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 :

H1220: Perennial vegetation of stony banks

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

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H1220 Perennial vegetation of stony banks

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 H1220 and its relations with UK classifications.

Shingle structures develop when a sequence of foreshore beaches is deposited at the limit of high tide. More permanent ridges are formed as storm waves throw pebbles high up on the beach, from where the backwash cannot remove them. Several beaches may be piled against each other and extensive structures can form. The ecological variation in this habitat type depends on stability, the amount of fine material accumulating between pebbles, climatic conditions, width of the foreshore, and past management of the site. The ridges and lows formed also influence the vegetation patterns, resulting in characteristic zonations of vegetated and bare shingle.

On the largest and most stable structures the sequence of vegetation includes scrub, notably broom *Cytisus scoparius* and blackthorn *Prunus spinosa*. Heath vegetation with heather *Calluna vulgaris* and/or crowberry *Empetrum nigrum* occurs on the more stable shingle structures, particularly in the north. This sequence of plant communities is also influenced by natural cycles of degeneration and regeneration of the shrub vegetation that occurs on some of the oldest ridges, and can demonstrate a very typical patterning associated with the physical structure of the shingle deposits.

The whole sequence of vegetated shingle succession and colonisation can be seen on individual sites and can include H1210 Annual vegetation of drift lines at the seaward parts, leading into H1220 on the more stable parts of the shingle structure. In some cases, where shingle is accreting, H1220 can develop on beach ridges as they become more stable, replacing the former driftline communities. At Dungeness in England, as older ridges become eroded by the sea, they develop a more maritime element.

There are only a few extensive examples of H1220 Perennial vegetation of stony banks in Europe, and the UK hosts a significant part of the European resource of this habitat. Although there are only approximately 5,000 ha of stable or semi-stable vegetated shingle around the coast of the UK, the habitat is widely distributed and also exhibits a wide range of variation. The largest and most significant shingle structures are found in north-east Scotland and in south and south-east England.

Table 1.1.1 Summary description of habitat H1220 and its relations with UK vegetation/habitat classifications.

Classification	Correspondence with Annex I type	Comments
Sneddon and Randall shingle classification	This provides a detailed analysis of the range of vegetation types found on shingle structures in the UK on both the upper beaches and inland on mature and stable shingle. The shingle (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 this Annex I type.	Refer to Sneddon, P. and Randall, R.E., 1993a. The SH communities have also been related to closest NVC equivalents in this study. This study did not cover the driftline communities included in H1210 Annual vegetation of drift lines. The table below gives a breakdown of the main types of habitat. There are 124 communities described overall. Note that there is a cyclical process of habitat succession unique to shingle, related to particle size range and stability of the shingle structure. (see Doody 2003)
NVC	The NVC only describes part of the pioneer phase of perennial shingle vegetation found on the upper beaches of great shingle banks, namely; • SD1 *Rumex crispus – Glaucium flavum* shingle community.	All examples of this NVC community and sub-communities on shingle are part of this habitat. There is a wider range of communities found on shingle, however. Some of these can be matched to other coastal NVC types (e.g. maritime cliffs) or other non-coastal NVC types (e.g. heaths or grasslands). These NVC types are shown as equivalents to the Sneddon and Randall shingle classification below.
Vegetation communities of Dungeness (Ferry *et al.* 1990)	This provides a detailed analysis of the range of vegetation types found on the largest shingle structure in Europe on both the upper beaches and inland on mature and stable shingle. The communities are described according to the sequence of primary and secondary colonisation.	The communities relevant to H1220 are C *Crambe* strandline (NVC equivalent SD1); B3 *Arrenatherum* grassland (NVC equivalent (MG1/MG1a); A2, A2S, A3 & B1 calcifuge grasslands (NVC equivalent U1/U1a); A2F Maritime *Festuca rubra* grassland (NVC equivalent MC8/MC8c/MC5); B2 wetland vegetation (NVC equivalent W24/M23); Scrub vegetation (NVC equivalent W23/W23b plus others with no NVC equivalent); *Geranium* community (no NVC equivalent)
EU Interpretation Manual	Perennial vegetation of the upper beaches of great shingle banks, formed by *Crambe maritima*, *Honkenya peploides* and other perennial species. A wide range of vegetation types can exist on large shingle structures inland of the upper beach. On more mature, stable shingle, coastal forms of grassland, heath and scrub vegetation may develop. Some areas of unusual vegetation dominated by lichens and bryophytes are found on more mature shingle.	Although only SD1 is shown as a corresponding NVC community, the range of communities is much wider, reflecting the variation in the habitat type. This variation is described in the Sneddon and Randall classification and the description of vegetation types found on Dungeness (Ferry *et al.* 1990), see below.
BAP priority habitat type	Coastal vegetated shingle.	The BAP priority type is broader as it also includes annual vegetation of driftlines.
CSM reporting categories	Coastal vegetated shingle.	The CSM category is broader as it covers all types of shingle habitat and also includes annual vegetation of driftlines.

Table 1.1.2 Summary table showing Sneddon and Randall's shingle vegetation classification and its correspondence with NVC.

Major division	Primary division	Sub-division	NVC nearest equivalents
1. Scrub communities	la. *Prunus spinosa* communities lb. *Rubus fruticosus* communities lc. *Ulex europaeus* communities		1a.W21/W21aW22 1b.W24/MG1/MG1b/W25b/W23 1c.W23/W23c
2. Heath communities	2a. Wet heaths 2b. Dry heaths	2b.i. *Pteridium aquilinum* 2b.ii. *Calluna vulgaris* communities 2b.iii Moss-rich communities	2a. S4/M27a/M23/W1/MG10 2b.i. U20/U20a 2b.ii. U4a/H11/H11a/H10c/H1/M15/M15d/M19a 2b.iii. H11/U4
3. Grassland communities	3a. Saltmarsh-influenced grasslands 3b. *Agrostis stolonifera* grasslands 3c. *Arrhenatherum elatius* grasslands 3d. *Festuca rubra* grasslands 3e. Mixed grasslands 3f. Sandy grasslands		3a. SM16/MG11/SM28/SM18/SM13 3b. MG11 3c. MG1b/MG1a 3d. SD8a 3e. SD8/SD8a 3f. SD12a/SD7/SD8/SD12
4. Mature grassland communities	4a. Mature grasslands	4a.i. Mature grasslands - *Festuca rubra* 4a.ii. Mature grasslands - *Dicranum scoparium* 4a.iii. Mature grasslands - *Arrhenatherum elatius*	4a.i. MC5/SD7/CG7/SD8a/U1f 4a.ii. U1/SD7/H11 4a.iii. No clear NVC equivalents
	4b. Less mature grasslands	4b.i. Less mature grasslands pure shingle 4b.ii. Less mature grassland saltmarsh influence	4b.i. SD7c/SD7b/SD8a/SD6 4b.ii. SM24/MC8/MC8e/SM16d
5. Secondary pioneer communities			SD1/SD1a/SD4 & intermediates
6. Pioneer communities on stable shingle (NB H1210 annual vegetation of driftlines is not included)	6a. *Honkenya peploides* dominated communities 6b. *Senecio viscosus* dominated communities 6c. *Beta vulgaris maritima* dominated communities 6d. *Raphanus maritimus* dominated communities 6e. Herb-dominated pioneer communities 6f. *Silene maritima* dominated pioneer communities		6a. SD1/SD2/SD4 6b. SD1 /some similarities with MC7 but not close match 6c. MC6/SD1/SM28 6d. no clear NVC equivalent 6e. SD1/SD1b 6f. SD1/SD1b/SD1a/U24

Sneddon and Randall (1993) provide a comprehensive classification system for shingle vegetation types, some of which have equivalents in the NVC. The NVC only describes part of the pioneer phase of perennial shingle vegetation, namely SD1 *Rumex crispus – Glaucium flavum* shingle community, which has a largely southern distribution in the UK. Narrow, less-stable structures (spits and bars or the fringing beach associated with older, extensive 'fossil' beaches) are more exposed to waves or salt spray and this is where SD1 communities are most likely. Where wave energy causes movement of the shingle e.g. during winter storm events, those plant communities that can persist here have affinities with, or may overlap with, H1210 Annual vegetation of drift lines. The presence of the yellow horned-poppy *Glaucium flavum* and the rare sea-kale *Crambe maritima* and sea pea *Lathyrus japonicus*, all species that can tolerate periodic seasonal movement of shingle by waves, is significant in the pioneer maritime-influenced zones of H1220 Perennial vegetation of stony banks. In more stable areas above this zone, where sea spray is blown over the shingle, but the surface is less disturbed, plant communities with a high frequency of salt-tolerant species such as thrift *Armeria maritima* and sea campion *Silene uniflora* occur. These may exist in a matrix with abundant lichens.

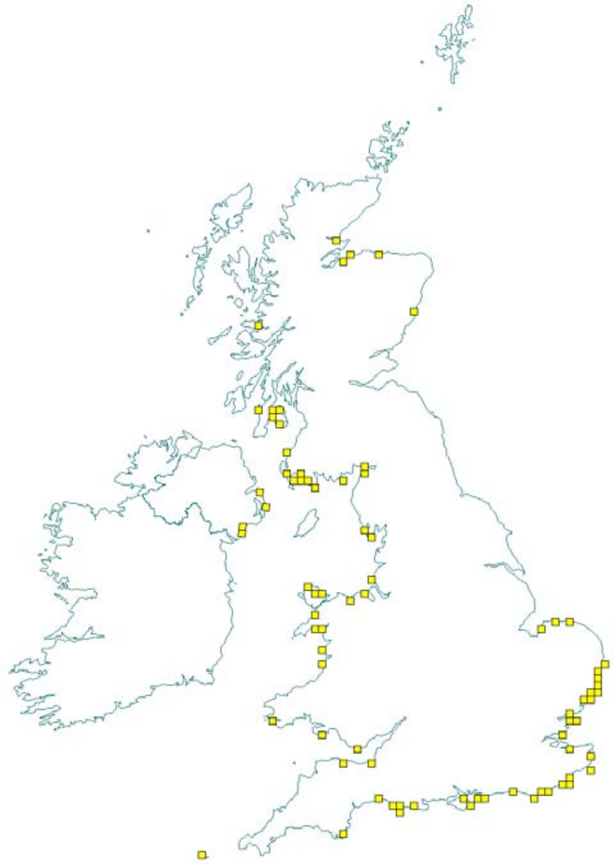
2. Range [2.3]

2.1 Current range

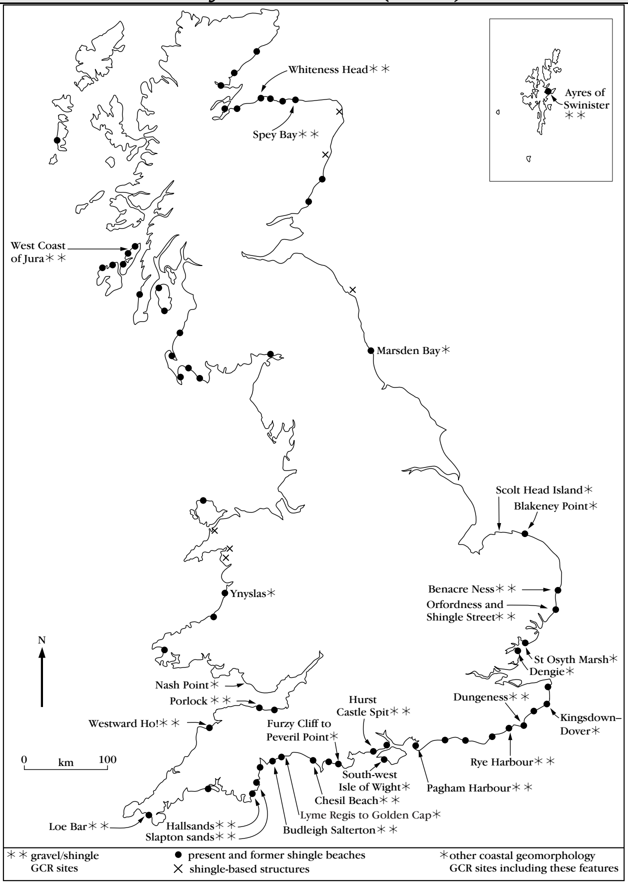
Range surface area [2.3.1]: **1,016 km²**
Date calculated [2.3.2]: **May 2007**
Quality of data [2.3.3]: **Moderate**

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 H1220 in the UK. The following range map for H1220 Perennial vegetation of stony banks is based on records for NVC community SD1, together with Special Areas of Conservation SACs) supporting this Annex I type, and other known shingle structures which may be partially vegetated. Not all known locations are shown. Some shingle beaches shown on the Geological Conservation Review (GCR) map (May and Hansom 2003) or in Pye and French (1993) may not be shown as they are not stable enough to support this habitat type. These maps are only indicative of the range. They do not show occurrence in the Solent where H1220 is found.

Map 2.1.1 Habitat range map [1.1] for H1220	**Map 2.1.2** Habitat distribution map [1.2] for H1220
	
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: 79

See Section 7.1 for map data sources

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]: **Stable**
Trend magnitude[2.3.5]: **Not applicable**
Trend period[2.3.6]: **1994-2006**
Reasons for reported trend[2.3.7]: **Not applicable**

Historic and recent declines have occurred, mainly as a result of human impacts such as housing, forestry and agriculture. There is still regional representation of shingle structures that can support this habitat, but some areas are more at risk than others. This has been significant 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.

2.3 Favourable reference range

Favourable reference range[2.5.1]: **1,016 km^2**

Section 3.2.1.3 of 'Assessing Conservation Status: UK Approach' sets out how favourable reference range estimates for habitats have been determined in the UK. Based on this approach, the current surface area, 1,016 km^2, has been set as the favourable reference area. Reasons for this are discussed below.

Where the maps show gaps along the coast, this is primarily where physiographic features are unsuitable for shingle. Under natural conditions, the range of this habitat is determined by the presence of accumulations of suitable substrate with a particle size of between 2-200 mm. They can occur in different formations such as bars, spits, barrier beaches and forelands. This influences the way in which vegetation develops on any particular site, and each has its own characteristics. 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.

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 will affect 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.

As much of the shingle available is a finite resource, the build up of new structures is generally a result of re-working and longshore drift of existing sediment. Potential range will therefore be limited by the extent and volume of shingle deposits. As shingle deposits are finite, it is unlikely that new locations along the coast will develop in the existing gaps shown on the map. Potential range will therefore only extend to those areas of existing shingle structures.

2.4. Conclusions on range

Conclusion[2.6.i]: **Favourable**

Although, there have been losses of H1220 in the past, there is still regional representation of the habitat type and the current range is considered to be viable. However, there is a concern regarding losses of more mature shingle vegetation that have been disproportionately high and have little, if any, potential for recovery in the short-term (10 to 15 years).

3. Area [2.4]

3.1 Current area

Total UK extent [2.4.1]: **51.6km^2**
Date of estimation [2.4.2]: **May 2007**
Method [2.4.3]: **3 = ground based survey**
Quality of data [2.4.4]: **Moderate**

Table 3.1.1 provides information on the area of H1220 in the UK. Reasonably comprehensive extent data for England, Scotland and Wales are available from the Coastal Vegetated Shingle Structures of Great Britain (1987-1992) (Sneddon and Randall 1993 *et seq.*). This survey included shingle structures rather than areas of intertidal shingle or fringing beaches and included structures supporting largely unvegetated shingle. Where there is naturally bare shingle as part of the sequence of vegetation colonisation, this is considered as part of the habitat type. Unvegetated shingle as a result of human activities damaging surface vegetation will also occur. However, some sites were only partially surveyed, and others not surveyed at all. The extent data are therefore under-estimates. The figure for Northern Ireland is an estimate based on expert opinion. (Chruch 2007, *pers. comm.*) In England, sites will vary in size from less than 10 ha to over 2000 ha, but few sites exceed 100 ha (Pye and French 1993). Most of the resource by area is found in the south-east of England. Differences in area reflect different approaches to measurement of shingle vegetation and whether it is in a mosaic with other habitats or bare ground.

Table 3.1.1 Area of H1210 in the UK.

	Area (ha)	**Method [2.4.3]**	**Quality of data [2.4.4]**
England	4350	3	Moderate
Scotland	670	3	Moderate
Wales	100	3	Moderate
Northern Ireland	40 +/-10	1	Poor
Total UK extent [2.4.1]	5160 +/- 10	3	Moderate

Data source: Jackson & McLeod (2000)

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:	**Decreasing**
Trend magnitude:	**<1%**
Trend period:	**1994-2006**
Reasons for reported trend:	**3 – Direct human influence**
	4 – Indirect anthropogenic or zoogenic influence

Substantial permanent losses of habitat have occurred both recently and historically, losses have been disproportionately high in southern England. At one site in Sussex, 160 ha were destroyed in the 1980s by gravel extraction and building (Doody and Randall 2003). Losses by gravel extraction to below the water table and development are permanent losses. Many other sites in southern England have been reduced in extent by gravel extraction. For example at Dungeness, over 80 ha were lost to gravel extraction between 1961 and 1981, resulting in areas of open water due to the depth of the extraction (Pye and French 1993). In addition, 108 ha were lost to the development of the nuclear power station. Some areas have also been affected by the impact of coastal processes, especially where there are interruptions to the supply of sediment from longshore drift that would have formed new shingle structures.

Pye and French (1993) estimated that 200 ha of shingle vegetation should be restored in England to offset natural losses to erosion. At that time it was considered that human activities would be considerably greater over the following 20 years, but that the difficulties of doing this meant that more attention should be given to protecting and improving existing habitats. The fossil nature of many shingle structures suggests that declines in area have continue in more recent time – after 1994 – especially in the south of England where many of the pressures are ongoing and most of the resource is concentrated.

3.3 Favourable reference area

Favourable reference area[2.5.2]: **52 km^2**

Section 3.2.2.3 of ‘Assessing Conservation Status: UK Approach’ sets out how favourable reference area estimates have been determined in the UK. Based on this approach, the favourable reference area has been identified as greater than the current extent, but not by a factor of more than 10%. Reasons for this are discussed below.

As described in 2.3, only areas that have shingle deposits of a suitable size can be considered as part of the favourable reference area. In some areas, movement of shingle along the coast can result in apparently new areas becoming formed and colonised by vegetation (Rees 2005). It should be noted, however, that most shingle is a finite resource, so newly-formed areas are often the result of re-working of the shingle sediment rather than from a new supply of sediment. There are examples of afforestation, agriculture and building where the shingle structure is still present below the surface (e.g. Dungeness, Kent). In theory, areas of forestry and farmland could be restored to some form of shingle vegetation, as well as areas affected by surface disturbance.

The habitat is well distributed along the coast, but most of the resource is found in England, leading to the concern that area in Scotland and Wales may be fragmented and scarce. Another concern is that habitat recreation is very difficult and long, as sites are subject to tidal processes and each substrate harbours different vegetation types. The destructions of mature shingle in recent times have led to the reduction of the ecological variation of the habitat and will be difficult to recreate, especially in the short term.

3.4 Conclusions on area covered by habitat

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

Known losses have been disproportionately high in southern England and have affected the range of ecological variation at a regional level and at a site scale. These losses are mainly mature shingle vegetation which has little potential for recovery in the short term – i.e. in the next 10 to 15 years.

4. Specific structures and functions (including typical species)

4.1 Main pressures [2.4.10.]

Factors affecting vegetated shingle 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 H1220 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 H1220 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. Thus, a key element of structure and function are the coastal processes that influence the movement and deposition of sediment. In many locations (especially in England), these are compromised by coastal engineering. This results in a potential reduction in the extent of shingle structures. Most UK gravel sediment deposits are finite relict deposits formed in the Holocene (Pye 2001). Only a small proportion of additional shingle sediment enters the system from coastal erosion or rivers. An exception to this is the shingle structure at Spey Bay in Scotland, where the River Spey transports material into the coastal system from the catchment (Doody 2003).

- 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. Doody (2003) describes a wide range of pressures including surface damage, water abstraction and fragmentation all of which affect a range of sites. Many sites experience several of these pressures at one time. All of these influence the degree of conservation of the habitat.

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

Based on an assessment of relevant literature, this habitat is potentially sensitive to air pollution, but it has not been possible to undertake an assessment of potential impact based on critical loads because of the poor equivalence between this habitat and those for which critical loads are set (see Technical note III).

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 H1220 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).

Table 4.2.1 CSM condition assessment results for UK SACs supporting H1220. 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	3
	No change	164	2
	Unclassified		
	Recovering	2,286	2
	Total	2,569	7
	% of all assessments	***76%***	***58%***
	% of total UK resource	***50%***	***unknown***
Favourable	Maintained	123	1
	Recovered		
	Unclassified	690	4
	Total	813	5
	% of all assessments	***24%***	***42%***
	% of total UK resource	***16%***	***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.

SAC condition assessments

Table 4.2.1 and Map 4.2.1 summarise the CSM condition assessments for UK SACs supporting habitat H1220. 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 58% of the number of assessments was unfavourable; and
- at least 50% of the total UK habitat area was in unfavourable condition.

Table 4.2.2 CSM condition assessment results for UK SSSI/ASSIs that were judged to be either strongly or weakly indicative of the condition of H1220 on SSSI/ASSIs. See notes below table and Technical note II for further details.

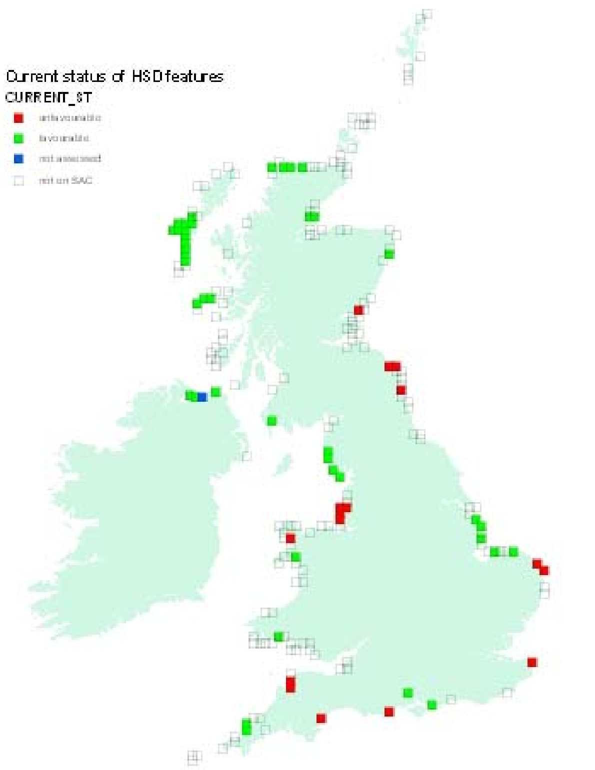
Condition	**Condition sub-categories**	**Number of assessments**	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Unfavourable	Declining	4	
	No change	4	
	Unclassified	1	
	Recovering	8	
	Total	17	
	% of all assessments	***46%***	***%***
Favourable	Maintained	14	
	Recovered		
	Unclassified	6	
	Total	20	
	% of all assessments	***54%***	***%***

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.

SSSI/ASSI condition assessments

Table 4.2.2, and Maps 4.2.2 and 4.2.3 summarise the CSM condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). 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 maps are given in Section 7.2). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 46% of strongly indicative assessments were unfavourable.

<table>
<tr><td colspan="3">Current Condition of H1220 based on CSM condition assessments (See Sections 4.2 and 7.2 for further information)</td></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>
</td><td>Not applicable</td></tr>
<tr><td>Key
<u>Red = unfavourable</u>, i.e. the square contains at least one SAC where this habitat feature is present and has been judged to be unfavourable
<u>Green = favourable</u>, 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
<u>Blue = SAC not assessed</u>, i.e. the square contains at least one SAC supporting this habitat feature but no assessment has been reported
<u>Transparent = SAC feature not present</u>, i.e. the square does not contain any SAC features of this habitat type</td><td colspan="2">Key*
<u>Green</u> – 80 – 100% of assessed features on 10km square are favourable
<u>Yellow</u> - 50 – 80% of assessed features on 10km square are favourable
<u>Orange</u> - 20 – 50% of assessed features on 10km square are favourable
<u>Red</u> - 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]: *Lathyrus japonicus, Glaucium flavum, Crambe maritima*

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

Some species show a very high degree of faithfulness to this habitat or at least to the related SD1 community 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. Each of the three species showed a different trend, so available trend data at the UK-level is not conclusive for this assessment. Typical species will vary depending on geographical location, type and age of structure and sediment.

Table 4.3.1 Trends and faithfulness of selected typical species for H1220

Typical species	Faithfulness to habitat H1220 (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)
Lathyrus japonicus	Very high	Significant decline, but <25% in 25 years
Senecio viscosus	Very high	No data
Glaucium flavum	Very high	No significant change
Crambe maritima	Very high	Significant increase, but <25% in 25 years
Euphorbia paralias	Low	No significant change

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

Conclusion[2.6.iii]: **Unfavourable – Bad but improving**

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 for SACs and Sites of Special Scientific Interest (SSSIs) show that more than 25% of this habitat is classed as in unfavourable condition as regards its structure and function. The value for assessed SACs is 76%, whilst for SSSIs/Areas of Special Scientific Interest (ASSIs) it is lower at 28%. The existing data does show that more than 50% of the habitat is unfavourable, that the necessary structures and functions for the habitat are not in place and that significant deteriorations and pressures exist. However, data shows that 90% of unfavourable area in SACs is expected to improve in the foreseeable future while half of the unfavourable SSSIs/ASSIs assessments are considered to be recovering.

5. Future prospects

5.1 Main factors affecting the habitat

5.1.1 Conservation measures

- Protection within designated sites

Around 65% of the resource of H1220 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. A significant proportion of the resource of this habitat also lies within the SSSI/ ASSI series where similar management measures are in place.

- 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.

Developed areas are unlikely to be available for restoration, although these are often adjacent to remnant areas of habitat. Many of the remaining areas of habitat now have some form of statutory designation, but management is focused on improving quality from past damage rather than expanding the area of shingle vegetation. Losses of surface habitat as a result of disturbance on more recently deposited shingle could be partially reversible if the causes of loss are removed. The time needed to recover vegetation could, however, run into decades. Even where some natural recovery has taken place, the vegetation is replaced by a secondary vegetation type, not the original vegetation (Fuller 1985).

5.1.2 Main future threats[2.4.11]

The most obvious major future threats to H1220 are listed below, several of which are referred to in Section 4.1. The related EC codes are shown in brackets.

- Sediment supply (**851 modification of marine currents, 871 sea defence or coast protection works**)
- Natural mobility (**900 Erosion. 990 Other natural processes**)
- Exploitation (**302 removal of beach material**)
- Access (**622 walking, horse riding and non-motorised vehicles, 623 motorised vehicles**)
- Grazing (**141 abandonment of pastoral systems**)

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.

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

Based on an assessment of relevant literature, this habitat is potentially sensitive to air pollution, but it has not been possible to undertake an assessment of potential impact based on critical loads because of the poor equivalence between this habitat and those for which critical loads are set (see Technical note III).

- 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 (Pye and French 1993). Other relevant impacts could include changes in hydrological conditions (including increased abstraction) that will affect natural wetlands on large sites such as Dungeness. Outside of designated sites, development pressure in south and south-east England could affect this habitat.

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.

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 H1220 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 H1220 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:

- 92% of the area and 58% of the number of assessments fall within the future-favourable category; and
- at least 60% of the total UK habitat area falls within the future-favourable category.

Table 5.2.1 Predicted future condition of UK SACs supporting H1220 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	3
	Unfavourable no change	164	2
	Unfavourable unclassified		
	Total	282	5
	% of assessments	***08%***	***42%***
	% of total UK extent	***5%***	***Unknown***
Future-favourable	Favourable maintained	123	1
	Favourable recovered		
	Unfavourable recovering	2,286	2
	Favourable unclassified	690	4
	Total	3,100	7
	% of assessments	***92%***	***58%***
	% of total extent	***60%***	***Unknown***

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.1. 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

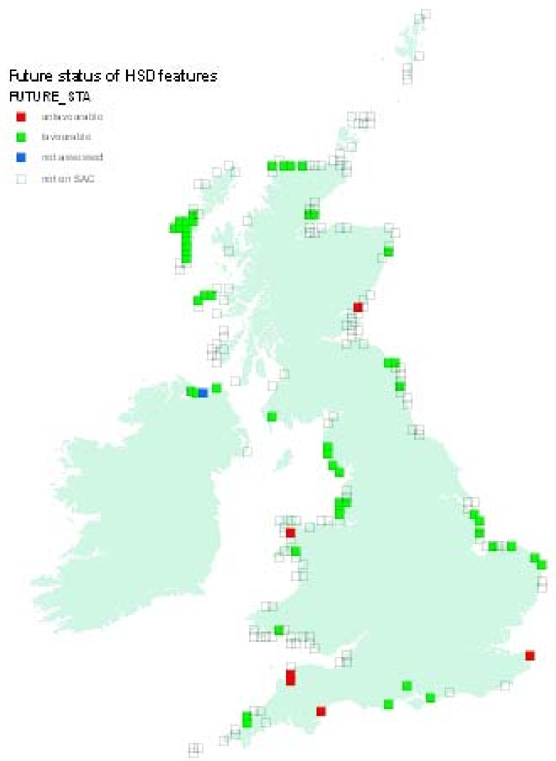
Table 5.2.2, and Maps 5.2.2 and 5.2.3 summarise the predicted potential future condition of H1220 on UK SSSI/ASSIs. This is based on the approach described above and utilises condition assessments that were judged to be either strongly or weakly indicative of the condition of the Annex I habitat on SSSI/ASSIs (see Technical note II for details of methodology behind this). The maps give an impression of the overall spread of where unfavourable and favourable sites exist (summary statistics for the maps are given in Section 7.2.). The combined condition assessments show that of the SSSI/ASSI assessments considered:

- 76% of strongly indicative assessments fall within the future-favourable category.

Table 5.2.2 Predicted future condition of H1220 on SSSI/ASSIs based on CSM assessments that were judged to be either strongly or weakly indicative of the condition. See notes below table and Technical note II for further details.

Future condition	**Present condition**	**Number of assessments**	
		Strongly indicative assessments (Category 1)	**Weakly indicative assessments (Category 2)**
Future-unfavourable	Unfavourable declining	4	
	Unfavourable no change	4	
	Unfavourable unclassified	1	
	Total	9	
	% of assessments	***24%***	***%***
Future-favourable	Favourable maintained	14	
	Favourable recovered		
	Unfavourable recovering	8	
	Favourable unclassified	6	
	Total	28	
	% of assessments	***76%***	***%***

Note that the scenario presented above is based on the same information as used to construct the Table 4.2.2. 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.

Predicted Future Condition of H1220 based on CSM condition assessments (See Sections 5.2 and 7.2 for further information on these maps)		
Map 5.2.1 SAC assessments	**Map 5.2.2** Assessments strongly indicative of the condition on SSSI/ASSIs	**Map 5.2.3** Assessments weakly indicative of the condition on SSSI/ASSIs
		Not applicable
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	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	

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

Conclusion[2.6.iv]: Unfavourable – Inadequate but improving

The EC Guidance states that where habitat prospects are intermediate between “good with no significant impacts from threats expected and long-term viability assured” and “bad with severe impacts from threats expected and long-term viability not assured”, the judgement should be Unfavourable – Inadequate. In the UK, this was generally taken to mean that range and/or area are stable or decreasing, and between 75-95% of the habitat area is likely to be in favourable condition in 12-15 years.

The data on SACs indicates that for these sites, the large area currently classified as ‘unfavourable recovering’ will potentially lead to 92% of assessments (60% by area of the total resource) becoming favourable in future. The SSSI/ASSI data also shows a potential increase to 78% of assessments being ‘future-favourable’. Designated sites data shows that over 5% but less than 25% of the overall resource is in unfavourable condition. There is a concern about the time scale of recovery as, for shingle vegetation, recovery after disturbance is known to take decades, and will depend on the impacts from known existing threats to be fully addressed and management approaches able to adapt to future pressures such as climate change. 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. Given progress already made and some additional recovery once further conservation measures are put into place, the expectation is that less 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 but improving

On the basis of structure and Function, the overall conclusion for this habitat is Unfavourable – Bad but improving.

Table 6.1 Summary of overall conclusions and judgements

Parameter	**Judgement**	**Grounds for Judgement**	**Confidence in judgement***
Range	Favourable	Current range is stable and not less than the favourable reference range.	2
Area covered by habitat type within range	Unfavourable – Inadequate and deteriorating	The current extent is below the favourable reference area, but not by a factor greater than 10%.	3
Specific structures and functions (including typical species)	Unfavourable – Bad but improving	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 improving than declining.	1
Future prospects (as regards range, area covered and specific structures and functions)	Unfavourable – Inadequate but improving	Habitat prospects considered to be intermediate between “good with no significant impacts from threats expected and long-term viability assured” and “bad with severe impacts from threats expected and long-term viability not assured. Measures are in place and planned to address threats to future range, extent and structure and function for the overall UK resource.	2
Overall assessment of conservation status	Unfavourable – Bad but improving	On the basis of structure and Function, the overall conclusion for this habitat is Unfavourable – Bad but improving.	3

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

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

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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)	12
% of SACs assessed (b/a)	100
Extent of feature in the UK – hectares (c)	5,160
Extent of feature on SACs – hectares (d)	3,382
Extent of features assessed – hectares (e)	3,382
% of total UK hectarage on SACs (d/c)	66
% of SAC total hectarage that has been assessed (e/d)	100
% of total UK hectarage that has been assessed (e/c)	66

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)	11	15%
Current – Favourable (green)	11	15%
On SAC but not assessed (blue)	0	0%
Not on SAC (transparent)	51	70%
Total Number of 10km squares (any colour)	73	100%
Future – Unfavourable (red)	8	11%
Future – Favourable (green)	14	19%