



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

**Cerne and Sydling Downs Special Area of Conservation (SAC)  
Site Code: UK0030115**



Marsh fritillary (Natural England/Allan Drewitt)

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## **About this document**

This document provides Natural England's supplementary advice about the European Site Conservation Objectives relating to Cerne and Sydling Downs 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**

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## About this site

### European Site information

<b>Name of European Site</b>	Cerne and Sydling Downs Special Area of Conservation (SAC)
<b>Location</b>	Dorset
<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>	01 April 2005
<b>Qualifying Features</b>	See section below
<b>Designation Area</b>	369.08 hectares
<b>Designation Changes</b>	Not applicable
<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>	Black Hill Down SSSI, Court Farm, Sydling SSSI, Giant Hill SSSI, Hog Cliff SSSI, Sydling Valley Downs SSSI
<b>Relationship with other European or International Site designations</b>	None

### Site background and geography

Cerne and Sydling SAC is located in West Dorset District 8km north west of Dorchester. All of the site falls within the boundary of the [Dorset Area of Outstanding Natural Beauty \(AONB\)](#) protected landscape, specifically within the Cerne and Sydling Valley Landscape Character Area defined by its flat valley bottom, steep valley sides, rounded hollows, and incised coombes leading up towards the surrounding rounded, open chalk uplands. The vast majority of the sites are located on the chalk bedrock with Upper Greensand and Gault bordering the northern and western perimeter of Giants Hill SSSI (see figure 1).

The sites lie within [Dorset Downs and Cranborne Chase National Character Area \(NCA\)](#) in southern England.

Site Improvement Plans (SIPs) have been developed for each Natura 2000 site in England as part of the Improvement Programme for England's Natura 2000 Sites (IPENS). Cerne & Sydling Downs SIP can be found [here](#).

The soils are thin, calcareous and alkaline in PH.

Hydrologically, all of the SAC designated sites feed into the tributaries of, or directly into the River Frome. To the east, Black Hill Down SSSI and Giants Hill SSSI feed the River Cerne catchment. Sydling

Valley Down SSSI, Court Farm Sydling SSSI and the Eastern Part of Hog Cliff SSSI feed the Sydling water catchment. The western part of Hog Cliff SSSI feeds directly into the River Frome catchment. Most of the protected site is designated as open access under the Countryside and Rights of Way Act (2000). The Wessex Ridgeway is a long distance footpath that dissects some of the protected sites in addition to other public rights of way. Only parts of Black Hill Down SSSI are not designated as open access under The Act and have few intersecting rights of way.

Settlements, field systems, bowl barrows and earth works from the Neolithic, early Bronze Age and Iron Age peppered across the downs represent the historic cultural value to the landscape, afforded protection as scheduled ancient monuments. The most iconic of the scheduled ancient monuments is the Hill figure called The Giant which is located within Giants Hill SSSI.

The current land use of the area surrounding the designated site is predominantly arable with some pastoral.

[Hog Cliff SSSI](#) is designated as a National Nature Reserve managed by Natural England. The remainder of the component SSSI's are privately owned and managed.

This site covers a complex of unimproved chalk grasslands on the western part of the Dorset Downs. Dry valley slopes with a variety of aspects support extensive examples of sheep's-fescue – meadow oat-grass (*Festuca ovina* – *Helictotrichon pratense*) grassland in the south-west of its UK range. A particular feature of this site is the presence of the devil's-bit scabious – oxeye daisy (*Succisa pratensis* – *Leucanthemum vulgare*) sub-community, especially on south- and west-facing slopes. This type of calcareous grassland is almost entirely restricted to parts of Wiltshire and Dorset. The site supports a significant marsh fritillary butterfly *Euphydryas aurinia* metapopulation across the SAC that is composed of a number of colonies and sub-populations which regularly fluctuate in size and numbers,. These colonies occupy calcareous downland habitats and complement the wet grassland habitats of the other Dorset strongholds.

## 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:

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

These grasslands are typically found on thin, well-drained, lime-rich soils associated with chalk and limestone. They occur predominantly at low to moderate altitudes in England and Wales, extending locally into upland areas in northern England, Scotland and Northern Ireland. Most of these calcareous grasslands are maintained by grazing.

Where grazing levels are reduced, Festuco-Brometalia swards typically become dominated by coarse grasses (in particular, downy oat-grass *Avenula pubescens*, tor-grass *Brachypodium pinnatum* and upright brome *Bromus erectus*), and plants of smaller stature become correspondingly scarcer. CG3 Bromus grassland, CG4 Brachypodium grassland, CG5 Bromus – Brachypodium grassland, and CG6 Avenula grassland are all widely distributed on chalk and limestone in the English lowlands. Shrub species, such as hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa*, may become established where grazing is sufficiently light, and may eventually form patches of scrub (e.g. W21 *Crataegus monogyna* – *Hedera helix* scrub). Grassland-scrub transitions provide important habitats for a wide range of rare and local British species in this community.

A large number of scarce and rare plants, fungi and invertebrates are associated with this habitat, including, on Cerne and Sydling SAC: Marsh Fritillary butterfly *Euphydryas aurinia*, Adonis Blue *Polyommatus bellargus*, Chalk Milkwort *Polygala calcarea*, Autumn Gentian *Gentianella amarella*, Clustered Bellflower *Campanula glomerata* and over 100 species of fungi including 8 species of waxcaps.

This site consists of a large area of semi-natural dry grassland on the west Dorset chalk. Dry valley slopes with a variety of aspects support extensive examples of CG2 Festuca ovina – Avenula pratensis grassland in the south-west of its UK range. A particular feature of this site is the presence of the Succisa pratensis – Leucanthemum vulgare sub-community, especially on south- and west-facing slopes. This type of calcareous grassland is almost entirely restricted to parts of Wiltshire and Dorset.

### Qualifying Species:

- **S1065 Marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia***

The marsh fritillary butterfly *Euphydryas aurinia* is typically found in a range of habitats in which its larval food plant, devil's-bit scabious *Succisa pratensis*, occurs. Marsh fritillaries are essentially grassland butterflies in the UK, and although populations may occur occasionally on wet heath, bog margins and woodland clearings, most colonies are found in damp acidic or dry calcareous grasslands.

Management in both wet and dry situations is considered optimal for the feature by low-intensity cattle or pony grazing. Grazing by sheep is considered detrimental due to the preferential grazing of the larval food plant devil's-bit scabious *Succisa pratensis*. Burning can be an effective method of management or

restoration if sensitively conducted and the topography is favourable. Mowing is not considered an appropriate method of management although can be effective for the restoration of a site.

The butterfly flies in late May and June. The female lays batches of eggs on the underside of large Devil's-bit Scabious plants. From August until late September the brown, spiny caterpillars feed together on Scabious *Succisa pratensis* leaves inside a silken web. During the winter they hibernate together in a small web, hidden in grass tussocks. The caterpillars emerge in February or early March and separate; sometimes wandering several metres to find fresh Scabious leaves. By late April the caterpillars pupate and emerge as adult butterflies 2 to 3 weeks later.

In a natural system under favourable conditions populations of marsh fritillary vary greatly in size from year to year, and, at least in part, this is related to cycles of attack from parasitic wasps. Adults tend to be sedentary and remain in a series of linked meta-populations, forming numerous temporary sub-populations, which frequently die out and re-colonise. Where unable to do this, populations do not seem to be able to persist in habitat fragments. It is therefore essential to conserve a cluster of sites in close proximity with ease of movement between.

This site supports a large marsh fritillary *Euphydryas aurinia* metapopulation composed of two large and one smaller sub-populations which regularly expand into other nearby areas in favourable years. These colonies occupy dry, predominantly west and south facing calcareous downland situations and complement the wet grassland habitats of the other Dorset strongholds.

**Table 1: Supplementary Advice for Qualifying Features: H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia); Dry grasslands and scrublands on chalk or limestone**

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>	Restore the total extent of the feature to 370.99 hectares.	<p>There should be no measurable reduction (excluding any trivial loss) in the extent and area of this feature, and in some areas of the site, 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. 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.</p> <p>Scrub facies (fringing vegetation) are a component of the H6210 feature the SAC and favourable conservation status of the feature requires patches of scrub as a valuable habitat ecotone in particular for invertebrates associated with this habitat type. It is not appropriate to identify areas of the designated site that require restoration through scrub clearance because scrub mosaics are a management balance that can become unfavourable in the space of a few years from neglect or overgrazing.</p>	This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>
<b>Extent and distribution of the feature</b>	<b>Spatial distribution of the feature within the site</b>	Restore the distribution and configuration of the feature, including where applicable its component vegetation types, across the site	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	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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.</p> <p>Leaching of nutrients and nutrient deposition from air pollutants can render areas of land within the site unfavourable when managed as grassland. These areas impacted by nutrients are often consequently managed as scrub as an internal buffer to absorb the nutrients and provide the scrub component of the notified feature. Scrub on nutrient enriched ground is likely to be of substantially less value due to increased vigour and reduced scrub edge biodiversity. External safeguards such as buffers are required to enable scrub distribution within the site to be a dynamic feature unconstrained by external adverse impacts should it be desired for the conservation status of the features.</p> <p>For example, scrub located on the perimeter of a site as an internal buffer only is inappropriate and is an indication of external adverse impacts on the notified features. Establishing adequate external buffers around the site should be carried out to remove the need for internal buffers.</p>	
<b>Structure and function (including its typical species)</b>	<b>Vegetation community composition</b>	Ensure the component vegetation communities of the feature are referable to and characterised by the following National Vegetation	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).	This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
		<p>Classification types</p> <p>Predominantly: CG2 <i>Festuca ovina</i> – <i>Avenula pratensis</i> grassland</p> <p>CG6, <i>Avenula pubescens</i> grassland</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>The CG and CG6 communities are also found in mosaic with other vegetation communities that whilst important are not directly attributable to the H6210 feature, including NVC communities MG1, MG5, W8 and W10.</p> <p>Scrub communities W21-23 are also present and form the 'scrubland facies' aspect of the feature. This is a transitory stage that develops when grazing is relaxed and can be very species-rich and important for rare plants, notably <i>Himantoglossum hircinum</i> and <i>Orchis militaris</i> and insects, but without intervention is likely to develop rapidly into dense scrub</p>	
<b>Structure and function (including its typical species)</b>	<b>Vegetation: proportion of herbs (including <i>Carex</i> spp )</b>	Restore the proportion of herbaceous species within the range 40%-90%	<p>A high cover of characteristic herbs, including sedges (<i>Carex</i> species) is typical of the structure of this habitat type.</p> <p>A high cover of characteristic herbs, including sedges (<i>Carex</i> species) is typical of the structure of this habitat type.</p> <p>It is desirable to have a varied and dynamic ecosystem structure across the site where some areas will contain scrub or less species-rich grassland with fewer herbaceous components whereas other areas will have predominantly herbaceous species. If the designated site should be assessed against this target, it should be considered as a varied and functioning ecosystem across the site.</p> <p>Low species diversity and herbaceous component as a result of pesticides and nutrients is undesirable.</p>	<p>Natural England (Various) Definitions of Favourable Condition for component SSSIs (Available on request from Natural England)</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Structure and function (including its typical species)</b>	<b>Key structural, influential and/or distinctive species</b>	<p>Restore the abundance of the typical species listed below to enable each of them to be a viable component of the Annex 1 habitat</p> <ul style="list-style-type: none"> <li>Constant and preferential plant species of CG2 and CG6 grassland NVC vegetation types which comprise the H6120 feature within this SAC</li> <li>Notable invertebrates including; Adonis Blue <i>Lysandra bellargus</i> and Marsh Fritillary <i>Euphydryas aurinia</i> butterfly</li> </ul>	<p>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;</p> <ul style="list-style-type: none"> <li><b>Structural</b> 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><b>Influential</b> 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)</li> <li><b>Site-distinctive</b> 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. 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> <p>The foodplant of the Marsh Fritillary Butterfly <i>Euphydryas aurinia</i>, Devil's-bit <i>Succisa pratensis</i> is a typical species of this habitat in West Dorset and is most abundant on the on the west and north facing slopes.</p>	<p>Natural England (Various) Definitions of Favourable Condition for component SSSIs (Available on request from Natural England)</p> <p>This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a></p>
<b>Structure and function (including its typical)</b>	<b>Vegetation: undesirable species</b>	Restore the frequency/cover of the following undesirable species to within acceptable levels and prevent changes in surface	Species that dominate as a result of nutrient enrichment are undesirable such as Perennial Rye-grass <i>Lolium perenne</i> , White Clover <i>Trifolium repens</i> , Stinging Nettle <i>Urtica dioica</i> and Cleavers <i>Galium aparine</i> . The presence of these species may	This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
species)		condition, soils, nutrient levels or hydrology which may encourage their spread	<p>develop as a result of airborne nitrogen deposition, direct fertilization, leaching and runoff from adjacent agricultural land or facility.</p> <p>All non-native species are undesirable in the sward which should be controlled and introduction avoided. Areas of False brome grass <i>Brachypodium pinnatum</i> and other tall grasses adjacent to busy roads may indicate that airborne nitrogen deposition is adversely affecting habitat quality. However, the presence of False brome grass <i>Brachypodium pinnatum</i> and other tall grasses within the sward in small patches or in low abundance as a result of natural geological conditions or ecotone habitat management may be desirable as a component of the habitat complex.</p> <p>Dense, extensive and leggy scrub with limited function for invertebrates and birds in a grassland ecosystem is undesirable. Rank grasses e.g. false oat-grass <i>Arrhenatherum elatius</i>, cock's-foot <i>Dactylis glomerata</i> and Yorkshire fog <i>Holcus lanatus</i> are undesirable in excess as herbaceous species are out competed, species diversity is reduced and is an indication of under-grazing.</p>	
Structure and function (including its typical species)	Vegetation community transitions	Restore the pattern of natural vegetation zonation/transitions from bare chalk/skeletal soils through the vegetation structure heights up to scrub.	<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.</p> <p>The designated site is managed by a number of landowners who have different land management practices and different constraints on achieving transitions favourable to the conservation of the notified features. It is not appropriate to evidence the state of the transition zones across the site as</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>they can be subject to short term change within the space of a single year depending on a number of factors such as weather, grazing, scrub clearance etc.</p> <p>Transitions across the site are desirable between bare ground, short species rich grassland, tussocks/rank grassland and scrub. The absence of any one of these structural habitats or transition communities would be undesirable.</p> <p>Threats to the transition communities includes, but not exclusively; inappropriate grazing levels (including deer and rabbit), inappropriate mowing, inappropriate burning, nutrient enrichment (from air pollution or agriculture), neglect and management perceptions of creating bare ground.</p>	
<b>Structure and function (including its typical species)</b>	<b>Soils, substrate and nutrient cycling</b>	Restore 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.	<p>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.</p> <p>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.</p> <p>Areas where the feature is being impacted due to nutrient enrichment from external sources should be restored. In areas where nutrient status, ph. and structure have not been affected and are at desirable levels, the soils/substrates should be</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>maintained.</p> <p>Any new proposals on surrounding agricultural land that would add to existing/background nutrient levels, or which change current practices near or on the boundary of the designated site need to be carefully considered</p> <p>At Hog Cliff NNR a long-term restoration of grassland is underway following a pig slurry spill in 2008.</p>	
<b>Structure and function (including its typical species)</b>	<b>Supporting off-site habitat</b>	Restore the extent, quality and spatial configuration of land or habitat surrounding or adjacent to the site which is known to support the feature	<p>Include only where applicable. The structure and function of the qualifying habitat, including its typical species, may rely upon the continued presence of 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.</p> <p>Marsh Fritillary Butterflies <i>Euphydryas aurinia</i> are a typical species of this habitat in this geography. Supporting habitat for this species is also relevant to the supporting habitat of H6210 but is discussed below as a feature in its own right.</p>	<p>LARGE, R. &amp; HALES, S. 2015. Mapping connectivity of species-rich grassland habitat in the Wiltshire Chalk landscape. Natural England</p> <p>REES, I. 2013. Connecting Dorset's marsh fritillaries</p>
<b>Structure and function (including its typical species)</b>	<b>Functional connectivity with wider landscape</b>	Restore the overall extent, quality and function of any supporting features within the local landscape which provide a critical functional connection with the site	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.	Dorset SNCIs and threatened butterflies in the Cerne and Sydling SAC. (Butterfly Conservation, Unpublished)

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<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> <p>Chalk downland vascular plants are considered to have very limited dispersal due to animal vectors being limited by fencing, although some are wind dispersed e.g. grasses. However animal vectors may be artificially replaced by hay cuts, livestock movements and farm machinery within a landholding.</p> <p>No specific supporting off-site habitat is identified for the vascular plant communities although, Semi-improved and Unimproved calcareous grassland sites within 250m of the SAC should be deemed as integral to the plant species gene pool and wider landscape connectivity which may support the designated site with seed provision. This includes, but not exclusively, the Sites Important for Nature Conservation (SINCs).</p> <p>Marsh Fritillary Butterflies <i>Euphydryas aurinia</i> are a typical species of this habitat in this geography. Supporting habitat for this species in the form of migration routes and satellite breeding sites is also relevant to the supporting habitat of H6210 but is discussed below as a feature in its own right.</p>	
<b>Structure and function (including its typical species)</b>	<b>Adaptation and resilience</b>	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	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	NATURAL ENGLAND. (2015). Climate Change Theme Plan and supporting National Biodiversity Climate Change Vulnerability assessments ('NBCCVAs') for SACs and SPAs in England [Available at

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>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>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.</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>Fragmented habitats such as this site, where seed dispersal is limited and are sensitive to genetic bottlenecks. Restoration of the landscape between the fragmented protected sites as a single grazing unit would improve the permeability, exchange of seed and pollen. Some species may benefit from wildlife corridors to connect the fragmented sites and enable better permeability of pollenating invertebrates to increase genetic diversity and population resilience. Physical barriers such as blocks of woodland, urban development and roads may impede this permeability.</p>	<a href="http://publications.naturalengland.org.uk/publication/4954594591375360">http://publications.naturalengland.org.uk/publication/4954594591375360</a> ].
<b>Supporting processes (on which the</b>	<b>Air quality</b>	]Maintain as necessary, the concentrations and deposition of air pollutants to at or below the site-relevant Critical Load or	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	More information about site-relevant Critical Loads and Levels for this SAC is available by using the 'search by site' tool on the Air

Attributes	Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
feature relies)	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>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.</p> <p>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.</p> <p>Calcareous Grassland is most sensitive to ammonia and nitrogen deposition. Based on the best available evidence, other airborne pollutants are likely to be at higher thresholds before any reasonable alteration to habitat composition and function occurs. As more evidence and research is carried out, Calcareous Grasslands may be deemed sensitive to other airborne pollutants and should be assessed on a case by case basis based on the evidence at the time of decision.</p> <p>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 H6210 feature.</p>	Pollution Information System ( <a href="http://www.apis.ac.uk">www.apis.ac.uk</a> ).



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>Plans or projects that are often the source of pollutants on this habitat include agricultural operations and projects that increase the number of traffic movements within close proximity to the site such as housing and road schemes.</p> <p>The designated site lies adjacent to the A350. Air quality, specifically Nitrogen deposition, should be considered in deciding a plan or project when an increase in daily traffic movements above a reasonable threshold is likely to occur.</p> <p>The designated site is surrounded by agricultural land, much of which is intensively managed. Air quality should be considered in deciding a plan or project where airborne pollutants, are likely to increase above a reasonable threshold.</p>	
<b>Supporting processes (on which the feature 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 the 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.</p> <p>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>The chalk grassland feature is maintained by the right balance of grazing and scrub management.</p> <p>Ground disturbance must be kept at the right balance, with both a lower and upper threshold for bare ground, Bare ground is valuable in its own right and leads to early successional habitats and creates germination opportunities for a variety of plant species, including Devils Bit Scabious <i>Succisa pratensis</i> as the food plant of the Marsh Fritillary Butterfly <i>Euphydryas</i></p>	This attribute will be periodically monitored as part of Natural England's <a href="#">SSSI Condition Assessments</a>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p><i>aurinia</i>.</p> <p>The coverage and intensity of grazing must ideally reflect the chalk grassland communities and associated species present, and respond to annual variation in rainfall and drought, although the ease of achieving these varies between the component sites.</p> <p>Recommended management of grassland for Marsh Fritillary <i>Euphydryas aurinia</i> involves extensive cattle grazing ideally year round to maintain a longer sward that is favourable for the butterfly's food plant, Devil's bit scabious <i>Succisa pratensis</i>. In time this can lead to loss of species diversity within the sward and corresponding build-up of thatch, therefore it is occasionally necessary to graze areas harder to remove the thatch and maintain wider species diversity. This needs to be done in such a way that maintains suitable longer sward habitat within site(s), so that the Marsh fritillary <i>Euphydryas aurinia</i> always has access to suitable habitat and foodplant.</p> <p>Marsh Fritillary <i>Euphydryas aurinia</i> require a longer sward than many other species typically associated with chalk grassland habitat, including the Adonis Blue butterfly <i>Polyommatus bellargus</i>, which requires a very tightly grazed sward. If possible management should aim to achieve some shorter areas of grass within longer sward areas – this can sometimes be achieved by rabbit grazing, which can create tightly grazed areas near the burrows in what would otherwise be longer sward areas. Accordingly rabbit control should be discouraged unless significant damage or widespread overgrazing is occurring.</p>	
Version Control: Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: N/A				

**Table 2: Supplementary Advice for Qualifying Features: S1065. *Euphydryas (Eurodryas, Hypodryas) aurinia*; Marsh fritillary butterfly**

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
<b>Population (of the feature)</b>	<b>Population abundance</b>	Restore the abundance of the population of Marsh Fritillary to sustainable levels, whilst avoiding deterioration from its current level as indicated by the latest mean peak count or equivalent.	<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 (generally at least 10 years). 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</p>	<p>Butterfly Conservation; Marsh Fritillary Dorset Monitoring: 2018 Summary</p> <p>Bulman C R, Wilson R J, Holt, A.R, Bravo L G, Early R I, Warren M S, Thomas C D (2007). Minimum viable metapopulation size, extinction debt and the conservation of a declining species. Ecological Applications 17: 1460-1473</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>such higher 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. For this feature counting the conspicuous larval webs is a good measure of population density; as well as the more standardised transect counts of adults.</p> <p>Bulman et al (2007) suggests that assessing the favourable habitat within a fragmented network is reasonably accurate in determining the minimum viable metapopulation size for the Marsh Fritillary Butterfly <i>Euphydryas aurinia</i>. Cerne and Sydling designated site occupies 370.99ha area and is deemed to be large enough to sustain a viable population with a small chance of stochastic extinction within the next 100 years subject to the favourable management of the site and off site supporting habitat.</p> <p>Considering the natural fluctuations of Marsh Fritillary Butterfly <i>Euphydryas aurinia</i> populations due to fluctuations in parasites, weather and dispersal success, it is not appropriate to set minimum adult or larval web numbers in assessing the conservation status of the species against a target. The evidence available indicates that Marsh Fritillary Butterfly <i>Euphydryas aurinia</i> presence, habitat condition, area and connectivity between fragmented breeding sites are appropriate assessment tools to determine if the feature is in favourable condition. Surveys for presence and numbers of</p>	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			larval webs are valuable in determining the health of populations and long term trends within a network to reinforce the feature condition assessment where professional judgement should be used.	
<b>Supporting habitat: extent and distribution</b>	<b>Distribution of supporting habitat</b>	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>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>Marsh Fritillary Butterflies <i>Euphydryas aurinia</i> are a typical species of west facing Chalk Downland in this region. They are thought to regularly travel up to 0.5km between sites when connecting habitat is optimum, but much less than this (12.5m) in 'impermeable' habitats e.g. arable. Mark and recapture research suggests that individuals (particularly females) will travel up to 10km from the source.</p> <p>Supporting habitat for Marsh Fritillary Butterfly <i>Euphydryas aurinia</i> includes migration corridors between sites, foraging nectar resource surrounding the designated site and satellite metapopulation breeding habitat.</p> <p>No specific supporting off-site habitat is identified for marsh fritillary butterfly <i>Euphydryas aurinia</i> satellite metapopulation breeding sites. Semi-improved and Unimproved calcareous grassland sites within 10km of the SAC where favourable migration corridors are available should be deemed as</p>	ZIMMERMANN et al. (2011) Mark–recapture on large spatial scale reveals long distance dispersal in the Marsh Fritillary, <i>Euphydryas aurinia</i> .

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			supporting habitat. This includes, but not exclusively, the Sites Important for Nature Conservation (SINCs). There is uncertainty over the location of migration routes between the fragmented designated sites and the location of migration routes to and from supporting off-site breeding habitat. In the absence of this knowledge, plans or projects that create barriers between habitats or potentially degrade migration corridors will require certainty that they are not adversely affecting the feature.	
<b>Supporting habitat: extent and distribution</b>	<b>Extent of supporting habitat</b>	Restore the total extent of the habitat(s) which support the feature to: 370.99 hectares (extent of H6210 feature)	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.	
<b>Supporting habitat: structure/function</b>	<b>Ground moisture</b>	Grazing regime should allow for a sufficiently long sward during the summer months to avoid dessication of the <i>Succisia</i> plants on which the larvae feed.	Sward height should be long enough during spring/ summer months that the larval foodplant does not become dessicated (especially important on calcareous grassland sites).	
<b>Supporting habitat: structure/function</b>	<b>Soils, substrate and nutrient cycling</b>	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.	

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			Areas where the feature is being impacted due to nutrient enrichment from external sources should be restored. In areas where nutrient status, ph. and structure have not been affected and are at desirable levels, the soils/substrates should be maintained.	
<b>Supporting habitat: structure/ function</b>	<b>Vegetation composition - presence of foodplants</b>	Restore an abundance of devils-bit scabious <i>Succisa pratensis</i> within supporting habitat	As the feature's larval foodplant, <i>Succisa</i> should be common enough in the sward that there will always be a good and continuous number of suitable plants for egg-laying; this is particularly important on calcareous grassland sites, which are more prone to drought.  Some areas of the SAC have an abundance of devils-bit scabious <i>Succisa pratensis</i> and should be maintained whereas other are deficient and should be restored.	
<b>Supporting habitat: structure/ function</b>	<b>Vegetation structure - sward height (calcareous grassland)</b>	Restore appropriate sward conditions, with a typical sward height of 10 -15 cm on average (during summer months)	The larval foodplant grows on calcareous, as well as neutral, grassland, but this habitat is drier and more prone to draught; so the sward height should be longer to ensure the <i>Succisa</i> is usable by the larvae.  The larval food-plant grows on calcareous, as well as neutral, grassland, but this habitat is drier and more prone to drought; Butterfly Conservation Factsheet recommends that a sward height between 5 and 15cm sward is achieved for creating the right microclimate for larvae and enabling the food plant to prosper. These levels differ from the shorter sward requirements of the H6210 feature and highlight the importance of a varied habitat mosaic across the site balancing the needs of the features in a dynamic system.	Bulman C R (2001). The conservation and ecology of the Marsh Fritillary butterfly <i>Euphydryas aurinia</i> . PhD thesis, University of Leeds  Butterfly Conservation Marsh Fritillary Factsheet
<b>Supporting processes (on which the feature and/or its supporting</b>	<b>Adaptation and resilience</b>	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 the explanatory notes for this attribute above in Table 1  Changing annual precipitation and/or temperature are likely to affect vegetation structure and ultimately community type, along with associated species populations and distributions. Increasing the connectivity of the component sites to each	Local adviser to add references to site-specific surveys, condition and/or other monitoring data, reports, research, spatial GI datasets, etc which may be

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
habitat relies)			other and surrounds, is likely to increase resilience to environmental change.	relevant to the attribute or target
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Air quality</b>	Maintain or, where necessary, restore concentrations and deposition of air pollutants to at or 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>See the explanatory notes for this attribute above in Table 1</p> <p>The feature is sensitive to Nitrogen deposition from air pollution sources such as roads and agriculture. Evidence of Nitrogen deposition from air pollutants are likely to be an increase in tall grasses, decline in diversity, increased mineralization, N leaching, surface acidification.</p> <p>The feature is also considered to be sensitive to acid deposition from air pollution sources such as roads. Leaching will cause a decrease in soil base saturation, increasing the availability of Al<sup>3+</sup> ions; mobilisation of Al<sup>3+</sup> may cause toxicity to plants and mycorrhiza;</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> ).
<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 the feature and/or its supporting habitats.	<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>Some areas of the designated site are in unfavourable condition for Marsh Fritillary <i>Euphydryas aurinia</i> to complete its life cycle and should be restored. Under grazing and neglect on some sites has resulted in monocultures of dense leggy scrub and rank grassland. Some areas of the site are over grazed with livestock which is detrimental to the Marsh Fritillaries <i>Euphydryas aurinia</i> ability to complete its life cycle. Land management practice and pollution events has caused some</p>	Local adviser to add references to site-specific surveys, condition and/or other monitoring data, reports, research, spatial GI datasets, etc which may be relevant to the attribute or target



Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			<p>areas of the site to become enriched with nutrients.</p> <p>Some areas of the SAC (such as Hog Cliff and Giants Hill) are grazed and manage scrub to appropriate levels to enable the Marsh Fritillary <i>Euphydryas aurinia</i> to successfully complete its life cycle and should be maintained.</p> <p>Measures should be encouraged across the site to create bare soils and chalk as an early successional habitat.</p>	
<b>Supporting processes (on which the feature and/or its supporting habitat relies)</b>	<b>Grazing pressure</b>	<p>Restore a cattle or pony-dominated grazing regime. Stock may be removed May-September, but light continuous cattle grazing is more beneficial than short-term heavy grazing, as long as the correct sward structure is maintained and sites do not become overgrazed.</p>	<p>Cattle grazing is preferable as it produces a less uniform sward; also sheep tend to selectively graze the Succisa, which is likely to be detrimental to marsh fritillary populations. If sheep are used it should be at a very low stocking ration (especially on calcareous sites, where care should be taken that sites aren't overgrazed, resulting in a short sward and increased risk of dessication of Succisa plants (if they aren't actually eaten!). Sheep should not graze during the summer months - cattle/pony grazing during summer may be OK if at a low stocking density.</p> <p>Stocking rates should not exceed 0.2-0.3 livestock units/ha/year. Sheep are unsuitable as they preferentially graze the food plant. Burning may be appropriate in some locations when conducted sensitively. Mowing is unsuitable for management but may be used as a restoration tool. Creating areas of bare ground from explosives on military sites or manual exposures can be beneficial for seed germination of the food plant.</p> <p>In the longer term recommended stocking rates of 0.2-0.3 livestock units/ha/year can lead to a build-up of thatch and a longer sward, with resulting loss of loss of botanical species diversity within the sward. It may therefore be necessary to periodically graze some areas harder to remove the build-up of thatch and maintain wider species diversity. This needs to be done in such a way that maintains suitable longer sward habitat</p>	<p>Butterfly Conservation Marsh Fritillary Factsheet</p> <p>Butterfly Conservation; Landscape-scale conservation for butterflies and moths Lessons from the UK</p> <p>Salisbury Plain Life Project; Management for the Marsh Fritillary on Salisbury Plain</p>

Attributes		Targets	Supporting and Explanatory Notes	Sources of site-based evidence (where available)
			within site(s), so that the Marsh fritillary <i>Euphydryas aurinia</i> always have access to suitable habitat and foodplant. This dynamic method of management is a sustainable technique to positively manage the two sward requirements of the SAC features.	
Version Control Advice last updated: N/A				
Variations from national feature-framework of integrity-guidance: Attribute relating to <b>Water quantity / quality</b> has been deleted as the feature on this SAC is not greatly influenced by hydrology due to the porous nature of the geology. Impacts to water quality through nutrient leaching are considered adequately covered through the <b>Soils, substrate and nutrient cycling</b> attribute.				