



## **European Site Conservation Objectives: Supplementary advice on conserving and restoring site features**

**Godrevy Head to St Agnes Special Area of Conservation (SAC)  
Site code: UK0012549**



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## **About this document**

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Godrevy Head to St Agnes SAC. This advice should therefore be read together with the SAC Conservation Objectives available [here](#).

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](mailto:HDIRConservationObjectivesNE@naturalengland.org.uk)**

## About this site

### European Site information

<b>Name of European Site</b>	Godrevy Head to St Agnes Special Area of Conservation (SAC)
<b>Location</b>	Cornwall
<b>Site Map</b>	The designated boundary of this site can be viewed <a href="#">here</a> on the MAGIC website
<b>Designation Date</b>	1 April 2005
<b>Qualifying Features</b>	See section below
<b>Designation Area</b>	128.07 hectares
<b>Designation Changes</b>	None
<b>Feature Condition Status</b>	Details of the feature condition assessments made at this site can be found using Natural England's <a href="#">Designated Sites System</a>
<b>Names of component Sites of Special Scientific Interest (SSSIs)</b>	Godrevy Head to St Agnes SSSI
<b>Relationship with other European or International Site designations</b>	N/A

### Site background and geography

Godrevy to St Agnes SAC is situated in west Cornwall on the north Atlantic coast. It extends from the north near Tubby's Head (SW6983250435) almost to Porthtowan (SW6940148353) and inland to Towan Cross (SW7062048420).

The SAC lies within the [Cornish Killas National Character Area \(NCA\)](#), the [St Agnes](#) section of the [Cornwall Area of Outstanding Natural Beauty](#) and [Cornwall and West Devon Mining Landscape World Heritage Site](#).

A significant part of the area is owned by the National Trust. It is close to the residential and holiday locations of St Agnes, Porthtowan, Portreath and Perranporth. The site is traversed by the well-used South-West Coast Path with many visitors attracted by the natural beauty and cultural heritage of this stretch of coastline.

The area is characterised by high exposed salt laden windswept cliffs exposed to the north Atlantic sea. Geological influences predominately being Lower Devonian rocks and to the north Devonian age (Grampound Beds) that are mostly silty and sandy shales. There are old tin and copper mine workings on the area (Wheal Charlotte and Wheal Coates), together with evidence of earlier interventions in the form spoil heaps attributed to tin streaming.

The main habitat types are maritime dry heaths and areas of wet heath. The dry heathland on this site shows zonation with typical examples of wind-pruned, 'waved' western gorse – bristle bent (*Ulex gallii* – *Agrostis curtisii*) and heather *Calluna vulgaris* – western gorse heaths. There is a strong maritime influence near to the coast, together with heathland typical of more sheltered areas further inland. There is also an area of heath characterised by Dorset heath *Erica ciliaris* at the eastern-most part of the site, between the site of the former Charlotte United Mine and Towan Cross. At this location the *Erica ciliaris*

occurs on drier substrates than in Dorset and the boundary between *Erica ciliaris* heath and dry heath types is not distinct.

The heathland habitats transition to maritime cliff and slope communities on the fore cliff, here characterised with maritime grassland and cliff crevice vegetation types. There is a relatively small area of valley mire habitat, scrub communities exist at the upper end of the Chapel Porth valley and at the landward extremities of the SAC.

The site also supports early gentian *Gentianella anglica* at the extreme west of its range, occurring on a small area of calcareous substrate formed on a cliff-top location by the accumulation of calcareous wind-blown sand from the beach below.

The SAC citation can be found [here](#).

The land area within the SAC boundary is proportioned broadly as follows\*

- Marine areas, Sea inlets (1%)
- Coastal sand dunes, Sand beaches, Machair (10%)
- Shingle, Sea cliffs, Islets (10%)
- Inland water bodies (Standing water, Running water) (2%)
- Bogs, Marshes, Water fringed vegetation, Fens (2%)
- Heath, Scrub, Maquis and Garrigue, Phygrana (35%)
- Dry grassland, Steppes (35%)
- Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites) (5%)

\* [JNCC website](#)

## 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:

- **H4020 Temperate Atlantic wet heaths with *Erica ciliaris* and *E. tetralix* ('Wet heathland with Dorset heath and cross-leaved heath')**

Wet heathland with Dorset heath and cross-leaved heath is a rare form of heathland that occurs in a warm, oceanic climate on moist soils, where the vegetation includes both cross-leaved, heath *Erica tetralix* and abundant-Dorset heath *Erica ciliaris*. In the UK, this habitat type is only found in Dorset and Cornwall.

At this site *Erica ciliaris* heath is restricted to a limited number of stands of the UK National Vegetation Classification (NVC) H4a *Ulex gallii-Agrostis curtisii* heath, *Agrostis curtisii-Erica cinerea* sub-community and H4c *Ulex gallii-Agrostis curtisii* heath, *Erica tetralix* sub-community. Neither are true mire communities more commonly associated with wet heath, but instead represent a transitional state between dry and wet heath at locations such as this with relatively free-draining soils but an oceanic climate with high rainfall.

- **H4030 European dry heaths**

Dry heaths are typically heaths found on free-draining generally acidic soils such as sands or gravels which are poor in nutrients and occur both in the lowlands and the uplands. They are dominated by dwarf-shrubs of the heather family, most commonly heather *Calluna vulgaris*.

Several noteworthy species occur, including bristle bent, red-flowered kidney vetch *Anthyllis vulneraria* var. *coccinea*, Portland spurge *Euphorbia portlandica* and hairy greenweed *Genista pilosa*.

The dry heathland vegetation corresponds to a number of the UK National Vegetation Classification (NVC), with H7 *Calluna vulgaris-Scilla verna* heath nearest to the coast, transitioning to H4 *Ulex gallii-Agrostis curtisii* heath and H8 *Calluna vulgaris-Ulex gallii* heath immediately landward.

### Qualifying Species:

- **S1654 Early gentian, *Gentianella anglica***

Early gentian *Gentianella anglica* is a flowering plant of dry chalk and limestone grasslands and cliff-tops. This plant is found in England and Wales and is not known to occur outside the UK. Early gentian is found mainly in southern England, Godrevy Head to St Agnes SAC is considered to be one of the best areas in the United Kingdom for Early Gentian along with Penhale Sands SAC which together support Early gentian at the most western extent of its current range.

**Table 1: Supplementary Advice for Qualifying Features: H4020. Temperate Atlantic wet heaths with *Erica ciliaris* and *Erica tetralix*; Wet heathland with Dorset heath and cross-leaved heath \***

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Extent and distribution of the feature</b>	<b>Extent of the feature within the site</b>	<p>Maintain the total extent of the H4020 feature at H4 <i>Ulex gallii-Agrostis curtisii</i> heath (sub communities H4a, H4c).</p> <p>Total 45.21 ha which supports 7ha of <i>Erica ciliaris</i> heath</p>	<p>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. The baseline-value of extent given has been generated using data gathered from the listed site-based surveys.</p> <p>Area measurements 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 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. 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.</p> <p>The 2003 NVC survey incorporated the entire area of unit 6 of Godrevy Head to St Agnes SSSI within which the SAC falls. The area of H4 heath has been calculated from that survey to provide the baseline of 45.21 ha (Robbins 2018). The extent of H4 where <i>Erica ciliaris</i> heath type occurs is difficult to define accurately as no distinct boundary has been mapped between <i>Erica ciliaris</i> heath and other heath types at this site. The area of H4 where <i>Erica ciliaris</i> occurs is estimated at 7 ha (Beard 2018).</p>	<p>WILSON, P. 2005. NVC Survey Godrevy to St Agnes. Wessex Environmental Associates report to Natural England. Available from Natural England.</p> <p>BEARD, M. 2017. Godrevy to St Agnes Site of Special Scientific Interest (SSSI): unit 6 (Porthtowan to St Agnes) Unit-based assessment, 2017 Natural England Field Unit Report project: NEFU2017-223 Project report. Report is available from Natural England.</p> <p>BEARD, M. 2018. Personal communication.</p> <p>NATURAL ENGLAND. 2010. Godrevy Head to St Agnes: Definitions of favourable condition for designated features of interest (draft). Available from Natural England.</p> <p>ROBBINS, V. 2018. Excel spreadsheet derived from NVC survey shapefiles created by WILSON, P. 2005. NVC Survey Godrevy to St</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				Agnes. Wessex Environmental Associates report to Natural England. Available from Natural England.
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	Maintain the distribution and configuration of the H4020 feature, including where applicable its component vegetation types, across the site	<p>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.</p> <p>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.</p>	WILSON, P. 2005 NVC Survey Godrevy to St Agnes. Wessex Environmental Associates. Available from Natural England.
<b>Structure and function (including its typical species)</b>	<b>Vegetation community composition</b>	<p>Ensure the component vegetation communities of the feature are broadly referable to and characterised by the following National Vegetation Classification type (s);</p> <p>H4, M25, M27 (when these contain <i>Erica ciliaris</i>).</p>	<p>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).</p> <p>At this site H4 with <i>Erica ciliaris</i> heath has been historically restricted to an area near Towan Cross and occurs on drier substrates than examples in Dorset and here is restricted to just one NVC community (H4) however M25 &amp; M27 do occur on the site.</p> <p>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).</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Structure and function (including its typical species)</b>	<b>Cover of dwarf shrubs</b>	Maintain a high overall cover of dwarf shrub species across the H4020 feature at between 25-90%	<p>Variations in the structure of the heathland vegetation (vegetation height, amount of canopy closure, and patch structure) is needed to maintain high niche diversity and hence high species richness of characteristic heathland plants and animals.</p> <p>Many species also utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle. The structural character of the heathland feature is strongly influenced by the growing habits of its dominant species which in most cases will be ericoids (i.e. plants that look like heathers, including members of the Ericaceae and Empetraceae families). The ericaceous species heather or ling <i>Calluna vulgaris</i>, bell heather <i>Erica cinerea</i>, cross-leaved heath <i>Erica tetralix</i>, Dorset heath <i>Erica ciliaris</i>, Cornish heath <i>Erica vagans</i>, bilberry or blaeberry <i>Vaccinium myrtillus</i> and cowberry <i>Vaccinium vitis-idaea</i> are the commonest and most characteristic dwarf-shrubs. Hybrids of Dorset and cross-leaved heath and of bilberry and cowberry can be locally abundant. <i>Calluna</i> is usually the most abundant. Cowberry <i>Empetrum nigrum</i>, another common species in some coastal and transitional heaths, is not strictly ericaceous but is often treated as an ericoid species.</p>	
<b>Structure and function (including its typical species)</b>	<b>Cover of gorse</b>	Maintain the cover of common gorse <i>Ulex europaeus</i> at below 10% cover	Gorse as a component of heathland is a very valuable wildlife habitat, and often a marker of relict heath and common. Both dense and spiny, it provides good, protected cover for many wildlife species: birds, mammals and reptiles; breeding habitat for rare or declining bird species, and excellent winter roosting. The flowers, borne at a time of year when other sources of pollen or nectar are in short supply, are particularly good for insects and other invertebrate pollinators. However gorse may cause problems if unchecked by dominating an area, eliminating other typical heathland species. Mature stands en-masse may also be serious fire hazards.	
<b>Structure and function (including its typical species)</b>	<b>Tree cover</b>	Maintain the open character of the H4020 feature, with a typically scattered and low cover of trees and scrub (tree cover should not exceed 10%-15% cover excluding <i>Ulex europaeus</i> )	Scrub (mainly trees or tree saplings above 1 m in height) and isolated trees are usually very important in providing warmth, shelter, cover, food-plants, perches, territorial markers and sources of prey for typical heathland invertebrates and vertebrates. But overall cover of scrub and trees across this habitat feature should be maintained or restored to a fairly sparse level, with a structurally complex edge and with characteristic heathland vegetation as ground cover. If scrub is locally important for any associated species with their own specific conservation objectives, then a higher level of cover will be acceptable. The area of scrub/tree cover should be stable or not increasing as a whole	
<b>Structure and function (including its typical species)</b>	<b>Heather age structure</b>	Maintain a diverse age structure amongst the ericaceous shrubs	Each phase of growth associated with the characteristic heathers which dominate this feature also represents different microclimatic conditions and microhabitats which may provide shelter or food to other organisms.	



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
typical species)		typically found on the site	Therefore, it is important to maintain a mosaic of heather in different phases of growth. Typically this age structure will consist of between 10-40% cover of (pseudo) pioneer heathers; 20-80% cover of building/mature heathers; <30% cover of degenerate heathers and less than <10% cover of dead heathers. However it is probably impractical to achieve the age structure defined here in the relatively small area (7ha) which supports <i>Erica ciliaris</i> heath.	
Structure and function (including its typical species)	Undesirable species	Maintain 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.  <i>Bracken Pteridium aquilinum</i> , Japanese knotweed <i>Fallopia japonica</i> , Himalayan balsam <i>Impatiens glandulifera</i> , Montbretia <i>Crocsmia x crocosmiiflora</i> common nettle <i>Urtica dioica</i> , thistles <i>Cirsium sp.</i> , ragwort <i>Senecio jacobaea</i> , bramble <i>Rubus fruticosus</i>	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.	
Structure and function (including its typical species)	Key structural, influential and/or distinctive species	Maintain the abundance of the species listed below to enable each of them to be a viable component of the H4020 habitat;  <i>Bristle bent Agrostis curtisii</i> , Common heather <i>Calluna vulgaris</i> , Dorset heath <i>Erica ciliaris</i> , Bell heather <i>E. cinerea</i> , Cross-leaved heath <i>E. tetralix</i> ,	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;  <ul style="list-style-type: none"> <li>• <i>Structural</i> 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').</li> <li>• <i>Influential</i> 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</li> </ul>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		Purple moor-grass <i>Molinia caerulea</i> , Tormentil ( <i>Potentilla erecta</i> ), Western gorse ( <i>Ulex gallii</i> , Spotted cat's-ear <i>Hypochaeris maculata</i> .	<p>functional role linked to the habitat)</p> <ul style="list-style-type: none"> <li>• <i>Site-distinctive</i> species which are considered to be a particularly special and distinguishing component of an Annex I habitat on a particular SAC.</li> </ul> <p>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.</p> <p>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.</p>	
<b>Structure and function (including its typical species)</b>	<b>Functional connectivity with wider landscape</b>	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the H4020 feature	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. 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.</p> <p>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.</p>	
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	Maintain the H4020 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site.	<p>This recognises the increasing likelihood of natural habitat features to absorb or adapt to wider environmental changes. Resilience may be described as the ability of an ecological system to cope with, and adapt to environmental stress and change whilst retaining the same basic structure and ways of functioning. Such environmental changes may include changes in sea levels, precipitation and temperature for example, which are likely to affect the extent, distribution, composition and functioning of a feature within a site. The vulnerability and response of features to such changes will vary.</p> <p>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.</p> <p>The overall vulnerability of this SAC to climate change has been assessed by</p>	NATURAL ENGLAND, 2015. Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England [Available at <a href="http://publications.naturalengland.org.uk/publication/4954594591375360">http://publications.naturalengland.org.uk/publication/4954594591375360</a> ].

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Natural England (2015) as being moderate, taking into account the sensitivity, fragmentation, topography and management of its [habitats/supporting habitats]. This means that this site is considered to be vulnerable overall but moderately so. This means that some adaptation action for specific issues may be required, such as reducing habitat fragmentation, creating more habitat to buffer the site or expand the habitat into more varied landscapes and addressing particular management and condition issues. Individual species may be more or less vulnerable than their habitat itself. In many cases, change will be inevitable so appropriate monitoring would be advisable.	
<b>Structure and function (including its typical species)</b>	<b>Soils, substrate and nutrient cycling</b>	<p>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 H4020 habitat.</p> <p>For this feature, typical pH values are 3.5-5.5 and bulk density 0.5-1.5 g/ml;</p>	Soil is the foundation of basic ecosystem function and 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 this Annex I feature.	
<b>Supporting processes (on which the feature relies)</b>	<b>Conservation measures</b>	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to Maintain the structure, functions and supporting processes .associated with the H4020 feature	<p>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.</p> <p>Management principles include;</p> <ul style="list-style-type: none"> <li>• Maintain low nutrient levels to maintain high numbers of species through the management activities of grazing, control burning, mowing and scrub/tree cutting. Management of succession is a critical aspect of management for this habitat.</li> <li>• A range of invertebrates and plants require bare ground where it is not too frequently disturbed by vehicles or feet.</li> </ul>	NATURAL ENGLAND, 2014. Site Improvement Plan: Godrevy Head to St Agnes (SIP092). Available at <a href="http://publications.naturalengland.org.uk/publication/4833138765201408">http://publications.naturalengland.org.uk/publication/4833138765201408</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Supporting processes (on which the feature relies)</b>	<b>Air quality</b>	Maintain the concentrations and deposition of air pollutants at below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).	<p>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.</p> <p>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 (NH<sub>3</sub>), oxides of nitrogen (NO<sub>x</sub>) and sulphur dioxide (SO<sub>2</sub>), 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.</p> <p>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.</p>	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 ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).
<p><b>Version Control</b> Advice last updated: n/a</p>				
<p><b>Variations from national feature-framework of integrity-guidance:</b>n/a Water quality and Hydrology attributes are not relevant to this feature on this site so have been removed. Humid heath at this location is supported by the atmospheric/temperate climatic conditions that prevail along the north Atlantic coast rather than ground surface /ground water hydrology.</p>				

**Table 2: Supplementary Advice for Qualifying Features: H4030. European dry heaths**

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Extent and distribution of the feature</b>	<b>Extent of the feature within the site</b>	<p>Maintain the total extent of the H4030 feature at 94.65 ha, including the following;</p> <p>H4 <i>Ulex gallii-Agrostis curtisii</i> heath (sub communities H4a/b/c) 45.21 ha</p> <p>H7 <i>Calluna vulgaris-Scilla verna</i> heath (Sub-communities H7a/b) 10.47 ha</p> <p>H8 <i>Calluna vulgaris-Ulex gallii</i> heath (Sub-communities (H8a/d) 38.97 ha</p>	<p>See the supporting and explanatory notes for this attribute in Table 1.</p> <p>There is an overlap with the area given for H4020. Temperate Atlantic wet heaths with <i>Erica ciliaris</i> and <i>Erica tetralix</i>.</p> <p>Given the ecological overlap and associated lack of a distinct boundary between H4, H7 and H8, H4 <i>Ulex gallii-Agrostis curtisii</i> heath (sub communities H4a/b/c) amounting to 45.21 ha is included here.</p>	<p>WILSON, P. 2005. NVC Survey Godrevy to St Agnes. Wessex Environmental Associates report to Natural England. Available from Natural England.</p> <p>BEARD, M. 2017. Godrevy to St Agnes Site of Special Scientific Interest (SSSI): unit 6 (Porthtowan to St Agnes) Unit-based assessment, 2017 Natural England Field Unit Report project: NEFU2017-223 Project report. Report is available from Natural England.</p> <p>NATURAL ENGLAND. 2010. Godrevy Head to St Agnes: Definitions of favourable condition for designated features of interest (draft). Available from Natural England.</p>
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	<p>Maintain the distribution and configuration of the H4030 feature, including where applicable its component vegetation types, across the site</p>	<p>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</p>	<p>WILSON, P. 2005. NVC Survey Godrevy to St Agnes. Wessex Environmental Associates report to Natural England. Available from Natural England.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>viability and the wider ecological composition of the Annex I habitat.</p> <p>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.</p>	
<b>Structure and function (including its typical species)</b>	<b>Vegetation community composition</b>	<p>Ensure the component vegetation communities of the H4030 feature are broadly referable to and characterised by the following National Vegetation Classification type(s)</p> <p>H4 <i>Ulex gallii</i>-<i>Agrostis curtisii</i> heath (sub-communities H4a/b/c)</p> <p>H7 <i>Calluna vulgaris</i>-<i>Scilla verna</i> heath (Sub-communities H7a/b)</p> <p>H8 <i>Calluna vulgaris</i>-<i>Ulex gallii</i> heath (sub-communities H8a and H8d)</p>	<p>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).</p> <p>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).</p>	<p>WILSON, P. 2005. NVC Survey Godrevy to St Agnes. Wessex Environmental Associates report to Natural England. Available from Natural England.</p>
<b>Structure and function (including its typical species)</b>	<b>Vegetation community transitions</b>	<p>Maintain any areas of transition between the H4030 feature and communities which form other heathland-associated habitats, such as dry and humid heaths, mires, acid grasslands, scrub and maritime grassland communities</p>	<p>Transitions/zonations between adjacent but different vegetation communities are usually related to naturally-occurring changes in soil, aspect or slope. Such 'ecotones' retain characteristics of each bordering community and can add value in often containing species not found in the adjacent communities. Retaining such transitions can provide further diversity to the habitat feature, and support additional flora and fauna. This is an important attribute as many characteristic heathland species utilise the transitions between vegetation types or use different vegetation types during different stages of their life cycle.</p>	<p>WILSON, P. 2005. NVC Survey Godrevy to St Agnes. Wessex Environmental Associates report to Natural England. Available from Natural England.</p>
<b>Structure and function (including its typical species)</b>	<b>Cover of dwarf shrubs</b>	<p>Maintain a high overall cover of dwarf shrub species which is typically between 25-90%</p>	<p>Variations in the structure of the heathland vegetation (vegetation height, amount of canopy closure, and patch structure) is needed to maintain high niche diversity and hence high species richness of characteristic heathland plants and animals. Many species also utilise the transitions between vegetation types or use different vegetation</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>types during different stages of their life cycle. The structural character of the heathland feature is strongly influenced by the growing habits of its dominant species which in most cases will be ericoids (i.e. plants that look like heathers, including members of the <i>Ericaceae</i> and <i>Empetraceae</i> families).</p> <p>The ericaceous species heather or ling <i>Calluna vulgaris</i>, bell heather <i>Erica cinerea</i>, cross-leaved heath <i>Erica tetralix</i>, Dorset heath <i>Erica ciliaris</i>, are the commonest and most characteristic dwarf-shrubs.</p>	
<b>Structure and function (including its typical species)</b>	<b>Cover of bracken</b>	Maintain a low cover of dense bracken typically at <5%	The spread of bracken <i>Pteridium aquilinum</i> is a problem on many lowland heathlands. The unpalatable nature and density of bracken as a tall-herb fern, and its decomposing litter, can smother and shade out smaller and more characteristic heathland vegetation. Usually active management of bracken is required to reduce or contain its cover across this habitat feature. But this fern has also some nature conservation value, for example on sites where fritillary butterflies occur and utilise bracken litter habitat.	
<b>Structure and function (including its typical species)</b>	<b>Cover of gorse</b>	Maintain cover of common gorse <i>Ulex europaeus</i> at <25% and the combined cover of <i>U.europaeus</i> and <i>U.gallii</i> at <50%	Gorse as a component of heathland is a very valuable wildlife habitat, and often a marker of relict heath and common. Both dense and spiny, it provides good, protected cover for many wildlife species: birds, mammals and reptiles; breeding habitat for rare or declining bird species, and excellent winter roosting. The flowers, borne at a time of year when other sources of pollen or nectar are in short supply, are particularly good for insects and other invertebrate pollinators. However gorse may cause problems if unchecked by dominating an area, eliminating other typical heathland species. Mature stands en masse may also be serious fire hazards.	
<b>Structure and function (including its typical species)</b>	<b>Tree cover</b>	Maintain the open character of the feature, with a typically scattered and low cover of trees and scrub must not exceed 10-15% cover (excluding <i>Ulex europaeus</i> ) cover	Scrub (mainly trees or tree saplings above 1 m in height) and isolated trees are usually very important in providing warmth, shelter, cover, food-plants, perches, territorial markers and sources of prey for typical heathland invertebrates and vertebrates. But overall cover of scrub and trees across this habitat feature should be maintained or restored to a fairly sparse level, with a structurally complex edge and with characteristic heathland vegetation as ground cover. If scrub is locally important for any associated species with their own specific conservation objectives, then a higher level of cover will be acceptable. The area of scrub/tree cover should be stable or not increasing as a whole	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Structure and function (including its typical species)</b>	<b>Heather age structure</b>	Restore a diverse age structure amongst the <i>ericaceous</i> shrubs typically found across the H4030 feature	<p>Each phase of growth associated with the characteristic heathers which dominate this feature also represents different microclimatic conditions and microhabitats which may provide shelter or food to other organisms.</p> <p>Therefore, it is important to maintain a mosaic of heather in different phases of growth. Typically this age structure will consist of between 10-40% cover of (pseudo) pioneer heathers; 20-80% cover of building/mature heathers; &lt;30% cover of degenerate heathers and less than &lt;10% cover of dead heathers.</p> <p>This range of age structures may be achievable on the more sheltered plateau part of the site, but for wind-pruned heath stands closest to the coast is unnecessary and, in any case, on coastal slopes impractical.</p>	
<b>Structure and function (including its typical species)</b>	<b>Undesirable species</b>	<p>Maintain 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.</p> <p>Bracken <i>Pteridium aquilinum</i>, Japanese knotweed <i>Fallopia japonica</i>, Himalayan balsam <i>Impatiens glandulifera</i> Montbretia <i>Crocsmia x crocosmiiflora</i>, common nettle <i>Urtica dioica</i>, thistles <i>Cirsium sp.</i>, ragwort <i>Senecio jacobaea</i>, bramble <i>Rubus fruticosus</i></p>	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.	
<b>Structure and function (including its typical species)</b>	<b>Key structural, influential and/or distinctive species</b>	<p>Maintain the abundance of the species listed below to enable each of them to be a viable component of the H4030 habitat;</p> <p>H4/H8 <i>Agrostis curtisii</i>, <i>Calluna vulgaris</i>, <i>Carex spp</i>, <i>E. cinerea</i>, <i>E. tetralix</i>, <i>Molinia caerulea</i>, <i>Pedicularis sylvatica</i>, <i>Polygala serpyllifolia</i>,</p>	See the supporting and explanatory notes for this attribute in Table 1.	



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p><i>Potentilla erecta</i>, <i>Ulex gallii</i>, <i>Viola spp.</i> Specifically for coastal heath stands</p> <p>H7  <i>Armeria maritima</i>, <i>Calluna vulgaris</i>, <i>Carex spp</i>, <i>E. cinerea</i>, <i>Festuca rubra</i>, <i>Genista pilosa</i>, <i>Hypochaeris radicata</i>, <i>Lotus corniculatus</i>, <i>Plantago lanceolata</i>, <i>P. maritima</i> <i>Potentilla erecta</i>, <i>Scilla verna</i>, <i>Thymus polytrichus</i>, <i>Viola spp.</i></p>		
<b>Structure and function (including its typical species)</b>	<b>Functional connectivity with wider landscape</b>	Maintain the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the H4030 feature	<p>This recognises the potential need at this site to maintain or restore the connectivity of the site to its wider landscape in order to meet the conservation objectives. 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.</p> <p>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.</p>	
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	Maintain the H4030 feature's ability, and that of its supporting processes, to adapt or evolve to wider environmental change, either within or external to the site	See the supporting and explanatory notes for this attribute in Table 1.	
<b>Structure and function (including its typical species)</b>	<b>Soils, substrate and nutrient cycling</b>	Maintain the properties of the underlying soil types, including structure, bulk density, total carbon, pH, soil nutrient status	Soil is the foundation of basic ecosystem function and 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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
species)		and fungal:bacterial ratio, to within typical values for the H4030 habitat.	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.	
<b>Supporting processes (on which the feature relies)</b>	<b>Conservation measures</b>	Maintain the management measures (either within and/or outside the site boundary as appropriate) which are necessary to Maintain the structure, functions and supporting processes associated with the H4030 feature	<p>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.</p> <p>Management principles include</p> <ul style="list-style-type: none"> <li>• Maintain low nutrient levels to maintain high numbers of species through the management activities of grazing, burning, mowing and scrub/tree cutting. Management of succession is a critical aspect of management for this habitat, by a combination of active processes and grazing/cutting.</li> <li>• A range of invertebrates and plants require bare ground/peat where it is not too frequently disturbed by vehicles or feet.</li> </ul>	NATURAL ENGLAND, 2014. Site Improvement Plan: Godrevy Head to St Agnes (SIP092). Available at <a href="http://publications.naturalengland.org.uk/publication/4833138765201408">http://publications.naturalengland.org.uk/publication/4833138765201408</a>
<b>Supporting processes (on which the feature relies)</b>	<b>Air quality</b>	Maintain the concentrations and deposition of air pollutants at below the site-relevant Critical Load or Level values given for this feature of the site on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).	See the supporting and explanatory notes for this attribute in Table 1.	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 ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).
<b>Version Control</b>				
Advice last updated: n/a				
<b>Variations from national feature-framework of integrity-guidance:</b> n/a				
Water quality and Hydrology attributes are not relevant to H4030. European dry heaths on this site.				

**Table 3: Supplementary Advice for Qualifying Features: S1654 Early gentian *Gentianella anglica***

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Conservation measures</b>	Restore the management measures (either within and/or outside the site boundary as appropriate) which are necessary to restore the structure, functions and supporting processes associated with Early gentian and/or its supporting habitats.	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.	
<b>Supporting habitat: extent and distribution</b>	<b>Extent of supporting habitat</b>	Restore the total extent of the habitat(s) which support the Early gentian feature	<p>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 depending on the nature, age and accuracy of data collection, and may be subject to periodic review in light of improvements in data.</p> <p>Early gentian appears to be restricted to a discrete area of the SAC and historic records suggest rarely more &lt;50 plants annually(French 2014); baseline is 22 plants in one location (Beard 2017)</p> <p>Since 1995 the plant has only been recorded from one location SW693485 on a cliff-top between Porthtowan and Chapel Porth on brown sand soil, pH 7.5 (Stewart 2000) where it is found growing with <i>Carex flacca</i>, <i>Sanguisorba minor</i>, <i>Linum catharticum</i> &amp; <i>Orchis mascula</i> (Beard 2018).</p>	<p>FRENCH, DR C.N. 2014. Email to Beth Tonkin correspondence providing records from the Erica Database - 25th April 2014. Available from Natural England N Drive</p> <p>BEARD, M. 2017. Godrevy to St Agnes Site of Special Scientific Interest (SSSI): unit 6 (Porthtowan to St Agnes) Unit-based assessment, 2017 Natural England Field Unit Report project: NEFU2017-223 Project report. Report is available from Natural England.</p> <p>NATURAL ENGLAND. 2010. Godrevy Head to St Agnes: definitions of favourable condition for designated features of interest (draft). Available from Natural England.</p> <p>STEWART, J. 2000.</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
				<p>Godrevy Head to St Agnes cSAC: cSAC Conservation Objective Version 1 English Nature 16/02/00. Available from Natural England.</p> <p>BEARD, M. 2018. Personal Communication.</p>
<b>Supporting habitat: extent and distribution</b>	<b>Distribution of supporting habitat</b>	<p>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</p>	<p>A contraction in the range, or geographic spread, of the feature (and its component vegetation) 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. Contraction may also reduce and break up the continuity of a 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, wind, and even noise that it receives compared to its interior. These conditions may not be suitable for this feature and this may affect its viability.</p> <p>Active restoration is required as the supporting habitat is very small (0.1ha (WILSON 2005)) allowing limited scope for adaption to environmental change.</p>	
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Adaptation and resilience</b>	<p>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</p>	<p>See the supporting and explanatory notes for this attribute in Table 1.</p>	<p>WILSON, P. 2005. NVC Survey Godrevy to St Agnes. Wessex Environmental Associates report to Natural England. p3, 23-24. Available from Natural England.</p>
<b>Supporting habitat: structure/function</b>	<b>Soils, substrate and nutrient cycling</b>	<p>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</p>	<p>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.</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			There is a need not only to protect what little is left but also introduce management to restore to previous extent of sandy calcareous soil (though practical methods yet to be identified).	
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Air quality</b>	Maintain concentrations and deposition of air pollutants at below the site-relevant Critical Load or Level values given for the supporting habitat of this feature of the site on the Air Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).	See the supporting and explanatory notes for this attribute in Table 1.	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 ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).
<b>Supporting habitat: structure/function</b>	<b>Vegetation structure and composition</b>	Restore short (2-5 cm) and tightly-grazed swards of CG2 calcicolous grassland, with typically 5-30% bare ground	<p>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 or trampling. All available evidence points to need for there being plenty of bare ground in a short/tightly grazed open-textured sward. A lack of management or ground disturbance results in a closed sward</p> <p>Vegetation composition of habitat supporting 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: <i>Poterium sanguisorba</i>, <i>Cirsium acaule</i>, <i>Thymus praecox</i>, <i>Polygala vulgaris</i>, <i>Carex flacca</i>, <i>Hippocrepis comosa</i>, <i>Blackstonia perfoliata</i>, <i>Linum catharticum</i>, <i>Leontodon hispidus</i>, <i>Pilosella officinarum</i>, <i>Ranunculus bulbosus</i>. Grasses such as <i>Avenula pratensis</i>, <i>A. pubescens</i>, <i>Brachypodium pinnatum</i>, <i>B. sylvaticum</i> and <i>Bromopsis erecta</i> may be frequent as an open grassy 'overstorey', but never abundant or dominant. Early gentian may often occur with autumn gentian <i>Gentianella amarella</i>, but the two species usually occupy different microsites and seasonal timings, although there may be considerable overlap on some sites.</p> <p>In CG2, bare ground may be within the range of 10-30%.</p> <p>Calcareous conditions on Godrevy Head to St Agnes SAC is the result of wind-blown sand making it suitable for Early Gentian. Wilson (2005) notes that the grassland supporting this species resembles the calcicolous CG2, the NVC survey indicates that CG2 <i>Festuca ovina-Avenula pratensis</i> grassland is limited 0.62 ha of the site.</p>	<p>WILSON, P. 2005. NVC Survey Godrevy to St Agnes. Wessex Environmental Associates report to Natural England. p3, 23-24. Available from Natural England.</p> <p>ROBBINS, V. 2018. Observed from photographs sourced on Facebook page of Porthtowan and Towan Cross book. Porthtowan and Towan Cross book</p> <p><a href="https://www.facebook.com/photo.php?fbid=241341012699094&amp;set=o.538000312962929&amp;type=3&amp;theater">https://www.facebook.com/photo.php?fbid=241341012699094&amp;set=o.538000312962929&amp;type=3&amp;theater</a> .</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Historical photographs from the early 20 <sup>th</sup> Century indicate a much more open and shorter vegetation than in recent years, generally with plenteous areas of bare ground / exposed sand together with active grazing with cattle (Robbins 2018). There is no active management at present and limited evidence of active rabbit grazing.	
<b>Supporting habitat: structure/function</b>	<b>Undesirable species</b>	Maintain 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; <i>Brachypodium pinnatum</i> , <i>Bromopsis erecta</i> , <i>Avenula pubescens</i> , <i>Arrhenatherum elatius</i> , <i>Dactylis glomerata</i>	<p>This feature can be adversely affected by changes to the grass:herb ratio (increased grassiness), often in tandem with sward becoming 'thicker' (less bare ground) or more rank. Cover of tall grasses, e.g. <i>Brachypodium pinnatum</i>, <i>Bromopsis erecta</i>, <i>Avenula pubescens</i>, <i>Arrhenatherum elatius</i>, <i>Dactylis glomerata</i>, should typically not exceed about 10% (except the first two may locally occur at higher cover in stands of CG4a and CG3a respectively).</p> <p>Other species likely to be favoured by increased soil fertility/agricultural improvement, e.g. <i>Lolium perenne</i>, <i>Holcus lanatus</i>, <i>Cynosurus cristatus</i>, <i>Trisetum flavescens</i>, <i>Trifolium repens</i>, should be rare or absent. Equally, 'agricultural weeds' such as <i>Cirsium arvense</i>, <i>Cirsium vulgare</i>, <i>Galium aparine</i>, <i>Plantago major</i>, <i>Rumex obtusifolius</i>, <i>Senecio jacobaea</i> and <i>Urtica dioica</i>, are likely to be indicators of bad management and loss/degradation of suitable habitat, so should be rare or absent.</p>	
<b>Supporting habitat: structure/function</b>	<b>Habitat substrate</b>	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.	<p>See above for floristic indicators that may indicate changes in soil nutrient status (increase in fertility).</p> <p>Calcareous conditions on Godrevy Head to St Agnes SAC is predominately the result of wind-blown beach/dune sand. Successional processes has resulted in the loss of suitable habitat for Early gentian and therefore needs to be restored.</p> <p>Historical photographs from the early 20<sup>th</sup> Century indicate a much more open and shorter vegetation than in recent years, generally with plenteous areas of bare ground / exposed sand together with active grazing with cattle (Robbins 2018).</p>	ROBBINS, V. 2018. Observed from photographs sourced on Facebook page of Porthtowan and Towan Cross book. JPEGs files available from Porthtowan and Towan Cross book and Natural England.
<b>Supporting habitat: structure/function</b>	<b>Vegetation height</b>	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.	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 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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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 excess grass growth. Sward height may vary from year to year, depending not only on stocking rates and timing but also on the weather.</p> <p>Restore areas to short turf as these are becoming rank upslope; (but also note restoration needed for secure habitat extent, bare ground and integrity of soil, all of which require addressing simultaneously). There is evidence of an absence of rabbit grazing. In the absence of a grazing regime across the wider area, some targeted annual cutting might be required.</p>	
<b>Population (of the feature)</b>	<b>Population abundance</b>	Restore the abundance of the Early gentian population to a level which is above 22 plants, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<p>Populations may fluctuate considerably from year to year, depending on habitat condition, weather, etc. Flowering performance may also vary between years, affecting the plant's visibility.</p> <p>This will ensure there is a viable population of the feature which is being maintained at or increased to a level that contributes as appropriate to its Favourable Conservation Status across its natural range in the UK. 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. This minimum-value may be revised where there is evidence to show that a population's size or presence has significantly changed as a result of natural factors or management measures and has been stable at or above a new level over a considerable period. The values given here may also be updated in future to reflect any strategic objectives which may be set at a national level for this feature.</p> <p>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. Similarly, where there is evidence to show that a feature has historically been more abundant than the stated minimum target and its current level, the ongoing capacity of the site to accommodate the feature at such higher</p>	BEARD, M. 2017. Godrevy to St Agnes Site of Special Scientific Interest (SSSI): unit 6 (Porthtowan to St Agnes) Unit-based assessment, 2017 Natural England Field Unit Report project: NEFU2017-223 Project report. Report is available from Natural England.

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>levels in future should also be taken into account in any assessment.</p> <p>Unless otherwise stated, the population size or presence will be that measured using standard methods, such as peak mean counts or breeding surveys. This value is also provided recognising there will be inherent variability as a result of natural fluctuations and margins of error during data collection. Whilst we will endeavour to keep these values as up to date as possible, local Natural England staff can advise that the figures stated are the best available.</p> <p>A population of 22 individuals is the estimated baseline population-size at or soon after the time of SAC (Beard 2017), 2017 monitoring suggests a significant decline (Beard 2017). Some populations may be too large/extensive, or too widely dispersed, to be easily counted. In such cases, broken log scale estimates of each sub-population or sub-site may be sufficient.</p>	
<b>Population (of the feature)</b>	<b>Population structure: presence of <i>Gentianella amarella</i>, <i>Gentianella x davidii</i> and 'intermediates'</b>	Maintain, as appropriate, the presence of both <i>G. anglica</i> and <i>G. amarella</i> , and the putative hybrid between the two ( <i>G. x davidii</i> ).	<p>Intermixed populations have been recorded from many sites, with the hybrid recorded especially from sites near edge of range of <i>G. anglica</i>. Phenological differences (flowering time) usually helpful in distinguishing between <i>G. anglica</i> and autumn gentian <i>G. amarella</i>. Note: there is still some uncertainty about the extent to which these two species hybridise, or indeed whether the two species are actually one.</p> <p>Currently there is no evidence that <i>Gentianella amarella</i> is present on the SAC.</p>	
<b>Version Control</b>				
Advice last updated: n/a				
<b>Variations from national feature-framework of integrity-guidance:</b> n/a				