CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

CORE MANAGEMENT PLAN
INCLUDING CONSERVATION OBJECTIVES

FOR

LIMESTONE COAST OF SOUTH WEST WALES/ ARFORDIR CALCHFAEN DE ORLLEWIN CYMRU SAC

(INCORPORATING CASTLEMARTIN COAST SPA)

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A Welsh version of all or part of this document can be made available on request.

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PREFACE

This document provides the main elements of CCW's management plan for the site(s) named. It sets out what needs to be achieved on the site(s), the results of monitoring and advice on the action required. This document is made available through CCW's web site and may be revised in response to changing circumstances or new information. This is a technical document that supplements summary information on the web site.

One of the key functions of this document is to provide CCW's statement of the Conservation Objectives for the relevant Natura 2000 site(s). This is required to implement the Conservation (Natural Habitats, &c.) Regulations 1994, as amended (Section 4). As a matter of Welsh Assembly Government Policy, the provisions of those regulations are also to be applied to Ramsar sites in Wales.

1. VISION FOR THE SITE

This is a descriptive overview of what needs to be achieved for conservation on the site. It brings together and summarises the Conservation Objectives (part 4) into a single, integrated statement about the site.

The Countryside Council for Wales' vision for the Pembrokeshire end of the Limestone Coast of South West Wales/Arfordir Calchfaen de Orllewin Cymru SAC is for the SAC habitat features to be stable or increasing in area and the SAC and SPA species features to achieve favourable conservation status. The factors that affect these habitats and species must also be under control.

Maritime grasslands and heaths are present along much of the coastline within the SAC. The maritime grassland is characterised by the presence of coastal herbs, such thrift, spring-squill, buckshorn plantain and bird's-foot trefoil along with some large populations of green-winged orchids in a mainly red fescue-dominated turf. The turf should have small patches of bare earth and support drought tolerant plants like stonecrops. Bracken and scrub cover should be limited. The heath has a mix of heather, bell heather and western gorse. Large populations of field gentian are present in the short, heathy turf. In more sheltered areas, the heath grades into neutral grassland and becomes taller, eventually giving way to low-growing European gorse and blackthorn scrub. There are also scattered stands of calcareous grassland. We aim to ensure that these communities are maintained at their present character and extent.

Sand dune habitats occur at Brownslade and Linney Burrows and on the cliff tops at Stackpole warren and Giltar point. All stages of sand dune succession should be present including fore dunes with bare, sparsely vegetated areas of low-growing plants such as sea sandwort and sea rocket, Marram grass-dominated open dunes and fixed dune grassland. The dune vegetation chiefly comprises species-rich grassland with typical plants, such as squinancy-wort, carline thistle, autumn gentian, eyebrights, birds-foot trefoil, wild thyme and violets, in short (below ankle height) grassy-turf. The vegetation communities and successional stages will be maintained by natural erosion processes and by grazing and disturbance actions of rabbits, sheep and cattle. Within the open and grassy dunes, sea buckthorn is absent; clumps of bracken, willow, gorse or blackthorn scrub occur but are not dominant over the dunes. We aim to ensure that these communities are maintained at their present character and extent. Large populations of petalwort grow in open patches of almost bare sand on the floor of old quarried dunes and close to natural seepages within Brownslade Burrows. They occur widely in open damp areas being maintained by grazing and trampling. We aim to ensure that these populations are maintained at their present numbers and extent.

The maritime cliff and crevice communities on the exposed rocky ledges and crevices and at the top of the cliffs will have a variety of vegetation types distributed throughout the site, including communities with thrift, rock and golden samphires, sea lavenders, sea-beet and sea plantain. These communities form a composite climax vegetation community, maintained by very exposed conditions. Distribution, extent, community diversity and condition are directly dependent on natural geomorphological processes and climatic conditions. The assemblages of nationally rare/scarce plants associated with the grasslands, dunes and heaths are maintained by natural erosion processes, grazing and associated disturbance. CCW's general aim for these communities and assemblages is for their population sizes and distributions to be large enough to ensure their continued survival into the future and to ensure that their present character and extent is maintained.

Some of the larger sea caves, not fully immersed at high tide, provide temporary roosts for bats. In other caves, where temperatures are cooler and more stable, bats hibernate during winter. All these caves should remain undisturbed by activities such as caving, climbing and coasteering and should continue to provide roost and hibernation sites for greater horseshoe bats and other bat species.

Choughs nest locally at high density – around 4% of the UK population occurs here. Grazing by sheep and cattle helps to maintain the short herb-rich turf and an abundance of insects needed to sustain the population. We would wish to see the current numbers and distribution of chough

maintained within the SAC/SPA.

For the Gower Coast section including South Gower Coast, Oxwich and Pwlldu SSSI's the vision is as follows –

The limestone grassland sward is of variable height, up to 20cm, with a few very short areas (1-3cm) during the summer. Amongst the grasses and sedges a number of flowering plants are present including the neat purple patches of wild thyme, the delicate yellow flowers of the hoary rock-rose, the yellow flowers of goldilocks aster and the blue spring squill. Small, sparsely scattered patches of bracken and scrub, predominantly western gorse, juniper and blackthorn are present. Undesirable species that indicate agricultural modification such as perennial rye-grass, white clover, creeping thistle and the tough tor grass are largely absent. Calcareous grassland can be found out on Oxwich Point. The grassland here includes plants such as salad burnet, wild thyme, carnation sedge, ribwort plantain, sheep's fescue and birdsfoot trefoil. Also present at this site are Portland spurge, common rockrose with its bright yellow flowers, and spring squill. The grassland will grow amongst heath and scrub.

The areas of coastal grassland have a short sward, less than 10cm. Amongst the red fescue grass, sea and ribwort plantain are present alongside the purple bobbing heads of thrift, the gentian-blue spears of Spiked Speedwell and the leafy, pink flowered stems of the thorny Small Restharrow. In these areas scrub and bracken is largely absent and again species indicative of agricultural modification such as perennial rye-grass, white clover, creeping thistle and tor grass are largely absent.

Stands of coastal dry heath have a varied height structure, from 5cm to 50cm and are dominated by healthy dwarf shrub species including bell heather, common heather and western gorse. Flowering plants, including the vibrant yellow flowers of tormentil and the creeping clusters of the yellow lady's bedstraw. European gorse and bracken make up no more than half of the heath stands. Closer to the sea there are small patches of heath that are more influenced by maritime conditions, here maritime species such as spring squill and thrift are found alongside the tormentil and the other flowering plants commonly found on limestone geology.

During the summer, throughout the site, stretching up the steep cliffs from the sea to the cliff-tops, the thrift, samphires, a small population of wild Asparagus and rock sea-spurrey of the maritime cliff, ledges and crevice plant communities, provide splashes of purple, yellow and pink to brighten the silvery-grey cliff faces.

The cliffs are alive with the activities of a wide variety of colourful bees, moths and beetles as they visit flowers and build their homes in the sandy soft cliffs, under every stone and amongst the protective thorns of the gorse.

In the background the calls of the guillemots, kittiwakes, chough and Dartford warbler are a constant reminder of the hidden nests and territories of these vulnerable inhabitants of the cliffs and surrounding habitats.

The 3 metre thick sediments at Long Hole Cave remain undisturbed, concealing the precious mammal fossils, pollen and human artefacts so that they may be accessible to allow future study. The solid cliffs at Worm's Head continue to show off their striking beds of sediment beds, providing a rare insight into the climate and environment 17 thousand years ago.

2. SITE DESCRIPTION

2.1 Area and Designations Covered by this Plan

Grid reference(s): **SR 885 969.** This is the approximate central point of the SAC. This may not represent the location where any particular feature occurs within the SAC.

Unitary authorities:
Pembrokeshire Coast National Park Authority (Special Purpose Authority, Environment Act 1995)
Pembrokeshire County Council
City and County of Swansea

Area (hectares):
1076.35ha Pembrokeshire section; 1594.53ha (whole SAC)

Designations covered:

- Broomhill Burrows SSSI
- Castlemartin Cliffs and Dunes SSSI
- Stackpole SSSI
- Stackpole Quay to Trewent Point SSSI (SAC section only)
- Freshwater East to Skrinkle Haven SSSI (SAC sections only)
- Lydstep Head – Tenby Burrows SSSI (SAC sections only)
- Gower coast – Rhossili to Porth Eynon SSSI
- Pwll Du Head and Bishopston Valley SSSI (SAC sections only)
- Oxwich Bay SSSI (SAC sections only)

See accompanying map showing 'Location of map showing 'Location of large scale management unit maps' for coverage of this plan.

2.2 Outline Description

The Limestone Coast of South West Wales SAC comprises a series of SSSI's stretching from Castlemartin at the western end of southern Pembrokeshire to the Bishopston Valley on the south east coast of Gower. Some of the SSSI's that underpin the SAC have management units that extend beyond the boundaries of the SAC. These SSSI units that lie outside of the SAC are not included in this plan.

The sites boast a great variety of habitats and species in relatively small area. The imposing limestone cliffs support an unusually high number of nationally rare and scarce plants within the maritime, dune and neutral/calcareous grassland, which exists on the cliffs themselves and the hinterland. This area has been highlighted as a key locality for rare and scarce higher plants.

The Maritime cliff, ledge and crevice communities form a composite climax vegetation community, maintained by very exposed conditions. Distribution, extent, community diversity and condition are directly dependent on natural geomorphological processes and climatic conditions

The Carboniferous Limestone sea-cliffs include exposed and sheltered elevations, up to 50 metres high in places, with numerous caves, arches, crevices and blow-holes. The cliffs hold locally important seabird colonies and the rocky foreshore is also of marine biological importance. Depending on the site, these grade into calcareous grasslands, sand dunes and lichen heath, which support a rich assortment of rare species of plants.

Some of the coast is still actively used by the MOD for military training (Castlemartin and Giltar Point). The continued presence of these ranges has restrained intensification of land use in the buffer zone and allowed the primary nature conservation features to persist. Although there are large tracts of well grazed cliff and dune communities covering parts of the site, e.g. at Castlemartin, and Stackpole, there has been a recent retreat of rough grazing practices in other parts. This has impacted adversely on some cliff and dune features, particularly on Gower, by allowing tall vegetation, including bracken and scrub, to spread.

The limited agricultural use of the area since the 2nd World War has ensured that reclamation has not truncated the wide and continuous zones of sea-cliff vegetation that reflect different levels of salt in the soil. The tops of the most exposed headlands, such as Linney Head, are sparsely vegetated. Only thrift, golden-samphire, rock samphire, rock sea-lavender and sea aster can grow in the crevices.

The sea-cliffs around Castlemartin support the largest concentration of breeding seabirds on the Pembrokeshire mainland, including large and easily viewable colonies of guillemots, razorbills and kittiwakes at Stack Rocks. Rare breeding birds include chough (currently approximately 20 pairs, but 12 pairs at time of designation), at one of its main breeding locations in Wales (currently representing at least 4% of the UK population). The choughs feed along the cliffs, adjacent coastal grasslands, heath and dunes.

Greater horseshoe bats are known to feed regularly over the grassland. The coastal caves support one of the most important greater horseshoe bat winter roosts (hibernacula) in the UK. Over 100 bats regularly occur in one cave alone (see Pembrokeshire Bat Sites and Bosherston lakes management plan for further details on Bats features). The partially submerged sea caves are cross-boundary features between the Limestone Coast SAC and the Pembrokeshire Marine SAC. The terrestrial interests of the feature are dealt with in this management plan. All marine and intertidal interest of these caves is dealt with in the Pembrokeshire Marine SAC Regulation 33 advice document.

At the western end of the Castlemartin Range, lies the large calcareous dune system of Linney and Brownslade Burrows, which also have extensive dune meadows behind the seaward high dunes, which are particularly valuable. In the wetter parts of the dunes, there is a large population of marsh helleborine orchid along with several different species of marsh orchid. The dune slacks grade into rich fen vegetation in places, with much blunt-flowered rush, lesser pond-sedge and bulrush. Adder's-tongue and variegated horsetail are locally abundant in the dune slacks. The scarce blue-tailed damselfly and the hairy dragonfly breed in the vicinity, whilst in the old quarried damp dune slacks there is a large population of a nationally scarce liverwort, petalwort.

2.3 Outline of Past and Current Management

There are many different aspects to the management of this large and complex site. These are summarised in the following site planning documents:
Castlemartin Range and Penally Gallery Range Integrated Management Plans (ILMP) (2000)
Castlemartin Range and Penally Gallery Range ILMP updates (2006)
Stackpole NNR/SSSI Management Plan (in CMS)
Site Issues briefing Statement for the Limestone Coast of South West Wales SAC
Site Management Statements for the component SSSIs.

2.4 Management Units

The plan area has been divided into management units to enable practical communication about features, objectives, and management. This will also allow us to differentiate between the different designations where necessary. In this plan the management units have been based on the following:

- SSSI/SAC boundaries
- Tenure

- MoD management units (affecting Castlemartin Cliffs and Dunes SSSI component)
- NNR management units (affecting Stackpole NNR/SSSI component)

A map showing the management units referred to in this plan is shown in Annex 1.

The following table confirms the relationships between the management units and the designations covered:

MoD = Ministry of Defence **NT** = National Trust

Unit no.	Unit name	SAC	SPA	SSSI	NNR/ CCW	Other
1. Broomhill Burrows SSSI						
1a	1a Broomhill	✔	✔	✔		
1b	1b Broomhill	✔	✔	✔		**NT**
1c	1c Broomhill	✔	✔	✔		**NT**
1d	1d Two small Non SAC areas of SPA		✔	✔		**NT**
2. Castlemartin Cliffs and Dunes SSSI						
2a	2a MoD unit W01 and W02a	✔	✔	✔		**MoD**
2b	2b MoD unit W03	✔	✔	✔		**MoD**
2c	2c MoD unit W18a, W19a, W20a	✔	✔	✔		**MoD**
2d	2d MoD unit W22a	✔	✔	✔		**MoD**
2e	2e MoD unit E14a, E15a, E17a	✔	✔	✔		**MoD**
2f	2f MoD unit E18a, E19a	✔	✔	✔		**MoD**
2g	2g MoD unit E23a	✔	✔	✔		**MoD**
3. Stackpole SSSI						
3a	3a Stackpole NNR compt 18	✔	✔	✔	✔	**NT**
3b	3b Stackpole NNR compts 4b, 4c and 5	✔	✔	✔	✔	**NT**
3c	3c Stackpole NNR compts 10-17 + parts of 40, 41b, 47a, 48a	✔	✔	✔	✔	**NT**
3d	3d Stackpole NNR compts parts of 41a, 41b, 47a, 47b, 48b, whole of 42-46, 50-52, 62, 64, 65, 68	✔	✔	✔	✔	**NT**
3e	3e Stackpole NNR compt 49 + part of 48a	✔	✔	✔	✔	**NT**
3f	3f Stackpole NNR compts 03, 60, 61, 63, 66, 67, part of 41b	✔	✔	✔	✔	**NT**
3g	3g Isolated SPA area		✔	✔	✔	**NT**
4. Stackpole Quay to Trewent Point SSSI						
4	4 Barafundle Bay to Stackpole Quay	✔		✔		**NT**
5. Lydstep to Tenby Burrows SSSI						
5a	5a Lydstep-Tenby	✔		✔		**MoD**
5b	5b Lydstep-Tenby	✔		✔		**NT**
5c	5c Lydstep-Tenby			✔		
5d	5d Lydstep-Tenby	✔		✔		**MoD**
5e	5e Lydstep-Tenby	✔		✔		**MoD**
Gower Coast Rhossili to Porteynon; Pwlldu Head; Oxwich Bay						
6	Worm's Head West	✔		✔	✔	
7	Worm's Head East	✔		✔	✔	
8	Rocky foreshore	✔		✔		
9	Mewslade West	✔		✔	✔	
10	Mewslade – Red Chamber	✔		✔	✔	
11	Red Chamber East	✔		✔	✔	
12	Rhossili West	✔		✔		
13	Rhossili	✔		✔		

14	Great Pitton Farm West	✔		✔		
15	The Knave	✔		✔		
16	Paviland	✔		✔		
17	Port Eynon Point	✔		✔		
18	Pwll Du Head	✔		✔		
19	Oxwich Bay	✔		✔		
20	Overton cliff	✔		✔		
Other units						
21	SPA/Marine SAC overlap	✔	✔	✔	✔	
22	Offshore rocks & Stacks	✔	✔	✔	✔	

3. THE SPECIAL FEATURES

3.1 Confirmation of Special Features

Designated feature	***Relationships, nomenclature etc***	***Conservation Objective no. in part 4***
SAC features		
Annex I habitats that are a primary reason for selection of this site		
***1.* 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts**	Generally referred to as Limestone coastal vegetation throughout this document (includes CG1)	1
2. 2130 Fixed dunes with herbaceous vegetation ("grey dunes")	Generally referred to as dune grassland throughout this document	2
Annex I habitats present as a qualifying feature, but not a primary reason for site selection		
3. 4030 European dry heaths	Generally referred to as Limestone Heath throughout this document	3
4. 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone	Includes NVC communities CG2 and CG 7	4
5. 8310 Caves not open to the public		5
6. 8330 Submerged or partially submerged sea caves		6
Annex II species that are a primary reason for selection of this site		
7. **1304 Greater horseshoe bat Rhinolophus ferrumequinum**		7
Annex II species present as a qualifying feature, but not a primary reason for site selection		
8. 1395 Petalwort Petalophyllum ralfsii		8
Annex II species that are a primary reason for selection of this site		
9. 1654 Early gentian Gentianella anglica		9
SPA features		
Species that are a primary reason for selection of this site		
11. A346 Chough *Pyrrhocorax pyrrhocorax*		11
Ramsar features		
Not applicable		
SSSI features		

SSSI features have not been included in this management plan as some features do not yet have conservation objectives whilst others are currently or soon to be subject of monitoring contracts to develop objectives. It is likely that most of the management for SAC features will be sympathetic to these SSSI features.

3.2 Special Features and Management Units

This section sets out the relationship between the special features and each management unit. This is intended to provide a clear statement about what each unit should be managed for, taking into account the varied needs of the different special features.

All special features are allocated to one of seven classes in each management unit. These classes are:

Key Features
KH - a 'Key Habitat' in the management unit, i.e. the habitat that is the main focus of management and monitoring effort, perhaps because of the dependence of a key species (see KS below). There will rarely be more than one Key Habitat in a unit.
KS – a 'Key Species' in the management unit, often driving both the selection and management of a Key Habitat.
Geo – an earth science feature that is the main focus of management and monitoring effort in a unit.

Other Features
Sym - habitats, species and earth science features that are of importance in a unit but are not the main focus of management or monitoring. These features will benefit from management for the key feature(s) identified in the unit. These may be classed as 'Sym' features because:
a) they are present in the unit but are of less conservation importance than the key feature; and/or
b) they are present in the unit but in small areas/numbers, with the bulk of the feature in other units of the site; and/or
c) their requirements are broader than and compatible with the management needs of the key feature(s).

Nm - an infrequently used category where features are at risk of decline within a unit as a result of meeting the management needs of the key feature(s), i.e. under Negative Management. These cases will usually be compensated for by management elsewhere in the plan, and can be used where minor occurrences of a feature would otherwise lead to apparent conflict with another key feature in a unit.
Mn - Management units with no special feature present but which are of importance for management of features elsewhere on a site e.g. livestock over-wintering area included within designation boundaries.
x – Features not present in the management unit.

The tables below set out the relationship between the special features and management units identified in this plan:

Broomhill Burrows SSSI	**Management Units**			
	1 a	**1 b**	**1 c**	**1d**
SAC	✔	✔	✔	
SPA	✔	✔	✔	✔
SSSI	✔	✔	✔	✔
SAC qualifying features				
2. 2130 Fixed dunes with herbaceous vegetation (“grey dunes”) (Grade "A/B")	KH	KH	KH	KH
8. 1395 Petalwort Petalophyllum ralfsii (Grade "C")	x	KS	x	x
SPA qualifying feature				
11. A346 Chough Pyrrhocorax pyrrhocorax	Sym	K S	x	x

Castlemartin Cliffs and Dunes SSSI	**Management Units**						
	2 a	**2 b**	**2 c**	**2d**	**2e**	**2f**	**2g**
SAC	✔	✔	✔	✔	✔	✔	✔
SPA	✔	✔	✔	✔	✔	✔	✔
SSSI	✔	✔	✔	✔	✔	✔	✔
SAC qualifying features							
1. 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts (Grade A)	Sym	Sym	KH	KH	KH	KH	KH
2. 2130 Fixed dunes with herbaceous vegetation (“grey dunes”) (Grade "A/B")	KH	KH	x	x	x	x	x
3. 4030 European dry heaths (Grade "C")	x	Sym	Sym	Sym	Sym	Sym	Sym
4. 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone (Grade "C/D")	x	Sym	Sym	Sym	Sym	Sym	Sym
5. 8310 Caves not open to the public (Grade "C")	x	x	Sym	Sym	Sym	Sym	Sym
6. 8330 Submerged or partially submerged sea caves (Grade "C")	x	x	Sym	Sym	Sym	Sym	Sym
7. 1304 Greater horseshoe bat Rhinolophus ferrumequinum (Grade A)	x	x	KS	KS	KS	KS	KS
8. 1395 Petalwort Petalophyllum ralfsii (Grade "C")	KS	Sym	x	x	x	x	x

SSSI features							
Marsh fritillary butterfly Euphydryas (Eurodryas, Hyodryas) aurinia)	x	x	KS	KS	Sym	Sym	Sym
SPA qualifying feature							
11. A346 Chough Pyrrhocorax pyrrhocorax	KS	KS	KS	KS	KS	KS	KS

Stackpole SSSI	**Management Units**						
	3a	**3b**	**3c**	**3d**	**3e**	**3f**	**3g**
SAC	✔	✔	✔	✔	✔	✔	
SPA	✔	✔	✔	✔	✔	✔	✔
SSSI	✔	✔	✔	✔	✔	✔	✔
SAC qualifying features							
1. 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts (Grade A)	KH	x	KH	x	x	x	x
2. 2130 Fixed dunes with herbaceous vegetation (“grey dunes”) (Grade "A/B")		KH		KH	x	KH	x
3. 4030 European dry heaths (Grade "C")	Sym	x	Sym	x	Sym	Sym	x
4. 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone (Grade “C/D”)	Sym	x	Sym	x	Sym	Sym	x
5. 8310 Caves not open to the public (Grade "C")	Sym	x	Sym	x	x	x	x
6. 8330 Submerged or partially submerged sea caves (Grade "C")	Sym	x	Sym	x	x	x	x
7. 1304 Greater horseshoe bat Rhinolophus ferrumequinum (Grade A)	Sym	Sym	Sym	Sym	Sym	Sym	x
9. 1654 Early gentian Gentianella anglica (Grade "A/B")	x	x	x	Sym	x	x	x
SPA qualifying feature							
11. A346 Chough Pyrrhocorax pyrrhocorax	Sym	Sym	KS	Sym	Sym	x	Sym

Stackpole Quay to Trewent Point SSSI	**Management Unit 4**
SAC	✔
SPA	**x**
SSSI	✔
SAC qualifying features	
1. 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts (Grade A)	KH
4. 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone (Grade “C/D”)	Sym
5. 8310 Caves not open to the public (Grade "C")	Sym
6. 8330 Submerged or partially submerged sea caves (Grade "C")	Sym
7. 1304 Greater horseshoe bat Rhinolophus ferrumequinum (Grade A)	Sym

Lydstep Head – Tenby Burrows SSSI	**Management units**				
	5a	5b	5c	5d	5e
SAC	✔	✔	✔	✔	✔
SPA	**x**	**x**	**x**	**x**	**x**
SSSI	✔	✔	✔	✔	✔
SAC qualifying features					
1. 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts (Grade A)	KH	KH	KH	KH	KH
4. 6210 Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone (Grade “C/D”)	Sym	Sym	Sym	Sym	Sym
5. 8310 Caves not open to the public (Grade "C")	Sym	Sym	Sym	Sym	Sym
6. 8330 Submerged or partially submerged sea caves (Grade "C")	Sym	Sym	Sym	Sym	Sym
7. 1304 Greater horseshoe bat Rhinolophus ferrumequinum (Grade A)	Sym	Sym	Sym	Sym	Sym

Gower Coast: Rhossili to Port Eynon	Management Unit														
	6	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
SAC	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
SSSI	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔
NNR/CCW owned															
SAC features															
1. Vegetated sea cliffs of the Atlantic and Baltic coasts	KH	x	x	KH	KH	x	x	x	x	x	x	x	x	x	x
3. European dry heaths	x	x	x	KH	KH	x	x	x	x	KH	x	KH	x	KH	KH
4. Semi-natural dry grasslands and scrubland facies: on calcareous substrates	x	x	x	KH	KH	x	KH	KH	KH	KH	KH	KH	KH	KH	KH
5. Caves not open to the public	x	x	x	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
6. Submerged or partially submerged sea caves	KH	x	x	x	x	x	x	x	x	x	x	x	x	x	x
7. Greater horseshoe bat *Rhinolophus ferrumequinum*	x	x	x	KS	x	x	x	x	x	x	x	x	x	x	x
SSSI features															
Hoary rockrose	x	x	x	Sym	Sym	x	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym
Yellow whitlow grass	x	x	x	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym	Sym	x	x	Sym
Nit-grass	x	x	x	Sym	x	x	x	x	x	x	x	x	x	x	Sym
Goldilocks aster	x	x	x	x	x	x	x	x	x	x	x	Sym	x	x	KS
Spiked speedwell	x	x	x	x	x	x	x	x	x	Sym	x	Sym	x	x	KS
Small restharrow	x	x	x	x	x	x	x	x	x	x	x	x	x	x	KS
Coastal invertebrate assemblage	x	x	KS	KS	KS	KS	KS	KS	KS	KS	KS	KS	KS	KS	KS

Other Units	Management units	
	21	**22**
SAC	✔	✔
SPA	✔	✔
SSSI	✔	✔
SAC qualifying features		
1. 1230 Vegetated sea cliffs of the Atlantic and Baltic coasts (Grade A)	x	Sym
SPA qualifying feature		
11. A346 Chough Pyrrhocorax pyrrhocorax	Sym	Sym

4. CONSERVATION OBJECTIVES

Background to Conservation Objectives:

a. Outline of the legal context and purpose of conservation objectives.

Conservation objectives are required by the 1992 'Habitats' Directive (92/43/EEC). The aim of the Habitats Directives is the maintenance, or where appropriate the restoration of the 'favourable conservation status' of habitats and species features for which SACs and SPAs are designated (see Box 1).

In the broadest terms, 'favourable conservation status' means a feature is in satisfactory condition and all the things needed to keep it that way are in place for the foreseeable future. CCW considers that the concept of favourable conservation status provides a practical and legally robust basis for conservation objectives for Natura 2000 and Ramsar sites.

Box 1
Favourable conservation as defined in Articles 1(e) and 1(i) of the Habitats Directive

"The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable.

The conservation status of a species is the sum of the influences acting on the species that may affect the long-term distribution and abundance of its populations. The conservation status will be taken as 'favourable' when:

- population dynamics data on the species indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis."

Achieving these objectives requires appropriate management and the control of factors that may cause deterioration of habitats or significant disturbance to species.

As well as the overall function of communication, Conservation objectives have a number of specific roles:

- Conservation planning and management.

  The conservation objectives guide management of sites, to maintain or restore the habitats and species in favourable condition.

- Assessing plans and projects.

Article 6(3) of the 'Habitats' Directive requires appropriate assessment of proposed plans and projects against a site's conservation objectives. Subject to certain exceptions, plans or projects may not proceed unless it is established that they will not adversely affect the integrity of sites. This role for testing plans and projects also applies to the review of existing decisions and consents.

- Monitoring and reporting.

  The conservation objectives provide the basis for assessing the condition of a feature and the status of factors that affect it. CCW uses 'performance indicators' within the conservation objectives, as the basis for monitoring and reporting. Performance indicators are selected to provide useful information about the condition of a feature and the factors that affect it.

The conservation objectives in this document reflect CCW's current information and understanding of the site and its features and their importance in an international context. The conservation objectives are subject to review by CCW in light of new knowledge.

b. Format of the conservation objectives

There is one conservation objective for each feature listed in part 3. Each conservation objective is a composite statement representing a site-specific description of what is considered to be the favourable conservation status of the feature. These statements apply to a whole feature as it occurs within the whole plan area, although section 3.2 sets out their relevance to individual management units.

Each conservation objective consists of the following two elements:

1. Vision for the feature
2. Performance indicators

As a result of the general practice developed and agreed within the UK Conservation Agencies, conservation objectives include performance indicators, the selection of which should be informed by JNCC guidance on Common Standards Monitoring[1].

There is a critical need for clarity over the role of performance indicators within the conservation objectives. **A conservation objective, because it includes the vision for the feature, has meaning and substance independently of the performance indicators, and is more than the sum of the performance indicators**. The performance indicators are simply what make the conservation objectives measurable, and are thus part of, not a substitute for, the conservation objectives. Any feature attribute identified in the performance indicators should be represented in the vision for the feature, but not all elements of the vision for the feature will necessarily have corresponding performance indicators.

As well as describing the aspirations for the condition of the feature, the Vision section of each conservation objective contains a statement that the factors necessary to maintain those desired conditions are under control. Subject to technical, practical and resource constraints, factors which have an important influence on the condition of the feature are identified in the performance indicators.

[1] Web link: http://www.jncc.gov.uk/page-2199

4.1 Conservation Objective for Feature 1: Vegetated sea cliffs of the Atlantic and Baltic coasts

Vision for Vegetated sea cliffs of the Atlantic and Baltic coasts

The vegetated sea cliffs feature comprises a number of component habitats as described below. All of these must be in favourable conservation for the feature as a whole to be considered to be in favourable conservation status.

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

Cliff and crevice vegetation continues to form a very open cover of deep-rooted crevice dwelling species forming a narrow band along the steep cliff edges. On their seaward edges the cliff and crevice communities grade into the supralittoral lichen zone. Landwards they meet the maritime grassland and thereophyte communities which themselves intermingle with the maritime heaths. Both golden samphire and rock sea lavenders are typically associated with crevices and ledges and continue to be generally widespread where open and exposed conditions prevail.

The maritime grasslands range from short open swards with occasional areas of bare ground to taller, more closed swards where Red Fescue (*Festuca rubra*) forms tussocks and "mattresses". The more strongly maritime influenced grassland communities on this site, for the most part, occur on the exposed south and south westerly facing slopes.

Elsewhere, in less exposed situations the grasslands show less maritime influence with species such as Cowslips *(Primula veris)* and Bluebells *(Hyacinthoides non-scripta)* occurring. The grasslands also support important populations of typical invertebrates such as ants and butterflies as well as insects associated with open soils, grass roots or dung such as various cranefly and beetle larvae.

Maritime heath occurs in exposed locations as stands of low, wind-pruned heath dominated by heather *(Calluna vulgaris)* and bell heather *(Erica cinerea).* Species such as spring squill (*Scilla verna),* milkworts (*Polygala spp*.) pale dog violet (*Viola lactea*) and sedges (*Carex spp.)* are present in stands. This gives way to gorse-dominated dry heath (feature 3) in more sheltered areas.

- Cliff and crevice vegetation occurs naturally on suitably exposed rocky ledges and crevices throughout the site. The variety of vegetation types reflecting the degree of exposure to maritime influences - including communities with thrift, rock and golden samphires, sea lavenders, sea-beet and sea plantain.
- Maritime Grassland occupies approximately 15% of the total site area.
- The following plants are common in the maritime grassland: thrift *Armeria maritima;* spring squill *Scilla verna* and sea plantain *Plantago maritime.*
- Maritime Heathland occupies approximately 10% of the total site area.
- The following plants are common in the maritime heathland: heather *Calluna vulgaris*; bell heather *Erica cinerea* and spring squill *Scilla verna*.
- Populations of nationally rare and nationally scarce vascular and lower plant species, associated with cliff-crevice, maritime grassland and related calcareous grassland swards are maintained.
- Competitive species indicative of under-grazing, particularly cocksfoot *Dactylis glomerata,* tor grass *Brachypodium pinnatum,* bracken *Pteridium aquilinum* and western gorse *Ulex gallii* are kept in check.
- Non-native plants such as Hottentot fig *Carpobotus edulis are* absent or rare.

Performance indicators for Vegetated sea cliffs of the Atlantic and Baltic coasts
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Habitat extent and distribution	Habitat extent and distribution is provisional. Documents used for establishing habitat extent and distribution have relied on: Castlemartin Range and Penally Range ILMPs; Stackpole SSSI digital maps (non NVC habitat maps) plus Cooper (Lancaster Univ., 1987) NVC vegetation maps of British Sea cliffs and cliff-tops; Castlemartin Range Phase II vegetation maps (Phase II grassland survey team, 2004); and Davies and Wilson (2000). Digitised habitat maps, based on latest Phase II survey methods, are reasonably complete for Castlemartin Cliffs and Dunes SSSI. For the other component SSSI, maritime grassland and heath habitats have been mapped for some sites but not necessarily to latest digital mapping standards. In the case of management units 4 and 5a to 5c these sections have yet to be properly mapped.	**Pembrokeshire sections** *Upper limit*: None set *Lower limit*: **Cliff crevice communities** Are present at suitable locations scattered throughout management units 2b to 2g, 3c, 4 & 5a to 5c. **Sea bird ledge communities** Are present at Pen-y-holt Stack (management unit 2c), Elegug Stacks management unit 2e), St. Govan's Head (management unit 2g) and Stackpole Head (management unit 3c). **Maritime grassland** There is approximately 140 ha of maritime grassland (c.100 ha of which are within management units 2b to 2g; 25 ha are in unit 3c, and the remainder in units 4 and 5a to 5e). **Maritime heath** There is approximately 100 ha of maritime heath, mostly within management units 2b to 2g, with a small amount (c. 5 ha) in unit 3c. NB figures for extent and distribution are provisional limits, based on incomplete data (as mapped by Phase II grassland team for Castlemartin); Davies & Wilson and other sources. **Gower sections** *Upper limit* none set as will be constrained by natural factors *Lower limit* 42ha as extent in survey of 2003 Where Cliff ledge & crevice communities = 25ha Coastal grassland = 14ha Maritime heath = 3ha Present in units 6,9 and 10

A2. Habitat condition	Based on the Standard CSM attribute for this feature. Modified according to site-specific requirements. Good condition maritime grassland will generally occur on more exposed cliffs and coastal slopes with south or westerly aspects within each unit.	**<u>Pembrokeshire sections</u>** *Upper limit*: none set *Lower limit*: Cliff & crevice vegetation is characterised by vegetation where within a 2m radius of sample points: • At least two of the following positive indicator species are present; *Inula crithmoides, Beta vulgaris, Armeria maritima, Asplenium marinum, Aster tripolium, Cochlearia officinalis, Crithmum maritimum, Limonium* spp, *Plantago maritima, Plantago coronopus, Spergularia rupicola,* growing from crevices in hard maritime cliffs. • Invasive non-native plant species are absent or rare if already present Sea bird ledge community is characterised by the presence of: • *Lavatera arborea* and *Tripleurospermum maritimum* Invasive non-native plant species are absent or rare if already present At least 50% of the maritime grassland in management units 2b to 2g, 3c, 4 (Barafundle–Stackpole Quay section only), 5b, 5d & 5e is referable to good condition maritime grassland **AND** At least 50% of the maritime heath in management units 2b to 2g and 3c is referable to good condition maritime grassland maritime heath Good condition maritime grassland is characterised by vegetation where, within a 50cm radius: • There is one or more of *Plantago maritima, Scilla verna, Festuca rubra* and /or *Armeria maritima* • The sward is <3cm in height Good condition maritime heath is characterised by vegetation where, within a 1m radius: At least **3** of the following are present *Scilla verna, Armeria maritima, Plantago maritima, P. coronopus, Anthylis vulneraria,*

		Hypochaeris radicata, Lotus corniculatus, Polygala vulgaris, P. serpyllifolia, Thymus praecox, Potentilla erecta, Serratula tinctoria, Viola riviniana, V. lactea, Anthoxanthum odoratum, Carex spp., Danthonia decumbens, Dactylohriza maculata, Aira praecox and Cladonia spp. of lichen. • Dwarf shrubs have a cover of 25-75%, with at least **2** species present. • *Ulex* species < 50% cover • Indicators of negative change, non-native species and scrub or trees are absent • Bare ground or early successional vegetation should occupy at least 400 cm^2 (20x20cm) but not cover more than 25% of the sample. **Gower sections** Cliff and crevice communities limits as above Maritime grassland As limits above though presence of positive indicator species also to include *Crithmum maritimum, Inula crithmoides, Spergularia rupicola, Catapodium marinum*
A3. Population size and distribution of rare and scarce plants	A number of nationally rare and nationally scarce species, mentioned in the overall site selection details, are associated with the vegetated sea cliff habitats. These include: Wild asparagus *Asparagus officinalis* subs *prostatus,* small restharrow *Ononis reclinata,* goldlocks aster *Aster linosyris* and scrambled egg lichen *Fulgensia fulgens.* The populations of these and other scarce species have all been fairly well studied and mapped. Records are in stored in Recorder and as Mapinfo files. Other	*Upper limit*: None set *Lower limit*: *Asparagus officinalis* subs *prostatus* is present in at least 12 mapped locations in cliff-top grassland within Lydstep to Tenby Burrows SSSI (management unit 5e). *Ononis reclinata* is present is present in mapped locations along south-facing crevice zones, near the cliff-tops within Castlemartin Cliffs and Dunes SSSI (management units 2g); Stackpole SSSI (units 3b); Stackpole Quay to Trewent Point SSSI (unit 4); Lydstep to Tenby ows SSSI (units 5b to 5e). In Gower it is present at Overton Cliff (unit 20). *Aster linosyris* is present in mapped zones in cliff-top grassland within Castlemartin

	summary information to aid future surveillance and monitoring are in Castlemartin Range and Penally Range ILMPs.	Cliffs and Dunes SSSI (management units 2c, 2d and 2f). In Gower it is present at Port Eynon Point (unit 17) and Overton Cliffs (unit 20) *Fulgensia fulgens* is present in mapped zones associated with *Trichosporum* moss on compact, free-draining, shallow, calcareous grassland soils within Castlemartin Cliffs and Dunes SSSI (management units 2a to 2e); Stackpole SSSI (units 3b, 3c, 3d and 3f). *Draba aizoides* is present in units 9-17 and 20 and should not fall below 75% of population shown in 1995 counts *Helianthemum canum* is present in units 9, 10, and 12-20 and should not fall below 50% of population at 1995 counts
Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Livestock grazing	The more exposed, seaward areas of maritime grasslands and heathlands are, like the cliff and crevice communities, maintained by 'natural' environmental factors – including exposure to salt spray, thin soils and climatic extremes. Further away from the cliff edges, the heathland vegetation has been maintained by traditional grazing practices. Without an appropriate grazing regime, it would become rank and turn to gorse scrub. Maintenance of current traditional practice of winter sheep and cattle grazing, and additional light cattle and or pony grazing throughout year, is key to maintaining these areas. Chough (SPA feature 11) require short maritime turf for feeding purposes, so their requirements must be accommodated within structural component provided by grazing animals within management units 2a to 3f. Dung from grazing animals also provides an important invertebrate food source.	*Upper limit*: The grazing pressure must not be so high as to break down the vegetation structure and cause significant bare areas to appear, or lead to nutrient enrichment (indicated by increases in creeping thistles and/or nettles). (Limits of acceptable bare areas set out in A2. above.) The grazing pressure must not be so high as to break down the vegetation structure *Lower limit*: Maritime grasslands and heathlands must be subject to sufficient grazing to halt succession. The chough population is being maintained in favourable condition (see feature 11)
F2. Burning	Where possible, fire-breaks should	*Upper limit*: no burning of maritime

	be considered to control spread of fire in key heath areas. Maintenance of grazing is essential help reduce fire risk. The location of new accidental fires should be mapped each year – using GPS to record locations as stored waypoints – down-loaded to GIS to record extent.	heath, maritime grassland and cliff & crevice vegetation. The location of new accidental fires should be mapped each year – using GPS to record locations as stored waypoints – down-loaded to GIS to record extent. *Lower limit*: none set
F3. Pollution	Airborne pollutants such as nitrous oxides from vehicle exhausts could affect the feature. There is potential for this feature to be impacted by agricultural activities such as fertiliser application on adjoining land. Oil spills and nutrient enrichment could pose potential threats to components of the community complex. Seabird numbers can be affected by natural factors (e.g. food supply) and by oil pollution, which could potentially affect the extent or the condition of the seabird cliff vegetation community.	*Upper limit*: levels of pollutants must not exceed critical thresholds for vegetation types according to JNCC guidance. *Lower limit*: none set
F4. Military activity (scrapes erosion)	A number of localised scrapes created in the past by the MoD for military training purposes, on the fringe of the Castlemartin Cliffs and Dunes SSSI, has lead to the recreation of young heath. In most places where this has been done, it has resulted in more diverse heathland habitat, supporting scarce species. Such methods need to be considered on a rotational basis but there is a need to take careful consideration of other features. There is also a potential for localised excessive erosion of community types caused by over-intensive military use, or through deposition of extraneous materials.	*Upper limit*: Military activities should not cause fragmentation or reduce the extent of communities. Habitat quality should not be affected (see individual feature condition objectives) *Lower limit*: None set
F5. Access and Recreation	Increased pressure for wider ranging outdoor activity – e.g. from cliff-climbing - could pose potential threats to components of	*Upper limit*: Regular group activities such cliff scrambling/climbing should be kept under seasonal review, within an existing network of agreed voluntary climbing

	the community complex (e.g. seabird cliff ledge communities and cliff-crevice communities) by trampling/erosion.	restrictions. *Lower limit*: None set
F6. Natural Processes and other Factors	The introduction or spread of highly invasive or alien plants could pose a threat to maritime cliff and crevice communities.	*Upper limit*: Potentially invasive alien cotoneaster shrubs at Lydstep quarries should be managed to eradicate if possible, or at least reduce their extent by at least 50% to prevent the likelihood of further spread into semi-natural habitats. *Lower limit*: None set

4.2 Conservation Objective for Feature 2: Fixed dunes with herbaceous vegetation ("grey dunes") 2130

Vision for fixed dunes

The dune complex at Broomhill Burrows, Broadhaven South and Barafundle Bay will demonstrate a fairly complete sequence from fore dunes fringed on the seaward edge by narrow bands of mobile dune, through to fixed dune grassland. There will be small blow-out patches of bare sand and fore-dune and strandline. Elsewhere in the SAC, the perched dunes (such as at Stackpole Warren) may not show this zonation from fore dune to fixed dune but should none-the-less have some blowouts and areas of bare sand.

- Fixed dunes occupy approximately 20% of the total site area.
- The following plants will be common in a short, open sward: *Asperula cyanchica,Carlina vulgaris, Euphrasia spp., Gentianella amarella, Linum catharticum, Lotus corniculatus, Pilosella officinarum, Plantago coronopus, Sedum acre, Thymus polytrichus, Viola spp., Anacamptis pyramidalis.*
- Distinct patches of open, lichen-rich turf, supporting *Fulgensia fulgens* on *Trichosporum* moss will occur in several mapped locations in management units 2a, 2b, 3b and 3c.
- Alien species will be absent, and other negative indicator species (such as bracken *Pteridium aquilinum)* will be under control in fixed dune grassland.
- Sea Buckthorn *Hippophae rhamnoides* will be absent from all dunes systems within the SAC.

Note: This feature is not present within the Gower sections of the SAC

Performance indicators for fixed dunes

The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Habitat extent and distribution	Habitat extent and distribution is provisional. Documents used for establishing habitat extent and distribution have relied on: Castlemartin Range and Penally Range ILMPs; Stackpole SSSI vegetation maps (e.g. Ashall, Duckworth, Holder and Smart (1994), Sand Dune survey of GB (NVC); Castlemartin and Penally Ranges NVC maps, ITE (1999); updated by Phase II vegetation maps (Phase II grassland survey team, 2004). NB. The 1994 NVC dune survey was not based on digital data. At Broomhill Burrows, Castlemartin (Brownslade and Linney Burrows) Stackpole warren (management units 1a to 1c, 2a and 2b, and 3b and 3d) dune habitats were not mapped very	*Upper limit*: None set *Lower limit*: No net decrease in extent from the established baseline, subject to natural change. NB extent is estimated to be approx 200 ha, based on limited data. Fixed and semi-fixed dune grassland will be present in management units 1a to 1c, 2a and 2b, 3b and 3d.

	accurately. ITE produced a slightly more accurate map, for management units 2a, 2b in 1999. This map was updated by the 2004 CCW Phase II grassland survey team.	

A.2 Habitat Condition	Based on the Standard CSM attribute for this feature. Modified according to site-specific requirements. Record within 0.5 metre radius at points, within a grid, at 10 metre intervals (paced). Ideally record a minimum of 50 points. Choose areas of habitat on/close to the boundary between the target community and transitional communities. Vegetation height (boreman disk method) 7 cms or less = pass. If chough feeding is important at a chosen location, 70% of points should be 3 cms or less; Evidence of rabbit activities (pellets and scuffing) should be noted.	*Upper limit*: None set *Lower limit:* Dune vegetation in management units 1a to 1c, 2a and 2b, 3b and 3d is in good condition when 70% of points in the sample zone pass – based on the following criteria: 30-70% of the sward comprises a species-rich short turf. **Species Rich dune grassland (= SD8):** Six of the following species (pass on five spp., if the vegetation height is 7 cms or less): Asperula cyanchica Carlina vulgaris, Cerastium (not fontanum) Euphrasia spp. (agg.), Gentianella amarella Linum catharticum, Lotus corniculatus, Pilosella officinarum, Plantago coronopus Thymus polytrichus Viola spp., **Bare sand/semi fixed dunes (= SD19 and/or CG7d):** Bare sand >5% or moss and lichen cover >20% plus three of the following: Arenaria, Centuary or Blackstonia, Cerastium (not fontanum), Echium vulgare, Erodium, Euphorbia portlandica, Fulgensia fulgens, Sedum acre Thymus polytrichus Viola spp. *Anacamptis pyramidalis* Non-native or invasive species, including *Hippophae rhamnoides, Hypericum calycinum and Brachypodium pinnatum* are absent. Other negative indicators *Rubus* spp. (excluding *R.caesius), Clematis vitalba*, *Pinus* spp. saplings/seedlings, *Ligustrum vulgare, Quercus ilex* saplings/seedlings, *Ulex* spp. no more than occasional; *Pteridium aquilinum* no more than occasional with a open/thin cover and height <50 cms.

A.3 Population size and distribution of *Fulgensia fulgens* lichen sites	*Fulgensis fulgens* is a rare terricolous lichen on the Limestone soils. Population distribution and extent of this distinctive species have been mapped in GIS. Most recent surveillance information is reported in Wolseley and James (2004), Castlemartin Range ILMP (2006 update). Further fieldwork, to establish appropriate attributes for future condition assessments, was undertaken by a lower plant specialist contractor in autumn 2007. A report is not yet available.	*Upper limit:* None set *Lower limit:* Distinct patches of open, turf, supporting healthy populations *Fulgensia fulgens* on *Trichosporum* moss will occur in 5 mapped dune/calcareous grassland locations (management units 2a, 2b) and in at least 12 mapped dune/calcareous grassland locations in units 3b and 3d and 3f. (Additional information awaited in contractors report).
A.4 Condition of *Fulgensia* sites	A lichen specialist contractors report, based on 2007 fieldwork is awaited. This should provide the rationale and recommended attributes for monitoring the future condition of the *Fulgensia* populations within the SAC.	Limits to be set when contractors report received.
Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Livestock grazing	The more exposed, seaward areas of dune grassland are maintained by 'natural' environmental factors – including wind erosion, exposure to salt spray, thin skeletal soils and climatic extremes. Further away from the cliff edges, the dune grassland has been maintained by traditional grazing practices. Without an appropriate grazing regime, it would become rank and turn to scrub. Maintenance of current traditional practice of winter sheep and cattle grazing, and additional light cattle and or pony grazing throughout year, is key to maintaining these areas. Chough (SPA feature 11) require short dune turf for feeding purposes, so their requirements must be accommodated within structural component provided by grazing animals within management units 2a to 3f.	*Upper limit*: The grazing pressure must not be so high as to break down the vegetation structure or lead to nutrient enrichment (indicated by increases in creeping thistles and/or nettles). *Lower limit*: The fixed dune grassland must be subject to sufficient grazing to halt succession to scrub.

	Dung from grazing animals also provides an important invertebrate food source Maintenance of semi-native rabbit population is also important to maintain an open structure – including small areas of scuffing and scraping which are beneficial	
F2. Burning	Drier parts of the dunes are potentially vulnerable to accidental burns – e.g. from military ordnance, although such fires would normally be expected to be limited to semi-fixed dune and fore-dune (e.g. drier marram-dominated areas). Dune fires could lead to serious erosion of the dune vegetation impacting fixed and semi-fixed dune habitats.	*Upper limit*: Accidental burns from military activities on the firing ranges, affecting no more than 2 to 3% of the semi-fixed dunes and fore dunes per year, are acceptable *Lower limit*: none set
F3. Pollution	Airborne pollutants such as nitrous oxides from vehicle exhausts could affect the dune grassland. Potential for this feature to be impacted by agricultural activities such as fertiliser application on adjoining land.	*Upper limit*: levels of pollutants must not exceed critical thresholds for vegetation types according to JNCC guidance *Lower limit*: none set
F4. Military activity	A potential for localised excessive erosion of community types caused by intensive military use, or deposition of extraneous materials.	*Upper limit*: Military activities should not cause fragmentation or reduce the extent of communities. Areas around key *Fulgensia* sites within Castlemartin Range management units should be identified on sensitive area maps, marked and signed on the ground. These should be regularly inspected to minimise potential damage by military training activities. *Lower limit*: None set
F5. Access and Recreation	Increased pressure for wider ranging outdoor activity - e.g. from outdoor group-oriented parties, use of 4wd vehicles etc could pose potential threats to components of the community complex, by trampling/erosion and possibly burning.	*Upper limit*: Regular and/or large-scale group activities should be prevented. **AND** No vehicles should be taken on to the dunes, where authorised vehicles are permitted (e.g. military vehicle) these should use designated tracks/routes through dune vegetation. *Lower limit*: None set
F6. Natural Processes and other Factors	Potential threats from: decline in rabbit numbers; spread of invasive species (e.g. tor grass), which may be unpalatable to grazing stock and could detrimentally affect community diversity.	*Upper limit*: No commercial sand quarrying to be allowed. *Lower limit*: Some creation of bare areas in dune slacks will need to be maintained for feature 8 Petalwort

	Some 10% of the dunes have been quarried in the past. Whilst this has created elements of diversification within the dune communities and has benefited invertebrate, bird and plant diversity further commercial quarrying would be damaging to the dunes.	*(Petalophyllum ralfsii)* populations

4.3 Conservation Objective for Feature 3: European Dry Heath (4030)

Vision for Dry Heath
The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- The current extent of Dry heath will be maintained.
- Dry heath will occupy areas of the site where heathland extends beyond the zone of maritime influence.
- As a result dry heath may lack the species characteristic of maritime heath.
- Much of the dry heath will have a short and open structure.
- The dry heaths will support typical species such as the dark green fritillary *(Argynnis aglaja)* and the silver studded blue butterfly, *Plebeius argus.*

Performance indicators for Dry Heath
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Habitat extent and distribution	Maps of habitat extent and distribution given in: Davies E.J., (2000) Wilson S., (2000)	*Upper limit*: As limited by other feature habitats. Any increases in heath should be at the expense of stands of bracken or scrub. *Lower limit*: Current extent and distribution maintained as mapped by Davies E.J., (2000) and Wilson S., (2000) Gower section maintained at the current extent of 69ha
A2. Habitat condition	Based on the Standard CSM attribute for this feature. Modified according to site-specific requirements	All sections *Upper limit*: None set *Lower limit*: At least 60% of the dry heath in management units 2b to 2g is referable to good condition dry heath.

		Good condition dry heath is characterised by vegetation where at each sample point: • Dwarf shrubs have a cover of 25-75%, with at least **2** species present (*Calluna vulgaris Erica cinerea, Ulex gallii)* • *Ulex gallii* (in some places with low growing *Ulex europaeus)* making up < 50% of the dwarf Shrub cover • Grass cover less than 50% • Short, open vegetation structure with a canopy height >15cm and < 50cm, otherwise very rank *Ulex* and associated scrub will develop • at least one 10x10cm patch of bare ground, moss or lichen • Bracken and scrub other than *Ulex spp*, if present, are no more than occasional to frequent **Gower sections only (units** , 9, 10, 15, 17, 19 and 20)Also include Frequency of grasses and sedges *Upper limit* • 3 of the following species are present *Festuca ovina, F. rubra, Carex flacca, Agrostis capillaries, Hypochaeris radicata* • *Lower limit*1 of the above species Frequency of forbs *Upper limit* : None set *Lower limit* • 4 of the following at least occasional *Lotus corniculatus, Helianthemum numularia, Plantago lanceolata, Gallium verum, Sanguisorba minor, Potentilla erecta, Scilla verna, Armeria maritima*
Performance indicators for factors affecting the feature		
Factor	***Factor rationale and other comments***	***Operational Limits***
F1. Livestock grazing/mowing	Away from the cliff edges, dry heathland vegetation has been maintained by traditional grazing practices. Without an appropriate grazing regime, it would become rank and turn to gorse scrub. Light grazing by animals, ideally cattle in summer, or ponies throughout the year, is key to maintaining these	*Upper limit*: The grazing pressure must not be so high as to break down the vegetation structure and cause significant bare areas to appear. (Limits of acceptable bare areas set out in A3. above.) *Lower limit*: The dry heathland must be subject to sufficient grazing to halt succession.

	areas. Excessive cutting or mowing of heath could reduce its overall structural diversity and quality.	Refer to limits identified in A2
F2. Burning	Irregular, accidental and uncontrolled fires occur in most years, affecting sections of dry heath and scrub within Castlemartin Range management units. Whilst this can maintain heath in some areas and may benefit some species such as silver-studded blue butterflies, excessive heath burns could be damaging over a long-term period, leading to nutrient enrichment, a reduction in heath and an increase in grass or bracken dominance and scrub dominance.	*Upper limit*: no deliberate burning management is to be undertaken, but in any accidental burns, no more than 10% of dry heathland to be burnt in six-year period. *Lower limit*: none set
F3. Pollution	Airborne pollutants such as nitrous oxides from vehicle exhausts could affect the feature. There is potential for this feature to be impacted by agricultural activities such as fertiliser application on adjoining land.	*Upper limit*: levels of pollutants must not exceed critical thresholds for vegetation types according to JNCC guidance *Lower limit*: none set
F4. Military activity	Excessive erosion by military activities - e.g. changes in target, bunker, road or radar locations - and associated build up of extraneous materials, could potentially cause localised damage.	*Upper limit*: Military activities should not cause fragmentation or reduce the extent of communities. Habitat quality should not be affected (see individual feature condition objectives) *Lower limit*: None set
F5. Access and Recreation	Currently no significant factors are thought to apply.	*Upper limit*: Regular and/or large-scale group activities should be prevented (apart from climbing under currently agreed climbing restrictions). *Lower limit*: None set
F6. Natural Processes and other Factors	The introduction or spread of highly invasive species could pose a threat to these communities.	*Upper limit*: Invasive and/or alien plant species should be rare or absent *Lower limit*: None set

4.4 Conservation Objective for Feature 4: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone 6210

Vision for Semi-natural dry grasslands and scrubland
This feature

- The Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone will be referable to the NVC communities Festuca – Avenula grassland (CG2) and *Festuca – Hieracium – Thymus* grasslands (CG7)
- The communities making up this feature will cover at least 14 ha within Castlemartin Cliffs and Dunes SSSI) and 10 ha within Stackpole and Stackpole Quay to Trewent Point SSSI, and 18 ha within the Gower Coast SSSI (which also includes NVC community CG1) occurring as small patches along coastal cliff-tops, among the fixed dune grasslands, mainly on shallow soils overlying areas of limestone bedrock.
- The feature will support a range of typical plant and invertebrate species.

Performance indicators for semi-natural dry grasslands and scrubland
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Habitat extent and distribution	The aim is to ensure that the extent and distribution of the calcareous grassland feature across the coast of South West Wales. To ensure this, a target has been included that states that all SSSI within this SAC, that contain this feature, have to be in good condition for this SAC feature to be considered favourable overall. *Broomhill Burrows* None present at Broomhill – the calcareous grassland there is on sand and is incorporated into fixed due grassland feature. *CastlemartinCliffs and Dunes* Mapped by the Phase II team in 2004. Various communities and sub-communities present. *Stackpole and Stackpole Quay to Trewent Point* Mapped in 1978 (pre-NVC) and later using NVC (although the earlier maps are a better reflection of the vegetation). At Stackpole there is some confusion as to whether the habitat is sand dune or	*Upper limit*: None set *Lower limit*: As mapped (refer to individual SSSI habitat maps for further information) Distributed within management units 2b to 2g, 3a to 3d and 3f and 4, 9,10, 12-20

	calcareous grassland. *Lydstep to Tenby Burrows* None present at Lydstep to Tenby Burrows – only CG grassland present is CG1f which lies within the VSC habitat *Gower Coast : Rhossilli to Port Eynon, Pwlldu Head, Oxwich Bay* 18 ha within Gower Coast SSSI (check other sections)	
A.2 Habitat quality	There has been some surveillance of calcareous grassland at Stackpole SSSI – (e.g. Rich et al 1990), but performance indicators for feature condition are provisional, because there has been no recent monitoring of this feature (based on the CSM method) within the component SSSI in Pembrokeshire.	*Upper limit*: None set *Lower limit*: The individual site based performance indicators are met for each of the following SSSI: *Castlemartin Cliffs and Dunes* (14ha) distributed within management units 2b to 2g; *Stackpole and Stackpole Quay to Trewent Point* (10ha) within management units 3a, 3b, 3c, 3d and 3f and 4 *Gower Coast: Rhossili, Pwlldu Head and Oxwich* At least 70% of the feature are referable to good condition CG2 or CG7 vegetation and CG1d on Gower sections only Where, at each sample point: • The grass: herb ratio is between 30-90% herb cover • Agricultural weeds are no more than occasional throughout the sward • Agriculturally favoured species have a frequency of <10% including *Lolium perenne, Cirsium arvense, Cirsium vulgare, Urtica dioica, and Senecio jacobaea* • Coarse grasses have a cover < 10% • No introduced species is more than occasional throughout the sward • Woody species and bracken

		together < 5% cover • Short to medium sward height < 5cms • Litter < 25% cover • Bare ground <10% Small patches of CG2 grassland will occur widely throughout the site with short-herb- rich swards and charactersistic plants including at least 5 from: kidney vetch *Anthyllis vulneraria,* quaking-grass *Briza media,* salad burnet S*anguisorba minor,* squinancywort *Asperula cynanchica,* birdsfoot trefoil *Lotus corniculatus,* wild thyme *Thymus polytrichus,* Knapweed *Centaurea nigra,* cowslip *Primula veris, milwort Polygala* spp., devils-bit scabious *Succisa pratensis,* mouse-eared hawkweed *Pilosella officinarum,* rough hawbit *Leontodon hispidus,* lesser hawkbit *L. saxatilis,* betony *Stachys officinalis* Small patches of CG7 grassland, with fescue grasses *Festuca rubra* or *F. ovina* will be low-growing and open, with moss and lichen cover, plus at least 5 from: Hair grass species *Aira spp.*, parsley-piert species *Aphanes spp.,* common centaury *Centaurium erythraea,* common storksbill *Erodium cicutarium,* rough hawbit *Leontodon hispidus,* birdsfoot trefoil *Lotus corniculatus,* mouse-eared hawkweed *Pilosella officinarum,* wild thyme *Thymus polytrichus.* Gower sections also to include presence of *Helianthemum sp (nummularium or canum), Euphrasia sp, Koelaria macrantha, Carex flacca, Geraneum sanguineum, and Arabis hirsuta*
Performance indicators for factors affecting the feature		
F1. Livestock grazing	Further away from the cliff edges, the dune grassland has been maintained by traditional grazing practices. Without an appropriate grazing regime, it would become rank and turn to scrub. Maintenance of current traditional practice of winter sheep and cattle	*Upper limit*: The grazing pressure must not be so high as to break down the vegetation structure and cause significant bare areas to appear or lead to nutrient enrichment. *Lower limit*: These communities must be subject to sufficient grazing to halt

	grazing, and additional light cattle and or pony grazing throughout year, is key to maintaining these areas. Chough (SPA feature 11) require short dune turf for feeding purposes, so their requirements must be accommodated within structural component provided by grazing animals within management units 2a to 3f. Dung from grazing animals also provides an important invertebrate food source Maintenance of semi-native rabbit population is also important to maintain an open structure – including small areas of scuffing and scraping which are beneficial An additional effect of over-stocking of livestock in units 9 and 12 is supplementary feeding by commoners. It is important to prevent this by ensuring livestock numbers are kept at an appropriate level. Refer to the Gower Coast SSSI management plan for specific details of this.	succession. Refer to limits in A2 above
F2. Burning	Any burning of adjacent heath vegetation as part of controlled management should avoid these grassland communities	*Upper limit*: No burning to take place on these grasslands Lower limit: none set
F3. Pollution	Airborne pollutants such as nitrous oxides from vehicle exhausts could affect the feature. There is potential for this feature to be impacted by agricultural activities such as fertiliser application on adjoining land.	*Upper limit*: levels of pollutants must not exceed critical thresholds for vegetation types according to JNCC guidance Lower limit: none set
F4. Military activity	Excessive erosion by military activities - e.g. changes in target, bunker, road or radar locations - and associated build up of extraneous materials, could cause localised damage.	*Upper limit*: Military activities should not cause fragmentation or reduce the extent of communities. Habitat quality should not be affected (see individual feature condition objectives) *Lower limit*: Maintain current marked, and signed exclusion zones to military vehicles in areas within Castlemartin Range management units 2a and 2b.
F5. Access and Recreation	Excessive trampling and camping/camp fires could be damaging and lead to erosion of open vegetation communities and localized nutrient enrichment	*Upper limit*: Regular and/or large-scale group activities should be prevented *Lower limit*: None Set
F6. Natural Processes and other Factors	The introduction or spread of highly invasive species could pose a threat to these communities.	*Upper limit*: *Lower limit*: None set

4.5 Conservation Objective for Feature 5: Caves not open to the public

Vision for caves not open to the public
These caves continue to be primarily of importance as bat hibernacula and roost sites. Their performance indicators are expressed in terms of their suitability as bat hibernacula/roost sites. The performance indicators are those given in Wilkinson, K. (2006). Monitoring report: Greater horseshoe bats of the Limestone Coast of South West Wales SAC. CCW Internal document. Choughs continue to breed high in the roofs of several caves.

- There is minimal disturbance to the caves by the public
- The caves remain suitable as bat roost/hibernation sites
- Caves utilised by breeding choughs remain undisturbed for choughs (see Feature 11)
- The geological interest of the caves will be unconcealed
- Natural processes such as small rock falls will be tolerated

Performance indicators caves not open to the public
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent and distribution of bats	Based upon the performance indicators set out in Wilkinson (2006) (See Feature 7)	*Upper limit*: None set Lower limit*:* The 'greater horseshoe bats feature of the Limestone Coast of South West Wales' is described as favourable (See Feature 7)
A2. Extent and distribution of chough nest sites in caves	(See Feature 11)	*Upper limit*: None set Lower limit: Choughs are found nesting in the roofs of caves at: Wind Bay Linney Head The Castle (Also see Feature 11)
A3. Condition of caves	Based upon the performance indicators set out in Wilkinson (2006)	*Upper limit*: None set *Lower limit*: The roosts identified in the greater horseshoe bat feature-monitoring project are described as favourable. Choughs regularly fledge young from at least three caves (See Features 7 and 11)
Performance indicators for factors affecting the feature		
F1. Access and Recreation	The caves are currently accessible to climbers and water users	*Upper limit*: No public access allowed Lower limit: None set

F2. Natural Processes and other Factors		*Upper limit*: Natural factors such as small rock falls that do not significantly affect the bat roosts and chough nest sites will be tolerated. Tidal activity should have a minimum disruption upon the internal environment of the cave. *Lower limit*: No subsidence or crumbling of the cave. The cave should be structurally sound.

4.6 Conservation Objective for Feature 6*:* Submerged or partially submerged sea caves

Vision for Submerged or partially submerged sea caves
These features are cross-boundary features between the Limestone Coast SAC and the Pembrokeshire Marine SAC. Other than prevention of human disturbance to both the caves themselves and any species which may be using them (mainly bats and grey seals), there is little management required or indeed possible for this feature.

- There should be minimal disturbance to the caves and they should remain closed to the public.
- The caves should remain suitable as bat roost/hibernation sites
- The caves used by grey seal should remain free of human disturbance
- The geological interest of the caves will be unconcealed
- Natural processes such as small rock falls will be tolerated
- The affects of tidal activity in partially submerged caves should have a minimal effect on the internal environment of the cave (where the cave is a bat roost).

Performance indicators Submerged or partially submerged sea caves
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent and distribution	The caves will exist as determined by natural processes, no management is required or indeed possible. The distribution of caves is poorly understood and it is possible that more caves will be discovered in time. Natural loss of sea caves may take place through rock fall as the cave entrances may become blocked. Such natural events will have to be tolerated, though any human blockage of entrances through any adjacent development will not.	*Upper limit*: None set *Lower limit*: As current distribution of the caves
A2. Condition of caves	Other than ensuring that the caves remain free of human disturbance both direct through physical damage, and indirect through pollution and litter, there is little management of this feature that is either necessary or possible. No limits have been set for this.	
Performance indicators for factors affecting the feature		
F1. Access and Recreation	The caves are currently accessible to climbers and water users	*Upper limit*: No public access allowed *Lower limit*: None set

4.7 Conservation Objective for Feature 7*:* 1304 Greater horseshoe bat *Rhinolophus ferrumequinum*

Vision for Greater horseshoe bat *Rhinolophus ferrumequinum*

- Greater horseshoe bats will continue to utilise known caves roosts undisturbed by the public.
- Distinctive droppings indicate presence at any time of year but largest numbers of bats are likely to be found in the period November to March.
- The peak winter population in the main Castlemartin Cave is equivalent to approximately 20% of the Pembrokeshire Bat Sites and Bosherston lakes SAC greater horseshoe bat population.
- The greater horseshoe bat population within the caves being monitored is stable or increasing.
- Natural processes such as rock falls will be tolerated but other factors affecting the achievement of these conditions are under control.

Performance indicators Greater horseshoe bat *Rhinolophus ferrumequinum*

The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Extent and distribution of greater horseshoe bats	Greater and lesser horseshoe bats roost within a number of caves along the limestone within Pembrokeshire and on Gower. There are good surveillance data for a few of well-recorded sites, but for other caves data are limited. Billington (2004) being the most recent bat worker to survey them. Some bat caves best fit "caves not open to the public" - e.g. "Ogof Govan" perched above the sea on Saddle Head, on the Castlemartin coast. But as the entrances of many are at least partially flooded at high water, they best fit marine caves partially submerged at high water. Such a cave supports the largest known winter roost for greater horseshoe bats in Wales, with up to 200-300 bats present at times. This cave has large amounts of flotsam/jetsam strewn over its boulder floor and can only be visited by humans on low water spring tides. The bats can roost high up in its domed-roof if they need to. We don't know how the bats access this and other similar caves, if they need to when the entrance available	*Upper limit*: None set *Lower limit*: There is evidence of greater horseshoe bats in sea caves and caves not open to the public, known to support them: Castlemartin/Stackpole - management units 2c to 2g, 3a and 3c: There is evidence, in at least 1 out of 6 years[2], of use by greater horseshoe bats in at least 11 caves out of 21 caves identified by Billington (2004). This should include Castlemartin Cave (Bullslaughter Bay Bat Cave -Cave 149), Ogof Govan (Cave 319) and Trevallen Cave (Cave 104) plus eight out of Billingtons Caves 16, 17, 22, 50, 66, 80, 86, 122, 145, 146, 148, 151, 153, 155, 161, 178, 182 and 225. Lydstep to Penally – management units 5a to 5e: There is evidence of use by greater horseshoe bats in one of caves 196 or 302 (Lydstep coast) and in at least 2 caves from 266, 297, 312 and 313 on

[2] Ideally it would be good to survey all these caves every year but this is likely to be disturbing to the bats and expensive to undertake. It has been agreed that this work should be undertaken one year in six, to tie in with the report cycle. However, these caves will be surveyed more frequently if there are any serious problems identified at maternity or hibernation roosts thought to be associated with these caves.

	to humans is flooded. The cave numbering system follows that used by Billington (2004) except along the Gower section where local cave names are used. See section 5.5 for definitions of terms used here. For several reasons, it is difficult to set targets for the number of bats to be present within the coastal caves, both in terms of total population and in terms of targets for individual caves. Firstly, we are only beginning to understand how and when the bats use some of these caves so it is difficult to time any survey work to actually see bats in the caves. Secondly, the bats tend to be found in lower numbers during the winter, in a larger number of locations. This makes searching for them more difficult. Therefore it is not easy to accurately determine how many bats are using the caves. Instead the performance indicators only require evidence of use by greater horseshoes. This can be the presence of a greater horseshoe bat or presence of greater horseshoe bat droppings; fortunately in areas where they are not washed away by the sea, these are easy to distinguish from droppings of other species. The obvious exception to this is the main cave roost Castlemartin Cave (Cave 149) where, when present, bats can usually be seen quite easily. The bats can roost in dense clusters. These are not easy to count without causing disturbance. Two other historically important key roosts, Trevallen Cave and Ogof Govan are also highlighted in the performance indicators. In addition to this, evidence of use by greater horseshoe bats is required in eight other potentially significant caves from a large list of sites identified by Billington, along the Linney Head to Stackpole Quay section, plus two caves within the Lydstep section and two out of four caves within the Penally section.	the Penally coast. <u>Gower</u> - management units 9: There is evidence of use by greater horseshoe bats in Bacon Hole at least every other year **AND** In either: Deborah's Hole, Longhole or Mewslade (cave 1) every other year.

	Targets have been included for Gower. There are data from the 1980s indicating that the caves listed have been used by very small numbers of bats (1or 2 in each instance), other than Bacon Hole where higher numbers of bats have been recorded (maximum of 16). Targets have been set to reflect this level of use.	
A2. Population in the core area	Within the main greater horseshoe bat cave (Castlemartin Cave) large numbers of bats can be viewable throughout the winter months. Their numbers do fluctuate (as indicated by surveillance data gathered by local bat worker Tom McOwtat), however the peak level reached in winter is usually not less than approximately 100 bats between November and March. When assessing this site, it is essential to bear in mind that bats using Castlemartin Cave are most likely to be linked to the Stackpole Courtyard Flats maternity roost. If the autumn/winter weather is mild, it is possible that the bats will remain at the maternity roost. It is recommended that the Stackpole site is checked the same day if the number of bats at Castlemartin Cave is lower than the target.	*Upper limit*: None set *Lower limit*: In management unit 2f (within the main Castlemartin Bat Cave (Bullslaughter Bay Cave[3] - Cave 149) the peak population of greater horseshoe bats (present between November and March) is at least approx *20% of the Pembrokeshire Bat Sites and Bosherston lakes SAC population – based on not more than 3 widely spaced visits per season to count the bats. **Based on recent counts, this should be approx 200 bats.*
Performance indicators for factors affecting the feature		
F1. Condition of caves	The condition of the caves should be assessed using the Common Standards Monitoring guidance for hibernation sites (JNCC, 2004). These were not available to Billington, who surveyed the caves in winter 2002/03 so he developed his own methods to record suitability of the caves as bat roosts and stability (Billington, 2004).	*Upper limit*: None set *Lower limit:* Using criteria described by Billington (2004) caves known to support bats remain highly suitable for bats and stable
F2. Access and Recreation	The caves are currently accessible to climbers, cavers and water users. Disturbance to bats is very difficult to quantify. However, current level of disturbance in most caves on the Castlemartin peninsula, and between Lydstep and Penally, is thought likely to be low. However, as the number of people participating in outdoor activities such as	*Upper limit*: No public access allowed Lower limit: None set

[3] Castlemartin Cave is referred to as Bullslaughter Bay Cave and as cave number 149 in Billington (2004).

	rock climbing, coasteering and caving increases, it is possible that the amount of disturbance to the bats could increase. Communications with climbing/caving groups is being developed to prevent this from becoming a problem.	

4.8 Conservation Objective for Feature 8*:* Petalwort *Petalophyllum ralfsii*

Vision for Petalwort *Petalophyllum ralfsii*
Petalophyllum ralfsii will continue to be found at two SSSI sand dune systems within the SAC, (Broomhill Burrows & Brownslade Burrows). The Brownslade Burrows population will occur patchily at high densities in successionally young, open vegetation in damp, dune slacks.

- *P. ralfsii* has a continued presence at Broomhill Burrows SSSI.
- *P. ralfsii* occurs at high densities in suitable dune slacks at Brownslade Burrows SSSI.
- At both sites there are areas of open, damp, calcareous dune slacks with patches of suitable and optimal habitat present.
- Suitable dune slacks have patches of bare ground that is being colonised by jelly lichens (*Collema* spp.) and *Barbula* mosses.
- Brownslade Burrows continues to be winter grazed by cattle and sheep, which is helping to maintain the short sward and open conditions required by *P. ralfsii.*

Note: This feature is not present within Gower sections of the SAC

Performance indicators for Petalwort *Petalophyllum ralfsii*
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Distribution and population size	Based upon performance indicators in the draft monitoring report for Petalwort *Petalophyllum ralfsii* in the Limestone Coast SAC, Wilkinson (2004).	*Upper limit*: None set *Lower limit:* >50 thalli are present per m^2 at more than 3 discrete locations (separated by at least 10m) in a minimum of three of the mapped areas A-H (see map below). **AND** *Petalophyllum ralfsii* continues to be present at Broomhill Burrows
A2. Habitat condition	Based upon habitat descriptions in the draft monitoring report for Petalwort *Petalophyllum ralfsii* in the Limestone Coast SAC, Wilkinson (2004). Optimal *Petalophyllum* habitat: Vegetation where within a 25cm radius: Higher plant cover is <50% and combined cover of *Collema* spp./*Barbula* spp. is >25% Potentially suitable *Petalophyllum* habitat: Vegetation where within a 25cm radius: Higher plant cover is <50% and *Collema* spp./*Barbula* spp. are present but have a cover of <25%	*Upper limit*: None set *Lower limit*: *Petalophyllum ralfsii* at Brownslade will be in favourable condition when: • 40% of the vegetation is referable to optimal *Petalophyllum* habitat or potentially suitable *Petalophyllum* habitat, • A minimum of 10% of the potentially suitable habitat is referable to optimal *Petalophyllum* habitat • *Petalophyllum* is associated with the optimal/potentially suitable habitat • Non-native/alien species absent

Performance indicators for factors affecting the feature		
F1. Livestock grazing/mowing	The dune slack communities are maintained by traditional grazing practices. Without an appropriate grazing regime, they would become rank and turn to gorse scrub. Light grazing key to maintaining these areas. Excessive cutting or mowing of the grasslands could reduce their overall structural diversity and quality.	*Upper limit*: The grazing pressure must not be so high as to break down the vegetation structure and cause significant bare areas to appear. (Limits of acceptable bare areas set out in A2. above.) *Lower limit*: These communities must be subject to sufficient grazing to halt succession.
F2. Burning	Sand dunes are particularly vulnerable to accidental burns from picnickers, beach users and barbeques. The loss of vegetation cover could rapidly lead to serious erosion of the dune system.	*Upper limit*: No burning to take place in the petalwort dune slacks. Lower limit: none set
F3. Pollution	Airborne pollutants such as nitrous oxides from vehicle exhausts could affect the dune grasslands and slacks. The dune slacks could potentially be impacted by agricultural activities such as fertiliser application on adjoining land.	*Upper limit*: Levels of pollutants must not exceed critical thresholds for vegetation types according to JNCC guidance Lower limit: none set
F4. Military activity	A potential for localised excessive erosion of community types caused by intensive military use, or deposition of extraneous materials.	*Upper limit*: Military activities should not cause fragmentation or reduce the extent of communities. Habitat quality should not be affected (see individual feature condition objectives) *Lower limit*: None set
F5. Access and Recreation	Increased pressure for wider ranging outdoor activity - e.g. from orienteering/coast-steering and cliff-climbing - could pose potential threats to components of the community complex, by trampling/erosion.	*Upper limit*: Regular and/or large-scale group activities should be prevented. *Lower limit*: None set
F6. Natural Processes and other Factors	Potential threats from: decline in rabbit numbers; spread of invasive species (e.g. tor grass), which may be unpalatable to grazing stock and could detrimentally affect community diversity. Some 10% of the dunes have been quarried in the past. Whilst this has created elements of diversification within the dune communities and has benefited invertebrate, bird and plant diversity further commercial quarrying would be damaging to the dunes.	*Upper limit*: No commercial sand quarrying to be allowed *Lower limit*: Some creation of bare areas in dune slacks will need to be maintained for Petalwort *(Petalophyllum ralfsii)* populations

4.9 Conservation Objective for Feature 9*:* Early gentian (*Gentianella anglica)* 1654

Vision for Early gentian (*Gentianella anglica)*

- The feature will be present at Stackpole in management unit 3d.
- Dune gentians with three or fewer internodes and a long terminal internode, which contributes between 40-100% of the height of the stem (corresponding to the current definition/description of Early gentian *Gentianella anglica*) occur within at least 4 open dry dune slacks on Stackpole Warren and in other open, herb-rich calcareous grassland areas.
- Further survey/research will confirm that these forms are definitely separable from *Gentianella amarella*

Note: This feature is not present within Gower sections of the SAC

Performance indicators for Early gentian (*Gentianella anglica)*
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Species extent and distribution	[1] *G.anglica* is to be identified using the criteria outlined in Rich *et al* 1997. The performance indicator simply requires a presence of gentians showing the criteria outlined in this paper. However Rich suggests that it is more advisable to look at a larger number of samples and calculate the mean values for the characteristics listed, the average figure providing more confidence that the plants are indeed *G.anglica*. The limits set enable us to ensure that the current known distribution at Stackpole is maintained. Currently there is only a small amount of information about the extent, distribution and density of this species. It is recommended that further surveillance is undertaken for the next five years. The performance indicators should then be reviewed. An additional target requiring that *G. anglica* is found in association with the areas of good habitat (optimal Gentianella habitat) rather than along side footpaths and tracks, which may provide suitable growing condition (a short, open sward) but populations in these locations are not likely to viable in the long term.	*Upper limit*: None set *Lower limit*: *Gentianella anglica'* type plants are found in *Stackpole SSSI Unit 3d* within previously mapped areas A-D on Stackpole Warren. *Gentianella anglica* type plants will be found in association with "optimal" *Gentianella* habitat (see attribute A2) ***Gentianella anglica* type plants:** Dune gentians generally with three or fewer internodes and a long terminal internode which contributes between 40-100% of the height of the stem[1]
A2. Habitat extent and quality	At Stackpole, *G. anglica* is thought to be associated with what are described as 'dry slacks'. More specifically it is found within areas of successionally young dune vegetation within these slacks. The targets	*Upper limit*: None set *Lower limit*: Within each of dry slacks A-D, 50% of

	within the performance indicator table should reflect this. Four key 'dry slack' have been identified, locations A-D. These locations generally reflect where *G. anglica* has been known to occur in the past. Each of these 'dry slacks' is required to contain a proportion of optimal *G. anglica* habitat (i.e. successionally young vegetation). Indicator species chosen are indicative of these younger, more open conditions. Within each of areas A-D bracken and scrub encroachment is a potential problem, therefore these species have been included as negative indicators.	the vegetation is referable to "optimal" *Gentianella* habitat. **Optimal *Gentianella* habitat:** Within a 50cm radius of each sample point, 6 or more of the following are present: *Thymus polytrichus, Plantago coronopus, Sedum acre, Viola spp., Cerastium spp*. (not *fontanum*), *Euphrasia spp., Linum catharticum, Centaurium erythraea, Carlina vulgaris, Euphorbia portlandica, Asperula cynanchica, Blackstonia perfoliata* **AND** *Pteridium aquilinum, Rosa pimpinellifolia, Rubus spp*. will be absent and cover of *Festuca spp./Agrostis spp*. is less than 25% **AND** The combined cover of bare sand and acrocarpus mosses is >5%
Performance indicators for factors affecting the feature		
F1. Livestock grazing/mowing	Further away from the cliff edges, the dune grassland has been maintained by traditional grazing practices. Without an appropriate grazing regime, it would become rank and turn to scrub. Maintenance of current traditional practice of winter sheep and cattle grazing, and additional light cattle and or pony grazing throughout year, is key to maintaining these areas. Maintenance of semi-native rabbit population is also important to maintain an open structure – including small areas of scuffing and scraping which are beneficial	*Upper limit*: Maintain very short fairly open turf, with numerous herbs. The grazing pressure must not be so high as to break down the vegetation structure and cause nutrient enrichment and/or bare areas to appear. (Indicator species of optimal open conditions and negative indicators of under-grazed conditions are set out in A2. above.) *Lower limit*: These communities must be subject to sufficient grazing to halt succession.

F2. Bracken and scrub encroachment	Scrub and bracken is a potential threat to the open grassland communities. A warmer climate with milder, winters and declines in the semi-natural rabbit population may be allowing patches of gorse and other scrub to advance in areas where grazing pressures previously kept in check. Bracken encroaching the fringes of *Gentianella* habitat should be managed by bruising or cutting in preference to chemical control. It should be noted that small patches of scrub and bracken may form natural calcareous coastal scrub communities and so should not be managed unless their spread is considered a threat to *Gentianella* habitat and other key features that have no other suitable areas to naturally move into.	*Upper limit*: *Pteridium aquilinum, Rosa pimpinellifolia, Rubus spp*. are absent Cover of *Festuca spp./Agrostis spp*. is less than 10%. Lower limit: *Pteridium aquilinum, Rosa pimpinellifolia, Rubus* spp should be open structure and restricted to the fringes of the Genianella sites. Cover of *Festuca spp./Agrostis spp*. is less than 25%.
F3. Pollution	The feature could be affected by airborne pollutants such as nitrous oxides from vehicle exhausts	*Upper limit*: Levels of pollutants must not exceed critical thresholds for vegetation types according to JNCC guidance *Lower limit*: None set
F4. Access and Recreation	Currently no significant factors are thought to apply.	*Upper limit*: None set Lower limit: None set
F5. Natural Processes and other Factors	A total collapse and loss of the rabbit population could enable scrub and other coarse vegetation communities to become established at the expense of optimal *Gentianella* habitat The introduction or spread of highly invasive species could pose a threat to these communities.	*Upper limit*: As for scrub/bracken management *Lower limit*: As for scrub/bracken management

4.10 Conservation Objective for : Marsh fritillary butterfly *Euphydryas* (*Eurodryas*, *Hyodryas*) *aurinia*)

Vision for marsh fritillary butterfly

The vision for this feature is for it to be in a favourable conservation status, where all of the following conditions are satisfied:

- A healthy metapopulation of marsh fritillary butterflies is present within Castlemartin Cliffs and Dunes SSSI component of the SAC, extending over some 5km along the coast.
- The population is maintaining itself and, although perhaps cyclically affected by a parasitic wasp, it is secure within at least two core areas and occasionally is also found breeding outside the SAC boundary on in-land areas of Castlemartin Range.
- There is sufficient suitable and good condition habitat to support the meta-population of the butterfly which is dependent here on mainly herb-rich coastal limestone grassland, with large patches/swathes of the caterpillar's main food-plant, devil's bit scabious *Succisa pratensis* bordered by coastal heath and scrub.
- The sward will vary in height so that there are short 'lawn' areas for the caterpillars to sun themselves on (including numerous yellow ant *Lasius flavus* hills) and taller tussocky, or open sparse bracken areas to provide shelter.

Note:Not found within Gower sections of the SAC

Performance indicators for Marsh Fritillary

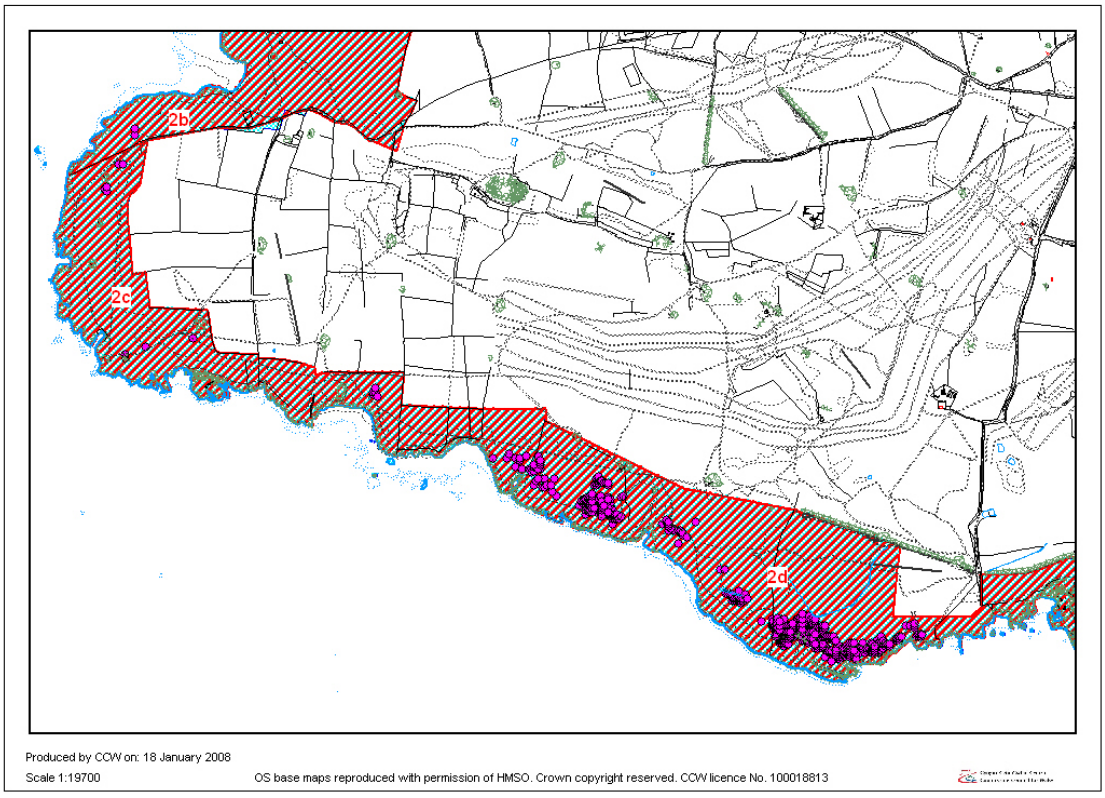
The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Population size - larval webs	A total of 250 larval webs per hectare should be present in good condition habitat, one year in 6. The targets set are provisional, based on limited surveillance since discovery of the population in 2003 (Haycock, 2005). The marsh fritillary population has been expanding since then. A survey in autumn 2006, by members of the South Pembrokeshire Ranges Recording and Advisory Group (SPRRAG) plotted larval web distribution and extent utilising GPS to record their locations. More than 2,000 webs were found in management units 2b, 2c and 2d, across approx 5 kms of coastal habitat. Highest web densities were recorded between Buliber Down and the Wash, within unit 2d, roughly corresponding with the core area for butterflies recorded between late May and 11th June 2006.	*Upper limit*: None set *Lower limit*: 70 larval webs per hectare of optimal breeding habitat within the core population area between Buliber Down and the Wash within management unit 2d.

	Even here the larval web density was probably no more than an average of 70-100 per ha across c. 50 hectares of reasonably good habitat. GPS should be used to record web locations as waypoints uploaded to GIS to confirm population extent and distribution.	
A2. Population size - adults	When on the wing adult marsh fritillary butterflies are very obvious and numbers locally can be quite dense, with many nectaring and mating in potentially suitable habitat. Between 2004 and 2007 timed counts, between the end of May and early June, have yielded >1,000 butterflies within a core area of management unit 2d (Buliber Down to the Wash) Such counts provide a fairly quick and simple means of determining the distribution and extent of the core population. This not only helps determine breeding success (based on last seasons larval web counts) but also helps focus on key areas to undertake later season larval web counts to determine overall seasonal trends. During such counts, observations of other local species (such as small-pear-bordered fritillary and dingy skipper) can also be collected. Marsh fritillary butterflies should be counted along approx. W-shape walks through suitable habitat over c.20 minute periods. GPS should be used to record locations as waypoints uploaded to GIS to confirm population extent and distribution.	*Upper limit*: None set *Lower limit*: At least 150 marsh fritillary butterflies should be counted in each of three 20 minute timed-counts (along short transects between late May and early June) within the core population area between Buliber Down and the Wash within management unit 2d.
A3. Population distribution	Targets have also been set to ensure that the distribution of the marsh fritillary across the site is maintained, and that the butterflies are not simply concentrated in the 'core' area. Further surveillance data are required over a number of years.	*Upper limit*: None set *Lower limit*: Marsh fritillary larval webs should be found within Castlemartin Range West across management units 2b, 2c and 2d **and** Marsh fritillary butterflies should be seen in the same units plus in Range East management unit 2e, one year in six.

A4. Extent of breeding habitat	Based on base-line marsh fritillary "habitat quality" transects established within the Castlemartin Range in September 2003 and re-surveyed in April 2004 (Howells, 2005). S*uccissa* grows extensively within parts of Range West (management units 2b, 2c 2d) and also within parts of Range East (management units 2e to 2g). The whole Range is subjected to quite extensive winter grazing by several thousand sheep and a few hundred cattle - typically between November and early May. Grazing pressure, plus exposure of some of the coast to salt-laiden winter storms usually reduces the coastal grassland vegetation height (over quite a wide area) to <5cms by about April, when the caterpillars are emerging to feed and wandering away from webs prior to pupation. The provisional lower limits have been set to try and reflect this fairly typical, "normal" condition. Further surveillance data are required over a number of years.	*Upper limit:* As limited by other feature habitats *Lower limit:* • There are at least approx 100ha of suitable habitat on the site (essentially in management units 2b, 2c, 2d and 2e) • At least 50ha of the suitable habitat is "Good Condition Marsh Fritillary Habitat" Suitable Marsh Fritillary Habitat is: • Grassland where *Succisa pratensis* is occasional, frequent or abundant • In September vegetation height is above 5cms, or sward height is between 10-25 cms but scrub (>0.5 metres tall) covers more than 5% of area. Good Condition Marsh Fritillary Habitat is: • Grassland where, for at least 70% of sampling points, the vegetation height is within the range of 7-20 cms • *Succisa pratensis* is present within a 1m radius. • Scrub (>0.5 metres tall) covers no more than 5% of area.
Performance indicators for factors affecting the feature		
F1. Livestock grazing	Without any specific intent, traditional sheep and cattle grazing practices for a number of years have maintained marsh fritillary habitat. Without an appropriate grazing regime, the habitat would become rank and the larval food-plant could disappear. Currently there is quite extensive grazing, between late November and beginning of May by sheep, before they return to the Preseli hills – a practice that has been on-going for over 60 years. There is very little or no grazing for much of the summer and autumn period. This and the exposed nature of the limestone coast currently seem to enable *Succissa* to grow and flower well. In addition the current grazing regime benefits a wide range of other low-growing herbs – including several plants with nectar sources sought after by the	*Upper limit*: The grazing pressure must not be so high as to break down the vegetation structure and cause significant bare areas to appear. *Lower limit*: The site must be subject to sufficient grazing to maintain Suitable or Good Condition Marsh Fritillary habitat as set out above

	emerging butterflies in May and June.	
F2. Burning	Marsh Fritillary colonies are susceptible to damage by burning. The current lack of control over burning (e.g. accidental fires caused by military ordnance) means that parts of the key butterfly range may be vulnerable – especially where *Succissa* patches grow close to low growing coastal heath and gorse scrub. Bracken might also spread into areas - due to increased potash availability favouring its growth after regular or severe fires. NB that some open low bracken may be favoured by marsh fritillaries possibly due to the extra shelter bracken may be providing to larval webs.	*Upper limit*: No burning within key Marsh Fritillary areas *Lower limit*: None set
F3. Changes in military training activities	Currently, military impacts (from tank rounds, vehicles etc, are relatively low within the known marsh fritillary zones. Increased military use of the coast, or changes in target zones or weaponry could possibly impact the marsh fritillary areas.	*Upper limit*: There should be no regular military disturbance to vegetation within the core Marsh Fritillary areas. *Lower limit*: None set



Known extent of marsh fritillary webs in autumn 2006, Castlemartin Cliffs and Dunes SSSI

4.11 Conservation Objective for Feature 11*:* Red-billed chough *Pyrrhocorax pyrrhocorax* A346

Vision for Red-billed chough *Pyrrhocorax pyrrhocorax*

- A breeding chough population will occur along the limestone coast, between Freshwater West and Barafundle Bay.
- This population will be maintained at a minimum of 12 breeding pairs (representing 3.5% of the GB population, at the 1993 SPA designation level)
- Choughs will continue to, feed, roost and breed successfully, unhindered by human recreational activities (e.g. climbing).
- The majority of pairs will rear young each year, with an annual average productivity of at least two young per occupied territory.
- Choughs will continue to have access to large amounts of optimal feeding habitat (open areas with very short grassland and heath vegetation <1cm to <3cm in height) within all cliff-top management units and within dune grassland management units at Broomhill Burrows, Brownslade and Linney Burrows and on Stackpole Warren.
- Yellow ant-hills, an important summer food resource, will occur in coastal turf, throughout the SPA, at densities up to approximately 550 ant-hills per ha.
- A non-breeding chough population (variable in number between 10 and 50 birds) made up largely of juvenile and sub-adult birds will occur at any season.

Note: This feature is not a feature within Gower sections of the SAC

Performance indicators for Red-billed chough *Pyrrhocorax pyrrhocorax*

The performance indicators are part of the conservation objective, not a substitute for it. Assessment of plans and projects must be based on the entire conservation objective, not just the performance indicators.

Performance indicators for feature condition		
Attribute	***Attribute rationale and other comments***	***Specified limits***
A1. Population distribution	All known occupied chough nest sites within the SPA have been recorded each year since at least 1990. There are usually 10 figure grid refs for most nest sites. Data are in Excel and mapped in GIS and also stored in Recorder. Records of feeding chough, including colour-ring observations to confirm age etc, are mapped in GIS. From these records it is possible to identify areas used by non-breeding chough. These records should provide sufficient information to determine changes in breeding population distribution.	*Upper limit*: None set *Lower limit*: Breeding population: Territory-holding pairs attempting to breed should occur in each of at least eight management units distributed from Castlemartin Range West to Stackpole Head. Non-breeding population: Between October and March, non-breeding choughs (variable flock size) should occur within Broomhill Burrows, Brownslade & Linney Burrows and Stackpole Warren in any one or more of the management units.
A2. Population size	The chough population level in 1993, at the time of designation, was 12 pairs (then approx 3.5% of the UK population). Based on annual surveillance and 2002 decadal survey results, the number of pairs of chough attempting to breed within the SPA has increased to about 20	*Upper limit*: None set *Lower limit*: Breeding population: During a six year period, the average number of summer territory-holding

	pairs. With further increases elsewhere in the UK, the population in 2002 was equivalent to approx 4% of the UK population at that time. In 2007, the breeding population was similar to that of 2002 (at least 20 pairs attempted to breed from 22 territory-holding pairs). During a six-year period, the average number of summer territory-holding pairs in the population should not be less than 3.5% of the GB population. If the Castlemartin population declined below this level, then we would be prompted to check whether the chough population was going against the national trend, or whether it was simply a matter of other areas increasing the opportunities for them. Ten pairs attempting to breed (based on behaviour) appears to be the lowest level the population may be expected to decline to, assuming weather and food shortage related problems, but no obvious change in habitat quality. This is based on long-term surveillance data (including several UK decadal Red-billed Chough population surveys since the 1960s). This population level would still meet current UK SPA qualifying level. The lower limit should be reviewed every six years, and compared with population data from Pembrokeshire, the rest of Wales and future UK decadal surveys. Non-breeding flocks of juveniles and sub-adults can occur in various locations within the SPA, depending on food supply and proximity of good roost sites. The dune grassland areas are especially important locations at various times of the year. When soil invertebrate populations are high, the SPA can attract chough from elsewhere. At other times the number of non-breeders can be quite low.	pairs in the population should be: Not less than the SPA qualifying level (at time of designation); Based on the population size at time of designation in 1993: Not be less than 12 territory –holding pairs per annum, of which, at least 10 pairs should have attempted to breed. <u>Non-breeding population</u>: Between October and March, a non-breeding population of at least 10-50 individuals should occur anywhere within the SPA – either in a number of small groups or in larger flocks.
A3. Annual productivity	Annual chough productivity can be quite variable, low in years with poor invertebrate populations (including periods affected by drought or stormy weather). Numbers surviving to adulthood can be affected by food shortages and the impacts of cold winter weather. Colour-	*Upper limit*: None set *Lower limit*: During a six year monitoring period: The average number of young fledged

	ringing evidence shows that whilst quite a high proportion of young fledge (at least 80%), quite a high number of young disappear within the first several weeks after fledging. Less than 20% survive to breeding age. In any one year it is expected that there will be new recruits to the population. Whilst some chough will become sexually mature when 2 years old, the majority will not breed until their third year, when they have attained sufficient body mass and weight to breed. It is likely that these younger, less experienced birds will be less productive in their first breeding season. Once established in the population, they may survive up to ten or more years. The lower limit for productivity is based on annual surveillance records within the SPA since 1993. This level should be reviewed every six years, and compared with population data from Pembrokeshire and/or further a-field.	per occupied territory should be not less than 2; and The average number of young fledged per successful nest should be not less than 2.5.
A4. Feeding habitat extent	The principal habitats used by the choughs at Castlemartin are caves and cliff crevices for breeding, maritime grassland for feeding throughout the breeding season, and dune grassland between late summer and winter months. They are also known to feed in other habitats, such as winter stubbles on arable land (out-with the SAC/SPA), but these tend to be used more occasionally than the cliffs and dunes. Of the three main habitats used by the choughs, the condition of the maritime grassland is considered to be most critical, as this supports both the adults and young throughout the breeding season (from nest building through to fledgling dispersal).	*Upper limit*: None set *Lower limit*: Extent of maritime grassland and heath mapped within Castlemartin Cliffs and Dunes SSSI (Phase 2, 2004 GIS layer); maritime cliff-top grassland and heath, and dry calcareous grassland and heath at Stackpole SSSI (Leach et al, 1978, GIS layer).
A5. Feeding habitat quality	Choughs require short turf in which to probe and prize out invertebrate prey. This generally needs to no more than 2-4 cm tall. They also exploit the interface between turf and bare ground (such as erosion zones, maritime cliff-crevice, edged of tracks etc). Yellow ant *Lasius flavus* hills in coastal turf also provide an extremely important food source for choughs – especially in	*Upper limit*: None set *Lower limit*: > 40% of the maritime grassland and heath, or within dry calcareous grassland and heath should be less than 3cm high during May/early June. **Maritime grassland:** Vegetation where the combined cover

	mid/late summer. Short maritime grassland is maintained by a combination of wind exposure, salt deposition and sheep grazing. The salt is deposited in sea spray, mostly during storms driven by the prevailing south-westerly winds: this is a limiting factor for many of the more aggressive plant species that would otherwise colonise the habitat.	of *Plantago maritima, Armeria maritima* and *Festuca rubra* exceeds 50% within any 50cm radius
Performance indicators for factors affecting the feature		
F1. Livestock grazing/mowing	Grazing is essential to maintain an open species-rich (short and uneven) grassland sward, allowing lots of different plants to grow together, preventing the most competitive coarser plants (like fescue grass, heath or scrub) from taking over. As a general guide, the aim of grazing is to produce an uneven and variable sward, ranging from very short (shorter than a finger lying on its side) to just above ankle height, by the end of summer. Areas of shortest turf should be achievable on coastal slopes and dune hollows, assisted by natural exposure and drought on these shallow impoverished soils. Areas with such swards are especially important for soil invertebrate food for choughs. Sheep grazing plays an important role in keeping the sward low, and making it possible for feeding choughs to access invertebrates in the soil in short (<2-4 cm) turf. Dung from these animals, should also provide a further source of invertebrate populations for choughs and so, where ever possible, livestock should not be dosed with avermectins. Any supplementary feeding should be done with care to avoid causing too much poaching or localised enrichment. A semi-natural rabbit population, present for several hundred years, also makes a very important contribution to the overall grazing levels required by feeding choughs (especially in the dunes). They scrape and maintain bare areas for colonizing plants, for insects requiring	*Upper limit*: None set *Lower limit*: Maintain very short (<2-4 cm high) fairly open turf, with numerous herbs. Patches of open lawn-like areas are important (with dung and providing easy access to soil invertebrates. Grazing pressure must not be so high as to cause nutrient enrichment and/or bare areas to appear, as this is potentially detrimental to other SAC features. <u>Ant-hills</u> Care must be exercised not to damage important ant-hill components through management activities – including mowing, maintenance of paths/tracks and stock-fencing. *Upper limit*: None set *Lower limit*: Maintain a high density of active ant-hills (at least 150 to 550 per ha) within representative areas of maritime and calcareous grassland sampled - in management units 2b to 2g and 3c and 3d. .

	warm open sandy soils and also keep in check young, potentially invasive scrub. Rabbit populations have been affected by disease (e.g. Viral haemorrhagic disease). Surveillance of their population should be maintained. Yellow ant-hills can form quite dense concentrations in key areas – e.g. between 150 to 550 ant-hills per ha have been mapped on Stackpole Head - in management units 3c and 3d. There are also high concentrations along the Castlemartin Range coast. Care must be exercised not to damage important ant-hill components through management activities – including vegetation mowing, maintenance of paths/tracks and stock fencing	
F2. Access and Recreation	Castlemartin's coastal footpath is an extremely popular visitor destination. The coastal cliffs are the principal destination for most walkers, and large numbers of climbers. Currently access and recreation pressures are fairly well regulated. Long-standing voluntary agreements with climbers, also ensures that cliff-nesting birds are quite well protected. Visitors should be made aware, through access permit briefings to Castlemartin Range, leaflets and signage at access points along the coast to ensure approved arrangements are adhered to. It will be essential to maintain, and where ever possible strengthen, links with partner organisations, (e.g. through the Pembrokeshire Outdoor Charter Group, Pembrokeshire Coastal Forum and local and national Climbing Liaison Committees) to monitor visitor pressure and ensure that adequate steps are in place to regulate and protect populations of chough and other potentially sensitive cliff-nesting species.	*Upper limit*: None set Lower limit: Maintain seasonal climbing restrictions at chough nest sites between 1st march and mid July. Advise MoD Castlemartin Range management staff, PCNP Ranger service and NT wardening staff at Stackpole about locations of chough nest sites, to help minimise potential unwitting disturbance from walkers, guided walking groups etc.

5. ASSESSMENT OF CONSERVATION STATUS AND MANAGEMENT REQUIREMENTS

5.1 Conservation Status and Management Requirements of Feature 1: Vegetated sea cliffs of the Atlantic and Baltic coasts

Conservation Status of Vegetated sea cliffs of the Atlantic and Baltic coasts
In 2004 the **Vegetated sea cliffs of the Atlantic and Baltic coasts** was considered to be **UNFAVOURABLE DECLINING** conservation status due to scrub invasion.

Management Requirements of Vegetated sea cliffs of the Atlantic and Baltic coasts

Maritime Cliff and Crevice Vegetation - Generally no management required, maintained by natural processes including exposure and erosion. Monitoring of this feature should include checking for the presence of non-native species such as hottentot fig *Carpobotus edulis.*

Maritime Grassland - Grazing regimes should be maintained and fine-tuned across all key managed sections. The relatively light grazing required by maritime grassland may not always be compatible with the heavier grazing required to recover maritime heathland to favourable condition. It is vital for rabbit grazing to continue.

Maritime Heathland - Grazing (ideally by ponies) and cutting are key tools for management of the heathland. Ensuring adequate and controlled livestock grazing with ponies and/or cattle is key to maintenance management.

Sheep grazing is currently fairly intensive along the Castlemartin coast during the period December to early May, this may cause localised enrichment, associated with over-grazing and dunging. The presence and potential spread of species such as spear thistle or creeping thistle should be recorded. Conversely a lack of grazing, due to requirements to remove stock from active parts of the range during the bulk of the growing season could, in some wetter years or locations lead to under-grazing and a more tussocky and less botanically diverse communities. An associated build up of litter and nutrients, could allow scrub to invade in less exposed parts and could, potentially, be a greater management problem to deal with, as well as affecting other special features requiring open, or very short swards (e.g. choughs which often feed on clumped populations of insects such as ants or on insect larvae associated with open soils, grass roots or dung). A mixed sheep and cattle regime is preferable to sheep alone, providing structural variation and removing rank vegetation. The precise timing and type of grazing stock will require some seasonal flexibility and occasional fine-tuning to ensure that the overall condition of the vegetation is maintained. Management should aim to maintain the current extent of each of the above habitats. There should be no further fragmentation of distribution of communities within the site as a whole. A controlled grazing regime will provide the best means of maintaining the grassland and heath communities.

There is a long history of grazing management of the Gower sections particularly within the Gower Coast SSSI. It is important that these patterns of grazing are maintained by appropriate stocking levels and maintaining local variations. These variations included the presence of thick swards of red fescue in areas inaccessible to sheep, whilst these are fragmented and often in very small patches, they are an important component of the maritime grassland.

Tor grass, identified in Range West by ITE botanists in 1998 could, potentially, spread further into the coastal grassland and its presence should be recorded, with a view to considering eradication of the species if it appears to threaten maritime grassland or related features. Regular surveillance of the vegetation communities should be undertaken over at least six yearly intervals to ascertain current vegetation condition - including fixed-point photography to record gross changes. More detailed monitoring of selected areas should be undertaken at least every ten years.

The cliffs of South Gower are extremely popular with rock climbers as there a number of routes suitable for different abilities. This can impact on the cliff and ledge communities where climbers remove vegetation ('gardening') so as to gain a better hand or foot hold or to install equipment, Additionally climbing is restricted to avoid disturbance to breeding birds, though the number of climbers requires continued monitoring to determine if there are any increases.

Relevant publications:

Davies E.J., (2000) Is the Common Standards Model a robust method of evaluating the condition of the vegetated sea cliff communities of Castlemartin SSSI. Swansea University.
Wilson S., (2000) An appraisal of the utilisation of the Common Standards Monitoring method to assess the condition of Castlemartin vegetated sea cliff communities. Swansea University.

5.2 Conservation Status and Management Requirements of Feature 2: Fixed dunes with herbaceous vegetation ("grey dunes") 2130

Conservation Status of Fixed dunes with herbaceous vegetation ("grey dunes") 2130
In 1999 the sand dune habitats were considered to be in **FAVOURABLE** conservation status.

Management Requirements of Fixed dunes with herbaceous vegetation ("grey dunes") 2130
Ensuring adequate and controlled livestock grazing with sheep, ponies and cattle is key to maintenance management of the dune grasslands. Grazing regimes should be maintained and fine-tuned across all key managed sections. Rabbit and livestock grazing should be maintained.

Recent surveys have shown that bracken is presently relatively insignificant in the dune grassland overall, although it has long been present at Stackpole – though is being managed there by cutting and bruising. Its potential spread in extent, distribution and density and is considered undesirable, but there is insufficient information about its overall current extent, which requires mapping. Other invasive plants which could be a potential problem in this habitat are tor-grass, rose of Sharon (at Stackpole) winter heliotrope and Japanese knotweed.

Attempts have been made during the last decade to clear sea buckthorn from the dunes; this has been successful within Brownslade and Linney Burrows and is currently under control at Stackpole. Colonisation or re-colonisation of the dunes by sea buckthorn should not be tolerated; careful monitoring will be required, as a high priority, to ensure that the current eradication programme at Stackpole is complete within the next five years. Other patches of scrub (e.g. European gorse or blackthorn) have been mapped as mainly small discrete patches. These areas should be monitored, with a need to ensure that they do not spread beyond their current extent. The potential threat of spreading dune scrub and bracken should continue to be addressed by an ongoing MoD scrub management plan.

Some surface scarification or small-scale sand-extraction may maintain open conditions required for some associated features. However, large-scale removal of sand from what is generally a fossilised dune system, with insufficient new sand coming in to replenish that which was being lost will, potentially, significantly damage the system.

The dunes support small areas of open calcareous grassland with good populations of the rare soil lichen *Fulgensia fulgens* (Scrambled Egg lichen) These areas form part of Feature 4, the Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone 6210.

Relevant publications:
Castlemartin Range and Penallly Gallery Range Integrated Management Plans (ILMP) (2000)
Castlemartin Range and Penallly Gallery Range ILMP updates (2006)
Stackpole NNR/SSSI Management Plan (in CMS)

5.3 Conservation Status and Management Requirements of Feature 3: Dry Heath

Conservation Status of Dry Heath
In 2006 the Dry (calcareous) heath was considered to be in **UNFAVOURABLE DECLINING** conservation status due to excessive burning and scrub invasion.

Management Requirements of Dry Heath
The current management of the dry heath is by cattle/pony and sheep grazing (especially concentrated into the winter period). Some scrub/mature heath cutting or burning (including occasional accidental summer burns from military activities) of small patches occurs and appears not to be damaging, and probably is beneficial.

A reduction in grazing would probably lead to a more uniform gorse-dominated community, giving way to scrub in ungrazed, sheltered areas. On the other hand, over-grazing-cutting or -burning could cause fragmentation of the heaths and an increase in the inland extent of grassland communities.

Management should aim to maintain the current extent of heathland, with no fragmentation of heath communities within the site as a whole. Approximately one third of the heath should be younger than five years old and continue to support scarce plants and insects such as populations of the silver-studded blue and dark green fritillary butterflies. A controlled grazing regime should provide the best means of maintaining the heath community complex. Monitoring of its vigour will be required periodically, perhaps at least one year in six.

Burning is a traditional management technique for heath though where deliberate burning is not carried out correctly, or where there is accidental burning, the effects can be damaging and increase susceptibility to bracken and gorse invasion. Accidental burning is particularly a problem on the Gower Coast SSSI and because of this no deliberate burning will be introduced in this section to prevent too large a proportion of the SSSI being burnt in one year.

The pock-marking of vegetation in the west of the Castlemartin SSSI, where live tank-rounds are fired, causes localised erosion of grassland and heath communities. However, providing there is no intensification of existing practices, such activities may also create suitable open conditions necessary for seedling herbs and regenerating ericaceous species. These areas also are likely to be important for a range of invertebrates, particularly aculeates and silver-studded blue butterflies.

Tor Grass, identified in Range West by ITE botanists in 1998, could, potentially, spread into the calcareous heathland and its presence should be recorded, with a view to considering eradication of the species if it appears to threaten heathland or related features.

Relevant publications:
Castlemartin Range and Penally Gallery Range Integrated Management Plans (ILMP) (2000)
Castlemartin Range and Penally Gallery Range ILMP updates (2006)
Stackpole NNR/SSSI Management Plan (in CMS)
Gower Coast Rhossili to Port Eynon SSSI management plan
Gower Coast NNR management plan (CMS)

5.4 Conservation Status and Management Requirements of Feature 4: Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) / Dry grasslands and scrublands on chalk or limestone 6210

Conservation Status of Semi-natural dry grasslands and scrubland
In 2006 this feature was determined to be in **UNFAVOURABLE DECLINING** conservation status due to damage from agricultural operations and over-grazing.

Management Requirements of Semi-natural dry grasslands and scrubland
The fixed dune grasslands support small, fragile areas of open calcareous grassland with good populations of the rare soil lichen *Fulgensia fulgens* (Scrambled Egg lichen) These areas will require monitoring and continued protection from potential impacts of military activities. This feature also occurs on soils overlying the limestone bedrock. There are no specific management requirements for this feature beyond those set out for the fixed dune grasslands. It is vital for rabbit and livestock grazing to continue. Grazing regimes should be maintained and fine-tuned across all key managed sections. Ensuring adequate and controlled livestock grazing with sheep, ponies and cattle is key to maintenance management.

Relevant publications:
Castlemartin Range and Penallly Gallery Range Integrated Management Plans (ILMP) (2000)
Castlemartin Range and Penallly Gallery Range ILMP updates (2006)
Stackpole NNR/SSSI Management Plan (in CMS)
Gower Coast Rhossili to Port Eynon SSSI management plan
Gower Coast NNR management plan (CMS)

5.5 Conservation Status and Management Requirements of Feature 5: caves not open to the public

Conservation Status of caves not open to the public
The feature is considered to be in **FAVOURABLE** conservation status (As determined in March 2006 but based on data predominantly gathered between January and March 2003).

Management Requirements of caves not open to the public
The coastal caves within this SAC are some of the most important greater horseshoe bat hibernacula in the UK. Until recently, it was generally assumed that bats use these caves during the winter as hibernation sites, although now it is recognised these caves are also likely to be important at other times of the year, as transitionary/feeding/satellite roosts.

Greater horseshoe bats are a feature of this SAC and performance indicators have been for this species. However, as this species is such an important element of the cave feature, the greater horseshoe bat performance indicators have been incorporated into the performance indicators for the caves. These caves are also important lesser horseshoe bat roosts.

These caves require no active “habitat” management but visitor and recreational activities we need to be managed and controlled to ensure the targets set in the conservation objectives are met.

Relevant publications:
Castlemartin Range and Penallly Gallery Range Integrated Management Plans (ILMP) (2000)
Billington, G. (2004). Determination of autumn and winter use of South Pembrokeshire Cliffs by horseshoe bats. CCW Report.
Wilkinson, K. (2006). Monitoring report: Greater horseshoe bats of the Limestone Coast of South West Wales SAC. CCW Internal document.
Gower Coast Rhossili to Port Eynon SSSI management plan

5.6 Conservation Status and Management Requirements of Feature 6: submerged or partially submerged sea caves

Conservation Status of submerged or partially submerged sea caves
This feature was assessed in 2006 as being in **FAVOURABLE** conservation status though the difficulty of monitoring this feature meant that there is little actual evidence to base this assessment on. On the grounds that the main factor to affect the sea caves would be human in origin and no human disturbance was seen, they were assumed to be favourable.

Management Requirements of submerged or partially submerged sea caves
Requirements are largely to keep the sea caves free of direct or indirect human disturbance, either in the form of entrance to the caves, activities which may cause the caves to become unstable or close the entrances, pollution, litter or disturbance to the species (especially bats and grey seals) which may be using the caves. Other than this natural events such as rockfall may have an impact but there is in most cases likely to be little that could be done, or would be desirable to be done, to rectify and natural disturbance.

5.7 Conservation Status and Management Requirements of Feature 7: Greater horseshoe bat *Rhinolophus ferrumequinum*

Conservation Status of Greater horseshoe bat
The Greater horseshoe bat of the Limestone Coast of South West Wales SAC is considered to be in **FAVOURABLE** condition on the Pembrokeshire section of the SAC. (December 2007).

Management Requirements of Greater horseshoe bat
Greater horseshoe bats are known to feed widely over the Castlematin peninsula and elsewhere along the limestone coast – utilizing any number of available coastal caves as temporary overnight shelters in between feeding periods or as longer term roosts – notably in the winter months.

Grazing, especially by cattle, provides important insect populations for the bats e.g. ephodius, cockchafer and minator beetles and tipulids in pasture. Wooded areas are also important for a similar range of insects including beetles and moths.

Continued provision and maintenance of good structured habitats will be essential to support coastal flight lines to areas with associated abundant sources of insect prey. Minimising the use of potentially harmful prophylactics such as ivermectin-type products on grazing stock will benefit grassland insects needed by the bats.

Access and recreational pressures: Identified sea cave roosts, used by horseshoe bats must be maintained free of disturbance, especially in winter when the bats may be roosting for quite long periods. Unnatural awakening could cause them to burn up valuable fat reserves at times when insect food is short, and this could affect their survival.

Climbers and cavers should be made aware, through access permit briefings, leaflets etc, aided by a ranger service, to ensure approved arrangements are adhered to and that there is no unauthorised caving at an inappropriate season.

It will be essential to maintain, and where ever possible strengthen, links with partner organisations, (e.g. through the Pembrokeshire Outdoor Charter Group, Pembrokeshire Coastal Forum and local and national Climbing Liaison Committees) to monitor visitor pressure and ensure that adequate steps are in place to regulate and protect caves zones used by the bats**.**

Regular collection and compilation of bat roost occupancy and population data will be required to inform annual recreation briefings with the most up to date information.

Relevant publications:
Castlemartin Range and Penallly Gallery Range Integrated Management Plans (ILMP) (2000)
Castlemartin Range and Penallly Gallery Range ILMP updates (2006)
Stackpole NNR/SSSI Management Plan (in CMS)
Billington, G. (2004). Determination of autumn and winter use of South Pembrokeshire Cliffs by horseshoe bats. CCW Report.
Wilkinson, K. (2006). Monitoring report: Greater horseshoe bats of the Limestone Coast of South West Wales SAC. CCW Internal document.
Gower Coast Rhossili to Port Eynon SSSI management plan
Gower Coast NNR management plan (CMS)

5.8 Conservation Status and Management Requirements of Feature 8: Petalwort *Petalophyllum ralfsii*

Conservation Status of Petalwort Petalophyllum ralfsii
The *Petalophyllum ralfsii* of the Limestone Coast of South West Wales SAC is considered to be in **FAVOURABLE** condition on the Pembrokeshire section of the SAC. (October 2004).

Management Requirements of Petalwort *Petalophyllum ralfsii*
Petalophyllum ralfsii is found at two SSSI sand dune systems within the SAC, (Broomhill Burrows & Brownslade Burrows). *P. ralfsii* has only ever been found at Broomhill Burrows at a low density and in a single location. However, Brownslade Burrows supports a population of *P. ralfsii* thought to exceed the remaining total count for the rest of the UK. The site therefore is a nationally important stronghold for the species. At Brownslade, *P. ralfsii* appears to occur patchily at high densities and is generally associated with successionally young, open vegetation. As the vegetation becomes more mature and closed the density of thalli decreases and they become more difficult to detect.

Observations made during site visits in 2004 indicate that there are large amounts of potentially suitable/optimal habitat at the site and it is likely that the feature will continue to be favourable for a number of years. However it is worth bearing in mind that habitat succession will result in the re-vegetation of the bare ground and the development of a closed sward that will not be so suitable for *P. ralfsii.* Although Brownslade Burrows is winter grazed by sheep, which will help to maintain a short sward, due to the cessation of the sand quarrying the areas currently suitable for *P. ralfsii* will re-vegetate. As the vegetation closes these areas will become less suitable for *P. ralfsii*. Before this occurs it will be necessary to undertake management to re-create open areas that can support this rare liverwort. Occasional disturbance and excavation of parts of the dune slacks, backed up by adequate and controlled livestock grazing with sheep, ponies and cattle will be key to maintenance management. Grazing regimes should be maintained and fine-tuned across all key managed sections.

Within the sand dune complexes dune slack communities are relatively scarce, as it is within other dune systems in West Wales. Through careful selective management of the former quarrying areas, where there is a suitable water table, dune slack communities could be allowed to double in area. The wet and dry valley floors, and communities they support, should be allowed to develop naturally, as free as possible from damage and pollution, including potential build up of extraneous materials related to military activities.

Creeping willow scrub was not a significant dune-slack component in the 1991 NVC survey. However patches of willow may be expected to develop over time, but should not be allowed to dominate any dune slacks. Any patches should be small, with a total coverage of no more than 1 - 2 hectares as an upper limit. It will be important, therefore, that subsequent successional changes are monitored - e.g. by fixed point photography and supplementary species recording.

Relevant publications:
Castlemartin Range and Penallly Gallery Range Integrated Management Plans (ILMP) (2000)
Castlemartin Range and Penallly Gallery Range ILMP updates (2006)
Stackpole NNR/SSSI Management Plan (in CMS)

5.9 Conservation Status and Management Requirements of Feature 9: Early gentian *Gentianella anglica*

Conservation Status of Early gentian *Gentianella anglica*
The ***Gentianella anglica*** of the Limestone Coast of South West Wales SAC is considered to be in **UNFAVOURABLE DECLINING** conservation status on the Pembrokeshire section of the SAC. (October 2004).

Management Requirements of Early gentian *Gentianella anglica*
Grazing is essential to maintain an open short grassland sward, favoured by low-growing Gentianella species, and to prevent the most competitive coarser plants (like heath or scrub) from taking over. Areas of shortest turf should be achievable in the dune hollows, assisted by a mixed grazing regime of sheep, cattle and/or pony grazing in winter, and natural exposure and summer drought on shallow impoverished soils.

A rabbit population, present at Stackpole for several hundred years, makes a very important contribution to the overall grazing levels in the dune hollows supporting Gentianella plants. They also graze down and keep in check young and seedling gorse plants and other potentially invasive scrub of open grassland.

Their current numbers have been affected by disease (including Viral haemorrhagic disease). Surveillance of their population should be maintained, and a means of re-establishing healthy populations should be investigated.

Scrub and bracken is a potential threat to the edges of the Gentianella sites. Monitoring is required to determine if this threat is increasing.

Where necessary, cutting of bracken or scrub should undertaken to reduce invasion. If used, it should be followed up with grazing to deter re-invasion of woody vegetation and coarse grasses. Cuttings should also be collected and removed to prevent smothering and nutrient enrichment.

Bracken should generally be bruised or cut in preference to chemical control. This is best done on a rotational basis, with a certain proportion undertaken annually.

This management method should only be used as a last resort, in areas where habitat and grazing restoration are the priority.

Nutrient enrichment: Fertilizers can be very harmful to herb-rich natural coastal grasslands. This is because they stimulate the growth of grass species at the expense of the many different and often low-growing herbs present. For this purpose they should not be used on the site. Stock-feeding (and associated salt licks and water troughs) can also lead to nutrient enrichment. If used these should only be undertaken at agreed locations, well away from identified areas supporting scarce species such as Gentianella species.

Relevant publications:
Stackpole NNR/SSSI Management Plan (in CMS)

5.10 Conservation Status and Management Requirements of Marsh fritillary butterfly *Euphydryas* (*Eurodryas, Hyodryas*) *aurinia*)

Conservation Status of Marsh fritillary butterfly
The Marsh fritillary butterfly of the Limestone Coast of South West Wales SAC is considered to be in **FAVOURABLE** condition on the Pembrokeshire section of the SAC. (October 2007).

Management Requirements of Marsh fritillary butterfly
Grazing: Some grazing is essential to maintain marsh fritillary habitat but this must ensure that devil's bit scabious *Succissa pratensis* plants (food source of the caterpillar (larval) stage are not over-grazed.

The practice of quite extensive grazing, but possibly less intensive sheep grazing, between late November and beginning of May – a practice that has been on-going for over 60 years seems to be currently seems to be providing the right sort of balance required by marsh fritillaries. This may possibly be helped by the fact that there is currently very little or no grazing for much of the summer and autumn period. Cattle sometimes graze parts of the coast with good marsh fritillary habitat in late summer but are not having any detrimental effect. Heavier grazing and trampling by sheep and or cattle should be avoided as not only could this reduce amounts of food availability to the caterpillars, but it could also damage larval webs spun on low-growing devil's bit scabious plants.

Fire and disturbance by military activities: Whilst accidental fires could occur anywhere within the marsh fritillary population distribution zone, attempts should be made to minimise damage though adequate control measures – including fire-breaks at suitable locations. Such management should take account of the need to maintain other nature conservation features - such as low-growing coastal heath vegetation and the locations of marsh fritillary colonies themselves. Dense bracken areas should be managed appropriately to favour coastal grassland and heath species, into which devil's bit scabious food plants and marsh fritillary butterflies may colonise.

To further enable planning of appropriate habitat management, detailed locations of marash fritillary colony locations (including known larval web sites) should be mapped and the details provided to the South Pembrokeshire Ranges Recording and Advisory Group (SPRRAG).

Relevant publications:
Haycock, B. (2005). Marsh fritillary surveillance in Castlemartin Range. CCW Internal document.
Castlemartin Range Integrated Management Plan (ILMP) (2000).
Castlemartin Range ILMP update (2006).

5.11 Conservation Status and Management Requirements of Feature 11*:* Red-billed chough *Pyrrhocorax pyrrhocorax*

Conservation Status of Red-billed chough The Red-billed c**hough** of the Limestone Coast of South West Wales SAC is considered to be in **FAVOURABLE** condition on the Pembrokeshire section of the SAC. (October 2007).

Management Requirements of Red-billed chough
Grazing: Grazing is essential to maintain open short invertebrate-rich turf, required by chough. Areas of shortest turf should be achievable on coastal slopes and dune hollows, assisted by natural exposure and drought on these shallow impoverished soils.

A mixed grazing regime of traditional over-wintering sheep (e.g. from the Preselli hills on the Castlemartin Range) local cattle and/or ponies, providing additional light summer and autumn grazing, should continue to provide variation in the structure of the vegetation due to their different grazing and

trampling habits. Dung from these animals should also provide a further source of invertebrate populations for choughs and so livestock used here should not be dosed with avermectins.

A semi-natural rabbit population also makes a very important contribution to the overall grazing levels required to maintain accessible invertebrates (especially in the dunes) utilised especially by flocks of juvenile and non-breeding choughs. Rabbit populations have been affected by disease (including Viral haemorrhagic disease). Surveillance of their population should be maintained in key chough-feeding areas.

Burning: Burning of coastal heath is potentially damaging to some plants, breeding bird and insect populations and so should be avoided as a principal management tool. However, occasional accidental patch burns may help keep in check invasive European gorse and other woody vegetation, and provide localised more open conditions required by birds like chough. Surveillance should be made of accidental burn areas and habitat recovery.

Access and recreational pressures: Castlemartin's coastal footpath is an extremely popular visitor destination. The coastal cliffs are the principal destination for most walkers, and large numbers of climbers. Access to the western part of the SSSI in Castlemartin Range West is limited to non-firing days (usually only available at weekends and is subject to military and conservation briefings and permit arrangements). Currently access and recreation pressures are fairly well regulated by an on site ranger and information service. Long-standing voluntary agreements with climbers, also ensures that chough nest site are quite well protected.

It will be essential to maintain, and where ever possible strengthen, links with partner organisations, (e.g. through the Pembrokeshire Outdoor Charter Group, Pembrokeshire Coastal Forum and local and national Climbing Liaison Committees) to monitor visitor pressure and ensure that adequate steps are in place to regulate and protect chough nest sites and feeding areas.

Relevant publications:

Castlemartin Range Integrated Management Plan (ILMP) (2000).
Castlemartin Range ILMP update (2006).
Haycock, B. (1990 to 2007). Annual summary reports of chough nest site occupancy, productivity and breeding success in Castlemartin Coast SPA. Unpublished reports to South Pembrokeshire Ranges Recording and Advisory Group (SPRRAG).
Haycock, B. and Hurford, C., (2006). Monitoring choughs *Pyrrhocorax pyrrhocorax* on the Castlemartin peninsula; a case study in *Monitoring Nature Conservation in Cultural Habitats: A Practical Guide and Case Studies*, edited by Hurford, C. and Schneider, M., (2006). Springer.
Hodges J E. 1994. A Chough conservation strategy for Pembrokeshire, PCNP.
Stackpole NNR/SSSI Management Plan (in CMS).

6. ACTION PLAN: SUMMARY

This section takes the management requirements outlined in Section 5 a stage further, assessing the specific management actions required on each management unit. This information is a summary of that held in CCW's Actions Database for sites, and the database will be used by CCW and partner organisations to plan future work to meet the Wales Environment Strategy targets for sites.

Site Name(s): Limestone Coast of South West Wales/Afordir Calchfaen De Orllewin Cymr (SAC)

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
1a	000855	Broomhill Burrows 1a	National Trust owned. Some recreational issues, managed through on-site wardening presence	No
1b	000861	Broomhill Burrows 1b	Management Agreement in place and no new actions needed	No
1c	000862	Broomhill Burrows 1c	Management Agreement in place and no new actions needed	No
1d	002373	1d Two non SAC areas	Part of Castlemartin SPA outside of the SAC. No specific management issues at present.	No
2a	000863	Castlemart in Cliffs and Dunes 2a	Accidental fires, from ordnance etc during training exercises burns parts of the Marram-domintaed semi-fixed dune grassland. Whilst not a major threst at present, fire affected areas need to be mapped and monitored and reviewed. A build up of used ordnance and debris from training exercises could also pollute and damage sand dune vegetation interests over time, if not inspected regularly and materials occasionally removed. Ensuring adequate and controlled livestock grazing by sheep and cattle is key to maintenance management of the dune grasslands. Grazing regimes should be maintained and fine-tuned across all key managed sections. Rabbit and livestock grazing should be maintained. Recent surveys have shown that bracken is presently absent or insignificant in much of the dune grassland in unit 2a. Regular surveillance is needed to show that this remains the case. Attempts have been made during the last decade to clear sea buckthorn from the dunes; this has been successful within Brownslade and Linney Burrows, but surveillance is needed to ensure that it does not reappear. Other patches of scrub (e.g. European gorse or blackthorn) have been mapped as mainly small discrete patches. These areas should be monitored, with a need to ensure that they do not spread beyond their current extent. The potential threat of spreading dune scrub and bracken should continue to be addressed by an ongoing MoD scrub management plan.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
2b	000864	Castlemart in Cliffs and Dunes 2b	Accidental fires, from ordnance etc during training exercises burns parts of the Marram-domintaed semi-fixed dune grassland. Whilst not a major threst at present, fire affected areas need to be mapped and monitored and reviewed. A build up of used ordnance and debris from training exercises could also pollute and damage sand dune vegetation interests over time, if not inspected regularly and materials occasionally removed. Ensuring adequate and controlled livestock grazing by sheep and cattle is key to maintenance management of the dune grasslands. Grazing regimes should be maintained and fine-tuned across all key managed sections. Rabbit and livestock grazing should be maintained. Recent surveys have shown that bracken is presently absent or insignificant in much of the dune grassland in unit 2b. Regular surveillance is needed to show that this remains the case. Attempts have been made during the last decade to clear sea buckthorn from the dunes; this has been successful within Brownslade and Linney Burrows, but surveillance is needed to ensure that it does not reappear. Other patches of scrub (e.g. European gorse or blackthorn) have been mapped as mainly small discrete patches. These areas should be monitored, with a need to ensure that they do not spread beyond their current extent. The potential threat of spreading dune scrub and bracken should continue to be addressed by an ongoing MoD scrub management plan.	Yes
2c	000865	Castlemart in Cliffs and Dunes 2c	Possible build up of ordance materials - leading to pollution of soils and damage to vegetation. Insufficient grazing or over-grazing - causing loss of diversity and structure and affecting choughs Over-grazing - leading to nutrient enrichment and increase in undesireable species and erosion Accidental burns linked to training activities - damaging coastal heath and related interests Scrub invasion leading to loss of habitat and species diversity. Cliff-climbing and coastal recreation could be damaging to resident chough population but this is currently being managed via current access restrictions to this part of the coast. The coast path through this unit is only open to guided walkers led by briefed leaders. In addition there are agreed seasonal climbing restrictions, reviewed annually and on site wardening, interpretation and liaison.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
2d	000866	Castlemartin Cliffs and Dunes 2d	Possible build up of ordance materials - leading to pollution of soils and damage to vegetation. Insufficient grazing or over-grazing - causing loss of diversity and structure and affecting choughs Over-grazing - leading to nutrient enrichment and increase in undesireable species and erosion Accidental burns linked to training activities - damaging coastal heath and related interests Scrub invasion leading to loss of habitat and species diversity. Cliff-climbing and coastal recreation could be damaging to resident chough population but this is currently being managed via current access restrictions to this part of the coast. The coast path through this unit is only open to guided walkers led by briefed leaders. In addition there are agreed seasonal climbing restrictions, reviewed annually and on site wardening, interpretation and liaison.	Yes
2e	000867	Castlemartin Cliffs and Dunes 2e	Possible build up of ordance materials - leading to pollution of soils and damage to vegetation. Insufficient grazing or over-grazing - causing loss of diversity and structure and affecting choughs Over-grazing - leading to nutrient enrichment and increase in undesireable species and erosion Accidental burns linked to training activities - damaging coastal heath and related interests Scrub invasion leading to loss of habitat and species diversity. Cliff-climbing and coastal recreation could be damaging to resident chough population but this is currently being managed via agreed climbing restrictions, reviewed annually and by on site wardening, interpretation and liaison.	Yes
2f	000868	Castlemartin Cliffs and Dunes 2f	Possible build up of ordance materials - leading to pollution of soils and damage to vegetation. Insufficient grazing or over-grazing - causing loss of diversity and structure and affecting choughs Over-grazing - leading to nutrient enrichment and increase in undesireable species and erosion Accidental burns linked to training activities - damaging coastal heath and related interests Scrub invasion leading to loss of habitat and species diversity. Cliff-climbing and coastal recreation could be damaging to resident chough population but this is currently being managed via agreed climbing restrictions, reviewed annually and by on site wardening, interpretation and liaison.	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
2g	000869	Castlemartin Cliffs and Dunes 2g	Possible build up of ordance materials - leading to pollution of soils and damage to vegetation. Insufficient grazing or over-grazing - causing loss of diversity and structure and affecting choughs Over-grazing - leading to nutrient enrichment and increase in undesireable species and erosion Accidental burns linked to training activities - damaging coastal heath and related interests Scrub invasion leading to loss of habitat and species diversity. Cliff-climbing and coastal recreation could be damaging to resident chough population but this is currently being managed via agreed climbing restrictions, reviewed annually and by on site wardening, interpretation and liaison.	No
3a	000870	Stackpole 3a	Scrub and bracken invasion into open short sward herb and lichen-rich grassland is a potential threat, Tor grass Brachypodium pinatum is also a potential invasive species on this area of the coast. Currently occasional mainly light summer grazing by domestic stock and rabitts is maintaing a reasonable balance, though parts of the unit are not really grazeable and are maintained by natural geomorphological processes and by direct exposure. Unauthorised camping/camp fires could cause localised damage to some grassland/coastal scrub patches. Coasteering, general exploration of sea-caves could lead to disturbance of bats. However, currently levels of recreation are compatible and probably not affecting the SAC features. Maintenance of current NT bye-laws and wardening patrols are important management mechansisms and must continue. Cliff-climbing and coastal recreation could be damaging to resident chough population but this is currently being managed via agreed climbing restrictions, reviewed annually and by on site wardening, interpretation and liaison.	Yes
3b	000871	Stackpole 3b	Scrub and bracken invasion into open short sward herb and lichen-rich grassland is a potential threat, though current management - light summer grazing by ponies and cattle plus sheep in winter and a programme of scrub and bracken control by cutting and bruizing (bracken) should be maintained and monitored. Unauthorised camping/camp fires pose a localised threat to some dune grassland patches. Maintenance of direct habitat and recreation management must continue including use of current NT bye-laws and wardening patrols both are essential.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
3c	000872	Stackpole 3c	Scrub and bracken invasion into open short sward herb, lichen-rich grassland and coastal heath is a potential threat, though current management - light summer grazing by ponies and cattle plus sheep in winter and a programme of scrub and bracken control by cutting and bruizing (bracken) is helping to maintain a suitable balance. This should be maintained and the effects monitored. Sea cliff climbing is very popular. If unregulated, climbing (and potentially coasteering and caving activities) could pose could threaten cliff-nesting birds - including chough and cave-roosting horseshoe bats. Mainentance of existing agreed climbing restrictions are essential - through liaison with various organisations - NT, PCNP and BMC. Maintenance of direct NT and CCW habitat and recreation management must continue. Maintenance of current NT bye-laws and wardening patrols are essential. Cliff-climbing and coastal recreation could be damaging to resident chough population but this is currently being managed via agreed climbing restrictions, reviewed annually and by on site wardening, interpretation and liaison.	Yes
3d	000873	Stackpole 3d	Scrub and bracken invasion into open short sward herb, lichen-rich dune grassland and calcareous grassland is a potential threat, though current management - light summer grazing by ponies and cattle plus sheep in winter and a programme of scrub and bracken control by cutting and bruising (bracken) is helping to maintain a suitable balance. This should be maintained and the effects monitored. Unauthorised camping/camp fires pose a localised threat to some dune grassland patches. Maintenance of direct NT and CCW habitat and recreation management must continue. Maintenance of current NT bye-laws and wardening patrols are essential.	Yes
3e	000874	Stackpole 3e	Nutrient-enriched, previously improved grassland - has produced a reduction in richness in plant species, including loss of coastal heathland, semi-natural grassland and scrub when the area was ploughed and re-seeded in the 1950s. The unit requires continuation of autumn/winter/spring grazing by cattle, ponies/sheep. reduced summer grazing pressure and severe vegetation cutting and removal, plus scarification to remove dense grass growth and associated nutreints to promote a more mixed herb-rich sward. Recent scraped heathland re-creation plots should be maintained and monitored and, where possible, sensitively expanded. NB the area is part of a large historic landscape site with important archaeological interest which has to be taken into account.	No

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
3f	000875	Stackpole 3f	A largely ungrazeable unit - mainly mature wooded dunes with lichen and bat interests. Some bracken and alien species encrochment (eg Rose of Sharon and sea buckthorn). Some scrub encroachment into terricolous and saxicolous lichen/lichen heath sites. Probably localised nutrient enrichment from nearby intensive dairy farmland.	No
3g	002374	3g Isolated SPA area	Part of Castlemartin SPA outside of the SAC. No specific management issues at present.	No
4	000876	Stackpole Quay to Trewent Point 4	Over the greater part of this unit, nutrient enrichment and overgrazing from adjacent intensively managed grassland - including iosolated poached area near cattle drinking trough, potential fertilizer drift onto exposed coastal grassland. Some localised recreational pressures from fishing and coasteering activities - potentially adding to erosion pressures through important coastal/maritime grassland.	No
5a	000856	Lydstep - Tenby 5a	MOD owned.The unit is fenced and winter grazed by sheep. Some heavier stock would be desirable but the unit is difficult (steep and narrow) for cattle or ponies.	Yes
5b	000857	Lydstep - Tenby 5b	Lydstep head is NT owned and heavily used by the public. This might make it difficult to graze but it is a large and level site. Cattle currently graze along with sheep. An increase in the cattle to sheep ratio could be beneficial. There is a problem with non native cotoneaster smothering parts of the limestone clifs in the old quarries.	Yes
5c	000858	Lydstep - Tenby 5c	Unit divided between several small owners. This unit is a narrow coastal belt and is difficult to manage.	Yes
5d	000859	Lydstep - Tenby 5d	MOD owned. The unit has recently been fenced and is currently grazed by sheep and cattle.	No
5e	000860	Lydstep - Tenby 5e	MOD owned. Part of the unit has recently been fenced and is currenttly grazed by sheep and cattle. The most easterly part of the unit, on the point of Giltar Head is unfenced and open to Tenby south Beach. This section is becoming quite rank and the Asparagus prostratus is currently being maintained by mowing. Grazing needs to be instigated on this section for the long term maintenance of the habitats and the Asparagus. Fencing will need to be put in place prior to grazing.	Yes
6	000680	6 Worm's Head West	No management required or possible.	No
7	000681	7 Worm's Head East	Controlled grazing, contracted by the National Trust	No
8	000682	8 Rocky foreshore	No management needed or possible.	No
9	000683	9 Mewslade West NNR Common	There is no real control over management of the common at the moment, and burning is currently preffered by rights-holders over grazing. CCW needs to liaise with the National Trust to acquire common rights and to liaise with neighbours, taking the lead in showing how effective management can be achieved through other means. The common cannot be enclosed so not all management methods will be possible, and it will be necessary to experiment to find out which methods will be the best for conservation objectives, and the most acceptable.	No
10	000684	10 Mewslade - Red Chamber	This is managed under a Section 16 agreement. The burning plan has been checked and agreed; no issues with burning. There is some overgrazing at the top; the agreement needs to be renegotiated to relieve the grazing pressure.	Yes
11	000685	11 Red Chamber East	There is some overgrazing here but there is no management agreement in place.	Yes

Unit Number	CCW Database Number	Unit Name	Summary of Conservation Management Issues	Action needed?
12	000686	12 Rhossili West	Overgrazed with sheep.	No yes
13	000687	13 Rhossili	Overgrazed with sheep.	Noyes
14	000688	14 Great Pitton Farm West		No
15	000689	15 The Knave	No issues at present. WTSWW – not currently actively managed, some gorse control would be beneficial	No
16	000690	16 Paviland		No
17	000691	17 Port Eynon Point		Noyes
18	000692	18 Pwll Du Head	Cattle and sheep grazed. Some illegal burning has caused some damage to heathland. Some gorse and bracken management has taken place.	Noyes
19	000693	19 Oxwich Bay	Split in to four sections OX1 – soon to be under a agri-environment scheme. Grazed with sheep. Cutting and burning are carried out as part of controlled management. OX2 – Grazed by sheep and ponies. Gorse burning carried out under controlled management. OX3 – CCW leased land. Sheep grazed. Illegal burning frequent. OX4 – National Trust owner rocky shore area. No known management.	Noyes
20	000694	20 Overton Cliff	Managed by the Wildlife Trust of South and West Wales. The section is undergrazed due to difficulty of obtaining stock. Mechanical control of scrub is slow due to lack of resources. Grazing is planned but not in place yet.	Yes
21	002445	21 SPA/Marine SAC overlap	Coastal fringe of Castlemartin SPA that is also within Pembrokshire Marine SAC. The SPA is designated for chough which is unlikely to utilise this unit as it is intertidal.	No
22	002447	22 Offshore rocks & Stacks	This unit consists of all the rocks and stacks etc along the Castlemartin/Stackpole coast. There is unlikely to be any management of these rocks. Choughs may utilise the rocks and Cliff and crevice communities will occur on some of them. The bases of these rock are likely to have interest/features of relevance to the Pembrokeshire Marine SAC.	No
23	000862	Broomhill Burrows 1c	Management Agreement in place and no new actions needed	No

7. GLOSSARY

This glossary defines the some of the terms used in this **Core Management Plan**. Some of the definitions are based on definitions contained in other documents, including legislation and other publications of CCW and the UK nature conservation agencies. None of these definitions is legally definitive.

Action A recognisable and individually described act, undertaking or **project** of any kind, specified in section 6 of a **Core Management Plan** or **Management Plan**, as being required for the **conservation management** of a site.

Attribute A quantifiable and monitorable characteristic of a **feature** that, in combination with other such attributes, describes its **condition**.

Common Standards Monitoring A set of principles developed jointly by the UK conservation agencies to help ensure a consistent approach to **monitoring** and reporting on the **features** of sites designated for nature conservation, supported by guidance on identification of **attributes** and monitoring methodologies.

Condition A description of the state of a feature in terms of qualities or **attributes** that are relevant in a nature conservation context. For example the condition of a habitat usually includes its extent and species composition and might also include aspects of its ecological functioning, spatial distribution and so on. The condition of a species population usually includes its total size and might also include its age structure, productivity, relationship to other populations and spatial distribution. Aspects of the habitat(s) on which a species population depends may also be considered as attributes of its condition.

Condition assessment The process of characterising the **condition** of a **feature** with particular reference to whether the aspirations for its condition, as expressed in its **conservation objective**, are being met.

Condition categories The **condition** of **feature** can be categorised, following **condition assessment** as one of the following[4]:

Favourable: maintained;
Favourable: recovered;
Favourable: un-classified
Unfavourable: recovering;
Unfavourable: no change;
Unfavourable: declining;
Unfavourable: un-classified
Partially destroyed;
Destroyed.

Conservation management Acts or undertaking of all kinds, including but not necessarily limited to **actions,** taken with the aim of achieving the **conservation objectives** of a site. Conservation management includes the taking of statutory and non-statutory measures, it can include the acts of any party and it may take place outside site boundaries as well as within sites. Conservation management may also be embedded within other frameworks

[4] See JNCC guidance on Common Standards Monitoring http://www.jncc.gov.uk/page-2272

for land/sea management carried out for purposes other than achieving the conservation objectives.

Conservation objective The expression of the desired **conservation status** of a **feature,** expressed as a **vision for the feature** and a series of **performance indicators**. The conservation objective for a feature is thus a composite statement, and each feature has one conservation objective.

Conservation status A description of the state of a **feature** that comprises both its **condition** and the state of the **factors** affecting or likely to affect it. Conservation status is thus a characterisation of both the current state of a feature and its future prospects.

Conservation status assessment The process of characterising the **conservation status** of a **feature** with particular reference to whether the aspirations for it, as expressed in its **conservation objective**, are being met. The results of conservation status assessment can be summarised either as 'favourable' (i.e. conservation objectives are met) or unfavourable (i.e. conservation objectives are not met). However the value of conservation status assessment in terms of supporting decisions about **conservation management**, lies mainly in the details of the assessment of feature **condition**, **factors** and trend information derived from comparisons between current and previous conservation status assessments and condition assessments.

Core Management Plan A CCW document containing the conservation objectives for a site and a summary of other information contained in a full site **Management Plan**.

Factor Anything that has influenced, is influencing or may influence the **condition** of a **feature**. Factors can be natural processes, human activities or effects arising from natural process or human activities, They can be positive or negative in terms of their influence on features, and they can arise within a site or from outside the site. Physical, socio-economic or legal constraints on **conservation management** can also be considered as factors.

Favourable condition See **condition** and **condition assessment**

Favourable conservation status See **conservation status** and **conservation status assessment.**[5]

Feature The species population, habitat type or other entity for which a site is designated. The ecological or geological interest which justifies the designation of a site and which is the focus of conservation management.

Integrity See **site integrity**

[5] A full definition of favourable conservation status is given in Section 4.

Key Feature The habitat or species population within a **management unit** that is the primary focus of **conservation management** and **monitoring** in that unit.

Management Plan The full expression of a designated site's legal status, **vision**, **features**, **conservation objectives**, **performance indicators** and management requirements. A complete management plan may not reside in a single document, but may be contained in a number of documents (including in particular **the Core Management Plan**) and sets of electronically stored information.

Management Unit An area within a site, defined according to one or more of a range of criteria, such as topography, location of **features**, tenure, patterns of land/sea use. The key characteristic of management units is to reflect the spatial scale at which **conservation management** and **monitoring** can be most effectively organised. They are used as the primary basis for differentiating priorities for conservation management and monitoring in different parts of a site, and for facilitating communication with those responsible for management of different parts of a site.

Monitoring An intermittent (regular or irregular) series of observations in time, carried out to show the extent of compliance with a formulated standard or degree of deviation from an expected norm. In **Common Standards Monitoring**, the formulated standard is the quantified expression of favourable **condition** based on **attributes**.

Operational limits The levels or values within which a **factor** is considered to be acceptable in terms of its influence on a **feature**. A factor may have both upper and lower operational limits, or only an upper limit or lower limit. For some factors an upper limit may be zero.

Performance indicators The **attributes** and their associated **specified limits**, together with **factors** and their associated **operational limits,** which provide the standard against which information from **monitoring** and other sources is used to determine the degree to which the **conservation objectives** for a **feature** are being met. Performance indicators are part of, not the same as, conservation objectives. See also **vision for the feature**.

Plan or project **Project:** Any form of construction work, installation, development or other intervention in the environment, the carrying out or continuance of which is subject to a decision by any public body or statutory undertaker.
Plan: a document prepared or adopted by a public body or statutory undertaker, intended to influence decisions on the carrying out of **projects.**
Decisions on plans and projects which affect Natura 2000 and Ramsar sites are subject to specific legal and policy procedures.

Site integrity The coherence of a site's ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it is designated.

Site Management Statement (SMS) The document containing CCW's views about the management of a site issued as part of the legal notification of an SSSI under section 28(4) of the Wildlife and Countryside Act 1981, as substituted.

Special Feature See **feature**.

Specified limit The levels or values for an **attribute** which define the degree to which the attribute can fluctuate without creating cause for concern about the **condition** of the **feature**. The range within the limits corresponds to favourable, the range outside the limits corresponds to unfavourable. Attributes may have lower specified limits, upper specified limits, or both.

Unit See **management unit.**

Vision for the feature The expression, within a **conservation objective**, of the aspirations for the **feature** concerned. See also **performance indicators.**

Vision Statement The statement conveying an impression of the whole site in the state that is intended to be the product of its **conservation management.** A 'pen portrait' outlining the **conditions** that should prevail when all the **conservation objectives** are met. A description of the site as it would be when all the **features** are in **favourable condition**.

8. REFERENCES AND ANNEXES

8.1 References

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