Conservation objectives and definitions of favourable condition for designated features of interest

These Conservation Objectives relate to all designated features on the SSSI, whether designated as SSSI, SPA, SAC or Ramsar features.

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Name of Site of Special Scientific Interest (SSSI)	
Saltfleetby – Theddlethorpe Dunes SSSI	
Names of designated international sites	
Special Area for Conservation (SAC)	Saltfleetby-Theddlethorpe Dunes and Gibraltar Point SAC (terrestrial)
Special Protection Area (SPA)	Humber Estuary Phase II (proposed).
Ramsar :	Humber Estuary Phase II (proposed).
Relationship between site designations	
Saltfleetby-Gibraltar terrestrial SAC covers all the non-tidal parts of Saltfleetby – Theddlethorpe Dunes SSSI but also includes another SSSI at Gibraltar Point.	

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Checked by	**Name:** **Nicola Orchard**	**Date:** **25/03/09**
	Signature	

Conservation Objectives and definitions of Favourable Condition: notes for users

Conservation Objectives

SSSIs are notified because of specific biological or geological features. Conservation Objectives define the desired state for each site in terms of the features for which they have been designated. When these features are being managed in a way which maintains their nature conservation value, then they are said to be in 'favourable condition'. It is a Government target that 95% of the total area of SSSIs should be in favourable condition by 2010.

Definitions of Favourable Condition

The Conservation Objectives are accompanied by one or more habitat extent and quality definitions for the special interest features at this site. These are subject to periodic reassessment and may be updated to reflect new information or knowledge; they will be used by Natural England and other relevant authorities to determine if a site is in favourable condition. The standards for favourable condition have been developed and are applied throughout the UK.

Use under the Habitats Regulations

The Conservation Objectives and definitions of favourable condition for features on the SSSI may inform the scope and nature of any 'appropriate assessment' under the Habitats Regulations. An appropriate assessment will also require consideration of issues specific to the individual plan or project. The habitat quality definitions do not by themselves provide a comprehensive basis on which to assess plans and projects as required under Regulations 20-21, 24, 48-50 and 54 - 85. The scope and content of an appropriate assessment will depend upon the location, size and significance of the proposed project. Natural England will advise on a case by case basis.

Following an appropriate assessment, competent authorities are required to ascertain the effect on the integrity of the site. The integrity of the site is defined in paragraph 20 of ODPM Circular 06/2005 (DEFRA Circular 01/2005) as the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified. The determination of favourable condition is separate from the judgement of effect upon integrity. For example, there may be a time-lag between a plan or project being initiated and a consequent adverse effect upon integrity becoming manifest in the condition assessment. In such cases, a plan or project may have an adverse effect upon integrity even though the site remains in favourable condition.

The formal Conservation Objectives for European Sites under the Habitats Regulations are in accordance with paragraph 17 of ODPM Circular 06/2005 (DEFRA Circular 01/2005), the reasons for which the European Site was classified or designated. The entry on the Register of European Sites gives the reasons for which a European Site was classified or designated.

Explanatory text for Tables 2 and 3

Tables 2 and 3 set out the measures of condition which we will use to provide evidence to support our assessment of whether features are in favourable condition. They are derived from a set of generic guidance on favourable condition prepared by Natural England specialists, and have been tailored by local staff to reflect the particular characteristics and site-specific circumstances of individual sites. Quality Assurance has ensured that such site-specific tailoring remains within a nationally consistent set of standards. The tables include an audit trail to provide a summary of the reasoning behind any site-specific targets etc. In some cases the requirements of features or designations may conflict; the detailed basis for any reconciliation of conflicts on this site may be recorded elsewhere.

Conservation Objectives

The Conservation Objectives for this site are, subject to natural change, to maintain the following habitats and geological features in favourable condition (*), with particular reference to any dependent component special interest features (habitats, vegetation types, species, species assemblages etc.) for which the land is designated (SSSI, SAC, SPA, Ramsar) as individually listed in Table 1.

Sub-littoral sands & gravels
Littoral sediment
Coastal saltmarsh
Coastal sand dune

(*) or restored to favourable condition if features are judged to be unfavourable.

Standards for favourable condition are defined with particular reference to the specific designated features listed in Table 1, and are based on a selected set of attributes for features which most economically define favourable condition as set out in Table 2 and Table 3:

Table 1 Individual designated interest features

BAP Broad Habitat type / Geological Site Type	Specific designated features	Explanatory description of the feature for clarification	SSSI designated interest features	SAC designated interest features	SPA bird populations dependency on specific habitats			Ramsar criteria applicable to specific habitats			
					Annex 1 species	Migratory species	Waterfowl assemblage	1a Wetland characteristics	2a Hosting rare species &c	3a 20000 waterfowl	3c 1% of population
Sub littoral sands and gravels	Sandbanks which are slightly covered by sea water at all times	Sub-tidal mud and sand flats		*							
Littoral sediment	Mudflats and sandflats not covered by sea water at low tide	Inter-tidal mud and sand flats	*	*		(*)	(*)	*	(*)	(*)	
Coastal saltmarsh	*Salicornia* and other annuals colonising mud and sand	SM8, SM9	*	*		(*)	(*)	*	(*)	(*)	
--"--	Atlantic salt meadows	SM10, SM11, SM13, SM14, SM16, SM17, SM18	*	*		(*)	(*)	*	(*)	(*)	
--"--	Mediterranean and thermo-Atlantic halophilous shrubs	SM25, SM21	*	*				*	(*)		
--"--	Saltmarsh (criteria A5d[iv])	SM24, SM25 and dune/marsh mosaics and transitions	*					*	(*)		
Coastal sand dunes	Strandline, embryo and mobile dunes: **Strandline**	SD2	*		(*)			*	(*)		(*)
Coastal sand dunes	Strandline, embryo and mobile dunes: **Embryonic shifting dunes**	SD4, SD5 (part: 5a & 5b?)	*	*	(*)				(*)		

BAP Broad Habitat type / Geological Site Type	Specific designated features	Explanatory description of the feature for clarification	SSSI designated interest features	SAC designated interest features	SPA bird populations dependency on specific habitats			Ramsar criteria applicable to specific habitats			
					Annex 1 species	Migratory species	Waterfowl assemblage	1a Wetland characteristics	2a Hosting rare species &c	3a 20000 waterfowl	3c 1% of population
Coastal sand dunes	Strandline, embryo and mobile dunes: **Shifting dunes along the shore with *Ammophile arenaria* (white dunes)**	SD5 (part: 5c?), SD6	*	*					(*)		
Coastal sand dunes	Fixed dune grassland: **Fixed dunes with herbaceous vegetation (grey dunes)**	SD7, SD8, SD9, SD10	*	*							
Coastal sand dunes	**Humid dune slacks**	SD17	*	*				*	(*)		
Coastal sand dunes	**Dunes with *Hippophae rhamnoides***	SD18		*							
Bird species	Aggregations of non-breeding birds	Dunlin	*			*	*			*	*
		Redshank	*			*	*			*	
		Knot	*			*	*				
		Sanderling	*			*				*	*
		Dark bellied Brent goose	*				*				*
		Dunlin					*				
		Wigeon	*				*				
Bird species	Assemblage of non-breeding birds	Assemblage of over 20,000 wintering waterbirds	*							*	

BAP Broad Habitat type / Geological Site Type	Specific designated features	Explanatory description of the feature for clarification	SSSI designated interest features	SAC designated interest features	SPA bird populations dependency on specific habitats			Ramsar criteria applicable to specific habitats			
					Annex 1 species	Migratory species	Waterfowl assemblage	1a Wetland characteristics	2a Hosting rare species &c	3a 20000 waterfowl	3c 1% of population
Bird species	Breeding bird aggregation	Little tern	*		*						
	Assemblage of breeding birds: scrub		*								
Plant species	Outstanding assemblage of vascular plants	Vascular Plant score = 760	*								
Invertebrate species	Outstanding assemblage of invertebrates	F100 early successional: dunes W500 sea shore: saltmarsh	* *						*		
Amphibian species	*Bufo calamita*	Natterjack Toad	*								

NB. Features where asterisks are in brackets (*) indicate habitats which are not notified for specific habitat interest (under the relevant designation) but because they support notified species.

Table 2a Habitat extent objectives

Conservation Objective for habitat extent	To maintain the designated features in favourable condition, which is defined in part in relation to a balance of habitat extents (extent attribute). Favourable condition is defined at this site in terms of the following site-specific standards:
Extent - Dynamic balance	On this site favourable condition requires the maintenance of the extent of each habitat type (either designated habitat or habitat supporting designated species). Maintenance implies restoration if evidence from condition assessment suggests a reduction in extent.

Habitat Feature	Estimated extent (ha) and date of data source/estimate	Site Specific Target range and Measures	Comments
Sub littoral sands and gravels (extent of identified inshore sublittoral sediment(s))	A Baseline figure has yet to be established	No change in extent of inshore sublittoral sediment habitat	A Baseline figure has yet to be established – it may require GIS mapping and establishment of mean low water. There is very little information on trends in order to establish a level of confidence or range for the baseline measure. Some information is available through the Linc Shore Project monitoring and this may help inform the effect of beach nourishment on this feature.
Littoral sediment	A Baseline figure has yet to be established	No decrease in extent of littoral sediment.	Figure obtained from aerial photos currently loaded onto MapInfo with SSSI digital boundary overlay. MHW (SSSI seaward boundary) taken as lower feature boundary and visible vegetation as upper feature limit. Aerial coverage is partial so landward limit in one section is taken as a straight line between the embryo dunes on each photo. An accurate baseline figure may require GIS mapping from aerial photographs where full coverage is available. Establishment of mean low water may be preferable to taking MHW as the seaward feature boundary. There is very little information on trends in order to establish a level of confidence or range for the baseline measure. Some information is available through the Linc Shore Project monitoring and this may help inform the effect of beach nourishment on this feature.

Habitat Feature	Estimated extent (ha) and date of data source/estimate	Site Specific Target range and Measures	Comments
***Salicornia* & other annuals colonising mud and sand**	**A Baseline figure has yet to be established**	No decrease in extent from the established baseline, subject to natural change.	Extent may be subject to periodic and seasonal variation, particularly pioneer saltmarsh. Extent should be measured at low tide. issues surrounding the accurate assessment of habitat area.
Atlantic salt meadow	**A Baseline figure has yet to be established**	No decrease in extent from the established baseline, subject to natural change.	Extent may be subject to periodic and seasonal variation, particularly pioneer saltmarsh. Extent should be measured at low tide. See Audit Trail below regarding SM10 relationship with pioneer marsh.
Mediterranean & thermo-Atlantic halophilous scrub	**A Baseline figure has yet to be established**	No decrease in extent from the established baseline, subject to natural change.	Extent may be subject to periodic and seasonal variation, particularly pioneer saltmarsh. Extent should be measured at low tide.
Strandline	**A Baseline figure has yet to be established**	No decrease in extent from the established baseline, subject to natural change.	Strandline vegetation and evidence for a strandline will be effected by stormy weather and high spring tides and may not be developed early in the survey season.
Embryonic shifting dunes	**A Baseline figure has yet to be established**	No net decrease in extent from the established baseline, subject to natural change.	If loss (or gain) of area is due to natural causes this is not a decline in condition, but any significant loss due to human interference (e.g. sand extraction, visitor impacts, ploughing or conversion to improved grassland) is to be regarded as unfavourable. Increase in area is favourable unless related to coast protection. Extent, particularly of embryonic dunes, may be subject to periodic and seasonal variation: stormy weather and high spring tides will erode the front of foredunes and their area will be smaller early in the survey season compared with late summer.
Shifting dunes along the shore with *Ammophila arenaria*	**A Baseline figure has yet to be established**	No decrease in extent from the established baseline, subject to natural change.	If loss (or gain) of area is from natural causes this is not a decline in condition, but any significant loss due to human interference (e.g. sand extraction, visitor impacts, ploughing or conversion to improved grassland) is to be regarded as unfavourable. Increase in area is favourable unless related to coast protection or at the expense of other sand dune features.

Habitat Feature	Estimated extent (ha) and date of data source/estimate	Site Specific Target range and Measures	Comments
Fixed dunes with herbaceous vegetation	**A Baseline figure has yet to be established**	No net decrease in extent from the established baseline, subject to natural change. NB target for Dunes with *Hippophae rhamnoides* is designed to be compatible.	It is necessary to achieve a balance between sea buckthorn scrub and dune grassland on this site where sea buckthorn scrub has become over dominant. The fixed dune habitat is considered to have been in unfavourable condition at the time of designation due to invasion by sea buckthorn. The figure given here is 70% to 75% of the total dry dune habitat, an area considered to reflect favourable condition. If loss (or gain) of area is from natural causes (excluding sea buckthorn invasion) this is not a decline in condition, but any significant loss due to human interference is to be regarded as unfavourable. Increase in area is favourable unless related to coast protection or at the expense of other designated sand dune features.
Humid dune slack	**A Baseline figure has yet to be established**	No decrease in extent from the established baseline, subject to natural change.	Clearance of sea buckthorn may reveal further wet areas in dune hollows that were not identified in the baseline survey. If loss (or gain) of area is from natural causes this is not a decline in condition, but any significant loss due to human interference (e.g. sand extraction, visitor impacts, ploughing or conversion to improved grassland) is to be regarded as unfavourable. Increase in area is favourable unless related to coast protection or at the expense of other sand dune features except *Hippophae rhamnoides*, provided the targets for sea buckthorn are still met.

Habitat Feature	Estimated extent (ha) and date of data source/estimate	Site Specific Target range and Measures	Comments
Dunes with *Hippophae rhamnoides*	**A Baseline figure has yet to be established**	20-30% of dry dune area to be occupied by sea buckthorn scrub.	It is necessary to achieve a balance between sea buckthorn scrub and dune grassland without allowing the sea buckthorn scrub to become over dominant on the site, which has been the case in recent years. The fixed dune grassland habitat is considered to have been in unfavourable condition at the time of designation due to invasion by sea buckthorn and the area of Hippophae, especially mature stands, needs to be reduced It is desirable to have some sea buckthorn habitat adjacent to dune slack or wet dune areas so as to maintain the full ecological range of the habitat The lower % cover figure may reflect periods when scrub is cut back or coppiced in order to regenerate the pioneer phase of growth. The upper extent figure represents total cover of the pioneer and more mature stages where the pioneer phase may consist of a mosaic of grass and seedling or suckering sea buckthorn.
All Habitats (Aggregations of breeding birds)	**A Baseline figure has yet to be established**	Maintain the area of habitats that are used by the non-breeding bird aggregation within acceptable limits: • Extent of all habitats used by the feature should be maintained, subject to natural change - loss of 5% or more of any relevant habitat type is unacceptable.	The species listed in the SSSI notification and SPA and Ramsar designations use the foreshore and saltmarshes of the NNR for feeding and roosting. Birds are choosing specific roost sites by factors such as height above tide, proximity to feeding areas, visibility of predators and least disturbance rather than by specific vegetation type.
All Habitats (Assemblages / Aggregations of breeding birds	**A Baseline figure has yet to be established**	Maintain the area of habitats that are used by the breeding bird assemblage within acceptable limits: • Extent of all habitats used by the feature should be maintained, subject to natural change – anthropogenic loss of 5% or more of any relevant habitat type is unacceptable.	The SSSI breeding assemblage refers to sand dunes, saltmarsh and shingle habitats and here is taken to include *Hippophae* stands. Breeding Little tern is a feature of the SPA designation - the area of shingle and suitable nesting site is unknown and needs to be determined by examination of aerial photographs.

Audit Trail
Rationale for habitat extent attribute (Include methods of estimation (measures), and the approximate degree of change which these are capable of detecting).
Sub littoral sands and gravels -.
Littoral sediment
Maritime habitats (Sand dune and saltmarsh) **ISSUES COMMON TO ALL VEGETATED HABITATS IN THE TABLE** **Choice of baseline data** **Use of area ranges [additional figures in brackets]** Two area figures are given in most cases, to form a range. The first figure represents the area identified as 'pure' community(ies) relating to the feature e.g. SD18 and all its sub-communities for the SAC feature dunes with *Hippophae rhamnoides*. A second figure is given in parentheses where there are transitional swards or mosaics with other non-feature communities e.g. SD18b+SD7b or SD18/other (where 'other' is a vegetation type that could not be attributed to an NVC community). The figures are given separately, for clarity, but both are included to allow for variation in NVC community assignment between surveyors and because communities may change through natural processes over time: • Classification variation between field surveyors is inevitable: one surveyor may choose to differentiate the community as SD7b+SD18b, another may see this as a single sward and include it in SD18a, which allows for a proportion of open dune with sparse *Hippophae* suckers together with more established stands. The NVC methodology does not state how surveyors should deal with transitional states as it is assumed that the homogenous stands sampled are a single community; this is not always the case in practice. Vegetation is clearly a continuum of varying swards and not a series of discrete boxes consisting of single communities; the divisions are a necessary human imposition to allow classification. A range that allows for surveyor 'variation' between assessments is a requirement of a robust methodology. • Vegetation will change over time under successional processes, even in the absence of management, and this is especially true of coastal habitats where accretion/erosion may occur naturally and vegetation is largely dictated by relationships with tidal inundation and sediment deposition. A sea buckthorn

sward classed as a mosaic with SD7b in an early survey may become wholly invaded by the sea buckthorn and be recorded in subsequent years as a pure SD18b sward. In such a scenario it is justifiable to include the sward in the upper area figure of both NVC communities as it is impracticable to determine how much of a mosaic or transition is attributable to each community type.

- Areas mapped as pure 'Other' i.e. not assigned to any NVC community, mosaic or transition are not included in the figures as they cannot be assigned with certainty to any SSSI designated feature.

NB because mosaics and transitional swards will be included in the [upper range] figures for all the communities involved there is an element of 'double counting' and addition of all the areas given [thus] will come to more than the total area of the site.

Measurement of habitat extent for Assessment purposes

There are significant practical problems assessing the extent of certain communities (see below), especially *Salicornia* pioneer saltmarsh and differentiation with *Puccinellia* low-mid saltmarsh, and also Shifting Dunes and Fixed Dunes which, at this site, are very similar in appearance and species composition. There are also difficulties in assessing Favourable Condition (see tables below) for certain attributes using just aerial photographs and the CSM Guidance field techniques. In order to obtain the range of information at the accuracy required, an NVC survey should be undertaken every 12 years (every-other assessment cycle).

ISSUES SPECIFIC TO HABITATS /COMMUNITIES/ATTRIBUTES

(text in colour indicates actions required to finalise these Favourable Condition Tables)

***Salicornia* and other annuals saltmarsh** – precision mapping of this community, both in the field and through the use of aerial photographs, is frustrated by two factors. Firstly, the national guidelines for the *Salicornia* communities, and their differentiation from mudflat habitat, depends on the presence of a single plant. The line drawn on an aerial photograph by an NVC surveyor in the field will (a) vary between surveyors, and (b) depend on the use of GPS for accuracy in correlating their position with the aerial photo. It will also depend on the time the surveyor spends walking the foreshore looking for isolated single stems of *Salicornia* or *Suadeda maritime* – more often than not the line depicting the front of the pioneer marsh will be approximate due to time constraints. Secondly, regardless of the degree of accuracy of field techniques, it is well known that such pioneer saltmarsh varies greatly between years depending on tidal regime, the weather at the time of germination and seed abundance.

Problems with differentiating *Salicornia* etc. and Atlantic salt meadow habitats - There is an additional confusing factor in that SM10 Transitional Low marsh Vegetation is included within the Atlantic Salt Meadow European habitat and 'low-mid marsh' SSSI attribute – this differs from *Salicornia* & Other Annuals habitat and the 'pioneer marsh' NVC communities by the mere occurrence of *Puccinellia maritima*. Care should be taken when assessing these from NVC

surveys as SM10 is by its nature variable and surveyor judgements may be different between surveys (NB the SSSI Common Standards Monitoring field techniques are more robust as *Puccinellia* is included as a positive indicator species in pioneer marsh as well as low-mid marsh criteria).

Suitability of area objective - Whilst an absolute figure may be given in the Objective, the pioneer marsh community is prone to variation and needs a greater degree of latitude when monitoring is undertaken for condition assessments. It would be helpful if a criteria could be developed that reflected the situation more realistically than 'no decrease from baseline', perhaps setting a percentage change e.g. 'no decrease exceeding 50% of baseline'. This approach may need to be developed over time with regular surveys to assess the degree of variation so that some judgement can be made about the degree of natural fluctuation.

Atlantic salt meadow – see above for comments on SM10 and its close relationship to the *Salicornia* & colonising annuals habitat.

Mediterranean and thermo-Atlantic halophilous scrubs –

Strandline - This is a highly variable habitat determined by local seed availability, tidal regimes and weather at the time of germination. The range of area is expected to be very wide naturally .

Embryonic shifting dunes – This target area does not include transition to saltmarsh communities.

European feature - the Embryo dune figure excludes the transitional sward SD2/SD4 which is included in the figures for Strandline area – for assessing the European feature Embryonic Shifting Dunes these two figures will need to be added together (giving 2.7ha).

Suitability of area objective - embryo dunes can be highly dynamic habitats, especially the ephemeral communities such as strandline eg SD2 and as such a fixed baseline is not especially helpful, particularly when the extent of change attributable to 'natural processes' is unknown at a site. Some idea of the scale of 'natural processes' may be derived from a comparison of these communities surveyed in 1989 with latter NVC surveys – one proviso being that all change can be safely assumed to be natural.

Shifting dunes long the shoreline with *Ammophila arenaria* – the range figure includes the 2ha complex mosaic with SM10 and SD4 and with other saltmarsh communities i.e. SM25.

Fixed dunes with herbaceous vegetation - It is necessary to achieve a balance between sea buckthorn scrub and dune grassland without allowing the sea

buckthorn scrub to become over dominant on the site. The fixed dune habitat is considered to have been in unfavourable condition at the time of designation due to invasion by sea buckthorn. Instead of taking the areas from the NVC survey as a baseline, this target area has been derived by establishing the potential area of dry dune habitat and setting a %-cover:

- The area of potential dry dune is the sum of all SD7, SD8, SD9, SD10 [if present] and SD18 communities together with all transitions and mosaics to dry dune communities [i.e. excluding saltmarsh and SD17]
- The desirable % cover of sea buckthorn SD18 vegetation has been established as 25-30% coverage (NB target for dunes with *Hippophae rhamnoides* is designed to be compatible).

The areas in the target for Fixed dune reflect a total fixed dry dune grassland area of between 75% and 70% of the total dry dune area. The higher % cover figure may reflect periods when scrub is cut back or grazed out to allow the pioneer phase of growth to re-invade. The lower extent figure represents the minimum area of dune grassland considered to represent favourable condition.

Humid dune slack

Dunes with *Hippophae rhamnoides* – see Fixed Dunes, above, for rationale on selecting the 25%-30% of dry dune target.

Hippophae on the continent – in 2008 a study tour was made to calcareous dunes on the Dutch coast. Hipophae rhamnoides appears to behave quite differently in the Netherlands and Germany: it is restricted to landward faces of foredunes (up to half a kilometre inland) due to strong onshore winds carrying a high salt spray load; it does not invade natural, undisturbed grasslands in the fixed dune area – the reason giving is that it needs marram grass roots to penetrate the topsoil; it senesces in the hinterland dunes as calcium is leached from the sand. The areas where sea buckthorn exhibited the vigorous, invasive traits seen on the Lincolnshire coast was where areas had been used for arable, with tillage and use of organic fertiliser – and here it was less aggressive than it is with us. *Hippophae rhamnoids*, as a habitat, is only protected under the European SAC designation, it is not an interest feature of the SSSI. As such it would be helpful to establish the percentage cover of *Hippophae* in the different zones on the Dutch dunes and use this to inform the targets set in these objectives.

Aggregation of non-breeding birds (wintering and passage migrants) This primary interest consists of the large numbers of birds that use the site to roost, especially when lower-lying mudbanks in The Wash are covered by high tides. The birds use the southern end of the NNR and, occasionally, the developing sandbank off Greenshank Creek. They are not known to use Seacroft foreshore or the enclosed saltmarshes to the north and thus extent figures are not affected by the lack of known habitat areas for the Seacroft Marsh part of the SSSI.

Assemblage of breeding birds – the area of shingle/strandline used by breeding little terns still needs to be determined.

Rationale for site-specific targets (including any variations from generic guidance)

Other Notes

NVC analogues for European interest features taken from JNCC SAC selection web pages

- ***Salicornia* and other annuals colonising mud and sand** (1310) = SM7 *Arthrocnemum perenne* stands, SM8 Annual *Salicornia* salt-marsh community, SM9 *Suaeda maritima* salt-marsh community, SM27 Ephemeral salt-marsh vegetation with *Sagina maritima*.

- **Atlantic salt meadows** (1330) = SM10 Transitional low-marsh vegetation, SM11 *Aster tripolium* var. *discoideus* salt-marsh community, SM12 Rayed *Aster tripolium* salt-marsh community, SM13 *Puccinellia maritima* salt-marsh community, SM14 *Halimione portulacoides* saltmarsh community, SM15 *Juncus maritimus – Triglochin maritima* salt-marsh community, SM16 *Festuca rubra* salt-marsh community (coastal examples only), SM17 *Artemisia maritima* salt-marsh community, SM18 *Juncus maritimus* salt-marsh community, SM19 *Blysmus rufus* salt-marsh community, SM20 *Eleocharis uniglumis* salt-marsh community.

- **Mediterranean and thermo Atlantic halophilous scrubs** (1420) = SM25 *Suaeda vera* drift-line community, SM21 *Suaeda vera – Limonium binervosum* salt-marsh community.

- **Embryonic shifting dunes** (2110) = SD4 *Elymus farctus* ssp. *boreali-atlanticus* foredune community, certain stands of SD2 *Honkenya peploides – Cakile maritima* strandline community (on sand), SD5 *Leymus arenarius* mobile dune community ([a] and [b] sub-communities) when the stands occur in close association with the *Elymus* community.

- **Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes")** (2120) = SD5 *Leymus arenarius* mobile dune community ([c] sub-community), SD6 *Ammophila arenaria* mobile dune community.

- **Fixed dunes with herbaceous vegetation ('grey dunes')** (2130) = SD7 *Ammophila arenaria – Festuca rubra* semi-fixed dune community, SD8 *Festuca rubra – Galium verum* fixed dune grassland, SD9b *Ammophila arenaria – Arrhenatherum elatius* dune grassland, *Geranium sanguineum* sub-community, SD11 *Carex arenaria – Cornicularia aculeata* dune community, SD12 *Carex arenaria – Festuca ovina – Agrostis capillaris* dune grassland.

- **Dunes with *Hippophae rhamnoides*** (2160) – SD18 *Hippophae rhamnoides* scrub.

- **Humid dune slacks** (2190) = SD13 *Sagina nodosa – Bryum pseudotriquetrum* dune-slack community, SD14 *Salix repens – Campylium stellatum* dune-slack community, SD15 *Salix repens – Calliergon cuspidatum* dune-slack community, SD16 *Salix repens – Holcus lanatus* dune-slack community, SD17 *Potentilla anserina – Carex nigra* dune-slack community.

Table 2b Species population objectives

Conservation Objective for species populations	To maintain the designated species in favourable condition, which is defined in part in relation to their population attributes. Favourable condition is defined at this site in terms of the following site-specific standards:
Population balance	On this site favourable condition requires the maintenance of the population of each designated species or assemblage. Maintenance implies restoration if evidence from condition assessment suggests a reduction in size of population or assemblage.

Species Feature	Supporting BAP Broad Habitats	Population Attribute (	Site Specific Target range and Measures	Comments
Vascular Plant Assemblage	Coastal sand dune, coastal shingle, inter-tidal mud and sand flats	Vascular Plant index = **Baseline figure has yet to be established**	At least a minimum viable population size present	
Invertebrate assemblage	Coastal sand dune, coastal shingle, inter-tidal mud and sand flats	Direct Monitoring of assemblage score based on presence/ absence of specified proportion of species typical of habitat listed in ISIS	Monitor the assemblage once in every 6 year monitoring cycle Using defined invertebrate sampling protocols, thresholds for appropriate BAT to be met.	Notification score of 5500 for invertebrate assemblage
Natterjack toad Bufo calamita	Breeding pond presence	No net loss in extent or number of breeding ponds.	Visual assessment March-September. Record once every 3 years.	In exceptional cases, a net loss may be acceptable if enhancements are made to remaining ponds.
Natterjack toad Bufo calamita	Terrestrial habitat in proximity of breeding ponds - extent	No loss of area, or fragmentation, compared to designation status	Visual assessment by walking site; most semi-natural habitats within 500m of breeding pond to be included. Map conditions at designation. Assess at any time of year. Record once every 3 years.	Map suitable habitat at designation. Normally includes: bare ground, short-sward grassland, marram, ericaceous vegetation. Excludes woodland, scrub and dense, rank, grassland swards.
Natterjack Toad	Coastal sand dune	Toadlet production (metamorphs emerging from breeding ponds)	For at least 1 year in every 4 years, each breeding pond to have baseline toadlet production2 +/- 1 order of magnitude. Fail if zero production at all breeding ponds for 3 consecutive years.	1 Breeding pond = a pond in which spawn is laid and successful metamorphosis is likely to occur at least 1 in every 4 years. 2 Baseline toadlet production = the number of emerging toadlets recorded at designation or in best year within 3 years of designation, if higher.

Species Feature	Supporting BAP Broad Habitats	Population Attribute (	Site Specific Target range and Measures	Comments
				Visual assessment of number seen at emergence (mid-May – July, depending on site), using log scale (0, 1s, 10s, 100s etc). Assess every year. 3 - 6 daytime visits required per year to identify peak number, depending on conditions.
Natterjack toad Bufo calamita	Breeding pond persistence	Generic target for most sites: Minimum summer water depth 5cm for at least 75% of breeding ponds on each year of assessment. Target may be adjusted according to pond type.	Record approximate depth of water in identified breeding ponds between mid-May and July (timing dependent on normal metamorphosis date for area). Visual assessment is suitable. Record once every 3 years.	Between-visit variation due to ephemeral nature of breeding ponds is likely. Target setting may require examination of historical site records and weather conditions to assess normal desiccation pattern.
Diverse breeding bird community	Coastal sand dune, coastal shingle, inter-tidal mud and sand flats	Breeding Bird Index = **Baseline figure has yet to be established**	Maintain the breeding bird index at or above baseline	SSSI breeding bird community feature should be assessed against 1983 Cvii (e) criteria (see rank scores in Appendix 16 of the selection criteria)
Aggregation of breeding birds (Annex 1 species) **Little tern**	Shingle and strandline	Population size	Maintain population within acceptable limits, subject to natural change: **A Baseline figure has yet to be established** If the population at assessment (taken from either a single count or a 5-year mean) falls below this size then it is in unfavourable condition	
		Presence of predator populations	Maintain effects of predators on nesting birds at an acceptable level.	Predation by foxes, gulls and corvids has a substantial impact on the success rate of nesting little tern. A shorebird warden is employed by the Lincolnshire Wildlife Trust to monitor and control predator levels.

Species Feature	Supporting BAP Broad Habitats	Population Attribute (	Site Specific Target range and Measures	Comments
Aggregations of non-breeding birds (non Annex I species, internationally important populations on migration) **Redshank**	Coastal saltmarsh, intertidal sands and muds	Bird population size. Five-year peak mean counts were used to calculate the baseline. The winter period is November to March and autumn passage July to October.	Subject to natural change, maintain population within acceptable limits (in this context population is that of an individual species): • Baseline (winter): • Baseline (autumn passage): The site should be judged unfavourable if population declines of 50% or more from either baseline level are recorded for non-breeding species cited in the SPA citation, Natura 2000 data form, JNCC SPA review and annual WeBS reports. **A Baseline figure has yet to be established**	
Aggregations of non-breeding birds (non Annex I species, internationally important populations over-wintering) **Dark bellied brent goose**	Coastal saltmarsh, intertidal sands and muds	Bird population size. Five-year peak mean counts were used to calculate the baseline. The winter period is November to March.	Maintain population within acceptable limits (in this context population is that of an individual species): • Baseline (winter period): **A Baseline figure has yet to be established** The site should be judged unfavourable if population declines of 50% or more from the baseline level are recorded for non-breeding species cited in the SPA citation, Natura 2000 data form, JNCC SPA review and annual WeBS reports.	

Species Feature	Supporting BAP Broad Habitats	Population Attribute (	Site Specific Target range and Measures	Comments
Aggregations of non-breeding birds **Dunlin**	Coastal saltmarsh, intertidal sands and muds	Bird population size Five-year peak mean counts were used to calculate the baseline.	Maintain population within acceptable limits (in this context population is that of an individual species): • Baseline (winter period): **A Baseline figure has yet to be established** The site should be judged unfavourable if population declines of 50% or more from the baseline level are recorded for non-breeding species cited in the SPA citation, Natura 2000 data form, JNCC SPA review and annual WeBS reports.	This species exhibits peaks during spring and autumn passage and so this period is included in addition to the winter period cited in the SPA designation.
Aggregations of non-breeding birds (non Annex I species, internationally important populations over-wintering) **Knot**	Coastal saltmarsh, intertidal sands and muds	Bird population size. Five-year peak mean counts were used to calculate the baseline. The winter period is November to March and autumn passage July to October.	Maintain population within acceptable limits (in this context population is that of an individual species): • Baseline (winter period): **A Baseline figure has yet to be established** The site should be judged unfavourable if population declines of 50% or more from the baseline level are recorded for non-breeding species cited in the SPA citation, Natura 2000 data form, JNCC SPA review and annual WeBS reports.	This species exhibits a pattern of peaks across the boundary of autumn passage and winter periods and so both are included as baseline figures even though the SPA designation is for wintering birds. Wintering birds concentrate on large estuaries where they feed on marine bivalve molluscs on open mudflats and form large tightly packed flocks at high tide.

Species Feature	Supporting BAP Broad Habitats	Population Attribute (	Site Specific Target range and Measures	Comments
Aggregations of non-breeding birds (non Annex I species, internationally important populations on migration) **Sanderling**	Coastal saltmarsh, intertidal sands and muds	Bird population size Five-year peak mean counts were used to calculate the baseline. The winter period is November to March, spring passage April to June, autumn passage July to October.	Maintain population within acceptable limits (in this context population is that of an individual species): • Baseline (winter period): **A Baseline figure has yet to be established** The site should be judged unfavourable if population declines of 50% or more from the baseline level are recorded for non-breeding species cited in the SPA citation, Natura 2000 data form, JNCC SPA review and annual WeBS reports.	This species exhibits clear monthly peaks during the autumn passage, and to a lesser extent the spring passage period and so a baseline figure for the passage period (combined spring and autumn) is included as well as the winter period cited in the SPA and Ramsar designations.
Aggregations of non-breeding birds **Wigeon**	Coastal saltmarsh, intertidal muds	Bird population size Five-year peak mean counts were used to calculate the baseline. The winter period is November to March.	Maintain population within acceptable limits (in this context population is that of an individual species): • Baseline (winter period): **A Baseline figure has yet to be established** The site should be judged unfavourable if population declines of 50% or more from the baseline level are recorded for non-breeding species cited in the SPA citation, Natura 2000 data form, JNCC SPA review and annual WeBS reports..	

Species Feature	Supporting BAP Broad Habitats	Population Attribute (	Site Specific Target range and Measures	Comments
Aggregations of non-breeding birds	Waterfowl assemblage of over 20,000 birds	Population size Five-year peak mean counts were used to calculate the baseline. The winter period is November to March	Maintain population within acceptable limits (in this context population is that of an individual species): • Baseline (winter period): **A Baseline figure has yet to be established** The site should be judged unfavourable if population declines of 50% or more from the baseline level are recorded for non-breeding species cited in the SPA citation, Natura 2000 data form, JNCC SPA review and annual WeBS reports.	

Audit Trail
Rationale for species population attributes (Include methods of estimation (measures), and the approximate degree of change which these are capable of detecting).
Rationale for site-specific targets (including any variations from generic guidance)
Other Notes

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) **(**The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Other Notes

Table 3a Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **Sub Littoral Sands & Gravels** at **Saltfleetby – Theddlethorpe Dunes** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	

Site-specific standards defining favourable condition					
Criteria feature	**Attribute term in guidance**	**Site-specific Targets**	**Measure**	**Comments**	**Use for CA?**
Sandbanks which are slightly covered by sea water at all times	Topography	No alteration in topography of the inshore sub littoral sediment, allowing for natural responses to hydrodynamic regime. Topography as shown on Admiralty Charts.	Assessment of the depth distribution/profile of the inshore sub littoral sediment and periodic comparison with baseline conditions.	The depth distribution of the sediment has a direct influence on the structure and function of the system.	Yes
Sandbanks which are slightly covered by sea water at all times	Sediment character: sediment type	No change in composition of sediment types across the feature, allowing for natural succession/ known cyclical change.	Distribution of sediment types should be assessed across the whole feature and compared with baseline conditions. For details of assessment techniques see Davies *et al.*, 2001.	Where changes in sediment type are known to be clearly attributable to natural processes then the target value should accommodate this variability. Where extreme events cause a change in sediment type, then this may have caused a change in the structure of the feature, which may lead to the condition of the feature being considered as unfavourable.	Yes

	Distribution of biotopes	Maintain the distribution of biotopes in each sub-feature (gravel and sand communities, muddy sand communities), allowing for natural succession/ known cyclical change.	Assessment of the distribution of range of biotopes identified for the site. For details of assessment techniques see Davies *et al*., 2001.	Where changes in distribution are known to be clearly attributable to cyclical succession or expected shifts in distribution then target value should accommodate variability. Where there is a change in biotope distribution outside the expected variation or a loss of site conservation interest, then condition should be considered unfavourable	Yes
	Extent of sub-feature	No change in extent of inshore sublittoral sediment biotopes or sub-feature (gravel and sand communities, muddy sand communities) identified for the site allowing for natural succession / known cyclical change	Assessment of the extent of biotopes identified for the site because of their nature conservation importance. For details of assessment techniques see Davies et al, 2001.	Where there is a clearly established natural variation in extent or in cyclical succession between biotopes, then the target value should accommodate this variability. Where there is a change in extent outside the expected variation or a change in the structure of the sub-feature leading to a loss of the site, then condition should be considered unfavourable.	Yes
Sandbanks which are slightly covered by sea water at all times	Species population measures: Presence or abundance of specified species	No increase in presence or abundance of negative indicator species (non-native American razor shell *Ensis directus*, Pacific oyster *Crassostrea gigas*, Slipper limpet *Crepidula fornicata*).	Assessment of the presence or abundance of positive/negative indicator species identified for the feature. For details of assessment techniques see Davies *et al*., 2001.	Where there is a sizeable shift in the age/size class structure (i.e. loss of mature adults or recruitment failure) or if disturbance causes a species of nature conservation importance to be lost, or a significant reduction in abundance then condition would be considered unfavourable. Increased abundance of negative indicator species i.e. those indicative of stressed habitats or polychaete worms indicative of organic pollution, which would be detrimental to the feature as a whole, would also cause the condition of the feature to be considered unfavourable.	Yes

Mudflats and sandbanks not covered by sea water at low tide	Biotope composition of littoral sediment	Maintain the variety of biotopes in each sub-feature (mud, muddy sand, sand & gravel) identified for the site allowing for natural succession/ known cyclical change.	Repeated assessment of overall biotope composition. Details on how baseline information was determined can be found in: For details of assessment techniques see Davies *et al*., 2001.	Target requires presence of biotopes listed in Appendix Where changes in biotope composition are known to be attributable to natural processes (e.g. winter storm/flood events, changes in supporting processes or mass recruitment or dieback of characterising species) then the target value should accommodate this variability. Where there is a change in biotope composition outside the expected variation or a loss of the conservation interest of the site, then condition should be considered unfavourable.	Yes
	Sediment character: sediment type	Maintain distribution of mud, muddy sand and sand and gravel across the feature, allowing for natural succession/known cyclical change. Spatial distribution of sediment types shown in:	Distribution of sediment types should be assessed across the whole feature and compared to baseline conditions. Target requires maintenance of spatial juxtaposition of specified sediment types (mud, muddy sand, sand) across the feature. For details of assessment techniques see Davies *et al.*, 2001.	Where changes in sediment type are known to be clearly attributable to natural processes (e.g. winter storm/flood events, changes in supporting processes) then the target value should accommodate this variability. Where extreme events cause a change in sediment type, then this may have caused a change in the structure of the feature, which may lead to the condition of the feature being considered as unfavourable.	Yes

Mudflats and sandbanks not covered by sea water at low tide	Distribution of biotopes	Maintain the distribution of biotopes in each sub-feature (mud, muddy sand, sand & gravel) set out in Appendix…, allowing for natural succession/ known cyclical change. Map of biotopes	Assessment of the distribution of biotopes identified for the site in Appendix, key biotopes shown in bold. For details of assessment techniques see Davies *et al*., 2001.	Unlike biotope composition this attribute is concerned with presence or absence at specific locations. Sediment biotopes show cyclical succession and have no clearly defined perimeter in the field. Target takes account of likely succession, and differences expected, between biotopes. Where changes in distribution are known to be clearly attributable to cyclical natural processes (e.g. due to a movement of a drainage channel) then the target value should accommodate variability. Where there is a change in biotope distribution outside the expected variation, or a loss of the conservation interest of the site, then condition should be considered unfavourable.	Yes
	Species composition of representative or notable biotopes	No decline in biotope quality due to changes in species composition or loss of notable species, allowing for natural succession/known cyclical change.	Assessment of biotope quality through assessing species composition, where the biotope is representative of the site or contains a number of species of conservation importance. Assessing this attribute will require specialist taxonomic expertise. For details of assessment techniques see Davies *et al*., 2001.	Where a change in species composition is known to be clearly attributable to natural succession, known cyclical change or mass recruitment or dieback of characterising species, then the target value should accommodate this variability. Where there is a change in biotope quality outside the expected variation or a loss of the conservation interest of the site, then condition should be considered unfavourable. Dependant on future quantitative surveys.	Yes

Mudflats and sandbanks not covered by sea water at low tide	Species population measures	Maintain age/size class structure & abundance of	Population structure and abundance should be assessed in terms of viability of the named species identified for the feature. For details of assessment techniques see Davies *et al* 2001.	Where there is a sizeable shift in the age/size class structure (i.e. loss of mature adults or recruitment failure) or if disturbance causes a species of nature conservation importance to be lost, or if there is a significant reduction in abundance, then condition would be considered unfavourable.	Yes
	Population structure of a species	Maintain abundance of named positive indicator species	Assessment of the presence or abundance of positive indicator species identified for the feature. For details of assessment techniques see Davies *et al*., 2001.	Increased abundance of negative indicator species i.e. those indicative of stressed habitats which would be detrimental to the feature as a whole, would also cause condition to be considered unfavourable.	
	Presence or abundance of specified species	No increase in presence or abundance of named negative indicator species: non-native *Ensis directus, Crassostrea gigas, Crepidula fornicata*	Assessment of the presence or absence of negative indicator species identified for the feature.		

Mudflats and sandbanks not covered by sea water at low tide	Topography	No change in topography of the littoral sediment, allowing for natural responses to hydrodynamic regime. Topography as shown in EA beach profiles	Tidal elevation and shore slope to be assessed periodically. EA undertake beach profile surveys down transects. Surveys from fixed point inland to Mean Low Water. Transects are spaced at intervals of 1km. For details of assessment techniques see Davies *et al.*, 2001.	Obvious changes in topography in terms of an overall lowering (shallowing) of the shore slope may act as a trigger for further investigation. Scouring adjacent to sea defences, which lowers the shore slope, should be considered unfavourable. A suitable period over which to ascertain trends resulting in a net lowering of shore profiles is 5 years.	Yes

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Rationale for selection of measures of condition (features and attributes for use in condition assessment) (The selected attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Sandbanks slightly covered – the extent of sub-feature attribute is allocated a 'Yes' in the CA column for this site, however, it is not a mandatory CSM attribute. The Species Population Measures attribute also has a 'yes' in the CA column. Although not a mandatory CSM attribute there are non-natives present on site which can have a serious negative impact on native communities and for this site it is considered important to include it in all assessments **Mudflats and sandflats not covered by sea water at low tide** – The reason for including the Species Composition of Representative or Notable Biotopes attribute is because invertebrates are a key conservation feature of the site, even though this attribute is not a mandatory CSM attribute. The same is true of the Species Population Measures attribute – Population Structure of a Species; the - Presence or Abundance of Specified Species part of this attribute is included due to invasive non-natives being present in site. Topography is included here as changes in topography give an indication of the stability of the shore, whether erosion is occurring etc. (again, not a mandatory CSM attribute).
Other Notes

Table 3b Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **Coastal Saltmarsh** at **Saltfleetby – Theddlethorpe Dunes** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	

Site-specific standards defining favourable condition

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
***Salicornia* and other annuals colonising mud and sand**	Physical structure: creeks & pans	No further anthropogenic alteration of creek patterns or loss of pans compared to the established baseline **Baseline to be established.** Realignment of creeks absent or rare.	Aerial photographs can be used, combined with information gathered from the site visit.	Creeks and pans vary in size and density. Creeks absorb tidal energy and assist with the delivery of sediment into saltmarshes. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network, ultimately leading to the creation of mud basins. Establishment of creeks in pioneer zone tends to be less marked than higher on the saltmarsh.	Yes
	Vegetation structure: zonation of vegetation	Maintain the range of variation of zonations typical of the site. Typical zones include pioneer SM9 *Suaeda maritime* saltmarsh in strip saltings where sheltered areas are still open to the sea and around the mouth of dune breaches also were heavy rabbit grazing and increased sediment mobility occur at the southern tip of the Old Marsh.	The width of zones can be estimated using one or more transects. Pioneer vegetation may present some problems in deciding the boundary of marsh and mudflat - take the edge of the pioneer zone where the first *Salicornia* or *Suaeda* annuals appear.	The pattern of saltmarsh zonation will vary regionally and also from site to site (see Section 6.1). Saltmarsh has up to five main zones: pioneer, low-mid marsh, mid-upper marsh, saltmarsh strand/driftline (see transitions section in the Audit Trail below).	Yes

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
***Salicornia* and other annuals colonising mud and sand**	Vegetation structure: sward height	Maintain site-specific structural variation in the sward. Typical vegetation heights are not yet known for any saltmarsh community	This can be assessed by taking average sward height from the quadrats forming part of the structured walk	Grazing is not appropriate on this saltmarsh. In the absence of grazing, sward height is determined by natural processes and a target is not deemed to be required for condition assessment purposes.	No
	Vegetation composition: characteristic species	Maintain frequency of characteristic species of pioneer saltmarsh zone as follows: At least one of the following indicator species frequent and another occasional : *Salicornia* spp. *Suaeda maritima* *Puccinellia maritima*	Visual assessment of cover, using structured walk	Communities may be dynamic in their distribution and are linked to the physical processes operating at the site, including topography, creek patterns etc.	Yes
	Vegetation composition: negative indicator species *Spartina anglica*.	No recent evidence of expansion into pioneer saltmarsh (indicative target of less than 10 % expansion in last 10 years).	Aerial photographs, together with visual assessment of cover, using structured walk.	*Spartina anglica* is a species that is considered undesirable in intertidal habitats where it is expanding at the expense of mudflats. However it can be a precursor to the development of saltmarsh where sediments are accreting.	Yes

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
***Salicornia* and other annuals colonising mud and sand**	Other negative indicators	Artificial drainage channels adversely affecting hydrology are absent or rare. No obvious signs of pollution. No increase in bare substrate as a result of anthropogenic activities such as vehicle use or trampling at vulnerable locations (tracks, access points).	Visual assessment on site during structured walk		Yes
Atlantic salt meadow	Physical structure: creeks & pans	No further anthropogenic alteration of creek patterns or loss of pans compared to an established baseline. Realignment of creeks absent or rare.	Aerial photographs can be used, combined with information gathered from the site visit.	Creeks and pans vary in size and density. Creeks absorb tidal energy and assist with the delivery of sediment into saltmarshes. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network, ultimately leading to the creation of mud basins.	Yes
Atlantic salt meadow	Vegetation structure: zonation of vegetation	Maintain the range of variation of zonations typical of the site including: Low marsh with annuals SM10 and of the mid marsh: *Puccinellia* dominated SM13 swards in the Old Saltmarsh, *Halimione portulacoides* dominated SM14 vegetation around creek banks in the Old Saltmarsh, *Aster tripolium* stands fringing low-lying areas of the Old Saltmarsh, SM16 upper marsh transitions with Festuca rubra, especially at the ecotone to dune communities on Seacroft Marsh and *Artemesia maritima* stands SM17 around the field station and elsewhere on the southern end of the West Dune spit.	The width of zones can be estimated using one or more transects. If poor clarity on aerial photographs prevents accurate mapping then GPS information can be collected on site and a map created.	The pattern of saltmarsh zonation will vary regionally and also from site to site. Saltmarsh has up to five main zones: pioneer, low-mid marsh, mid-upper marsh, saltmarsh strand plus transitions.	Yes

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
Atlantic salt meadow	Vegetation structure: sward height	Maintain site-specific structural variation in the sward Typical vegetation heights are not yet known for any saltmarsh community	Assessed by taking average sward height from the quadrats forming part of the structured walk	Grazing is not appropriate on this saltmarsh. In the absence of grazing, sward height is determined by natural processes and a target is not required for condition assessment purposes. In the absence of grazing, sward height is determined by natural processes and a target is not deemed to be required for condition assessment purposes.	No
Atlantic salt meadow	Vegetation composition: characteristic species	Maintain frequency of characteristic species of low-mid saltmarsh zone (SM10, SM13a, SM14) as follows: At least one of *Puccinellia maritima, Atriplex* (*Halimione*) *portulacoides* or *Salicornia* spp. dominant, and two other listed species at least frequent: *Puccinellia maritima , Triglochin maritime, Plantago maritima , Atriplex portulacoides, Aster tripolium, Spergularia maritima , Suaeda maritima* *Salicornia* spp. Maintain frequency of characteristic species of mid-upper saltmarsh zone (SM13b, c d, e & f, SM16, SM17) as follows: At least one listed species abundant and three frequent: *Festuca rubra , Juncus gerardii Armeria maritima Agrostis stolonifera, Limonium vulgare, Glaux maritima, Seriphidium*	Visual assessment of cover, using structured walk	Communities may be dynamic in their distribution and are linked to the physical processes operating at the site, including topography, creek patterns etc.	Yes

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
		maritimum (*Artemisia maritime*), *Plantago maritima , Aster tripolium , Juncus maritimus, Triglochin maritima , Blysmus rufus Eleocharis uniglumis Leontodon autumnalis, Carex flacca, Carex extensa*			
Atlantic salt meadow	Vegetation composition: negative indicator species *Spartina anglica*.	No recent evidence of expansion into pioneer saltmarsh (indicative target of less than 10 % expansion in last 10 years)	Aerial photographs, together with visual assessment of cover, using structured walk.	*Spartina anglica* is a species that is considered undesirable in intertidal habitats where it is expanding at the expense of mudflats. However it can be a precursor to the development of saltmarsh where sediments are accreting.	Yes
	Other negative indicators	Artificial drainage channels adversely affecting hydrology are absent or rare. No obvious signs of pollution. Turf cutting absent or rare. No increase in bare substrate as a result of anthropogenic activities such as vehicle use or trampling at vulnerable locations (tracks).	Visual assessment during site visit.		Yes
Atlantic salt meadow	Indicators of local distinctiveness	Maintain presence of distinctive elements: Upper saltmarsh transitions to wetland and grassland communities especially to wet grassland (e.g. MG11) and *Carex otrubae* swards.	Presence confirmed during visit at appropriate season.		Yes

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
Atlantic salt meadow	Physical structure: creeks & pans	No further anthropogenic alteration of creek patterns or loss of pans compared to an established baseline. Realignment of creeks absent or rare.	Aerial photographs can be used, combined with information gathered from the site visit.	Creeks and pans vary in size and density. Creeks absorb tidal energy and assist with the delivery of sediment into saltmarshes. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network, ultimately leading to the creation of mud basins.	Yes
	Vegetation structure: zonation of vegetation	Maintain the presence and an appropriate distribution of the SM21 and SM25 communities as the upper zone (drift line transition to terrestrial habitats) in this site's range of variation of zonations. Key locations for SM25 in the baseline survey are at the southern tip of the site, in association with the shelter provided by Millennium Ridge. SM21 was centred in the strip saltings.	The width of zones can be estimated using one or more transects. If poor clarity on aerial photographs prevents accurate mapping – which is likely for the narrow *Suaeda vera* community along the drift line - then GPS information can be collected on site and a map created.	The pattern of saltmarsh zonation will vary regionally and also from site to site (see Section 6.1). Saltmarsh has up to five main zones: pioneer, low-mid marsh, mid-upper marsh, saltmarsh strand plus transitions (see transitions below)	Yes
	Vegetation structure: sward height	Maintain site-specific structural variation in the sward	This can be assessed by taking average sward height from the quadrats forming part of the structured walk	Grazing is not appropriate on this saltmarsh. These communities could be threatened by livestock grazing pressure. The height of the vegetation is determined by natural factors and is not necessary as a determinant of the community's health or viability.	No
	Vegetation	Maintain frequency of characteristic species of driftline and transition zones as follows:	Visual assessment of	Communities may be dynamic in their distribution and	Yes

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
	composition: characteristic species	Presence of either *Suaeda vera* or all of the following at least occasional: *Frankenia laevis* *Limonium binervosum* *Spergularia media* *Salicornia* spp. *Suaeda maritime*	cover, using structured walk.	are linked to the physical processes operating at the site, including topography, creek patterns etc.	
	Vegetation composition: negative indicator species *Spartina anglica*.	No recent evidence of expansion into pioneer saltmarsh (indicative target of less than 10 % expansion in last 10 years)	Aerial photographs, together with visual assessment of cover, using structured walk.	*Spartina anglica* is a species that is considered undesirable in intertidal habitats where it is expanding at the expense of mudflats. However it can be a precursor to the development of saltmarsh where sediments are accreting. Spartina anglica does not occur at this level on the saltmarsh and is unlikely to be a problem in these communities	Yes
Atlantic salt meadow	Other negative indicators	Artificial drainage channels adversely affecting hydrology are absent or rare. No obvious signs of pollution. Turf cutting absent or rare. No increase in bare substrate as a result of anthropogenic activities such as vehicle use or trampling at vulnerable locations (tracks, access points).	Visual assessment during site visit		Yes
	Indicators of local distinctiveness	Maintain the presence of transitions between saltmarsh and mobile sand dune habitats in the	Presence confirmed during visit at appropriate season:	This attribute is intended to cover any site-specific aspects of this habitat feature (forming part of the reason for notification) which are not adequately covered by the	No

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
		strip saltings.		previous attributes, or by separate guidance e.g. for notified species features. In the case of this site it is intended to cover important ecotones listed as being important habitat transitions. The sand dune community element of the transition is at risk of invasion by *Hippophae rhamnoides*.	
	Physical structure: creeks & pans	No further anthropogenic alteration of creek patterns or loss of pans compared to an established baseline. Realignment of creeks absent or rare.	Aerial photographs can be used, combined with information gathered from the site visit.	Creeks and pans vary in size and density. Creeks absorb tidal energy and assist with the delivery of sediment into saltmarshes. Major erosion of saltmarsh is indicated by internal dissection and enlargement of the drainage network, ultimately leading to the creation of mud basins.	Yes
Atlantic salt meadow	Vegetation structure: zonation of vegetation	Maintain the presence and distribution of this community as the upper zone (drift line transition to terrestrial habitats) in this site's range of variation of zonations.	The width of zones can be estimated using one or more transects. If poor clarity on aerial photographs prevents accurate mapping – which is likely for the narrow *Suaeda vera* community along the drift line - then GPS information can be collected on site and a map created.	The pattern of saltmarsh zonation will vary regionally and also from site to site (see Section 6.1). Saltmarsh has up to five main zones: pioneer, low-mid marsh, mid-upper marsh, saltmarsh strand plus transitions (see transitions below)	Yes

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
	Vegetation structure: sward height	Maintain site-specific structural variation in the sward	This can be assessed by taking average sward height from the quadrats forming part of the structured walk	Grazing is not appropriate on this saltmarsh. The height of the vegetation is determined by natural factors and is not necessary as a determinant of the community's health or viability.	No
	Vegetation composition: characteristic species	Maintain frequency of characteristic species of driftline and transition zones as follows: Presence of *Elytrigia atherica* (*Elymus pycnanthus*) at least frequent.	Visual assessment of cover, using structured walk.	Communities may be dynamic in their distribution and are linked to the physical processes operating at the site, including topography, creek patterns etc.	Yes
Atlantic salt meadow	Vegetation composition: negative indicator species *Spartina anglica*.	No recent evidence of expansion into pioneer saltmarsh (indicative target of less than 10 % expansion in last 10 years)	Aerial photographs, together with visual assessment of cover, using structured walk.	*Spartina anglica* does not occur at this height on the saltmarsh and is unlikely to be a problem	Yes
	Other negative indicators	Artificial drainage channels adversely affecting hydrology are absent or rare. No obvious signs of pollution. Turf cutting absent. No increase in bare substrate as a result of anthropogenic activities such as vehicle use or trampling at vulnerable locations (tracks etc).	Visual assessment during site visit		Yes
	Indicators of	Maintain the presence of the Frankenia laevis,	Presence confirmed		

Criteria feature	Attribute term in guidance	Site-specific Targets	Measure/Method of Assessment	Comments	Use for CA?
	local distinctiveness	Glaux maritime and Limonium binervosum saltmarsh habitat (SM21 and SM22 communities) in the strip saltings.	during visit at appropriate season:	This attribute is intended to cover any site-specific aspects of this habitat feature (forming part of the reason for notification) which are not adequately covered by the previous attributes, or by separate guidance e.g. for notified species features. In the case of this site it is intended to cover this important and rare saltmarsh and the characteristic species highlighted in the SSSI citation.	No

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)

SALTMARSH

The saltmarsh features in this table are described under the relevant SAC habitats, thus the CSM division into pioneer, low-mid and mid-upper saltmarsh are accommodated under *Salicornia* etc colonising sand and mud (CSM equivalent to pioneer marsh), Atlantic salt meadow (CSM equivalent to low-mid marsh) and Mediterranean etc scrubs (CSM equivalent to mid-upper marsh), only SM24 driftline saltmarsh and transitions do not qualify under the European features. There are some discrepancies between CSM and SAC habitats in terms of where different NVC communities are placed:

SAC habitat	**CSM description**
Salicornia etc colonising sand and mud SM7, **SM8**, **SM9**, SM27	Pioneer saltmarsh SM4, SM5, SM6, SM7, SM8, **SM9**, SM11, SM12
Atlantic salt meadow **SM10**, **SM11**, SM12, **SM13**, **SM14** , SM15 , **SM16**, **SM17**, **SM18**, SM19, SM20	Low-mid saltmarsh **SM10**, SM13a, **SM14**
	Mid-upper saltmarsh **SM13 b-f**, SM15, **SM16**, **SM17**, **SM18**, SM19, SM20, SM21, SM22, SM23, SM26, SM27
Mediterranean etc scrubs **SM21**, **SM25**	Driftline **SM24**, **SM25**, **SM28**

Zonation – In the CSM Guidance, zonation is discussed in terms of maintaining the three or four zones (pioneer, low-mid, mid-upper and driftline) present on site. At Saltfleetby – Theddlethorpe Dunes each of the three main zones includes several NVC communities and, under the terms of the Guidance it would be possible to loose an NVC type without the site being judged as unfavourable, provided the zone was still detectable in the form of other NVC communities. For a complex and varied site such as this, this would be unacceptable. One potential scenario might be where grazing is introduced resulting in the loss of *Atriplex* (*Halimione*) *portulacoides* SM14 communities and the expansion of SM13a *Puccinellia* swards – because SM10 and Sm13a communities and the species characteristic of low-mid saltmarsh were still detected, an assessment would conclude that the zonation was intact. In these tables the key NVC communities typical of each zonation/SAC habitat are listed and these form an important part of the favourable condition of the zones. As NVC surveys will be required in order to assess many of the extent attributes (especially pioneer marsh) the NVC communities can also be checked. An NVC survey every 12 years, to coincide with alternate CSM assessments, would be appropriate.

Transitions – typical transitions where the baseline survey revealed an area of greater than 0.1ha (10,000 square metres) are as follows: in terms of CSM

transitions, these exist between pioneer and low-mid marsh notably SM8/SM10 some 0.4ha, between low-mid saltmarsh and embryo dune communities - especially SD4 and SD6 some 2.1ha, between low-mid and mid-upper saltmarsh – SM10/SM18 a minor 0.1ha, between mid-upper saltmarsh and swamp and wet grassland – SM18+MG11+S18 but a mere 0.1ha. Transitions between driftline (Elytrigia atherica SM24 communities predominantly) and a range of other habitats are widespread: between low-mid saltmarsh and driftline – a notable 1ha of SM14/SM24, between mid-upper saltmarsh and driftline - especially SM13/SM24 at 0.75ha, and between driftline and sand dune communities – SM25/SD6c 0.5ha and SM24/SD9a 0.1ha. The extent and location of these transitions will vary over the longer term but a range, appropriate to the physical situation at the time of assessment, should be present. Loss of major transitions would indicate that natural processes have stagnated and the dynamic nature of these intertidal habitats has been lost.

See also the sand dune Audit Trail below re species on the 'outstanding assemblage of vascular plants' (SSSI notification) list and transitional habitats in which they occur, especially dune/saltmarsh and saltmarsh/fresh water communities.

Turf cutting – this measure has been removed from the *Salicornia* and Other Annuals habitat because turf cutting does not occur in the pioneer saltmarsh communities as, in this part of the country, the habitat is characterised by annual plants and large extents of bare mud. Turf cutting does not, at present, take place anywhere on the site but future commencement cannot be ruled out as there are swards that might be suitable for turf and the extent of *Festuca rubra* swards may increase as succession progresses.

Rationale for selection of measures of condition (features and attributes for use in condition assessment)
(The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).

Grazing by livestock and sward height attribute – the saltmarshes at Saltfleetby - Theddlethorpe have no history of grazing and it is not, therefore, thought necessary to have a sward height attribute, the target of <25% bare ground from livestock poaching has also been removed from the Negative Indicators section. Sward height measurements do not currently exist for this site and so a baseline could not be determined. Grazing by livestock would alter the floristic composition of the established swards, especially the *Halimione portulacoides* communities which are especially sensitive to grazing. It is possible that other species typical of the rare *Suaeda vera – Frankenia laevis* community may also be sensitive to grazing and that introduction of livestock could reduce the abundance of these characteristic shrubs and scarce plants. Un-grazed salt marshes are typical of much of the Lincolnshire coast and it is not considered desirable to introduce grazing with livestock. Some parts of the saltmarsh have experienced grazing by rabbits, which has increased in more recent years and can be especially high on the strip saltings when rabbit populations are high.

Other Notes
There are significant practical problems assessing some of the Favourable Condition attributes using just aerial photographs and the CSM Guidance field techniques, especially the zonation attribute. There are also difficulties in assessing the extent of certain communities (see tables above), especially *Salicornia* pioneer saltmarsh and differentiation with *Puccinellia* low-mid saltmarsh. In order to obtain the range of information at the accuracy required. Assessment every-other assessment cycle should be done through NVC survey i.e. every 12 years.

Table 3c Site-Specific definitions of Favourable Condition

CONSERVATION OBJECTIVE FOR THIS HABITAT / GEOLOGICAL SITE-TYPE	To maintain the **Coastal Sand dunes** at **Saltfleetby – Theddlethorpe Dunes** in favourable condition, with particular reference to relevant specific designated interest features. Favourable condition is defined at this site in terms of the following site-specific standards:
Site-specific details of any geographical variation or limitations (where the favourable condition standards apply)	

Site-specific standards defining favourable condition					
Criteria feature	**Attributes**	**Targets**	**Method of Assessment**	**Comments**	**Use for CA?**
Embryonic Shifting Dunes	Physical structure: functionality and sediment supply	No further anthropogenic increase in factors leading to the decrease of natural mobility of the system. The natural circulation of sand and organic matter should be retained.	Aerial photographs can be used, combined with information gathered from the site visit and NVC survey for confirmation of specific or important zonations and transitions.	Natural processes, particularly sediment supply, may be interrupted or prevented by coastal protection or artificial stabilisation (other than porous breach repair) or by sediment extraction. Accumulation of driftline organic material (seaweed etc.) is essential for trapping sand and initiating dune formation. Mechanical beach cleaning can adversely affect this process. The construction of sea defences can affect sediment supply: groynes can interrupt longshore drift that transports sediment in a prevailing direction. Offshore dredging can also affect sediment supply. Hard sea defences can lead to erosion at the ends of the defences and to fossilisation of any dunes behind the sea walls.	Yes

cont… **Embryonic Shifting Dunes**	Vegetation structure: range of zones of vegetation	Zonation from beach to fixed dune should be intact over at least 95 % of coastal frontage	Visual assessment, e.g. using transects (extending from beach to fixed dune) may be used to estimate the width of the strandline, embryonic dune and mobile dune at points described by GPS and marked on a map.	Points may change because of natural dynamism, but the overall diversity should not diminish. The dune front may be vulnerable to heavy trampling by visitors. The range of vegetation zones and the transitions between them at this site include: Strandline (with *Cakile maritima*, *Honckenya peploides*, *Atriplex* spp.) Embryonic dune (sparse cover of *Elytrigia juncea*, *Leymus arenarius*) especially SD5 Mobile dune (more stable dune dominated by *Ammophila arenaria*) especially SD6 Saltmarsh especially when barrier dunes breach and sand is blown onto strip saltings (see Transitions in audit trail below re mosaic) particularly with SD6 and SM10.	Yes
	Vegetation Composition: typical species	Maintain frequency of characteristic species of the main sand dune zones as follows: Strandline: At least one species frequent and another occasional: *Cakile maritima*, *Honckenya peploides*, *Salsola kali*, *Atriplex* spp. Embryo dunes: At least one species frequent: *Elytrigia juncea*, *Leymus arenarius*	Visual assessment of cover (modified DAFOR scale), using structured walk and transects.	Communities may be dynamic in their distribution and are linked to the physical processes operating at the site. Embryo and mobile dunes a typically species-poor and monospecific stands are common. Additional species may be included in the target on a site-specific basis.	Yes

cont… **Embryonic Shifting Dunes**	Vegetation Composition: condition & fruiting/flowering of foredune grasses	Healthy *Ammophila arenaria*, *Leymus arenarius* or *Elytrigia juncea* with abundant fruiting heads at least frequent.	Visual assessment of cover (modified DAFOR scale), using structured walk and transects.	If flowering is not frequent, dunes are no longer mobile and condition is unfavourable (see text for details).	Yes
	Vegetation composition: negative indicator species	1. Non-native species no more than rare. 2. Any one of the following negative indicators no more than frequent throughout the sward, or singly or together the cover of negative indicator species no more than 5%: Negative indicator species: *Cirsium arvense*, *Cirsium vulgare*, *Urtica dioica*, *Lolium perenne*, *Arrhenatherum elatius* and *Hippophae rhamnoides* where this is in an area identified for embryo dune priority.	Aerial photographs, together with visual assessment of cover (modified DAFOR scale), using structured walk. % cover measured is cover of the entire feature.	*Hippophae rhamnoides* is native at this site, however, invasion of excessive areas is not desirable – see targets on *Hippophae rhamnoides* under Extent Audit Trail. Areas of the site have been given priority for *Hippophae* or non-scrub dune vegetation - use of sea buckthorn as 'negative' depends on this allocation. *Urtica dioica* and *Cirsium* species are indicative of poor condition because of nutrient enrichment.	Yes

cont… **Embryonic Shifting Dunes**	Other negative indicators	Vehicle damage or visitor damage at vulnerable locations (e.g. tracks, access points) should be absent or rare	Visual assessment during site visit	Impact of human activities will depend on the site. Notes should be made of the type of damaging activity, location and extent for future further assessment.	Yes
Shifting Dunes along the shoreline with *Ammophila arenaria*	Physical structure: functionality and sediment supply	No further anthropogenic increase in factors leading to the decrease of natural mobility of the system. The natural circulation of sand and organic matter should be retained.	Aerial photographs can be used, combined with information gathered from the site visit	The construction of sea defences can affect sediment supply: groynes can interrupt longshore drift that transports sediment in a prevailing direction. Offshore dredging can also affect sediment supply. Hard sea defences can lead to erosion at the ends of the defences and to fossilisation of any dunes behind the sea walls.	Yes

Shifting Dunes along the shoreline with *Ammophila arenaria*	Vegetation Structure: range of zones	Zonation from beach to fixed dune should be intact over at least 95 % of coastal frontage	Visual assessment, e.g. using transects (extending from beach to fixed dune) may be used to estimate the width of the strandline, embryonic dune and mobile dune at points described by GPS and marked on a map NVC survey should be carried out every 12 years to confirm closely related transitions.	Points may change because of natural dynamism, but the overall diversity should not diminish. If strandline is absent this may be acceptable if due to natural causes (see comment under Extent). The dune front may be vulnerable to heavy trampling by visitors . The range of vegetation zones and the transitions between them at this site include: Strandline (with *Cakile maritima*, *Honckenya peploides*, *Atriplex* spp.) notably SD4 Embryonic dune (sparse cover of *Elytrigia juncea*, *Leymus arenarius*) notably SD6 Shifting dune (more stable dune dominated by *Ammophila arenaria*) and fixed dune grassland (with grasses such as *Festuca rubra*, *Festuca ovina* and herbs such as *Galium verum*, *Rhinanthus minor* and *Rubus caesius*). Saltmarsh transitions also occur especially when barrier dunes breach and sand is blown onto strip saltings (see Transitions in audit trail below re mosaic of SD4 with SD6 and SM10 and the transition SM25/SD6c).	Yes
	Vegetation Composition: condition & flowering/fruiting of foredune grasses	Healthy *Ammophila arenaria* with abundant fruiting heads at least frequent.	Visual assessment of cover (modified DAFOR scale), using structured walk and transects.	If flowering is not frequent, dunes are no longer mobile and condition is unfavourable (see text for details).	Yes

Shifting Dunes along the shoreline with *Ammophila arenaria*	Vegetation Composition: typical species	Maintain frequency of characteristic species of the main sand dune zones as follows: Mobile dunes: At least one species frequent: *Ammophila arenaria, Leymus arenarius*	Visual assessment of cover (modified DAFOR scale), using structured walk and transects.	Communities may be dynamic in their distribution and are linked to the physical processes operating at the site. Embryo and mobile dunes a typically species-poor and monospecific stands are common. Additional species may be included in the target on a site-specific basis.	Yes
	Vegetation Composition: negative indicator species	1. Non-native species no more than rare. 2. Any one of the following negative indicators no more than frequent throughout the sward, or singly or together the cover of negative indicator species no more than 5%.	Aerial photographs, together with visual assessment of cover (modified DAFOR scale), using structured walk. % cover measured is cover of the entire feature.	*Hippophae rhamnoides* is native here, however, invasion of excessive areas is not desirable – see targets on *Hippophae rhamnoides* under Extent Audit Trail. Areas of the site have been given priority for *Hippophae* or non-scrub dune vegetation - use of sea buckthorn as 'negative' depends on this allocation. *Urtica dioica* and *Cirsium* species are indicative of poor condition because of nutrient enrichment. **Negative indicator species: *Cirsium arvense, Cirsium vulgare, Urtica dioica, Lolium perenne, Arrhenatherum elatius* and *Hippophae rhamnoides* where this is in an area identified for mobile priority. Also *Senecio jacobaea* where it exceeds 10% cover.**	Yes

cont… **Shifting Dunes along the shoreline with *Ammophila arenaria***	Other negative indicators	Vehicle damage or visitor damage at vulnerable locations (e.g. tracks, access points) should be absent or rare	Visual assessment during site visit	Notes should be made of the type of damaging activity, location and extent for future further assessment.	Yes
Fixed dunes with herbaceous vegetation	Vegetation Structure: range of zones	Zonation from beach to fixed dune should be intact over at least 95 % of coastal frontage	The width of zones could be estimated using one or more transects extending from strandline to landward features. Aerial photographs should be used as an aid, where available. NVC survey should be carried out every 12 years to confirm closely related transitions.	Points may change because of natural dynamism, but the overall diversity should not diminish. Important transitions at this site include those between: Dune slack with *Carex nigra* and *Potentilla anserina* SD17; Dunes with *Hippophae* SD18; Wet grassland with *Agrostis stolonifera* and *Potentilla anserina* (MG11) and with *Juncus effusus* (MG10); Mesotrophic grassland with *Arrhenatherum elatius* MG1; saltmarsh driftline community SM24.	Yes
	Vegetation Structure: bare ground	Bare ground or sand present, but no more than 10 % total area.	Visual assessment of cover during structured walk or transects. Aerial photographs should be used as an aid, where available.	Patches of bare sand are essential for a wide range of dune invertebrates. Areas of bare sand created by human induced disturbance should not increase.	Yes

cont… **Fixed dunes with herbaceous vegetation**	Vegetation Structure: sward height	30-70% of sward to comprise species-rich short turf, 2-10 cm tall.	Assessment during structured walk or transects.	Target for ratio of short turf to taller marram-dominated vegetation should be set on a site-specific basis.	Yes
	Vegetation Structure: flowering/fruiting	Flowering and fruiting of dune grassland to at least frequent level – depending on the time of year visited (May-Oct).	Visual assessment (modified DAFOR scale) during structured walk or transects.	Level and timing of stock grazing should be sufficient to allow adequate seed production. Flowering is also important for many invertebrates (e.g. for nectar).	Yes
	Vegetation Composition: typical species	For calcareous dune grasslands (SD7, SD8, SD9, SD19), at least eight typical species present at more than occasional level:	Visual assessment of cover (modified DAFOR scale), using structured walk and transects.	Other species may be included on a site specific basis (see also Indicators of local distinctiveness). **Typical species include:** *Aira praecox*, *Arrhenatherum elatius* (SD 9 swards only), *Carex arenaria*, *Carex flacca*, *Cerastium fontanum*, *Crepis capillaries*, *Cladonia* spp., *Erodium cicutarium*, *Euphrasia officinalis*, *Festuca rubra*, *Galium verum*, *Geranium molle*, *Hypnum cupressiforme*, *Hypochaeris radicata*, *Linum catharticum*, *Lotus corniculatus*, *Luzula campestris*, *Odontites verna*, *Ononis repens*, *Peltigera spp*., *Pilosella officinarum*, *Plantago lanceolata*, *Prunella vulgaris*,*Rhinanthus minor*, *Rhytidiadelphus squarrosus*, *Rhytidiadelphus triquetrus*, *Thymus praecox*, *Tortula muralis*, *Sedum acre*, *Veronica chamaedrys*, *Viola canina*, *Viola riviniana*, *Viola tricolour*.	Yes
	Vegetation Composition: negative indicator species	1. Non-native species no more than rare. 2. Any one of the following negative indicators no more than frequent throughout the sward, or singly or together	Aerial photographs, together with visual assessment of cover (modified DAFOR scale), using structured walk. % cover measured is	*Hippophae rhamnoides* is native at Saltfleetby – Theddlethorpe Dunes, however, invasion of excessive areas is not desirable – see targets on *Hippophae rhamnoides* under Extent Audit Trail. Areas of the site have been given priority for *Hippophae* or non-scrub dune vegetation - use of sea buckthorn as 'negative' depends on this allocation.	Yes

cont… **Fixed dunes with herbaceous vegetation**		the cover of negative indicator species no more than 5%.	cover of the entire feature.	*Urtica dioica* and *Cirsium* species are indicative of poor condition because of nutrient enrichment. **Negative indicator species:** *Arrhenatherum elatius* (not SD9), *Cirsium arvense*, *Cirsium vulgare*, *Hippophae rhamnoides* where this is in an area identified for dune grassland priority, *Lolium perenne*, *Pteridium aquilinum*, *Rosa* spp., *Rubus fruticosus*, *Urtica dioica*, also *Senecio jacobaea* at over 15% cover	
	Vegetation Composition: scrub/trees	Scrub/trees no more than occasional, or less than 5% cover (except Juniperus spp in Scotland). Tree invasion from adjacent plantations absent or rare.	Visual assessment of cover (modified DAFOR scale), using structured walk or transects. % cover measured is cover of the entire feature.	See comments above about Hippophae rhamnoides. Where scrub or woodland is a notified habitat feature, the woodland monitoring guidance should be consulted.	Yes
cont… **Fixed dunes with herbaceous vegetation**	Other negative indicators	Vehicle damage or visitor damage at vulnerable locations (e.g. tracks, access points) should be absent or rare	Visual assessment during site visit	Notes should be made of the type of damaging activity, location and extent for future further assessment.	Yes
	Indicators of local distinctiveness	Maintain ratio between SD8 and SD9 (*Arrhenatherum* dune grassland) at the current ratio of 2:1 (in favour of SD8 communities and transitions).	Ratio confirmed from NVC survey results where the calculation of 'SD8' and 'SD9' includes mosaics and transitions with other dune communities (e.g. SD9+other, SD8/SD18a) as well as pure swards e.g.	This attribute is intended to cover any site-specific aspects of this habitat feature (forming part of the reason for notification) which are not adequately covered by the previous attributes , or by separate guidance e.g. for notified species features. *If part of the reason for the notification of the site, this is a mandatory attribute.	No

			SD8e, SD9a.		

Humid dune slacks	Vegetation structure: range of zones	The full range of successional zones apparent in the baseline survey should be maintained, including ecotones with fixed dry dune communities and transitions to wet grassland. An ecotone with *Hippophae rhamnoides* should also be maintained at between 5% to 10% of the wetland fringe	Visual assessment during structured walk and transects where a recent NVC survey is not available. Aerial photographs should be used to support site-based assessment especially concerning the extent of the Hippophae ecotone. NVC survey should be carried out every 12 years to confirm closely related transitions e.g. SD17 and MG11. Suggested method of assessment to be based on circumference measurements. Measurement of the *Hippophae* ecotone should include dune slack/ dune wetland in all the main areas.	There is no *Salix repens* on Lincolnshire dunes. The typical range of zones present during the baseline survey include: Wet grassland characterised by *Agrostis stolonifera* with other grasses and rushes (MG10, MG11, MG13); Swamp with either *Scirpus maritimus* (S21) or *Carex otrubae* (S18), the latter in dune hollows running down to saltmarsh; Dry dune grassland (SD8); Sea buckthorn (SD18). Water table height is fundamental to the maintenance of the dune wetlands.	Yes

cont…

Humid dune slacks

Humid dune slacks	Vegetation structure: bare ground	Bare ground or sand less than 5% of the total dune slack area.	Visual assessment of cover during structured walk and transects.	Bare ground is not a characteristic of mature dune slacks, such as those here. The baseline survey revealed no large (visible on aerial photo) areas of bare sand.	Yes
	Vegetation composition: scrub/trees	Scrub/trees no more than occasional, or less than 5% cover.	Visual assessment of cover (modified DAFOR scale), using structured walk or transects. Aerial photographs should be used as an aid, where available.	If scrub/tree species are more than occasional throughout the sward, they are soon likely to become a problem through shading of what is an open habitat.	Yes
	Vegetation composition: forb/grass ratio	The sward should contain >30% cover of forbs and <70% cover of grasses.	Visual assessment of cover during structured walk and transects or quadrat data from NVC survey.	Drying and eutrophication of the slack can be indicated by increase in 'grassiness'. Due to the unconventional process of slack formation here, the abundance of forbes may need to be reviewed, perhaps to include sedges (*Carex nigra* is characteristic of the SD17 community) and mosses (*Calliergon cuspidatum* is a typical moss of dune slacks) as honorary forbes.	Yes

Humid dune slacks	Vegetation composition: negative indicator species	Non-native species no more than rare. No more than one other negative indicator species more than frequent or singly or together the cover of negative indicator species no more than 5%. Negative indicator species: *Cirsium arvense*, *Cirsium vulgare*, *Cirsium palustre*, *Lolium perenne*, *Senecio jacobaea*, *Urtica dioica*, *Pteridium aquilinum*, *Arrhenatherum elatius*.	Visual assessment of cover (modified DAFOR scale), using structured walk or transects. % cover measured is cover of the entire feature.	Urtica dioica and Cirsium spp. are indicative of poor condition Abundance of Senecio jacobaea indicates overgrazing in summer. Lolium perenne is indicative of agricultural improvement.	Yes
	Vegetation composition: typical species	Four or more typical species (see below) at least frequent and two or more others at least occasional. Bryophytes (e.g. *Calliergon cuspidatum*, *Campylium stellatum*) at least occasional.	Visual assessment of cover (modified DAFOR scale) during structured walk and transects or from NVC survey quadrats.	Other species may be included on a site specific basis (see also Indicators of local distinctiveness). **Typical species:** *Anagallis tenella*, *Campylium stellatum*, *Calliergon cuspidatum*, *Carex arenaria*, *Carex flacca*, *Carex nigra*, *Equisetum variegatum*, *Galium palustre*, *Hydrocotyle vulgaris*, *Lotus corniculatus*, *Mentha aquatica*, *Ononis repens*, *Potentilla anserine*, *Prunella vulgaris*, *Ranunculus flammula*.	Yes

Natterjack toad ***Bufo calamita***	Aquatic macrophyte cover and shading	>90% of breeding ponds to have: aquatic macrophyte covering/shading less than 25% of surface, and no scrub solidly shading southern margin of pond. Target may be adjusted to suit pond characteristics.	Visual assessment April-June. Record once every 3 years.		
Natterjack toad ***Bufo calamita***	Terrestrial habitat in proximity of breeding ponds - condition	Set site-specific targets according to conditions.	Visual assessment by walking site. Map conditions at designation. Assess at any time of year. Record once every 3 years.	Scrub encroachment: Pine, willow, birch and sea buckthorn scrub are of particular concern. Bare sand, slag or rock piles are used for burrowing and there should be some adjacent to breeding ponds. Habitat structure to be open, with: no significant encroachment of dense scrub vegetation, and areas of low sward to remain low (height approx 1cm), and bare/sparsely vegetated areas to remain as such, and bare sand, slag or rock piles.	

Dunes with *Hippophae rhamnoides*	Vegetation succession and structure	Maintain at least three height classes of sea buckthorn scrub. Maintain a range of sea buckthorn age classes, in particular: • 30% of scrub area being in colonising stage (SD18a), and • 10% of older scrub being less than 10 years old, and • 20% of scrub more than 20 years old, allowing 5% of this to develop into dune woodland.	Relative proportions of height classes of sea buckthorn scrub: measured once every 6 years from aerial photos, and measured once every 12 years from sample surveys. Relative proportions of colonising (<50% cover sea buckthorn SD18a) and established scrub (>50% cover sea buckthorn SD18b): measured once every 6 years from aerial photos, and measured once every 12 years from sample surveys or NVC survey.	It is not yet clear how long structural variety can be maintained in stands of sea buckthorn by rotational cutting. Cutting of young buckthorn creates an homogenous stand of vigorous growth that easily climbs to medium-height or full-height scrub if left uncut. This type of management is unlikely to satisfy the criteria for colonising scrub, which may be better achieved through letting grassland areas become colonised with sea buckthorn and then clearing it when it reaches the 10 year or mature stage (depending on the objectives for the habitat being colonised). This would also assist in keeping a degree of dynamism in the community and prevent stands 'fossilising'. A scrub strategy needs to be developed and priority areas identified in which either *Hippophae* or dune grassland is preferred.	Yes

Dunes with *Hippophae rhamnoides*	Absence of non-native flora	Less than 5% cover of non-native trees and shrubs.	Relative proportion of non-native trees and shrubs; measured once every 6 years from aerial photos, and measured once every 12 years from full survey.	Areas of scrub behind gardens tend to accumulate garden shrubs and ornamental trees. The role of sycamore *Acer pseudoplatanus* in dune woodlands needs to be determined. Sycamore is very salt spray tolerant and, in the England chapter of the Sand Dune Survey of Great Britain (Radley/English Nature 1991) it was the most common woodland found on dunes. It may well be appropriate to consider sycamore as a native, especially as attitudes towards the 'native-ness' of this species have changed in the last few years. Typical species accompanying senescing *Hippophae* are elder *Sambuchus nigra* and hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior* is also a common early coloniser but on this site elm *Ulmus* spp. are also found, apparently suckering from the line of old hedgerows.	

Audit Trail
Rationale for limiting standards to specified parts of the site
Rationale for site-specific targets (including any variations from generic guidance)
Site specific targets **Transitions** **Indicators of local distinctiveness** - Fixed dune. The target for proportions of SD8 and SD9 have been included to reflect the level of grazing required to maintain species rich dune grasslands. Without high rabbit grazing levels in earlier decades, and in the absence of grazing by liveltock, much of the dune grassland would have become *Arrhenatherum* dominated, species poor swards. Although rabbit numbers fluctuate, and have been through a recent low period, the introduction of grazing by cattle and sheep in the dry dune areas should help to maintain a balance between these short- and long-sward communities.
Rationale for selection of measures of condition (features and attributes for use in condition assessment) (The selected vegetation attributes are those considered to most economically define favourable condition at this site for the broad habitat type and any dependent designated species).
Measuring attributes at Assessment There are significant practical problems in assessing some of the Favourable Condition attributes using just aerial photographs and the CSM Guidance field techniques, especially zonation where some of the transitional swards are very similar in floristic composition e.g. wet grassland ecotone and dune slack community. There are also difficulties in assessing the extent of certain communities (see tables above), especially differentiation between Shifting Dunes and Fixed Dunes which, at this site, are very similar in appearance and species composition. In order to obtain the range of information at the accuracy required, an NVC survey should be undertaken every 12 years (every-other assessment cycle). **All dune habitats** Negative indicator species – *Senecio jacobaea* is often plentiful in dune habitats because of the free-draining sany soils and the natural occurrence of bare soil through mobility or parching. In white dunes (embryo and early stages of the mobile dunes) cover rarely exceeds 10% because nutrient availability in the upper

sands is low. Higher cover than this in dunes where soil development is rudimentary might suggest the area is used as a dunging patch by grazing animals and should be investigated. In more developed swards where soil is forming - fixed dune habitats – ragwort can reach higher levels due to the local abundance of seed and the natural conditions favouring establishment (bare substrate and free-draining soils). These are often natural conditions and the grassland CSM guidance should not be taken as representative of dune habitats. A level of up to 15% *Senecio jacobaea* cover would be considered 'normal' for some areas of fixed dune grassland but may be indicative of adverse management if large areas of the habitat exhibited cover in excess of this.

Fixed dunes

Vegetation Composition (typical species) *Trifolium repens* has been removed from the list. White clover is often sown in agricultural swards to improve nitrogen content and the inclusion of this species in the 'typical' list may obscure those occasions when agricultural improvement has taken place to the detriment of a more natural sward. *Astragalus danicus* has also been removed as this plant does not occur in Lincolnshire which is too far south of its restricted range.

Humid Dune Slacks

Vegetation composition (*Salix repens*) – the attribute for *Salix repens* has been removed from these tables as the only true dune slack community present is SD17 *Potentilla anserina - Carex nigra* slack which does not have *Salix repens*, indeed, part of what differentiates this from other dune slack communities is the lack of creeping willow. *Salix repens* is absent from all coastal dunes in Lincolnshire.

Zonation – This target in the CSM Guidance states "All humid dune slack communities should be present – from embryonic dune slacks with a high percentage of bare ground to those with more closed vegetation and up to 33% cover of Salix repens. Early dune slack successional stages at least occasional".
A map needs to be developed identifying the full extent of the dune slack resource on the site, the full extent has become more apparent since scrub clearance on Seacroft Golf Course and the wet summers of 1987 and 1988. This is needed to facilitate the calculation of the 5% to 10% ecotone with Hippophae rhamnoides target.

Typical species and Grass/forbe ratio (*Salix repens*) has been removed from the list and replaced with *Carex nigra* as *S. repens* does not occur in Lincolnshire and *C. nigra* is a community constant for SD17. The list given in the Guidance may need to be revised further; the baseline survey of 1988 was carried out after a string of dry years and the SD17b community identified is the driest of the sub-communities

Dunes with *Hippophae rhamnoides*

Sea buckthorn is native on the coast of Lincolnshire and this is the only SAC (presently) for which it has been designated a feature of international importance. The *Hippophae* habitats in England appear to behave differently from those on the continent e.g. Holland. There the shrub is limited by a number of adaphic and biological factors which allow bushes to exist in a mosaic of dune grassland without forming the dense, tall monocultures typical of the Lincolnshire coast. Some of these limiting factors do not pertain to the east coast of England i.e. coincidence of the dominant and prevailing winds bearing high salt spray loads, acidification of the dune sands. Other factors have not been observed or studied in this country i.e. on the continent Hippophae seedlings only appear to become established where the roots can follow the route of species that pierce deep into the soil and sands below, especially marram grass *Ammophila arenaria*.

This raises questions as to what the conservation objectives should be for the SAC designation (*Hippophae* is not an SSSI feature). As there is no evidence to suggest that sea buckthorn has ever behaved at this site in the way that it does on the continent, an initial stance has been taken. The principles of the conservation objectives and targets set out in these tables are:

- *Hippophae rhamnoides* currently occupies too great a proportion of the dry dune area and fringes of the freshwater wetland, at the expense of fixed (grey) dune and dune slack habitat. Aerial photographs from the 1940s show that the extent of sea buckthorn 50 years ago was much more limited – to identifiable bushes and clumps – and that sea buckthorn has increased many hundred-fold in the absence of rabbit grazing and other management to restrict suckering. At the time of the baseline survey in 1988 the area of dry dune (NNR only) occupied by SD18a and SD18b was 80% (see Annex VIII of the report for a map of sea buckthorn scrub areas at the time of that survey) – some 46.5ha in its pure form and a further 5.4ha of mosaics and transitions – together: 52ha of a total 197ha vegetation or 26.4% of the total vegetated area of the site. It is neither desirable nor realistic to attempt to 'turn the clock back' but a balance must be achieved with the dune grassland habitats which were a major element of the SSSI designation in 1951.

  An initial 'working' principle has been set, until this can be refined, of one third sea buckthorn to two thirds other dune communities on the dry dune areas, this means extensive clearance of scrub of over 60% of stands present in 1998. Work on reducing the extent of sea buckthorn had already commenced at the time of writing these tables, both on the NNR and on Seacroft Golf Course (area figures for the golf course were not available for the 1988 baseline and are not included in the statistics quoted above.) Additional work will be required on the NNR and also on Seacroft Marsh (area figures not given in the 1989 report but may be able to be derived from digitising field maps made at that time).

- *Hippophae rhamnoides* should be represented on site in each of its life stages (seedling, suckering invasive growth, closed canopy mature growth and senescing aged stands reverting to grassland) and in each the habitats where it would normally be expected to occur (all dry dunes including embryo, shifting dune and fixed dunes, also dune slack edges).

- Stands of *Hippophae* should not be fossilised in the dune landscape at allocated locations but should be allowed a degree of dynamic interaction with surrounding habitats. This means that areas of mature sea buckthorn may be cleared in order to reinstate dune grassland with a view to allowing invasion

by seedling/suckering *Hippophae*, or that senescing stands be allowed to revert to dune grassland whilst other mature stands be allowed to senesce in order to maintain representation of the oldest stages of growth on site.

As it is the European dunes which have given rise to the habitat 'dunes with *Hippophae*' becoming a SAC feature it would be useful to get data from continental calcareous dunes. This could include the area of dune habitat covered by *Hippophae* per se or *Hippophae* communities and the proportion of the sward occupied e.g. %cover *Hippophae* in the '*Hippophae* zone' (a mosaic of young sea buckthorn and dune grassland), the 'Marram zone' (mobile dunes) and the senescing *Hippophae* zone. This information would be useful in refining the approach to this prickly problem at Gibraltar Point and its sister SAC at Saltfleetby-Theddlethorpe Dunes.

A *Hippophae* strategy needs to be developed for both this site and Saltfleetby-Theddlethorpe Dunes, the other half of the terrestrial SAC.

Other Notes

Maps need to be prepared to show priority areas for *Hippophae rhamnoides* and the extent of dune slack across the site.

Habitat Type	Surface 0	Surface 1	Surface 2	Surface 3	Surface 4	Surface 5	Surface 6
Coast: Saltmarsh	Brackish water in creeks and pools	Bare sand, silt or mud	Sparse low halophytic vegetation	Taller halophytic / brackish tolerant vegetation	Taller graminoid swards	scrub	
typical species	Algal community, some green seaweeds	unicellular algae or very incomplete filamentous algal film	*Salicornia, Cochlearia*	*Atriplex, Suaeda, Artimisia, Aster, Halimione, Plantago,*	*Phragmites, Scirpus, Juncus*	*Salix spp*	
Targets		present in at least 20% of SRSs				present in <5% of SRSs	
	single surface present in no more than 50% of SRSs						
	2+ different surfaces present in at least 20% of SRSs						
Preferred Features							
upper strandline litter of both dead graminoid and woody material		natural transition from lower saltmarsh, through upper saltmarsh to other habitat (eg freshmarsh, dunes (including slacks), wet grassland etc		high structural heterogeneity resulting from long history of no grazing		presence of flowering saltmarsh forbs - notable Aster	
pools at various shore levels, including high shore hypersaline pools		flat hard sand/silt at upper edge of creeks and estuaries		vertical erosion clifflets high on the shore, especially (though not exclusively) if sandy		freshwater creeks in the upper shore	
flowery areas, including those on other habitats (verges, sea banks, ruderal areas etc) including 'unwelcome' weeds such as ragwort and thistles							
Negative Features							
truncated succession through loss of upper saltmarsh, sea bank or concrete or gabion sea defences		loss of forbs and heterogeneity through grazing		over-dominance by grasses resulting from past grazing		introduction of grazing to naturally long - ungrazed saltmarsh	

Habitat Type	Surface 1	Surface 2	Surface 3	Surface 4	Surface 5	Surface 6	Surface 7

Coast: Fore Dunes	Sand surface	Lower strandline, more transitory	Upper strandline – more permanent	Pioneer sand binders			
typical species	bare	Seaweed wrack, drift material, transitory litter	*Honkenya, Cakile, Atriplex* etc Seaweed wrack, larger drift material, including driftwood & artificial materials	*Elymus, Ammonophila arenaria,*			
Targets	present in at least 70% of SRSs		present along at least 20% of high water line				
Preferred Features							
large areas of bare sand		sandblows		upper strandline		driftwood - natural and of human origin	
transitions to other parts of dune system, grey dunes, accreting foreshore, saltmarsh		upper strandline forbs bearing nectar bearing flowers eg *Cakile, Honkenya Tripleurospermum*, etc					
Negative Features							
evidence of beach cleaning of the upper strandline		changes to erosion/deposition cycle dynamics resulting from human activity		vehicle access to upper shore, especially strandline area		groynes, gabions and revetments	

Habitat Type	Surface 1	Surface 2	Surface 3	Surface 4	Surface 5	Surface 6	Surface 7
Coast: Grey Sand Dunes	bare sand or very sparse short pioneer vegetation or meagre lichen/bryophyte cover	short grass swards and dwarf xerophytic forbs, usually with bare sand	longer grasses & forbs usually with bare sand	longer closed swards without bare sand	young scrub	extensive mature scrub, & trees	
typical species	*Anagalis arvensis, Myosotis ramosissima* etc xerophytic lichens bryophytes	*Festuca ovina, Sagina & Cerastium spp, Sedum acre, smaller Geranium spp Erodium, Plantago spp etc*	*Euphorbia spp, Senecio Cynoglossum, Leymus arenarius etc*	*Leymus arenarius, Dactylus glomeratus, Cirsium spp*	*Ligustrum, Betula, Crataegus, Rubus fruticosa, Hippophae etc*	as surface 5 + tree species	
Targets	present in 20% of SRSs	present in 20% of SRSs	present in 20% of SRSs	present in <30% of SRSs		present in <30% of SRSs	
	single surface present in no more than 50% of SRSs						
	2+ different surfaces present in at least 20% of SRSs						
Preferred Features							
paths & tracks with mild erosion, including marginals 'microcliffs'	small areas of bare sand	limited areas of rabbit warrening	small patches of scrub, especially that creating shelter and with flowers				
transitions to other parts of dune system, slacks & saltmarsh	small sandblows						
flowery areas, including those on other habitats (verges, sea banks, ruderal areas etc) including 'unwelcome' weeds such as ragwort and thistles							
Negative Features							
totally closed grassy swards	large sand blows -	horse access along tracks and paths causing churning	path surfacing with stones, hoggin, woodchip, tarmac etc				
Invasives: =- excessive scrub development - >20% cover by sallow, privet, birch, tree species, especially aliens							

Habitat Type	Surface 1	Surface 2	Surface 3	Surface 4	Surface 5	Surface 6	Surface 7
Coast: Dune Slacks	Wet or damp bare sands or very sparse short pioneer vegetation	short dense 'graminoid' swards	Low scrub or taller grasses	Taller scrub	extensive mature scrub		
typical species	Liverworts, low mosses, *Poa*, short *Holcus*	*Hydrocotyle vulgaris, Ononis repens, Poa, Pyrola rotundifolia, Holcus*	*Salix repens, Holcus, Festuca,*	*Salix spp, Hippophae, Ligustrum*	as surface 4 + tree species		
Targets	present in 20% of SRSs	present in 20% of SRSs		present in <20% of SRSs but present in >5% where appropriate	present in <10% of SRSs		
	single surface present in no more than 50% of SRSs						
	2+ different surfaces present in at least 20% of SRSs						
Preferred Features							
vernal pools and margins		permanent pools and margins		naturally fluctuating water surface dynamics		stands of creeping willow	
small patches of tall scrub - sallow		scrub margin with flowers		any areas of bare wet sand, including tidal areas of slacks open to the sea or saltmarsh		creeks leading into and out of the slacks	
flowery areas, including those on other habitats (verges, sea banks, ruderal areas etc) including 'unwelcome' weeds such as ragwort and thistles							
Negative Features							
closure of open ground, especially bare wet sand beside pools		large stands of sallow scrub					
invasive species							