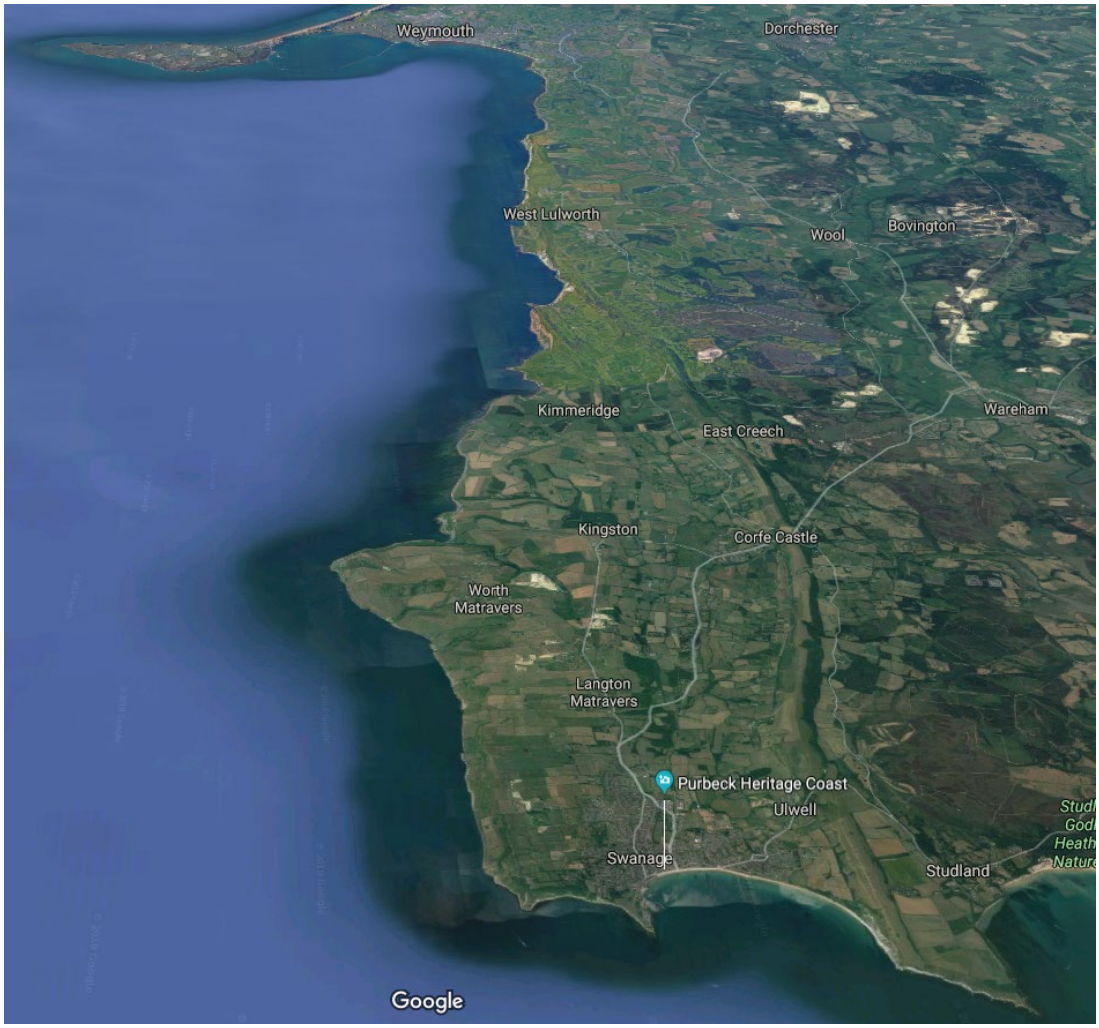
European Site Conservation Objectives: Supplementary Advice on Conserving and Restoring Site Features

Isle of Portland to Studland Cliffs Special Area of Conservation (SAC)
Site Code: UK0019861



Google Earth (2018)

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About this document

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to the Isle of Portland to Studland Cliffs SAC. This advice should therefore be read together with the SAC Conservation Objectives which are available here.

Where this site overlaps with other European Site(s), you should also refer to the separate European Site Conservation Objectives and Supplementary Advice (where available) provided for those sites.

You should use the Conservation Objectives, this Supplementary Advice and any case-specific advice given by Natural England, when developing, proposing or assessing an activity, plan or project that may affect this site.

This Supplementary Advice to the Conservation Objectives presents attributes which are ecological characteristics of the designated species and habitats within a site. The listed attributes are considered to be those that best describe the site's ecological integrity and which, if safeguarded, will enable achievement of the Conservation Objectives. Each attribute has a target which is either quantified or qualitative depending on the available evidence. The target identifies as far as possible the desired state to be achieved for the attribute.

The tables provided below bring together the findings of the best available scientific evidence relating to the site's qualifying features, which may be updated or supplemented in further publications from Natural England and other sources. The local evidence used in preparing this supplementary advice has been cited. The references to the national evidence used are available on request. Where evidence and references have not been indicated, Natural England has applied ecological knowledge and expert judgement. You may decide to use other additional sources of information.

In many cases, the attribute targets shown in the tables indicate whether the current objective is to 'maintain' or 'restore' the attribute. This is based on the best available information, including that gathered during monitoring of the feature's current condition. As new information on feature condition becomes available, this will be added so that the advice remains up to date.

The targets given for each attribute do not represent thresholds to assess the significance of any given impact in Habitats Regulations Assessments. You will need to assess this on a case-by-case basis using the most current information available.

Some, but not all, of these attributes can also be used for regular monitoring of the actual condition of the designated features. The attributes selected for monitoring the features, and the standards used to assess their condition, are listed in separate monitoring documents, which will be available from Natural England.

These tables do not give advice about SSSI features or other legally protected species which may also be present within the European Site.

If you have any comments or queries about this Supplementary Advice document please contact your local Natural England adviser or email HDIRConservationObjectivesNE@naturalengland.org.uk

About this site

European Site information

Name of European Site	Isle of Portland to Studland Cliffs Special Area of Conservation (SAC)
Location	Dorset
Site Map	The designated boundary of this site can be viewed here on the MAGIC website
Designation Date	01 April 2005
Qualifying Features	See section below
Designation Area	1447.50
Designation Changes	Not applicable
Feature Condition Status	Details of the feature condition assessments made at this site can be found using Natural England's Designated Sites System
Names of component Sites of Special Scientific Interest (SSSIs)	Isle of Portland SSSI, Nicodemus Heights SSSI, Purbeck Ridge (East) SSSI, South Dorset Coast SSSI, Studland Cliffs SSSI
Relationship with other European or International Site designations	The SAC St Albans Head to Durlston Head SAC lies between the two component parts of the Isle of Portland to Studland Cliffs SAC

Site background and geography

The Isle of Portland to Studland Cliffs Special Area of Conservation (SAC) stretches for some 40 km along the coast of South Dorset (containing the St Albans Head to Durlston Head SAC).

The cliffs support species-rich calcareous grassland with particularly large populations of several species that are scarce in the UK such as wild cabbage Brassica oleracea var. oleracea, early spider-orchid *Ophrys sphegodes* and Nottingham catchfly *Silene nutans*. The endemic sea lavender *Limonium recurvum ssp recurvum* is locally frequent.

The Portland peninsula demonstrates clearly the contrast between an exposed western coast, with sheer rock faces and sparse maritime vegetation, and a more sheltered eastern side. On this sheltered coast and on the mainland cliffs east of White Nothe there are extensive slumped undercliffs and landslides with a mix of massive fallen boulders, grassland and scrub. The scrub contains a high proportion of wayfaring-tree *Viburnum latana*, while wood spurge *Euphorbia amygdaloides* occurs widely in the grassland. The open habitats that occur on sands and clays as a result of frequent landslips are an especially rich habitat for may localised invertebrate species. Calcareous boulders in this turf support important and restricted lichen and bryophyte assemblages.

Semi-natural dry grassland occurs in both inland and coastal situations on both chalk and limestone. The site contains extensive species-rich examples of tor-grass *Brachypodium pinnatum* grassland and smaller areas of sheep's-fescue – meadow oat-grass (*Festuca ovina – Helictotrichon pratense*) grassland occur on shallow soils on steeper slopes. It also supports important long-standing populations of early gentian *Gentianella anglica* numbering several thousands of plants.

The site lies partly within the Dorset AONB, and wholly within the Jurassic Coast World Heritage Site. Geologically the underlying rocks are from the Triassic, Jurassic and Cretaceous Periods. This geology, the geomorphological process that act upon it and the fossils it yields are recognised as being of outstanding universal value under the UNESCO World Heritage Site designation.

This SAC is within National Character Areas 136 South Purbeck 137 Isle of Portland, 138 Weymouth Lowlands and 135 Dorset Heaths.

This SAC is covered by the Durlston Head to Rame Head Shoreline Management Plan (SMP, Version 2, June 2011), a document which assesses coastal processes and change and makes recommendations for future action, broken down into small coastal 'Policy Units'. This SAC is covered by Policy Unit 5g02 St Alban's Head to 6a01 Portland Bill to West Weare.

To the east, the SMP is the Poole and Christchurch Bays SMP (SMP, version 2, July 2011). This SAC is covered by Policy Units DUR 1 Durlston Head to Durlston Cliff Flats through SWA 5 Handfast Point to Ballard Point.

About the qualifying features of the SAC

The following section gives you additional, site-specific information about this SAC's qualifying features. These are the natural habitats and/or species for which this SAC has been designated.

Qualifying habitats:

- ***H1210. Annual vegetation of drift line***

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

In the UK this Annex I type is not always easy to classify using the NVC because it is highly variable between sites and from year to year at the same site. Level or gently-sloping, high-level mobile beaches, with limited human disturbance, support the best examples of this vegetation.

- ***H1230. Vegetated sea cliffs of the Atlantic and Baltic coasts***

Isle of Portland to Studland Cliffs, including the detached peninsula of Portland, with St Albans Head to Durlston Head, forms a single unit of cliffed coastline some 40 km in length. The cliffs are formed of hard limestones, with chalk at the eastern end, interspersed with slumped sections of soft cliff of sand and clays. The cliffs support species-rich calcareous grassland with species that are rare in the UK, such as wild cabbage *Brassica oleracea var. oleracea*, early spider-orchid *Ophrys sphegodes and* Nottingham catchfly *Silene nutans*. The Portland peninsula, extending 8 km south of the mainland, demonstrates very clearly the contrast between the exposed western and southern coasts, with sheer rock faces and sparse maritime vegetation, and the sheltered eastern side, with sloping cliffs supporting scrub communities, where wood spurge *Euphorbia amygdaloides* grows in grassland.

- ***H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia*)**; **Dry grasslands and scrublands on chalk or limestone**

Semi-natural dry grassland occurs at this site in both inland and coastal situations on both chalk and Jurassic limestone. The site contains extensive species-rich examples of CG4 *Brachypodium pinnatum* grassland in the southern part of its UK range. Smaller areas of CG2 *Festuca ovina – Avenula pratensis* grassland occur on shallow soils on steeper slopes. Transitions from calcareous grassland to both chalk heath and acid grassland are also present. The site has well-developed terricolous and saxicolous lichen and bryophyte communities associated with open turf, chalk rock and pebbles, and flinty soils.

Qualifying Species:

- ***S1654. Gentianella anglica; Early gentian***

Early gentian *Gentianella anglica* is an annual plant, occurring in calcareous grassland, mainly on steep, south-facing slopes. It grows on bare ground or in thin turf that is kept open by a combination of rabbit or sheep-grazing and trampling by livestock on thin droughted soils. In dense turf it becomes shaded out and unable to compete with other more vigorous species. It is found on a variety of substrates and in different habitats, but is particularly frequent in coastal grasslands. At most of its localities the vegetation is referable to 6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*).

There has been a marked decline in *G. anglica* since 1970, largely because of the ploughing of old chalk grassland and the abandonment of grazing on some of the remaining grasslands. The species is very much associated with a short grazed sward.

This site on the Dorset coast, together with St Albans Head – Durlston Head SAC, supports important long-standing populations the species.

Table 1: Supplementary Advice for Qualifying Features: H1210 Annual vegetation of drift lines

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution	**Extent of the feature within the site**	Maintain and where necessary restore the total extent of the H1210 feature to closely reflect the available suitable substrates/conditions along the SAC.	This habitat type occurs on deposits of shingle lying at or above mean high-water spring tides. The types of deposits involved are generally at the lower end of the size range of shingle (2-200 mm diameter), with varying amounts of sand interspersed in the shingle matrix. These shingle deposits occur as fringing beaches that are subject to periodic displacement or overtopping by high tides and storms. The distinctive vegetation, which may form only sparse cover, is therefore ephemeral and composed of annual or short-lived perennial species. The mobility of shingle foreshores is an overriding consideration, and colonising species are able to tolerate periodic disturbance by wave action. This may involve the erosion or deposition of the surface sediment that is consequently recolonised by characteristic annual vegetation. Species are also tolerant of saltwater inundation, as the beaches are often over-topped by the tide or subject to spray from waves breaking over the beach. Level or gently-sloping, high-level naturally mobile beaches, with limited human disturbance, support the best examples of this vegetation. Maximising the extent of suitable habitat for this community must focus on preventing interventions that adversely modify natural processes that create the habitat and activities which adversely impact the habitat and vegetation when it becomes established. SMP2 supporting documentation may include data on likely locations for characteristic sediment types for this habitat.	Joint Nature Conservation Committee. 2007. Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Peterborough: JNCC. Available from: www.jncc.gov.uk/article17 Durlston Head to Rame Head Shoreline Management Plan (SMP, Version 2, June 2011) Poole and Christchurch Bays SMP (SMP, version 2, July 2011) DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Extent and distribution	**Spatial distribution of the feature within the site**	Maintain and where necessary restore the distribution and continuity of suitable beach conditions such that this habitat has the greatest opportunity to colonise annually	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			The conditions for annual establishment of this feature need to be secured for the whole beach frontage of a site to enable it to reach favourable condition. The distribution may change if the beach is responding to coastal processes.	
Extent and distribution	**Future extent of habitat within the site and ability to respond to seasonal changes**	Maintain and restore the ability of this habitat to re-establish itself in response to coastal processes and re-colonise after natural events	This recognises the need to allow for natural fluctuations in the extent and the distribution of this habitat feature, often during particular seasons and usually as a result of natural coastal processes. The habitat must be able to re-establish on newly-deposited beach formations of suitable sediment.	Durlston Head to Rame Head Shoreline Management Plan (SMP, Version 2, June 2011) Poole and Christchurch Bays SMP (SMP, version 2, July 2011)
Structure and function (including its typical species)	**Vegetation community composition**	Maintain the component vegetation communities of the feature to the following characteristic National Vegetation Classification types • SD2 *Honkenya peploides – Cakile maritima* strandline community • MC6 *Atriplex prostrata – Beta vulgaris* ssp. *maritima* sea-bird cliff community (on shingle beaches only).	In the UK this Annex I type is not always easy to classify using the NVC because it is highly variable between sites and from year to year at the same site. It should also be noted that drift line vegetation found on a sand substrate is NOT referable to H1210, but are assessed as H2110 embryonic shifting dune communities. There may be a poor match with NVC types SD2 or Sneddon and Randall classification with driftline vegetation. Some locations with greater stability may resemble the MC6 vegetation type; but these perennials may be short-lived as a result of storm events.	Joint Nature Conservation Committee. 2007. Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Peterborough: JNCC. Available from: www.jncc.gov.uk/article17
Structure and function (including its typical species)	**Vegetation structure: zonation and transitions**	Maintain or where necessary restore the natural patterns of zonation across the drift line and between this and vegetation of more stable shingle landward that reflect the coastal processes and substrate type typical of the site.	This habitat is only generally found in a narrow fringing strip at and above MHW, but individual sites will show different patterns depending on the morphology of the site, and it can occur with perennial vegetation such as Crambe maritima. Where there is a fringing beach with no stable shingle to landward, other transitions may be present and these need to be identified. Transitions on this SAC can be to hard cliff edge, transitional eroding mud flows and associated perennial and annual vegetation brought down from H1230 vegetated sea cliff, eroding soft cliff with flush type communities etc.	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Structure and function (including its typical species)	**Key structural, influential and distinctive species**	Maintain the abundance of the species listed to enable each of them to be a viable component of the Annex I habitat feature *Honkenya peploides;* *Cakile maritima;* *Atriplex prostrata;* *A. glabrisucula;* *Galium aparine;* *Matricaria maritima;* *Polygonum oxyspermum;* *Salsola kali*. One-flowered Glasswort *Salicornia pusilla*	Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include • Structural species which form a key part of the Annex I habitat's structure or help to define that habitat on a particular SAC (see also the attribute for 'vegetation community composition'). • Influential species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat) • Site-distinctive species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. There may be natural fluctuations in the frequency and cover of each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available. For this habitat feature, the vegetation will re-colonise each year so stable stands are unlikely, and these are limited in species due to the requirement for plants to be adapted to this environment. Characteristic species include *Honkenya peploides; Cakile maritima; Atriplex prostrata; A. glabrisucula; Galium aparine; Matricaria maritima; Polygonum oxyspermum; Salsola kali*. Changes in the relative abundance of species can indicate changes in sediment size or processes.	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Structure and function	**Vegetation: undesirable**	Maintain or and where necessary reduce the frequency/cover of	Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
(including its typical species)	**species**	the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread; • Tamarisk	succession to a different and less desirable state. Often they may be indicative of a negative trend relating to another aspect of a site's structure and function. These species will vary depending on the nature of the particular feature, and in some cases these species may be natural/acceptable components or even dominants. There is limited data on invasive undesirable species of this habitat type. The planting of species such as Tamarisk in an attempt to stabilise foreshores is detrimental to this habitat type.	
Structure and function (including its typical species)	**Nutrient availability**	Maintain the input of nutrients from tidally-derived organic matter and ensure these are able to break down in situ	Tidal litter is an essential element to provide both nutrients and shelter for the germination of seeds. The combination of inorganic and organic substrate is an important pre-curser to development of the habitat and its successful establishment of its component vegetation on an annual basis. Both elements will be regulated by coastal processes. Removal of organic litter through artificial means may be considered detrimental to this feature.	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines
Structure and function (including its typical species)	**Sediment size range and type**	Maintain or and where necessary restore the availability and size range of those sediments typical of the feature at the site	Sediment size influences the establishment of vegetation and types of vegetation. Natural sorting of material by wave action maintains the optimum conditions. Some sites will have different sediment size ranges and material, but should generally be in the range of 2-200mm and the material must reflect the local geology and natural sources of sediment to the beach. Clearly any proposals including beach re-charge must take this into consideration and would ideally be avoid in the first place. Additionally, construction of structures which would interrupt natural sediment drift and starve sections of the coast of their supply of sediment should not be supported.	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines Durlston Head to Rame Head Shoreline Management Plan (SMP, Version 2, June 2011) Poole and Christchurch Bays SMP (SMP, version 2, July 2011)
Structure and function (including its typical species)	**Niches for seedling establishment**	Maintain and restore the availability of niches which provide the potential for seedling establishment	Disturbance of wave-deposited sediment reduces potential niches for seed germination, changes the arrangement of wave-sorted sediment and can lead to burial of seeds to a greater depth which suppresses germination. Beach replenishment in areas known to comprise the range of suitable substrate sizes (2-200mm) should either be avoided or	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			be of similarly suitable material and placed at the optimum time of year to ensure seed of the drift line vegetation is still moile and will not be buried. More information is needed to assess the optimum time of year to carry this out.	
Supporting processes (on which the feature relies)	**Beach morphology and structure**	Maintain a natural profile, elevation and slope of the beach and foreshore within the site	This is important as the shape and form of the beach provides optimum conditions for the establishment and completion of the annual cycle of flowering, fruiting and seed dispersal of the feature's typical component species Features that would directly or indirectly modify this morphology should be avoided. Careful consideration should be given to maintaining morphology in the design of any necessary coastal structures. Additionally, any redundant structures that are having an adverse impact on morphology should be removed.	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines Durlston Head to Rame Head Shoreline Management Plan (SMP, Version 2, June 2011) Poole and Christchurch Bays SMP (SMP, version 2, July 2011)
Supporting processes (on which the feature relies)	**Functionality and sediment supply including connectivity with the wider coastal sediment system**	Maintain or where necessary restore adequate sediment supplies to and across the site from source (the beach, offshore deposits, eroding cliffs etc)	There is a need at this site to ensure the continuous supply of sediment (from features such as soft eroding cliffs, dunes, offshore sand banks) to conserve this qualifying Annex I habitat feature. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. Sediment will be transported to the beach ridges by wave action and storms. Longshore drift will move sediment through a system and activities outside a site can have an impact on site integrity if inputs are reduced. Structures (groynes, piers, sea walls armour etc) and/or interventions (offshore aggregate winning for example) can all have a serious negative impact on the supply of sediment and the dependent geomorphological processes and structures.	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines Durlston Head to Rame Head Shoreline Management Plan (SMP, Version 2, June 2011) Poole and Christchurch Bays SMP (SMP, version 2, July 2011)
Supporting processes (on which the feature relies)	**Water quality**	Where the feature is dependent on surface water and/or groundwater, maintain water quality and quantity to a standard which provides the necessary conditions to support the feature	Poor water quality could adversely affect the structure and function of this habitat type. The habitat is not likely to suffer from landward water quality issues as any flow/seepage from the backing cliffs is likely to sink below beach level quickly (though high levels of pollution from agricultural activities or leaking septic tanks may have strong localised effects and should be avoided/investigated and remedied.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting processes (on which the feature relies)	**Conservation measures**	Maintain and where necessary restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain and restore the structure, functions and supporting processes associated with the feature	Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI and/or management agreements. Direct habitat management of this feature would typically take the form of preventing disturbance and the removal of non-organic tidal litter. Measures should be considered to manage the impact of visitor pressure on certain high footfall areas by protecting areas of suitable substrate from continuous disturbance, preventing the establishment of annual vegetation of drift lines.	Habitat account - Marine, coastal and halophytic habitats. 1210 Annual vegetation of drift lines
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: The targets for some attributes listed above include both 'maintain' or 'restore' objectives. This is because this SAC is made up of two component sites. Overall, both objectives will be applicable to the SAC but these will differ between each component site depending on its particular circumstances. Natural England will able to provide further advice on request.				

Table 2: Supplementary Advice for Qualifying Features: H1230. Vegetated sea cliffs of the Atlantic and Baltic coasts

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution	**Extent of hard or soft cliff capable of supporting sea cliff vegetation**	Maintain and, if necessary, restore the total extent of the cliff system which is capable of supporting H1230 sea cliff vegetation of at least 32 Km.	There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some cases, **the full extent of the feature may need to be restored** from areas which are suitable for the feature but do not, for a variety of reasons, currently support it. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys. Area measurements, where given, may be approximate depending on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. The extent of the Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. Where a feature is susceptible to natural dynamic processes, there may be acceptable variations in its extent through natural fluctuations. Where a reduction in the extent of a feature is considered necessary to meet the Conservation Objective for another Annex I feature, Natural England will advise on this on a case-by-case basis. The whole cliff system acts to provide the range and variation of vegetation types and mosaics including bare ground. Extent may be measured in different ways but there are issues with measuring area of vertical cliffs. Reduction in extent can include smothering cliff slope, cliff foot or cliff top surfaces by engineered or dumped materials or invasion by native or non-native plant species. The extent attribute has been calculated from measuring the length of the SAC on GIS systems.	
Extent and distribution	**Spatial distribution of the feature within the site**	Maintain and where necessary restore the distribution and continuity of the habitat and any associated transitions which reflects the natural functioning	A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to	DERC (1998). A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey by Bryan Edwards for English Nature.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		of the cliff system	future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature. Transitions include cliff top and cliff foot transitions to terrestrial or marine habitats. The extent and distribution of this feature is overwhelmingly currently dictated by the geomorphological processes acting upon the coast/cliffs. Maintaining coast where these processes are intact and functioning must be a priority while restoration of processes to areas where these have been disrupted should be pursued whenever possible.	DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Extent and distribution	**Future extent of habitat within the site and ability to respond to seasonal changes**	Maintain and where necessary restore active processes such that the system can adjust to longer-term natural change, including landward recession, and that fluctuations in the extent of vegetated areas to bare rock occur over time and space within the site	This recognises the need to allow for natural fluctuations in the extent and the distribution of this habitat feature, often during particular seasons and usually as a result of natural coastal processes. The need to allow the feature's communities to adapt to the landward recession of the cliffs requires that they are not hindered by inappropriate development/land use. Suitable land use should be secured in areas where recession is likely, through for example, agri-environment schemes or planning gain. Similarly, management of sediment availability and movement	South Devon and Dorset Coastal Advisory Group (SDADCAG), 2011 Shoreline Management Plan Review (SMP2) Durlston Head to Rame Head Shoreline Management Plan (Final) DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			along the entire SAC, and beyond where functionally connected (sediment cells etc), must consider the impact(s) upon the function of the cliffs' geomorphological processes.	
Structure and function (including its typical species)	**Geo-morphological naturalness**	Maintain and where necessary restore the geomorphological naturalness of the sea cliff system (from cliff top to foreshore connection with the intertidal zone.	The physical landforms associated with this habitat feature, and the processes that shape them, will be a primary influence on sea-cliff habitat. A key criteria for selecting SACs for this habitat feature was that they had no or minimal artificial modification and so demonstrate good geomorphological naturalness. Having a well-developed sea-cliff structure, shaped by natural geomorphological processes, will ensure the full range of natural variation can occur. Existing and new structures can interrupt natural geomorphological processes, both at the structure's location and potentially along the entire feature extent.	South Devon and Dorset Coastal Advisory Group (SDADCAG), 2011 Shoreline Management Plan Review Durlston Head to Rame Head Shoreline Management Plan (SMP, Version 2, June 2011) Nomination of the Dorset and East Devon Coast for inclusion in the World Heritage List, 2 (a) iii) The nominated Site represents an exceptional range of text-book exemplars of coastal geomorphological features, landforms and processes (P.16) Dorset County Council, 2001 Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)
Structure and function (including its typical species)	**Presence of mosaic of microhabitats**	Maintain and where necessary restore the diversity and range of microhabitats and bare areas resulting from active coastal processes/landslips	Each site will have a different configuration of geology and hydrology and maritime exposure, which will also change over time and space. The key aim is to maintain the full, naturally expected range of these in as natural a state as possible. This should be achieved allowing natural geomorphological processes which drive the creation of most of these microhabitats (such as large and small scale landslipping, cracking, mudsliding, vegetation collapse temporary pool creation, etc). Some discussion of the processes is contained within the Shoreline Management Plan.	South Devon and Dorset Coastal Advisory Group (SDADCAG), 2011 Shoreline Management Plan Review (SMP2) Durlston Head to Rame Head Shoreline Management Plan (Final) Rodwell, J. S. 1992 British Plant Communities Volume 3 – Grasslands and Montane Communities

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Structure and function (including its typical species)	**Vegetation community composition**	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types CG1 - *Festuca ovina - Carlina vulgaris* lowland calcareous grassland CG3 - *Bromus erectus* grassland CG4 - *Brachypodium pinnatum* grassland CG5 - *Bromus erectus - Brachypodium pinnatum* grassland MC1 *Crithmum maritimum – Spergularia rupicola* crevice community MC5 *Armeria maritime – Cerastium diffusum* therophyte community MC8 *Festuca rubra – Armeria maritime* maritime grassland MC11 *Festuca rubra – Daucus carota* maritime grassland	This habitat feature will comprise a number of associated semi-natural vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations). The presence, composition, location and extent of maritime scrub, heath and/or grassland plus mosaics of the three, on cliff slopes or cliff tops will be determined by the interaction of natural geomorphological processes with exposure and soil characteristics and management where relevant. Areas of cliff that do not support these NVC communities should not be regarded as of a secondary level of importance. It is likely that lack of suitable management and/or past interventions (engineering, drainage, planting etc) have adversely affected the (semi) natural vegetation and restoration should be viewed as both possible and desirable. Natural community succession should be allowed to evolve without human interference/intervention. Any areas where succession has been checked by a reversible intervention should be prioritised for remedial, restorative works. For a full understanding of the NVC communities listed left, see the relevant volumes of Rodwell's British Vegetation	Bryan Edwards, DERC, 1998, A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey for English Nature. Rodwell, J. S. 1992 British Plant Communities Volume 3 – Grasslands and Montane Communities For detailed information on Units 33 and 34 see: Edwards B. DERC. 1996/1997 A Vegetation Survey of the Isle of Portland SSSI: East Weares and Verne Common. For detailed information on Units 40, 41, 42 and 43 see: Edwards B. DERC. 2004 A Vegetation Survey of the Coastal Strip, Isle of Portland. For detailed information on scrub see: Edwards B. DERC. 2002 The past and present distribution and conservation value of scrub on the Isle of Portland., and Edwards B. DERC. 2008 Trial introduction of British primitive goats to Penn's and East Weare, Isle of Portland. DWT, c.2015, Isle Of Portland:

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		W21 *Crataegus monogyna – Hedera helix* scrub W22 *Prunus spinosa – Rubus fruticosus* scrub	Communities. However, in the absence of these works, see the Wiki on NVC	Management And Monitoring Plan 2015 - 2025
Structure and function (including its typical species)	**Vegetation: undesirable species**	Maintain or reduce the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread; Holm oak *Buddleia davidii* *Cotoneaster* spp Pampas Grass	Undesirable non-woody and woody vascular plants species may require active management to avert an unwanted succession to a different and less desirable state. Often they may be indicative of a negative trend relating to another aspect of a site's structure and function. These species will vary depending on the nature of the particular feature, and in some cases these species may be natural/acceptable components or even dominants. On the Isle of Portland in particular, *Cotoneaster* sp horizontalis, *integrifolius* and *simonsii* have been particular issues – though intensive control works have redressed the balance back to semi-natural vegetation. However these spp should be monitored and interventions made to prevent rapid colonisation in the correct conditions. It is not apparent that there is an issue with invasive native or non-native species on the cliffs of this SAC.	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178) DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Structure and function (including its typical species)	**Key structural, influential and distinctive species**	Maintain and restore the abundance of the species listed to enable each of them to be a viable component of the Annex I habitat • Constant and preferential plant species of CG1 - CG3 CG4 CG5 MC1 MC5 MC8 MC11 W21 & W22 NVC communities which are the main component of the H1230 feature within the SAC • *Limonium recurvum*: subsp.	Some plant or animal species (or related groups of such species) make a particularly important contribution to the necessary structure, function and/or quality of an Annex I habitat feature at a particular site. These species will include; • **Influential** species which are likely to have a key role affecting the structure and function of the habitat (such as bioturbators (mixers of soil/sediment), grazers, surface borers, predators or other species with a significant functional role linked to the habitat) • **Site-distinctive** species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC. There may be natural fluctuations in the frequency and cover of	Bryan Edwards, DERC 1998, A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey for English Nature. (1) Edwards B. Dorset Environmental Records Centre (DERC) 2005 (for English Nature) A Review of Key species on the Isle of Portland. (2) Edwards B. DERC. 2005 A Review of Key Bryophyte and Lichen Species on the Isle of Portland; and Edwards B &

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		recurvum Rock Sea-lavender • *Limonium recurvum* subsp. *portlandicum* Portland Sea-lavender • *Gentianella anglica* Early Gentian • Vascular plant assemblage(1) • Lichen and bryophyte assemblage (2)	each of these species. The relative contribution made by them to the overall ecological integrity of a site may vary, and Natural England will provide bespoke advice on this as necessary. The list of species given here for this Annex I habitat feature at this SAC is not necessarily exhaustive. The list may evolve, and species may be added or deleted, as new information about this site becomes available. One of the richest coastal limestone lichen sites in the British Isles including 16 Red Data Book, 2 Nationally Rare and 39 Nationally Scarce species. The site is internationally important for *Lecania chlorotiza, Syncesia myrticola* and *Opegrapha saxigena.* Bryophyte assemblage of particular interest for its Mediterranean characteristics; includes 6 Red Data Book and 13 Nationally Scarce species.	Giavarini V. DERC. 2006 Lichen Monitoring on Boulders Isle of Portland SSSI: Cheyne Weare to East Weare. Edwards B. & Pearman D, 2004 Dorset Rare Plant Register Dorset Environmental Records Centre DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Structure and function (including its typical species)	**Regeneration potential**	Maintain and where necessary restore semi-natural vegetation on the cliff-top (within and/or beyond the site boundary as appropriate), and its connectivity with the lower cliff slopes.	This is important to ensure that there is a continuous supply of seed-rich semi-natural vegetation material from the clifftops to feed the sea-cliff system below. As the top of the cliff slumps and recedes as a result of natural processes, the vegetation dropping onto the lower slopes should provide suitable material for their re-colonisation with native plant species from adjacent semi-natural habitats above. The creation of an appropriate semi-natural habitat, without alien or exotic species, adjacent to the cliff zone can provide a buffer to the SAC feature.	DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Supporting processes (on which the feature relies)	**Physical features supporting vegetation: crevices, ledges, isolated stacks etc**	Maintain the associated physical components of the vegetated cliff feature (crevices, ledges, isolated stacks) with changes to them determined by natural processes only	The cliff structure and geomorphological processes are major influences on sea-cliff vegetation. The SAC is a stretch of uninterrupted 'Hard' cliffs with vertical or very steep faces of sedimentary Portland and Purbeck Limestone rock. Modification of geomorphological processes on or adjacent to the cliff system may be detrimental to the continuation of natural processes.	DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting processes (on which the feature relies)	**Hydrology/ drainage**	At a site, unit and/or catchment level (as necessary, maintain or where necessary restore natural hydrological processes to provide the conditions necessary to sustain the feature within the site	Defining and maintaining the appropriate hydrological regime is a key step in moving towards achieving the conservation objectives for the Isle of Portland – Studland Cliffs SAC and sustaining the H1230. Vegetated sea cliffs of the Atlantic and Baltic coasts. On these harder cliffs, hydrologically driven sliding and slumping are minor geomorphological drivers. The gradual erosion from moving water and the effects of freeze/thaw are significant mechanisms of cliff movement and fall. Erosion at the foot of the cliff by the sea is an additional major driver of cliff change.	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)
Supporting processes (on which the feature relies)	**Maritime exposure including salt spray effects**	Maintain an appropriate degree of exposure to maritime effects, such as salt spray, both from regular inputs and storm events	Excessive exposure to salt spray can cause episodic die-back of sea cliff vegetation in some circumstances. Such die back can be a useful component in the cycle of succession in some locations, bringing about early successional niches where geomorphological processes are either hindered or slow (such as on hard cliff areas).	
Supporting processes (on which the feature relies)	**Water quality**	Where the feature is dependent on surface water and/or groundwater, maintain and restore water quality and quantity to a standard which provides the necessary conditions to support the feature	Elements of the St Albans Head to Durlston Head SAC features are dependent on wetland habitats, such as runnels and seepages, supported by surface and/or ground water. Maintaining the quality and quantity of water supply will be critical, especially at certain times of year. Impacts upon the vegetated sea cliff feature will arise from localised inputs from small streams and/or surface water conditions (run off from fields, roads, leaking septic tanks etc). Main rivers do not play a role. Consideration must be given to any proposal's likely impact on very local water quality and quantity. Considerations should include, but not be limited to, nutrient status, chemicals pollution, silt/sediment content, biological oxygen demand (BOD), and impacts upon water availability. Poor water quality and inadequate quantities of water can adversely affect the structure and function of this habitat type. Typically, meeting the surface water and groundwater environmental standards set out by the Water Framework	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Directive (WFD 2000/60/EC) will also be sufficient to support the achievement of SAC Conservation Objectives but in some cases more stringent standards may be needed. Further site-specific investigations may be required to establish appropriate water quality standards for the SAC.	
Supporting processes (on which the feature relies)	**Air quality**	Concentrations and deposition of air pollutants should be maintained at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales. Critical loads for this feature within the SAC are currently within acceptable limits however there are concerns about impacts of future increases in deposition levels on the feature. Any proposals within 10km of the St Albans Head to Durlston Head SAC should be assessed for their air quality impacts on the feature. Site specific critical loads and levels for features can be found here: http://www.apis.ac.uk/srcl/select-a-	Air Pollution Information System (www.apis.ac.uk). Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			feature?site=UK0019863&SiteType=SAC&submit=Next Note that as the Vegetated sea cliffs of the Atlantic and Baltic Coasts (H1230) comprises a variety of vegetation communities, it would be necessary to assess emissions against each NVC (National Vegetation Classification) community (see above) listed for this feature separately. This can be done here: http://www.apis.ac.uk/search-pollutant-impacts.	
Supporting processes (on which the feature relies)	**Cliff morphology, slope and elevation**	Maintain the natural processes that determine cliff morphology, slope and elevation	These physical components greatly influence the structure of this habitat type. Allowing natural dynamic processes to operate is crucial to providing optimal conditions which will allow the long-term conservation of this habitat feature. Though the hard vertical cliffs of the St Albans Head to Durlston Head SAC erode very gradually, interruption of these processes, through partial stabilisation or slowing of cliff erosion and recession rates, with artificial management of cliff slope (through, for example, pinning, bolting, meshing, drainage etc) does not produce naturally-occurring conditions which is likely to lead to undesirable changes in characteristic sea cliff vegetation.	
Supporting processes (on which the feature and/or its supporting habitat relies)	**Disturbance from human activity**	Control and minimise human access to cliffs	In some locations the level of access to the cliffs for mountaineering and coasteering may have reached levels at which a negative impact on the SAC feature (and other non-SAC interests – breeding seabirds for example) may be occurring. Climbing activity can damage ledges and the vegetation growing on them, scuffing of rock faces can have a deleterious effect on lichens and bryophytes. The type and frequency of activity needs to be monitored and action taken to reduce pressure where it is having an adverse impact on a feature's constituent vegetation communities. Climbing and some more 'offbeat' cliff activities (camping on suspended ledges) not only has an impact on the cliff face, but also (and possibly more importantly) on the area of cliff top immediately adjacent to the cliff, where trampling and abrasion from ropes etc. is focussed.	

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Version Control Advice last updated: N/A			
Variations from national feature-framework of integrity-guidance: The targets for some attributes listed above include both 'maintain' or 'restore' objectives. This is because this SAC is made up of two component sites. Overall, both objectives will be applicable to the SAC but these will differ between each component site depending on its particular circumstances. Natural England will able to provide further advice on request. Additional attribute **Supporting Processes – Disturbance from human activity** has been added			

Table 3: Supplementary Advice for Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*) (important orchid sites)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Extent and distribution of the feature	**Extent of the feature within the site**	Maintain and where necessary restore the total extent of the feature to the maximum extent possible this should be no less than 792 hectares.	There should be no interventions that result in measurable reduction (excluding any trivial loss) in the extent and area of this feature. It is likely that the full potential extent of the feature will need to be restored as well as further habitat landward of the current SAC boundary (see below). The baseline-value of extent given has been taken from the Natura 2000 – Standard Data Form and represents the estimated feature extent at designation. The extent data was gathered from site-based surveys. Area measurements given are approximate and accuracy depends on the methods, age and accuracy of data collection, and as a result this value may be updated in future to reflect more accurate information. 792 ha is the figure given in the N2K Standard Data Sheet for this SAC The extent of an Annex I habitat feature covers the sum extent of all of the component vegetation communities present and may include transitions and mosaics with other closely-associated habitat features. This feature, like most on the coast, is susceptible to natural dynamic processes, there will be acceptable variations in its extent through natural fluctuations, especially through natural geomorphological processes resulting in cliff failure and collapse. Given the linear nature of this feature and the often narrow extent between cliff edge and other land uses it will be highly desirable to seek creation of further extent of this feature outside the SAC boundary to provide both a continuation of the connectivity of the feature along the coast and to provide 'fall back' habitat for certain of the SAC features and the communities that they comprise.	DERC 1998. A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey by Bryan Edwards for English Nature. NATURA 2000 – STANDARD DATA FORM Isle of Portland to Studland Cliffs SAC
Extent and distribution of the feature	**Spatial distribution of the feature**	Maintain and where necessary restore the distribution and configuration of the feature,	This feature forms by far the largest element of the entire SAC, some 227 ha of the total 283 ha (72% or so). This is due to suitable substrate occurring consistently along the entire length	DERC 1998. A National Vegetation Classification Survey of Portland to Studland Cliffs

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
	within the site	including where applicable its component vegetation types, across the site	- limestones with smaller areas of acid clay caps and drift in valleys, A contraction in the range, or geographic spread, of the feature (and its component vegetation and typical species, plus transitional communities) across the site will reduce its overall area, the local diversity and variations in its structure and composition, and may undermine its resilience to adapt to future environmental changes. This may also reduce and break up the continuity of a habitat within a site and how well its typical species are able to move around the site to occupy and use habitat. Such fragmentation can impact on their viability and the wider ecological composition of the Annex I habitat. Smaller fragments of habitat can typically support smaller and more isolated populations which are more vulnerable to extinction. These fragments also have a greater amount of open edge habitat which will differ in the amount of light, temperature, wind, that it receives compared to its interior. These conditions may not be suitable for some of the typical and more specialist species associated with the Annex I habitat feature.	cSAC. Survey by Bryan Edwards for English Nature. DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025
Structure and function (including its typical species)	**Vegetation community composition**	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation Classification types CG1 *Festuca ovina - Carlina vulgaris* grassland CG3 *Bromus erectus* grassland CG4 *Brachypodium pinnatum* grassland	This habitat feature comprises a number of associated semi-natural calcareous vegetation types and their transitional zones, reflecting the geographical location of the site, altitude, aspect, soil conditions (especially base-status and drainage) and vegetation management. In the UK these have been categorised by the National Vegetation Classification (NVC). Maintaining and/or restoring these characteristic and distinctive vegetation types, and the range of types as appropriate, will be important to sustaining the overall habitat feature. This will also help to conserve their typical plant species (i.e. the constant and preferential species of a community), and therefore that of the SAC feature, at appropriate levels (recognising natural fluctuations).	Bryan Edwards, DERC 1998. A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey for English Nature. Rodwell, J. S. 1992 British Plant Communities Volume 3 – Grasslands and Montane Communities DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		CG5 *Bromus erectus – Brachypodium pinnatum* grassland		
Structure and function (including its typical species)	**Vegetation: proportion of herbs (including Carex spp)**	Maintain and/or restore the proportion of herbaceous species within the range 40%-90%	A high cover of characteristic herbs, including sedges (Carex species) is typical of the structure of this habitat type. The preferred and 'classic' mechanism by which this is achieved here is by extensive beef cattle, and sometimes, sheep grazing. Interventions or changes of use that may impinge upon or threaten the continuation of such management must be deterred. Conversely changes which will enhance the ability to graze and properly manage the constituent grasslands (as long as they do not have other negative impacts) should be encouraged.	
Structure and function (including its typical species)	**Key structural, influential and/or distinctive species**	Maintain and where necessary restore the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat • Constant and preferential plant species of CG1, CG3, CG4 and CG5 NVC communities which are the main component of the H6210 feature within the SAC • Early Spider Orchid *Ophrys sphegodes* • Early Gentian *Gentianella angelica* • Vascular plant assemblage	See generic text for this feature in Table 1.	DERC 1998. A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey by Bryan Edwards for English Nature. Various surveys held by Natural England and the Dorset Environmental Records Centre (DERC) Edwards B. & Pearman D, 2004 Dorset Rare Plant Register Dorset Environmental Records Centre DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		• Key lepidoptera species including Lulworth Skipper *Thymelicus acteon* and Adonis Blue *Polyommatus bellargus* • Lichen and bryophyte assemblage		
Structure and function (including its typical species)	**Vegetation: undesirable species**	Reduce or eliminate the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface condition, soils, nutrient levels or hydrology which may encourage their spread. European gorse (when becomes too dense/dominant); Holm Oak; Tor grass (*Brachypodium pinnatum*) *Buddleia davidii* *Cotoneaster* spp Pampas Grass	There will be a range of undesirable or uncharacteristic species which, if allowed to colonise and spread, are likely to have an adverse effect on the feature's structure and function, including its more desirable typical species. These may include invasive non-natives such as Cotoneaster spp, or coarse and aggressive native species which may uncharacteristically dominate the composition of the feature. Along the coast common or European gorse (*Ulex europaeus*) can be a major problem. It is a component of most of the coastal grasslands, especially where acidic 'clay with flints' or head deposits occur. If left unmanaged it can spread rapidly and take over entire parcels of land. Holm oak (*Quercus ilex*) is often a naturalised escapee of formal planting. In this SAC it is centred on the area around Durlston Castle and grounds and has encroached upon grassland areas. Management should seek to contain and in places push back Holm oak to encourage grassland regeneration. Tor grass is a complicated undesirable species as it also forms the key plant species in the life cycle of the rare and localised Lulworth Skipper (*Thymelicus action*). This species lays its eggs on, feed on and overwinters (as a caterpillar) within the dense tussocks of this grass. Its negative impacts are that it forms a dense tussocky mat of grass, spreading by aggressive rhizomes. It can smother other grasses and herbs leading to near monocultures. It is also only palatable to cattle early in the season.	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178) DWT, c.2015, Isle Of Portland: Management And Monitoring Plan 2015 - 2025

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Consistent, spring grazing by cattle seems to keep the species in check. There is ongoing research looking at reasons for its vigour and mechanisms to control it	
Structure and function (including its typical species)	**Vegetation community transitions**	Maintain or where necessary restore the pattern of natural vegetation zonations/transitions between the various NVC calcareous grassland communities which form the feature.	The transitions/zonations between adjacent calcareous vegetation communities are, on this SAC, related to naturally-occurring changes in soil, aspect, slope and significantly the stress under which the community survives – this can be due to drought (thin soils) sea spray and wind (close to cliff edges and windy gullies etc). These 'ecotones' retain characteristics of each bordering community and add value in often containing species not found in the adjacent communities. They can also contain species found in other N2K features, in this case a transition between pioneer CG communities and certain species of the vegetated sea cliff feature, including certain lichens and bryophytes. Retaining such transitions provides further diversity to the habitat feature, and can support additional distinctive flora and fauna, particularly invertebrates.	
Structure and function (including its typical species)	**Soils, substrate and nutrient cycling**	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, to within typical values for the habitat.	Soil is the foundation of basic ecosystem function and its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with this Annex I feature. This feature is generally characterised by thin, nutrient poor, highly porous soils. Some of the very best areas for key species (orchids, gentian etc) are at an early successional stage and comprise what are known as ‘skeletal’ soils having a low organic content and favouring annual or highly adapted species, especially where these occur in highly stressed clifftop locations. Threats to such soils are enrichment/eutrophication,	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			smothering under imported soils or waste etc. Additionally species such as common gorse can aggressively colonise such soils and relatively quickly significantly alter their nutrient status and chemistry (see above). While the overriding aim should be to retain the naturally occurring soils of this SAC through non-intervention, in some places it may be appropriate, after due consultation with Natural England, to restore the soil to an early state through mechanical intervention (turf stripping, soil stripping etc.).	
Structure and function (including its typical species)	**Supporting off-site habitat**	Maintain and where necessary restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the feature	The structure and function of the Semi-natural dry grasslands and scrubland facies: on calcareous substrates habitat, including its typical species is, strengthened by a network of adjacent or nearby semi-natural habitats (mostly of similar calcareous grassland) some of these are remnant grassland Sites of Nature Conservation Interest (SNCIs) and may be of comparable quality to the SAC feature. Others are more recent, often created or restored through successive agri-environment scheme interventions. The SAC feature relies on the continued presence of these areas which surround and are outside of the designated site boundary. Changes in surrounding land-use may adversely (directly/indirectly) affect the functioning of the feature and its component species. This supporting habitat may be critical to the typical species of the feature to support their feeding, breeding, roosting, population dynamics ('metapopulations'), pollination or to prevent/reduce/absorb damaging impacts from adjacent land uses e.g. pesticide drift, nutrient enrichment. In this coastal setting, these adjacent habitats are also the future coastal grassland and will provide refuge to the feature as the cliffs recede beyond the current landward boundary of the SAC designation.	www.magic.gov.uk (Agri-environment scheme and priority habitat layers) Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)
Structure and function (including its typical species)	**Functional connectivity with wider landscape**	Maintain and where necessary restore the overall extent, quality and function of any supporting features within the local landscape which provide a	There is a need at this site to maintain and restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. This need not only includes the connection of the coast into its backing ecological hinterland, but also the retention and, in places, need for enhancement of	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		critical functional connection with the site	the linear connectivity of the SAC itself where the area of semi-natural habitat is tightly 'squeezed' between cliff top and adjacent land use (this is down to a few tens of meters in places). These connections may take the form of landscape features, such as habitat patches, hedges, watercourses and verges, outside of the designated site boundary which are either important for the migration, dispersal and genetic exchange of those typical species closely associated with qualifying Annex I habitat features of the site. These features may also be important to the operation of the supporting ecological processes on which the designated site and its features may rely. In most cases increasing actual and functional landscape-scale connectivity would be beneficial. Where there is a lack of detailed knowledge of the connectivity requirements of the qualifying feature, Natural England will advise as to whether these are applicable on a case by case basis.	
Structure and function (including its typical species)	**Adaptation and resilience**	Maintain and where necessary restore the feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site	Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change while retaining the same basic structure and ways of functioning. The overall vulnerability of this SAC to climate change has been assessed by Natural England (2015) as being low, taking into account the sensitivity, fragmentation, topography and management of its habitats. This means that this site is considered to be vulnerable overall but are a lower priority for further assessment and action. Individual species may be more or less vulnerable than their supporting habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable Such environmental changes here may include changes in sea levels, storminess, precipitation and temperature all of which appear to already be increasing the rate at which the cliffs are	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178) NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England Available at http://publications.naturalengland.org.uk/publication/4954594591375360

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			eroding and cutting back into coastal habitat. This is already affecting the extent of some grassland and possibly the species feature (early gentian). Other impacts could include distribution, composition and functioning of this feature within the site. The vulnerability and response of features to such changes will vary, even within this single site. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.	
Supporting processes (on which the feature relies)	**Air quality**	Concentrations and deposition of air pollutants should be maintained at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	This habitat type is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition and causing the loss of sensitive typical species associated with it. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis. Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales. Critical loads for this feature within the SAC are currently within	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air Pollution Information System (www.apis.ac.uk). Site specific critical loads and levels for features can be found here Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			acceptable limits however there are concerns about impacts of future increases in deposition levels on the feature. Any proposals within 10km of the St Albans Head to Durlston Head SAC should be assessed for their air quality impacts on the feature. Site specific critical loads and levels for features can be found here: http://www.apis.ac.uk/srcl/select-a-feature?site=UK0019863&SiteType=SAC&submit=Next Note that as the H6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) (important orchid sites) comprises a variety of vegetation communities, it would be necessary to assess emissions against each NVC (National Vegetation Classification) community (see above) listed for this feature separately. This can be done here: http://www.apis.ac.uk/search-pollutant-impacts.	
Supporting processes (on which the feature and/or its supporting habitat relies)	**Disturbance from human activity**	Control and minimise excessive human access to grasslands	In some locations the level of access along the clifftop grasslands by the public may have reached levels at which a negative impact on the SAC feature (and other non-SAC interests) may be occurring. The sheer volume of footfall in some locations, coupled with the limited 'depth' of the SAC (pinch points where break of cliff and landward boundary are as little as a couple of meters apart) can result in rapid destruction of sward to bare soil/chalk substrate in a matter of days. This is especially likely to occur when falls close sections of existing coast path/other access. The type and frequency of activity needs to be monitored and action taken to reduce pressure where it is having an adverse impact on a feature's constituent vegetation communities. Location of access points, signage, car parks capacity and charging and licencing of activity providers should all be considered as mechanisms which can create (or reduce) access pressure in specific locations.	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Supporting processes (on which the feature relies)	**Conservation measures**	Maintain and where necessary resume the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain and/or restore the structure, functions and supporting processes associated with the feature	Active and ongoing conservation management is needed to protect, maintain or restore this feature at this site. This is undertaken by a range of landowners, charities and other bodies. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, Site Management Strategies or Plans, the Views about Management Statement for the underpinning SSSI, management agreements and agri-environment scheme documents.	Various Higher Level Stewardship (HLS) Agreement documents, Countryside Higher Tier (CS HT) documents. Natural England 2014, *Site Improvement Plan Portland-Studland & St Albans-Durlston* Version 1.0 Views About Management (VAM) for component SSSI Various Higher Level Stewardship and Countryside Stewardship agreement documents.
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: The targets for some attributes listed above include both 'maintain' or 'restore' objectives. This is because this SAC is made up of two component sites. Overall, both objectives will be applicable to the SAC but these will differ between each component site depending on its particular circumstances. Natural England will able to provide further advice on request. Additional attribute **Supporting processes – disturbance from human activity** has been added				

Table 4: Supplementary Advice for Qualifying Features: S1654. *Gentianella anglica*; early gentian

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Population (of the feature)	**Population abundance**	Maintain the abundance of the population at its current level, as indicated by the latest mean peak count or equivalent Avoid a deterioration in population. Where necessary, restore to a viable population size, Additionally, seek to maintain abundance across distribution of suitable host habitat.	The population of *G. anglica* on this SAC (and the contiguous St Alban's Head to Durlston Head SAC) is distributed in small populations along the coastal grasslands and, as such, is difficult to regularly count. It is known that counts do occur at certain locations, carried out by land owners but bringing these together to gain a detailed picture of the population is not easy. In 1997 approximately 11,000 plants were counted in 39 sub-populations in limestone grassland along 5km of the Purbeck coast between Seacombe and Durlston Head with outlying populations at Winspit and Swanage Townsend Reserve.(1) Due to the dynamic nature of population change, the target-value given for the population size or presence of this feature is considered to be the minimum standard for conservation/ restoration measures to achieve. Given the likely fluctuations in numbers over time, any impact-assessments should focus on the current size of the site's population, as derived from the latest known or estimated level established using the best available data. This advice accords with the obligation to avoid deterioration of the site or significant disturbance of the species for which the site is designated, and seeks to avoid plans or projects that may affect the site giving rise to the risk of deterioration. Unless otherwise stated, the population size or presence will be that measured using standard methods, such as peak mean counts. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection.	**(1)** Wilson P.J. 1999 *The Distribution and Status of Gentianella anglica (Pugsley) E. Warb.* Plantlife Report no.119 Edwards B. 1997 *A Survey of Early Gentian (Gentianella anglica) in Dorset* Plantlife Rep 86 Edwards B. 1998 *A report on Gentianella anglica in Dorset (A supplement to the 1997 report)* **Plantlife** Rep 106

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
Population (of the feature)	**Population structure: presence of *Gentianella amarella, Gentianella x davidii* and 'intermediates'**	Maintain as appropriate, the presence of both *G. anglica* and *G. amarella*, and the putative hybrid between the two (*G. x davidii*)	Intermixed populations have been recorded from many sites, with the hybrid recorded especially from sites near edge of range of *G. anglica*. Phenological differences (flowering time) usually helpful in distinguishing between *G. anglica* and autumn gentian *G. amarella*. Note: there is still some uncertainty about the extent to which these two species hybridise, or indeed whether the two species are actually one. This hybridisation has been observed on the Isle of Portland - Studland Cliffs SAC, within which this SAC sits.	Edwards B. 1997 *A Survey of Early Gentian (Gentianella anglica) in Dorset* Plantlife Rep 86 Edwards B. 1998 *A report on Gentianella anglica in Dorset (A supplement to the 1997 report)* Plantlife Rep 106
Supporting habitat: extent and distribution	**Distribution of supporting habitat**	Maintain restore the distribution and continuity of the feature and its supporting habitat, including where applicable its component vegetation types and associated transitional vegetation types, across the site.	A contraction in the range, or geographic spread, of the feature and its supporting habitat across the site will reduce its overall area, the local diversity and variations in its structure and composition. It may also undermine its resilience to adapt to future environmental changes. Contraction may also reduce and break up the continuity of the supporting habitat within a site and how well the species feature is able to occupy and use habitat within the site. Such fragmentation may have a greater amount of open edge habitat which will differ in the amount of light, temperature, and wind, that it receives compared to its interior. These conditions may not be suitable for this feature and this may affect its viability. The supporting habitat for this feature is currently well distributed along the coastal strip and colonies of *G. anglica* occur along its length. The maintenance of the areas of suitable habitat is clearly the foremost aim, but given the potential for this species' frequency within the SAC (substrate and NVC community distribution is wider than the feature's distribution). Other factors constrain the feature's utilisation of the supporting habitat, which need investigating.	DERC 1998. A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey by Bryan Edwards for English Nature. Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report.
Supporting habitat: extent and distribution	**Extent of supporting habitat**	Maintain and where necessary restore the total extent of the habitats which support the feature dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) at no less than 792 hectares]	In order to contribute towards the objective of achieving an overall favourable conservation status of the feature at a UK level, it is important to maintain or if appropriate restore the extent of supporting habitats and their range within this SAC. The information available on the extent and distribution of supporting habitat used by the feature may be approximate	DERC 1998. A National Vegetation Classification Survey of Portland to Studland Cliffs cSAC. Survey by Bryan Edwards for English Nature. NATURA 2000 – STANDARD

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			depending on the nature, age and accuracy of data collection, and may be subject to periodic review in light of improvements in data. 792 ha is the figure given in the N2K Standard Data Sheet for this SAC. This will not, at any given time, mean that all this habitat feature is capable of supporting Early gentian. However, the cycles of bare ground creation and succession to mature grassland across the H6210 ensures the specific niches for the early gentian occur.	DATA FORM Isle of Portland to Studland Cliffs SAC
Supporting habitat: structure/ function	**Habitat structure and bare ground: regeneration/ colonisation niches**	Maintain and where necessary restore patches of bare ground and an open-textured sward to provide creating suitable regeneration/colonisation niches. Bare ground should be in range c 5-10%, but may be higher in some vegetation communities (especially CG1 and CG7).	Patches of suitable vegetation often occur in mosaics with less suitable areas, and generally associated with steeper slopes, more southerly aspects, thinner soils, heavier grazing, proximity to cliff edge/salt influence or trampling. All available evidence points to the need for plenty of bare ground in a short/tightly grazed open-textured sward. Many sites best described as 'sparsely vegetated'). It could be argued that both species occupy very similar niches within the intimate mosaic of microhabitat within a, at a large scale, stable mature grassland. At this SAC *G. anglica* has been seen growing in areas of bare chalk with very few other spp present in a very open exposed location (near Anvil Point LH) with virtually no soil.	Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report.
Supporting habitat: structure/ function	**Soils, substrate and nutrient cycling**	Maintain and where suitable, restore the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status and fungal: bacterial ratio, within typical values for the supporting habitat	Soil supports basic ecosystem function and is a vital part of the natural environment. Its properties strongly influence the colonisation, growth and distribution of those plant species which together form vegetation types, and therefore provides a habitat used by a wide range of organisms. Soil biodiversity has a vital role to recycle organic matter. Changes to natural soil properties may therefore affect the ecological structure, function and processes associated with the supporting habitat of this Annex II feature. This feature is generally characterised by thin, nutrient poor, highly porous soils. Some of the very best areas for *G. anglica* are at an early successional stage and comprise what are known as ‘skeletal’ soils having a low organic content and	Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			favouring annual or highly adapted species, especially where these occur in highly stressed clifftop locations. There is a very strong correlation along the coast with the areas where chalk, Portland and Purbeck stones form the outcropping geology Threats to such soils are enrichment/eutrophication, smothering under imported soils or waste etc. Additionally species such as common gorse can aggressively colonise such soils and relatively quickly significantly alter their nutrient status and chemistry. While the overriding aim should be to retain the naturally occurring soils of this SAC through non-intervention, in some places it may be appropriate, after due consultation with Natural England, to restore the soil to an early state through mechanical intervention (turf stripping, soil stripping etc).	
Supporting habitat: structure/ function	**Substrate**	Maintain and where necessary restore a substrate of skeletal drought-prone relatively infertile soils overlying calcareous bedrock (chalk or limestone), occasionally overlying lime-rich sand on coastal sand dunes, with a generally SE, S or SW aspect.	See above for floristic indicators that may indicate changes in soil nutrient status (increase in fertility).	Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report.
Supporting habitat: structure/ function	**Vegetation composition: negative indicators**	Control and where necessary, reduce the frequency/cover of the following undesirable species at or to acceptable levels and are not encouraged by changes in surface condition, soils, nutrient levels or changes to hydrology *Brachypodium pinnatum, Bromopsis erecta, Avenula pubescens, Arrhenatherum elatius, Dactylis glomerata, Ulex europaeus*	This feature can be adversely affected by changes to the grass: herb ratio (increased grassiness), often in tandem with sward becoming denser (less bare ground) or ranker ((thick layers of 'thatch etc generally indicating inadequate grazing and/or cutting). Cover of tall grasses, e.g. *Brachypodium pinnatum, Bromopsis erecta, Avenula pubescens, Arrhenatherum elatius, Dactylis glomerata*, should typically not exceed about 10% (except the first two may locally occur at higher cover in stands of CG4a and CG3a respectively). European gorse *Ulex europaeus* can, if left unchecked, rapidly	Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report. Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			colonise calcareous grassland smothering existing vegetation. Its roots are able to concentrate nitrogen from the soil, leading to localised eutrophication and acidification. This can make re-colonisation after clearance of long standing growth more difficult. Other species likely to be favoured by increased soil fertility/agricultural improvement, e.g. *Lolium perenne, Holcus lanatus, Cynosurus cristatus, Trisetum flavescens, Trifolium repens*, should be rare or absent. Equally, 'agricultural weeds' such as *Cirsium arvense, Cirsium vulgare, Galium aparine, Plantago major, Rumex obtusifolius, Senecio jacobaea* and *Urtica dioica*, are likely to be indicators of bad management and loss/degradation of suitable habitat, so should be rare or absent.	
Supporting habitat: structure/ function	**Vegetation height**	Maintain and where necessary restore a sward typically in the range of 2-5cm, but may also occur in slightly taller swards (5-20cm) as long as these still have plenty of bare ground and an absence of 'grassy' dominants.	See below	Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report.
Supporting habitat: structure/ function	**Vegetation structure and composition**	Maintain and restore the area of suitable supporting habitat which is short (2-5 cm), tightly-grazed and trampled calcicolous grassland with typically 5-10% bare ground which corresponds to the following NVC communities: CG1a, 1b, 2a, 2b, 3a, 4a, 7d. Most frequent in short species-rich CG2 and CG2b. In CG1 and CG7, bare ground may be 10-30%	Vegetation composition of this feature can be variable, depending on habitat, aspect, management regime and underlying geology/soils, but the frequent presence of the following species tend to be positive indicators of suitable Early Gentian habitat in its usual CG2 NVC community: *Poterium sanguisorba, Cirsium acaule, Thymus praecox, Polygala vulgaris, Carex flacca, Hippocrepis comosa, Blackstonia perfoliata, Linum catharticum, Leontodon hispidus, Pilosella officinarum, Ranunculus bulbosus*. Grasses such as *Avenula pratensis, A. pubescens, Brachypodium pinnatum, B. sylvaticum* and *Bromopsis erecta* may be frequent as an open grassy 'overstorey', but never abundant or dominant. Early gentain may often occur with autumn gentian *Gentianella amarella*, but the two species usually occupy different microsites and seasonal timings, although there may be	Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			considerable overlap on some sites.	
Supporting processes (on which the feature and/or its supporting habitat relies)	**Adaptation and resilience**	Maintain and where necessary restore the feature's ability, and that of its supporting habitat, to adapt or evolve to wider environmental change, either within or external to the site	See generic text for this attribute in Table 2 Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change while retaining the same basic structure and ways of functioning. Such environmental changes here may include changes in sea levels, storminess, precipitation and temperature all of which appear to already be increasing the rate at which the cliffs are eroding and cutting back into coastal habitat. This is already affecting the extent of some grassland and possibly the species feature (early gentian). Other impacts could include distribution, composition and functioning of this feature within the site. The vulnerability and response of features to such changes will vary, even within this single site. Using best available information, any necessary or likely adaptation or adjustment by the feature and its management in response to actual or expected climatic change should be allowed for, as far as practicable, in order to ensure the feature's long-term viability.	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)
Supporting processes (on which the feature and/or its supporting habitat relies)	**Air quality**	Concentrations and deposition of air pollutants should be maintained at or below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System (www.apis.ac.uk).	The supporting habitat of this feature is considered sensitive to changes in air quality. Exceedance of these critical values for air pollutants may modify the chemical status of its substrate, accelerating or damaging plant growth, altering its vegetation structure and composition (including food-plants) and reducing supporting habitat quality and population viability of this feature. Critical Loads and Levels are recognised thresholds below which such harmful effects on sensitive UK habitats will not occur to a significant level, according to current levels of scientific understanding. There are critical levels for ammonia (NH3), oxides of nitrogen (NOx) and sulphur dioxide (SO2), and critical loads for nutrient nitrogen deposition and acid deposition. There are currently no critical loads or levels for other pollutants such as Halogens, Heavy Metals, POPs, VOCs or Dusts. These should be considered as appropriate on a case-by-case basis.	www.apis.ac.uk Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178) Site specific APIS data for this SAC

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Ground level ozone is regionally important as a toxic air pollutant but flux-based critical levels for the protection of semi-natural habitats are still under development. It is recognised that achieving this target may be subject to the development, availability and effectiveness of abatement technology and measures to tackle diffuse air pollution, within realistic timescales. The basic grasslands in which the feature is found can be quite resilient in the face of certain pollutants (acidification for example). Critical loads for this feature within the SAC are currently within acceptable limits however there are concerns about impacts of future increases in deposition levels on the feature. Any proposals within 10km of the St Albans Head to Durlston Head SAC should be assessed for their air quality impacts on the feature. The current levels of airborne pollution and the critical loads/levels for the host habitats can be found on the Air Pollution Information System (APIS) here: http://www.apis.ac.uk/srcl/select-a-feature?site=UK0019861&SiteType=SAC&submit=Next The S1654. *Gentianella anglica*; Early gentian feature is found within a series of vegetation communities, it would be necessary to assess emissions against each NVC (National Vegetation Classification) community (see above) listed for this feature separately. This can be done here: http://www.apis.ac.uk/search-pollutant-impacts.	
Supporting processes (on which the feature and/or its supporting habitat relies)	**Disturbance from human activity**	Control and minimise excessive human access to grasslands	In some locations the level of access along the clifftop grasslands by the public may have reached levels at which a negative impact on the SAC feature (and other non-SAC interests) may be occurring. The sheer volume of footfall in some locations, coupled with the limited 'depth' of the SAC (pinch points where break of cliff and landward boundary are as little as a couple of meters apart) can result in rapid destruction of sward to bare soil/chalk substrate in a matter of days. This is especially likely to occur	Site Improvement Plan: Portland-Studland & St Albans-Durlston (SIP178)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			when falls close sections of existing coast path/other access. The type and frequency of activity needs to be monitored and action taken to reduce pressure where it is having an adverse impact on a feature's constituent vegetation communities. Location of access points, signage, car parks capacity and charging and licencing of activity providers should all be considered as mechanisms which can create (or reduce) access pressure in specific locations.	
Supporting processes (on which the feature and/or its supporting habitat relies)	**Conservation measures**	Maintain and where necessary restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to maintain and restore the structure, functions and supporting processes associated with the feature and/or its supporting habitats.	Active and ongoing conservation management is needed to protect, maintain and restore this feature at this site. Conservation grazing, using extensive cattle grazing is the prime mechanism by which this is achieved. Grazing is required to not only maintain a varied, but generally short, sward but also to have a mechanical input, creating an intimate mosaic of bare /disturbed ground within the grass matrix. This provides essential germination niches for *G. anglica* which is an annual. Further details about the necessary conservation measures for this site can be provided by contacting Natural England. This information will typically be found within, where applicable, supporting documents such as Natura 2000 Site Improvement Plan, site management strategies or plans, the Views about Management Statement for the underpinning SSSI and/or management agreements.	Natural England 2014, Site Improvement Plan Portland-Studland & St Albans-Durlston Version 1.0 Views About Management (VAM) for component SSSI, available online. Various Higher Level Stewardship and Countryside Stewardship agreement documents.
Supporting processes (on which the feature and/or its supporting habitat relies)	Grazing pressure	Maintain and, where necessary, restore a grazing regime to keep the sward short (preferably 2-5cm)	Swards usually require moderate to heavy grazing and/or trampling to keep them sufficiently short and open; but on some coastal sites, drought and exposure may be sufficient on their own to maintain suitable sward conditions. Grazing may be by (any combination of) rabbits, deer, sheep or cattle. Generally, rabbits and/or sheep preferred to cattle (see, e.g. Telfer 1994), although Wilson (2000) suggests for sites in Wilts that summer (April-October) cattle grazing at 1.5 animals/ha, plus less intensive grazing in the winter, is suitable for many sites, with sheep used in late summer to remove any	Wilson P.J. 1999 *The Distribution and Status of Gentianella anglica (Pugsley)* E. Warb. Plantlife Report no.119 Wilson, P.J. 2008. A SAMPLE SURVEY OF SITES FOR GENTIANELLA ANGLICA IN ENGLAND IN 2008. National Trust Report.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			excess grass growth. In areas where *G. anglica* is present or is to be introduced, maintain an overview of the sward conditions rather than slavishly adhere to grazing calendars. Variations in temperature, rainfall, sunshine etc all combine to alter the rate of growth, grazing habits and bare ground. Grazing should be managed to ensure conditions are as good as management will allow.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: The targets for some attributes listed above include both 'maintain' or 'restore' objectives. This is because this SAC is made up of two component sites. Overall, both objectives will be applicable to the SAC but these will differ between each component site depending on its particular circumstances. Natural England will able to provide further advice on request. Attribute relating to **Water quality / quantity** has been deleted as Early Gentian is not dependent on surface or ground water. Additional attribute **Supporting processes – disturbance from human activity** has been added				