% of assessed features on 10km square are favourable
Yellow - 50 – 80% of assessed features on 10km square are favourable
Orange - 20 – 50% of assessed features on 10km square are favourable
Red - 0 – 20% of assessed features on 10km square are favourable
*This is the same key as was used for JNCC CSM Report 2006</td></tr>
</table>

5.3 Conclusions on future prospects (as regards range, area covered and specific structures and functions)

Conclusion[2.6.iv]: Unfavourable – Bad and deteriorating

The EC Guidance states that where "habitat prospects are bad, with severe impacts from threats expected and long-term viability not assured", the judgement should be Unfavourable – Bad. In the UK, this was generally taken to mean that habitat range and/or area are in decline, and/or less than 75% of the habitat area is likely to be in favourable condition in 12-15 years.

CSM site assessment data predict that 75% by area (30% by number) of the UK SACs supporting habitat H1210 will remain unfavourable in future. A substantial area (118 ha, 67% of the total UK resource) is considered to be declining compared to 1 ha considered to be recovering. The ongoing deterioration of most of the resource may lead to future decline in area and in the longer term, range. In terms of structure and function, the habitat's prospects are considered to be bad, with expected impact from threats and long-term viability potentially at risk. However, the UK BAP, working towards enhancing future viability, has targets to bring shingle structures into favourable or recovering condition by 2010 while maintaining the current extent. Despite progress already made and some additional recovery once further conservation measures are put into place, the expectation is that more than 25% of the habitat will be in unfavourable condition in the next 10-15 years.

6. Overall conclusions and judgements on conservation status

Conclusion[2.6]: Unfavourable – Bad and deteriorating

On the basis of the structure and function, and future prospects assessments, the overall conclusion for this feature is Unfavourable – Bad and deteriorating.

Table 6.1 Summary of overall conclusions and judgements

Parameter	Judgement	Grounds for Judgement	Confidence in judgement*
Range	Unknown	Insufficient information to make an assessment.	2
Area covered by habitat type within range	Unfavourable – Inadequate and deteriorating	The current area is less than the favourable reference area. However it is not know by how much.	1
Specific structures and functions (including typical species)	Unfavourable – Bad and deteriorating	More than 25% of the habitat area is considered to be unfavourable as regards its specific structures and functions. Significantly more of the resource in unfavourable condition is declining than improving.	1
Future prospects (as regards range, area covered and specific structures and functions)	Unfavourable – Bad and deteriorating	Habitat prospects over the next 12-15 years is considered to be bad, with severe impact from threats expected and long term viability not assured. Further measures are required to address threats to future range, extent and structure and function for the overall UK resource.	1
Overall assessment of conservation status	Unfavourable – Bad and deteriorating	On the basis of the Structure and Function and Future Prospects assessments, the overall conclusion for this feature is Unfavourable – Bad and deteriorating.	1

Key to confidence in judgement: 1 = High; 2 = Medium; 3 = Low

7. Annexed material (including information sources used 2.2.)

7.1 References

AIR POLLUTION INFORMATION SYSTEM. 2004. www.apis.ceh.ac.uk

COOPER, E.A., CRAWFORD, I., MALLOCH, A.J.C. & RODWELL, J.S. 1992. *Coastal vegetation survey of Northern Ireland*. (Contractor: University of Lancaster, Unit of Vegetation Science). Unpublished report to Northern Ireland Department of the Environment, Belfast.

COX, J. & CROWTHER, K. 2001. Survey of the Solent Strandline Vegetation: July-September 2000. A report to Hampshire County Council.

DARGIE, T.C.D. 2000. *Sand Dune Vegetation Survey of Scotland: National Report.* Scottish Natural Heritage, Battleby.

DAVY, A.J. & FIGUEROA, M.E. 1993. The colonisation of strandlines. In Primary succession on land (eds J.Miles & D.H.W. Walton) pp113-131. Blackwell scientific, Oxford.

FERRY *et al*. 1990. *Dungeness: a vegetation survey of a shingle beach.* Research and survey in nature conservation No. 26. NCC, Peterborough.

HAINES-YOUNG, R.H. *et al.* 2000. *Accounting for nature: assessing habitats in the UK countryside.* DETR, Rotherham.

JACKSON, D.L. & MCLEOD, C.R. (eds.) 2002. Handbook on the UK status of EC Habitats Directive interest features: provisional data on the UK distribution and extent of Annex I habitats and the UK distribution and population size of Annex II species. *JNCC Report*, No. 312. Version 2. www.jncc.gov.uk/page-2447

JOINT NATURE CONSERVATION COMMITTEE. 2005. *Common Standards Monitoring (CSM)*. Joint Nature Conservation Committee, Peterborough www.jncc.gov.uk/page-2217

JOINT NATURE CONSERVATION COMMITTEE. 1995. *Sand dune database.*

MAY, V.J. & HANSOM, J.D. 2003. Coastal Geomorphology of Great Britain. Geological Conservation review series No. 28. Joint Nature Conservation Committee, Peterborough

MCLEOD, C.R., YEO, M., BROWN, A.E., BURN, A.J., HOPKINS, J.J. & WAY, S.F. (eds.) 2008. *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough www.jncc.gov.uk/SACselection

PYE, K. & FRENCH, P.W. 1993. *Targets for coastal habitat re-creation*. English Nature Science No 13. English Nature, Peterborough.

RANDALL, R.E. & DOODY, J.P. 1995. *Habitat inventories and the European Habitats Directive: the example of shingle beaches.* In: Healy M.G. & Doody, 1995 J.P. Directions in European Coastal Management. Samara publishing, Cardiff.

UKBAP website; www.ukbap.org.uk

RODWELL, J.S. (ed) 1995. *British British Plant Communities - Volume 4. Aquatic communities, swamp and tall-herb fens*. Cambridge University Press.

RODWELL, J.S. (ed) 2000. *British Plant Communities - Volume 5: Maritime communities and vegetation of open habitats*. Cambridge University Press.

SNEDDON, P. & RANDALL, R.E. 1993. *Coastal vegetated shingle structures of Great Britain: Main Report*. Joint Nature Conservation Committee, Peterborough.

Map data sources

British Plant Communities. 1995. Volumes 1-5. Cambridge University Press, Cambridge.

Coastal vegetation survey of Northern Ireland. 1992. University of Lancaster, Unit of Vegetation Science.

Inter-agency Coastal Specialist Working Group. 1999.

JNCC International Designations Database. Joint Nature Conservation Committee.

Sand Dune Database. 1995. Joint Nature Conservation Committee.

Sand dune vegetation survey of Scotland. Scottish Natural Heritage.

7.2 Further information on CSM data as presented in Sections 4.2 and 5.2

Table 7.2.1 Summary of the coverage of the data shown in Tables 4.2.1 and 5.2.1

Data	Value
Number of SACs supporting feature (a)	12
Number of SACs with CSM assessments (b)	10
% of SACs assessed (b/a)	83
Extent of feature in the UK – hectares (c)	176
Extent of feature on SACs – hectares (d)	176
Extent of features assessed – hectares (e)	170
% of total UK hectarage on SACs (d/c)	100
% of SAC total hectarage that has been assessed (e/d)	97
% of total UK hectarage that has been assessed (e/c)	97

Notes

1. Extent of features on SACs (d) includes only those features that have been submitted on the official Natura 2000 data form as qualifying features. This figure is based on the habitat extent figures presented on standard Natura 2000 data forms.
2. The data included are from CSM assessments carried out between April 1998 and December 2006. NB: these include additional and some up-date data form those used in the six year report produced by JNCC (Williams, J.M., ed. 2006. *Common Standards Monitoring for Designated Sites: First Six Year Report*. Peterborough, JNCC)

Table 7.2.2 Summary of grid square map data shown in Maps 4.2.1-3 and 5.2.1-3

Status	Number of squares	Proportion of all squares
Current – Unfavourable (red)	4	5%
Current – Favourable (green)	10	11%
On SAC but not assessed (blue)	3	3%
Not on SAC (transparent)	70	80%
Total Number of 10km squares (any colour)	87	100%
Future – Unfavourable (red)	4	5%
Future – Favourable (green)	10	11%